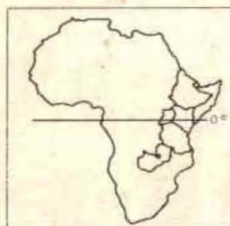


# USEFUL TREES AND SHRUBS FOR ETHIOPIA

Identification, Propagation and Management  
for Agricultural and Pastoral Communities



**Azene Bekele-Tesemma**  
with Ann Birnie and Bo Tengnäs

Regional Soil Conservation Unit/SIDA

## **Useful Trees and Shrubs for Ethiopia**

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REGIONAL SOIL CONSERVATION UNIT (RSCU)  
SWEDISH INTERNATIONAL DEVELOPMENT AUTHORITY  
1993



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**Front cover photo:**

Trees are important features in some parts of the Ethiopian landscape.

Photo: Azene Bekele-Tesemma

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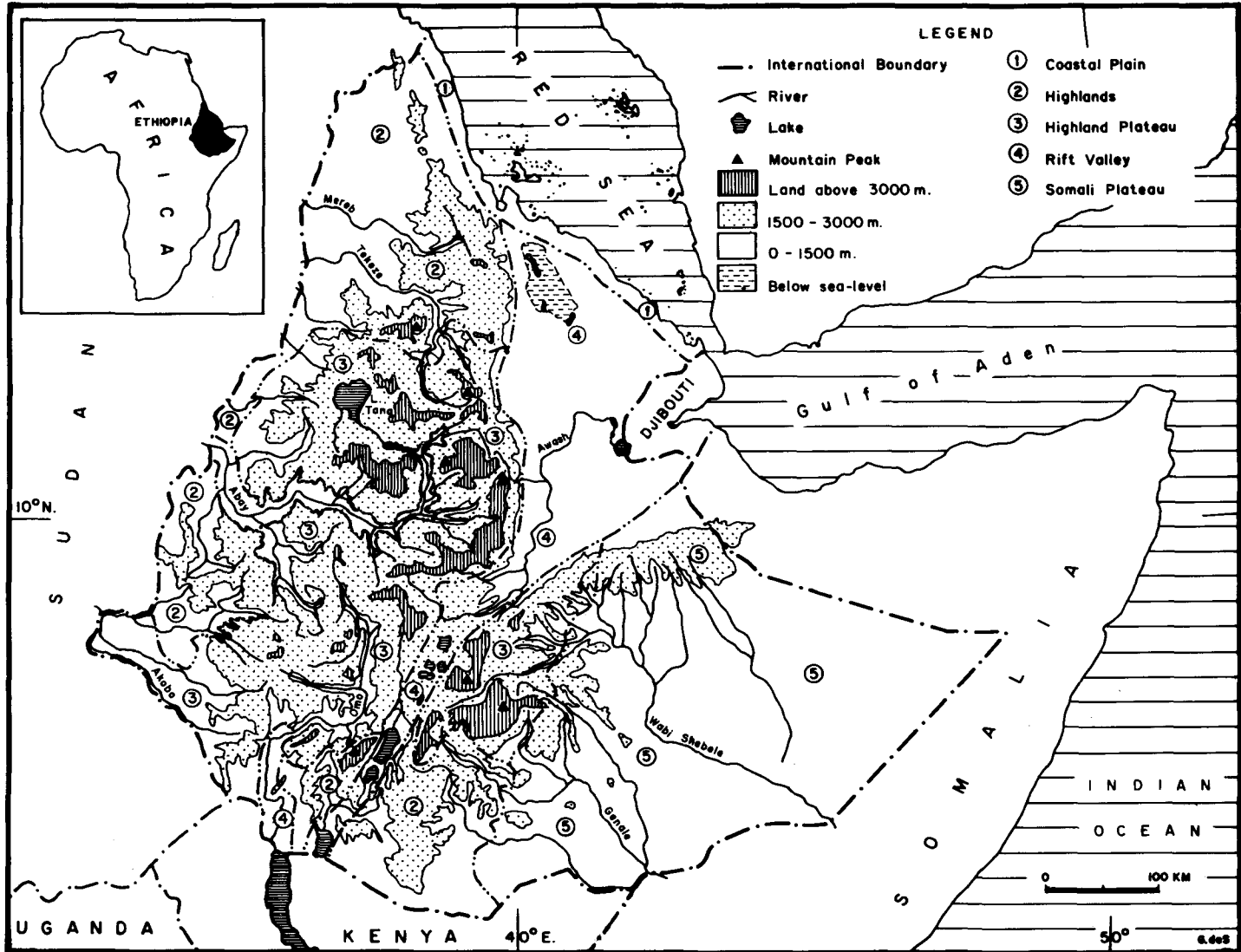
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Map 1. Physical features of Ethiopia

## Foreword

In Ethiopia, environmental degradation and deforestation have been taking place for hundreds if not thousands of years. Trees have been cleared to open up land for agriculture. In addition, Ethiopia has the largest population of livestock in Africa; thus grazing pressure has increased the rate at which tree and shrub species are becoming scarcer.

With its wide range of ecological types, from arid lowlands in the east to rain forests in the west and high-altitude afro-alpine vegetation in the central highlands, Ethiopia is rich in biodiversity. This diversity is, however, severely threatened by environmental degradation, particularly in the densely populated areas. With regard to the tree and shrub flora in the highlands, the indigenous species have largely been replaced by a few exotic species, notably eucalypts. Certainly, those exotics are essential for the life of the rural populations of today, but they cannot provide such a wide variety of products and services as do indigenous trees.

One of the main aims of this book is to benefit the rural people of Ethiopia by encouraging them to grow more trees and shrubs of a wider variety of species than they have up to now.

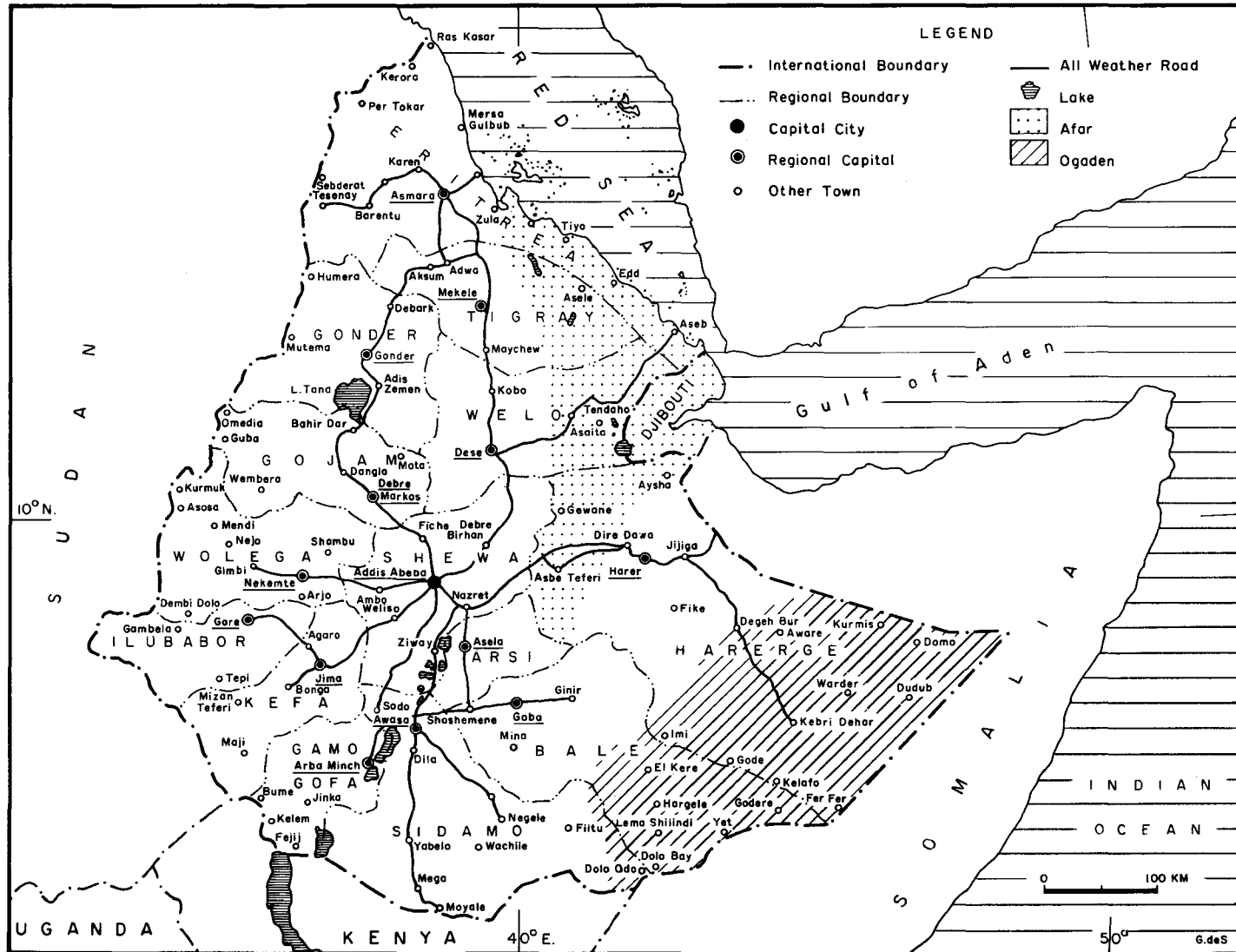
This publication is a result of team work. Ato Azene Bekele-Tessema is an Ethiopian forester normally working in the Community Forests and Soil Conservation Development Department (CFSCDD) but temporarily released from his duties there to take up a fellowship with the Regional Soil Conservation Unit to carry out field research for this book. Ato Azene also made the essential contacts in Ethiopia, e.g. with Addis Abeba University, and compiled a first draft.

Mrs Ann Birnie, a botany graduate, teacher and botanical artist who has lived in East Africa for many years, prepared many of the illustrations and designed the layout of most of the illustration pages. She also edited and simplified the descriptions of the different species.

Bo Tengnäs, a Swedish forester working as a consultant agroforestry advisor at RSCU, and with many years of experience of extension work in East Africa and elsewhere, guided Ato Azene during his fellowship, participated in some of the field work and contributed from his field experience.

It is our hope that the publication will be widely used, both in the extension services and in the education system in Ethiopia, to foster greater interest in the growing and management of a wider range of useful tree species.

*Michael Ståhl*  
Head, Regional Soil Conservation Unit  
Nairobi, March 1993



Map 2. The regions of Ethiopia as referred to in the text

## Acknowledgements

The concept for this book, and some of its content, is based on the similar *A Selection of Useful Trees and Shrubs for Kenya: Notes on Their Identification, Propagation and Management for Use by Agricultural and Pastoral Communities*, published by the International Centre for Research in Agroforestry (ICRAF) in 1992. Several people contributed to the production of that book: we acknowledge use of their ideas and some technical information. Of those people involved in the production of the Kenyan book, Dr Amare Getahun deserves special mention.

Production of this book involved data collection in the field, search of the literature on Ethiopian trees and consultations with a large number of people. Several institutions and many individuals have played a significant part in compiling the book. In particular we acknowledge financial and technical support from the Swedish International Development Authority's Regional Soil Conservation Unit (RSCU) in Nairobi and the continuous support of the Community Forests and Soil Conservation Development Department (CFSCDD) of the Ethiopian Ministry of Agriculture. RSCU provided the funds required for a four-month fellowship for Ato Azene, and CFSCDD agreed to release him from his ordinary duties in order to work on this publication. Ato Kebede Tato, now head of the Soil Conservation Research Project, also deserves special mention. He was instrumental in initiating the production of this book.

ICRAF also supported the production by providing Ato Azene with office space and library and computer facilities during his stay in Nairobi. We are grateful for this generosity.

An earlier draft of the book was commented upon by Dr Sebsibe Demissew and Dr Ensermu Kelbesa of Addis Abeba University. Their input is also acknowledged.

Mrs Caroline Agola copy-edited the text and did the page layout for the book. Ato Damtew Teferra of the Ethiopian National Herbarium drew many of the illustrations and deserves special thanks. We are also grateful to Luise Gull for the drawing of *Ficus carica* and to the Oklahoma State University, Department of Agricultural Communications (indicated by O), for permission to use illustrations of *Discopodium penninervum*, *Erica arborea*, *Hypericum quartinianum*, *H. revolutum*, *H. roeperianum*, *Maesa lanceolata*, *Pittosporum viridiflorum*, *Rhoicissus tridentata*, *Salix subserrata*, *Schefflera abyssinica*, *Staganotaenia araliacea*, *Tamarix aphylla*, and *Woodfordia uniflora* that appeared in *Families of Flowering Plants in Ethiopia*, by W.C. Burger (Oklahoma Agricultural Experiment Station Bulletin No. 45, O.S.U. Press, Stillwater, Oklahoma, 1967). A few drawings have also been used from *Plants of Zanzibar and Pemba* by R.O. Williams (Z), and from *Kenya Trees and Shrubs* by I.R. Dale and P.J. Greenway (DG).

The copyright for the illustrations mentioned above rests with the original publishers. In addition, several original illustrations have been prepared for this



book from both fresh material and dried specimens in the East African Herbarium in Nairobi. The willing assistance of the head of the Herbarium, Ms C. Kabuye, and other staff, particularly Mr Geoffrey Mwachala, Mr Geoffrey Mungai and Mr A.F. Odhiambo, is gratefully acknowledged. Drs Mike Gilbert, J.B. Gillett and Mesfin Tadesse, Ethiopian Liaison Botanist, of the Royal Botanic Gardens, Kew, and Dr Inga Hedberg of Uppsala all gave invaluable help in resolving some taxonomic problems. We also thank Gaby de Souza of Nairobi for preparing the maps.

The technical content of this book was developed through numerous discussions with people knowledgeable in the field of multipurpose trees and shrubs in Ethiopia. Among these were farmers and pastoralists and many members of staff of the Ethiopian Ministry of Agriculture who willingly shared their knowledge. Without this contribution of local knowledge and experience gained over many years the content of this book would not be as extensive as it is.

We are aware, however, that no publication of this nature can be correct in every detail. The responsibility for any remaining errors or weaknesses rests entirely with us. We would, however, request readers to make use of the feedback form at the end of the book (page 473) to correct any errors or provide us with additional information. By doing so, the foundation will be laid for an improved second edition of the book.

Azene Bekele-Tesemma  
Ann Birnie  
Bo Tengnäs

# PART I

## INTRODUCTION

### **The aims of this book**

The tree cover in Ethiopia dwindles further every year. The major reason for this resource shrinkage is the increasingly intensive use of land for agricultural and livestock production, but tree cutting for fuelwood and construction materials also plays a role. According to the Ethiopian National Energy Steering Committee (1986), 94.5 % of the nation's total energy comes from biomass sources, and 77 % of it is derived from wood and tree residues. Currently, fuelwood is scarce in 75 % of the country's 14 regions.

Another factor affecting deforestation is the limited effort made by farmers to mitigate land degradation by the application of biological soil erosion measures. Such measures should involve growing of more trees and shrubs. There are many reasons why farmers have not practised effective soil conservation over the years. Some of these are of a political nature.

Extension work has not been effective enough. The approach and the technical solutions suggested by the extension workers have not attracted farmers' interest. Too often extension work has been geared towards the establishment of communal woodlots, often only with one species, that are more like plantations for industrial forestry than designed to meet the multiple requirements of the farmer or pastoralist.

Due to the wide variety of agroclimatic and socio-economic conditions in the country, no uniform extension package applied nationwide can be effective. On the contrary, there is a need to actively involve the local people in dialogue so that their wishes can be given first priority. So far, the training of both foresters and agriculturalists has not provided these cadres with a sound knowledge of the wide range of tree species that can be grown in each area and their local uses. Forestry training has focused on industrial forestry and agriculturalists have been trained in crop production and animal husbandry. Knowledge of the use of trees by farmers, and on how trees can be incorporated into farming systems, has not been given priority.

As a result, few Development Agents (DAs) have been able to communicate effectively with the local people, and thus the local people often have remained indifferent to the extension workers' messages.

Too often in extension work a few exotic species have been strongly promoted without any attention being given to the rich indigenous flora and local knowledge of it. Farmers and pastoralists have accumulated knowledge on the uses and characteristics of different tree species over many generations, but such local knowledge has received minimal attention from extension workers. In fact, it may be true to say that most extension workers know less about the propagation and management of locally preferred species than the local people themselves. Consequently, farmers have little respect for the extension agents and their advice.

This book aims to help rectify this situation by providing information on a selection of useful tree and shrub species for the range of agroclimatic conditions found in Ethiopia. The book is intended for use by staff involved in extension at all levels, and also for use in the formal education system, both in the specialized training of foresters and agriculturalists, and in high schools and teacher training institutes.

It is intended as a practical handbook, not a botanical textbook. Therefore, an effort has been made to present the material in simple English, although it is impossible to avoid the use of some technical vocabulary when describing the important characteristics of the trees or shrubs listed.

There are, however, still large gaps in the information contained here. We urge users who feel that they can contribute to an improved second edition of this book to do so by using the feedback form on page 473.

### Criteria for selection of the species to be included

There are well over a thousand tree and shrub species in Ethiopia, and it would have been impossible to include them all in this handbook. The present selection is a compromise representing the most important species as indicated by farmers contacted in eastern, northern, western and southern Shewa, southern and northern Welo, eastern and western Gojam, Ilubabor, Kefa, Dire-Dawa, Ogaden, eastern Harerge, Arsi and Sidamo (see maps on pages iv and vi). These areas were visited during the preparatory field-work period. Documents obtained from the CFSCDD, from the State Forests Conservation and Development Department (SFCDD) and from the Wood Utilization Research Centre and other literature provided further guidance, as did the authors' experience.

In addition to recommendations from the local rural people, other selection criteria have been the occurrence of a species in crop, grazing or communal land and the knowledge of it by farmers, pastoralists, extension workers and researchers. The fact that a species has been found to be very useful does not necessarily mean that it must be planted. For many species, particularly in drier lowland areas, protection of natural regrowth may in fact be a more effective and cheap way of ensuring the species' long-term survival.

We have included both indigenous and exotic species, and in the case of the latter indicate if the tree has been naturalized since its introduction to the country.

The species selected are almost all trees but they also include some large and small shrubs. There are, however, a few exceptions. Tall grasses such as *Arundinaria alpina*, *Oxytenantha abyssinica* and *Arundo donax* have been included, as well as the tree fern *Alsophila manniana*, the climbers *Rhoicissus* spp. and *Phytolacca dodecandra*, and the giant herb of the banana family *Ensete ventricosum*. We have also included a few fruit and other crop plants such as *Cajanus cajan*. The large woody *Euphorbia* spp. are unusual in their family but are well known in Africa.

We hope that subsequent editions of the book will cover a greater number of species as our knowledge and contacts with the rural communities grow.

## PART II

### HOW TO USE THIS BOOK

#### General usage instructions

This book can be used in a number of ways and it is largely up to the user to find out how best to use it in his or her particular situation. A few hints will be given here.

In **extension** the main use of the book may be for **tree identification** and search for information on different tree species. In the field, local people may often indicate a certain species is useful, and they know its local name. To be able to contribute to development in the field of tree growing, the extension worker must acquire knowledge from the local people and combine it with his own knowledge derived from training and earlier experience. It is thus essential that the extensionist be able to identify the tree concerned and be able to give advice on its propagation, management, etc. In such a situation, the lists of vernacular names can be used as one entry point. If the name appears, it is easy to find the information on that particular species from Part III.

If the vernacular name does not appear in the list, another option is to search directly for the species in Part III, and to identify the species from the drawings and description. If the text in the description is difficult to understand, a study of the glossary of botanical terms (page 29) will help.

In another situation, the user will simply want to **find out more information on a known species**. In this case he will search in the alphabetical species list in Part III.

A third situation may be when an extensionist wants to **know which species could potentially do well in an area**. In that case, the first step is to identify the agroclimatic zone. If data on rainfall and altitude are available, it is easy to identify the zone from the figure on page 8. If the altitude and rainfall figures are not known, observation of the natural vegetation, crops and soil type can be matched with those in the figure. Once the agroclimatic zone has been identified, the list of suitable species for each agroclimatic zone (page 22) can be referred to. This list is still a tentative one and needs, where possible, to be verified with the local people with regard to indigenous species and known exotics.

It is also good for the extension agent to look around him and try to see which species are actually growing and how well they are doing. If the countryside is very bare, small protected forests near churches as well as areas in towns and villages are normally rich in species. Study of such places is recommended. Once a relevant list of potential species has been developed and verified with the local people, the extensionist should learn more about the species (vernacular names, uses, propagation, etc.) by studying the information provided in Part III. Together with the information on uses in Part IV, the extensionist will then have the knowledge that will gain him the confidence of

the local people and allow him to be an effective and useful discussion partner in contributing to the farmers' efforts to grow more trees.

Apart from extension workers, **students and teachers at training institutions** will find the book extremely useful.

In high schools and teacher training institutes the staff and students can use it:

- To identify types of trees suitable for different purposes in their environmental education field work
- As a resource book for information on how tree seedlings of different species can be raised
- As a reference book for teaching environmental education in subjects such as geography, biology, agriculture, and home science.

In the technical training of foresters and agriculturalists the book can be used as training material in studies of forest botany, agroforestry, silviculture and related subjects. Similar use may be possible in selected subjects at university level.

## The species descriptions

### *Vernacular names*

The English or scientific names for trees are usually not the names farmers and pastoralists use. Even though Amharic is widely understood, there is still no one language that all the people of Ethiopia have in common. Therefore, it was decided to include as many as possible of the vernacular names of the species in some of the most important local languages. These vernacular names are given in the list on page 9 and again on the page where each species is discussed in detail. A knowledge of local names is essential for any person discussing the trees with the people of an area. There are two limitations to the usefulness of these names: there are no standard spellings as these are based on phonetic interpretations of the names, and there may also be variation in the names because of the existence of several dialects of the same language in different areas.

We request any reader finding errors or omissions in these vernacular names to send us this information by using the feedback form at the end of the book.

The following abbreviations of local languages have been used in the text: Afargna (Af), Agewgna (Ag), Amargna (Am), Borenagna (Br), English (Eng), Gamogna (Ga), Gimirigna (Gm), Guragigna (Gr), Haderigna (Hd), Kefgna (Kf), Kembatgna (Km), Konsogna (Ks), Oromugna (Or), Sahogna (Sh), Sidamigna (Sd), Somaligna (Sm), Tigrigna (Tg), and Wolaytgna (Wt). The full list of species and their vernacular names is found on page 9.

## Ecology

Under the ecology heading, information is given regarding the occurrence of each species in the various agroclimatic zones, the altitude range, specific niches in the landscape, soil preference, drought resistance and certain other important ecological factors.

Ethiopia is extremely heterogeneous ecologically. This diversity has been classified in a number of different ways by different institutions. However, we have used the same classification as that in the two Guidelines for Development Agents published by the CFSCDD (*Soil Conservation in Ethiopia*, 1986, and *Community Forestry in Ethiopia*, 1989) and reproduced on page 6.

In those books, the agroclimatic zones of Ethiopia are classified from Bereha to Wurch, ranging from below 500 m above sea level (a.s.l.) to over 3,700 m a.s.l. in altitude and from below 500 mm to over 1,400 mm annual rainfall (see page 8). However, in this handbook, we have included an additional agroclimatic zone, Wet Kolla, for places such as Tepi that are at 1,500 m and receive over 1,400 mm annual rainfall. Moreover, though Bereha and High Wurch zones are not considered as operational zones for soil-conservation and community-forestry purposes, we have included them here as there are many tree and shrub species in both zones that are useful to farmers and pastoralists in their everyday lives.

To help the extensionist who would like to identify the plants that are suitable for his specific area, a list of species that can do well in each agroclimatic zone is given in the summary table on page 22. However, though a species is listed under a given agroclimatic zone, this does not necessarily mean that it will grow well throughout the zone. Therefore, you must refer to the more detailed information given under each species in Part III.

## Uses

Uses, both as products and services, have been listed for each species, and in the summary table in Part IV. It should be noted that the information reflects "reported" uses, i.e. mainly what the rural people concerned claim to use these plants for. It has not been possible to verify all such reports and statements. Sometimes uses vary from one community to another, and from one area to another. Thus, it is always a good idea to verify uses when discussing any of the listed plants with the local people. In some instances the reports have originated from Kenya, but if it has not been possible to verify the same usage in Ethiopia that item is still included as being a potential use.

It should also be noted that a single tree or shrub cannot be grown for all the potential uses at the same time. On the contrary, management of a particular tree often aims at optimizing a specific product or service.

On medicinal uses, it is worth mentioning that herbal medicine requires skilled practitioners, and although medicinal uses have been indicated this does not mean that anyone should start using them without first consulting experienced and knowledgeable people.



USEFUL TREES AND SHRUBS FOR ETHIOPIA

Agroclimatic zones of Ethiopia

<p><b>ALTITUDE</b> More than 3,700 m a.s.l.</p>	<p><b>Legend</b> A: Main crops C: Traditional conservation S: Soils on slopes T: Natural trees</p>	<p><b>HIGH WURCH</b> (Afro-alpine steppe, meadow)  A: None (frost limit) C: None S: Black soils, little disturbed T: Mountain grassland: <i>Artemisia, Helichrysum, Lobelia</i></p>	
<p>3,700-3,200 m a.s.l.</p>	<p><b>MOIST WURCH (Sub-alpine)</b>  A: Only barley 1 crop per year C: Drainage rare  S: Black soils, degraded  T: <i>Erica, Hypericum</i></p>		<p><b>WET WURCH (Sub-alpine)</b>  A: Only barley 2 crops per year C: Widespread drainage ditches S: Black soils, highly degraded T: <i>Erica, Hypericum</i></p>
<p>3,200-2,300 m a.s.l.</p>	<p><b>MOIST DEGA (Afro-montane forest-woodland)</b>  A: Barley, wheat and pulses; 1 crop per year C: Some traditional terracing  S: Brown clay soils T: <i>Juniperus, Hagenia, Podocarpus</i></p>		<p><b>WET DEGA (Afro-montane forest—bamboo)</b>  A: Barley, wheat, <i>nug</i>, pulses; 2 crops per year C: Widespread drainage ditches S: Dark brown clay soils T: <i>Juniperus, Hagenia, Podocarpus, bamboo</i></p>
<p>2,300-1,500 m a.s.l.</p>	<p><b>DRY WEYNA DEGA (Savannah)</b>  A: Wheat, <i>tef</i>, rarely maize C: Widespread terracing S: Light brown to yellow soils T: <i>Acacia savannah</i></p>	<p><b>MOIST WEYNA DEGA</b>  A: Maize, sorghum, <i>tef, ensset</i> (rare), wheat, <i>nug, dagussa,</i> barley C: Traditional terracing  S: Red-brown soils  T: <i>Acacia, Cordia, Ficus</i></p>	<p><b>WET WEYNA DEGA</b>  A: <i>Tef</i>, maize, <i>ensset</i> (in western, parts), <i>nug,</i> barley C: Widespread drainage  S: Red clay soils, deeply weathered, gullies T: <i>Acacia, Cordia, Ficus, bamboo</i></p>
<p>1,500-500 m a.s.l.</p>	<p><b>DRY KOLLA</b>  A: Sorghum (rare), <i>tef</i>  C: Water-retention terraces S: Yellow sandy soils T: <i>Acacia, bushes and trees</i></p>	<p><b>MOIST KOLLA</b>  A: Sorghum, rarely <i>tef, nug,</i> <i>dagussa, groundnut</i> C: Widespread terracing  S: Yellow silty soils  T: <i>Acacia, Erythrina, Cordia, Ficus</i></p>	<p><b>WET KOLLA</b>  A: Mango, taro, sugarcane, maize, coffee, oranges C: Frequent ditches  S: Red clay soils, oxidized  T: <i>Milicia, Cyathea, Albizia grandibracteata</i></p>
<p>Below 500 m a.s.l.</p>	<p><b>BEREHA (Acacia-Commiphora bushland)</b>  A: Crops only with irrigation C: No conservation S: Yellow sandy soils T: <i>Acacia bussei, Commiphora erythraea</i></p>		
<p><b>ANNUAL RAINFALL</b></p>	<p>Less than 900 mm</p>	<p>900-1,400 mm</p>	<p>More than 1,400 mm</p>

### *Description*

When a farmer requires a tree for a particular use, proper identification of that tree is of the greatest importance. The descriptions in this manual focus first on the general appearance of the tree, then the bark, leaves, flowers and fruit are described as clearly and simply as possible. On the page opposite each description are line drawings which are a necessary complement to the text. The use of specialized botanical terminology has been kept to a minimum. Before beginning to use the text to identify a plant, the reader should refer to the illustrated glossary on page 29. It must be noted that there can be great variation in tree size and shape and in many other characters of a plant, so that the text sometimes indicates the range of variation that can be expected. However, certain features define that plant species alone. In the text these characteristic features to look for that help identification are printed in bold type. Size and scale have been indicated in the text, but in many illustrations of typical mature trees the scale can be understood as an adult person is drawn beside the tree.

### *Propagation*

Whenever information on suitable propagation methods is available it has been included. "Seedlings" indicates that a relevant propagation method is raising seedlings in some sort of nursery, either on-farm or in a central or group nursery. "Wildings" indicates that it is known that farmers propagate a certain species by collecting and transplanting wildings to a desired place on their farms.

"Direct sowing" means that a species can be propagated by direct sowing of seed at the desired site, and "cuttings" means propagation by cuttings can be recommended. Among the more common vegetative multiplication techniques, only cuttings and root suckers are mentioned.

Although coppicing is a management practice that very much resembles propagation of trees, in fact it is not a propagation method. Hence, coppicing ability is given under "management".

### *Seed information*

Most trees and shrubs are best propagated by seed. When this is known, information is given on the number of seeds per kilogram, seed storage and simple pre-sowing treatment (if required).

Storage of seeds should be avoided as much as possible. The storage periods indicated are not very precise. This is deliberate, since loss of viability is a gradual process, the speed depending on many factors, but mainly the storage conditions. Hence, only approximate indications of acceptable storage periods can be given. If seeds are to be stored for some time, it is always best to keep them in a cool, dry and insect-free place. Properly dried seeds can be stored in air-tight containers, e.g. sealed bottles or tins.

## USEFUL TREES AND SHRUBS FOR ETHIOPIA

Information on seeds for many of the species preferred by farmers is unavailable. In these cases, the user will need to find out more details locally.

### *Management*

Different management techniques allow tree growers to optimize tree and shrub products or services. Management techniques may also be applied to reduce any negative effects of the presence of trees and shrubs, e.g. the shading effect on adjacent crops.

The most common management practices are pruning of roots and branches, coppicing, lopping and pollarding. Whenever a certain management technique is known to be feasible for a certain species, this is indicated. Information on growth rate is also provided under this heading.

All young trees grow faster and are more likely to survive if properly weeded and, if necessary, thinned. Since such general management requirements apply to all species they have not been indicated in the detailed information on each species.

### *Remarks*

Any other useful or interesting information that does not fall into the above categories is included under "remarks".

## The vernacular names

### Afargna (AF)

Adiquento	Acacia seyal	Gishita	Annona senegalensis
Dadaho	Salvadora persica	Kat	Catha edulis
Dehbey	Acacia tortilis	Keselto	Acacia abyssinica
Eibeto	Acacia asak	Sanu	Cassia alexandrina
Fo	Grewia ferruginea	Segentu	Tamarix aphylla
Garas	Dobera glabra		

### Agewgna (AG)

Anini	Arundinaria alpina	Kansin	Albizia gummifera
Arezana	Stereospermum kunthianum	Kerara	Dodonaea angustifolia
Askwar	Buddleja polystachya	Lili	Justicia schimperiana
Azmiri	Bersama abyssinica	Mawordi	Rosa abyssinica
Bisira	Acokanthera schimperi	Qutsa	Balanites aegyptiaca
Chellegama	Acacia oerfota	Qutta	Balanites aegyptiaca
Equa	Celtis africana	Qwa	Commiphora africana
Fatuka	Boswellia papyrifera	Senno	Cassia alexandrina
Frqa	Piliostigma thonningii	Shamel	Oxytenanthera abyssinica
Geba	Ziziphus mucronata	Shwelsha	Salvadora persica
Gebho	Rhamnus prinoides	Tutuqa	Ximenia americana
Gora-gora	Hagenia abyssinica	Zinkila	Berberis holstii

### Amargna (Am)

Aba woldu	Rhoicissus tridentata	Avocado	Persea americana
Abalo	Terminalia brownii	Ayeh	Diospyros mespiliformis
Adale	Erica arborea	Azamir	Bersama abyssinica
Aday	Salvadora persica	Bamba	Ficus sycomorus
Ader	Dichrostachys cinerea	Bamba	Adansonia digitata
Ades	Myrtus communis	Bazra girar	Acacia abyssinica
Ado kurkura	Zizyphus mucronata	Bedeno	Balanites aegyptiaca
Agalo	Combretum molle	Beles	Ficus carica
Agam	Carissa edulis	Beye	Olinia rochetiana
Ahaya	Salix subserrata	Birbira	Millettia ferruginea
Ahot	Pittosporum viridiflorum	Birtukan	Citrus sinensis
Akacha saligna	Acacia saligna	Bisana	Croton macrostachyus
Akacha	Acacia decurrens	Bonga	Trichilia dregeana
Ameraro	Discopodium penninervum	Botoro	Markhamia lutea
Amerja	Hypericum martinianum	Butigi	Manilkara butugi
Amija	Hypericum roeperianum	Chai	Trilepisium madagascariense
Amija	Hypericum revolutum	Chakema	Rhus natalensis
Amlaka	Celtis africana	Chat	Catha edulis
Anfar	Buddleja polystachya	Cheba	Acacia nilotica
Anqua	Commiphora africana	Cheleleqa	Apodytes dimidiata
Anqua	Commiphora habessinica	Chocho	Nuxia congesta
Arzelibanos	Casuarina cunninghamiana	Chocho	Premna schimperi
Arzelibanos	Casuarina equisetifolia	Chucho	Maytenus undata
Asta adale	Erica arborea	Damot weira	Olea capensis
Atesa	Teclea nobilis	Dedeho	Euclea schimperi
Atquar	Buddleja polystachya	Deweni gar	Acacia tortilis
Avalo	Combretum molle	Dire Dawa zaf	Delonix regia

USEFUL TREES AND SHRUBS FOR ETHIOPIA

Dokma	<i>Syzygium guineense</i>	Key bahir zaf	<i>Eucalyptus viminalis</i>
Donga	<i>Apodytes dimidiata</i>	Key bahir zaf	<i>Eucalyptus camaldulensis</i>
Embus	<i>Rhus glutinosa</i>	Key bahir zaf	<i>Eucalyptus grandis</i>
Embus	<i>Allophylus abyssinicus</i>	Kinchib	<i>Euphorbia tirucalli</i>
Enkoko	<i>Embelia schimperi</i>	Kinin	<i>Azadirachta indica</i>
Ergett-dimmo	<i>Dichrostachys cinerea</i>	Kitkita	<i>Dodonaea angustifolia</i>
Ergofit	<i>Erythrina brucei</i>	Koba	<i>Ensete ventricosum</i>
Filfile	<i>Parkinsonia aculeata</i>	Kock	<i>Prunus persica</i>
Foch	<i>Zizyphus mucronata</i>	Kokora	<i>Schefflera abyssinica</i>
Game	<i>Ehretia cymosa</i>	Kol	<i>Ximenia americana</i>
Gararu	<i>Acokanthera schimperi</i>	Kombolcha	<i>Maytenus undata</i>
Geram atat	<i>Maytenus undata</i>	Kontevl	<i>Acacia brevispica</i>
Gesho	<i>Rhamnus prinoides</i>	Kontir	<i>Entada abyssinica</i>
Geteme	<i>Schefflera abyssinica</i>	Kontir	<i>Acacia senegal</i>
Ghinda	<i>Calotropis procera</i>	Korch	<i>Erythrina brucei</i>
Giishta	<i>Annona senegalensis</i>	Korch	<i>Erythrina abyssinica</i>
Girangire	<i>Sesbania sesban</i>	Korra	<i>Erythrina abyssinica</i>
Girar	<i>Acacia bussei</i>	Koshim	<i>Dovyalis abyssinica</i>
Gitem	<i>Schefflera abyssinica</i>	Kosso	<i>Hagenia abyssinica</i>
Gmarda	<i>Acacia polyacantha</i>	Kuara	<i>Erythrina abyssinica</i>
Gogoba	<i>Maytenus senegalensis</i>	Kudkuda	<i>Balanites aegyptiaca</i>
Gorade	<i>Delonix regia</i>	Kulkual	<i>Euphorbia candelabrum</i>
Grar	<i>Acacia albida</i>	Kulkual	<i>Euphorbia abyssinica</i>
Grawa	<i>Vernonia amygdalina</i>	Kurkura	<i>Ziziphus spina-christi</i>
Gulo	<i>Maytenus senegalensis</i>	Kurkura	<i>Ziziphus mauritiana</i>
Gulo	<i>Ricinus communis</i>	Lebbek	<i>Albizia lebbek</i>
Gumero	<i>Capparis tomentosa</i>	Lenkoata	<i>Grewia ferruginea</i>
Gumero	<i>Acacia polyacantha</i>	Lenquata	<i>Grewia villosa</i>
Guna-guna	<i>Ensete ventricosum</i>	Lol	<i>Ekebergia capensis</i>
Hina	<i>Lawsonia inermis</i>	Lomi	<i>Citrus aurantifolia</i>
Humer	<i>Tamarindus indica</i>	Lukina	<i>Leucaena leucocephala</i>
Ilka	<i>Maytenus undata</i>	Mahogani	<i>Trichilia emetica</i>
Imasa	<i>Albizia schimperiana</i>	Mango	<i>Mangifera indica</i>
Indod	<i>Phytolacca dodecandra</i>	Meka	<i>Arundo donax</i>
Inguachia	<i>Strychnos innocua</i>	Menderin	<i>Citrus reticulata</i>
Injori	<i>Morus mesozygia</i>	Merenz	<i>Strychnos innocua</i>
Inkoy	<i>Ximenia americana</i>	Merenz	<i>Acokanthera schimperi</i>
Enset	<i>Ensete ventricosum</i>	Mezazign	<i>Acacia brevispica</i>
Ishe	<i>Mimusops kummel</i>	Mimosa	<i>Acacia decurrens</i>
Itsepatos	<i>Dracaena steudneri</i>	Mimosa	<i>Acacia mearnsii</i>
Jejeba	<i>Berchemia discolor</i>	Misir gemfo	<i>Ilex mitis</i>
Jemo	<i>Balanites aegyptiaca</i>	Moata	<i>Dracaena steudneri</i>
Kalava	<i>Myrica salicifolia</i>	Nech atat	<i>Maytenus senegalensis</i>
Kariu	<i>Polyscias fulva</i>	Nech bahir zaf	<i>Eucalyptus globulus</i>
Kawoot	<i>Celtis africana</i>	Omedla	<i>Acacia melanoxylon</i>
Kechachilo	<i>Flueggia virosa</i>	Pachula	<i>Pinus patula</i>
Kefeta	<i>Pittosporum viridiflorum</i>	Plem	<i>Vitex doniana</i>
Kega	<i>Rosa abyssinica</i>	Qanter	<i>Acacia brevispica</i>
Kelawa	<i>Maesa lanceolata</i>	Qequewe	<i>Allophylus abyssinicus</i>
Keraro	<i>Aningeria adolfi-friedericii</i>	Qimbo	<i>Calotropis procera</i>
Keraro	<i>Aningeria altissima</i>	Qmmo	<i>Rhus vulgaris</i>
Kererrie	<i>Boswellia papyrifera</i>	Qundo berbere	<i>Schinus molle</i>
Kerkha	<i>Arundinaria alpina</i>	Qwentr	<i>Acacia brevispica</i>
Kermo ayederk	<i>Erythrina brucei</i>	Radiata	<i>Pinus radiata</i>

Roka	<i>Tamarindus indica</i>	Weira	<i>Olea europaea</i>
Saligna bahir zaf	<i>Eucalyptus saligna</i>	Weyel	<i>Pittosporum viridiflorum</i>
Sassa	<i>Albizia schimperiana</i>	Wodel asfes	<i>Rhoicissus tridentata</i>
Sbansa-girar	<i>Acacia senegal</i>	Wonz admik	<i>Salix subserrata</i>
Sebansa	<i>Acacia asak</i>	Woshmella	<i>Eriobotrya japonica</i>
Sefa	<i>Grewia bicolor</i>	Wttie	<i>Acacia lahai</i>
Seged	<i>Psydrax schimperiana</i>	Wulkeffa	<i>Dombeya torrida</i>
Selechegn	<i>Diospyros abyssinica</i>	Ye goma zaf	<i>Ficus elastica</i>
Selen	<i>Phoenix reclinata</i>	Ye eyerusalem eshoh	<i>Parkinsonia aculeata</i>
Sembaru	<i>Albizia schimperiana</i>	Ye-Sidamo etan zaf	<i>Boswellia rivae</i>
Sensel	<i>Justicia schimperiana</i>	Ye-Tigre etan zaf	<i>Boswellia papyrifera</i>
Sesa	<i>Albizia gummifera</i>	Yedega atat	<i>Maytenus senegalensis</i>
Shembeko	<i>Arundo donax</i>	Yeferenji kitkita	<i>Caesalpinia decapetala</i>
Shenkore	<i>Steganotaenia araliacea</i>	Yeferenji tid	<i>Cupressus lusitanica</i>
Shewshewe	<i>Casuarina cunninghamiana</i>	Yeferenji digita	<i>Cassia siamea</i>
Shewshewe	<i>Casuarina equisetifolia</i>	Yeferenji injori	<i>Morus alba</i>
Shifera	<i>Moringa oleifera</i>	Yegoma zaf	<i>Hevea brasiliensis</i>
Shifere	<i>Albizia lophantha</i>	Yeharer-mefaqa	<i>Salvadora persica</i>
Shimel	<i>Oxytenanthera abyssinica</i>	Yekolla wanza	<i>Piliostigma thonningii</i>
Shinet	<i>Myrica salicifolia</i>	Yenebir tifer	<i>Bridelia micrantha</i>
Shito bahir zaf	<i>Eucalyptus citriodora</i>	Yeregna kolo	<i>Rhus vulgaris</i>
Shiye	<i>Mimusops kummel</i>	Yergib ater	<i>Cajanus cajan</i>
Shola	<i>Ficus sycomorus</i>	Yeset af	<i>Berberis holstii</i>
Shola	<i>Ficus sur</i>	Yetebmenja zaf	<i>Jacaranda mimosifolia</i>
Sigida weira	<i>Olea welwitschii</i>	Yetemir zaf	<i>Phoenix dactylifera</i>
Solie	<i>Galiniera saxifraga</i>	Yetit zaf	<i>Ceiba pentandra</i>
Somaya	<i>Grewia bicolor</i>	Yetota buna	<i>Pavetta oliveriana</i>
Sombo	<i>Ekebergia capensis</i>	Yetota kula	<i>Galiniera saxifraga</i>
Takuma	<i>Rhamnus natalensis</i>	Yewof ater	<i>Cajanus cajan</i>
Tedo	<i>Rhamnus staddo</i>	Yezinjero wonber	<i>Polyscias fulva</i>
Temar	<i>Pithecellobium dulce</i>	Zana	<i>Stereospermum kunthianum</i>
Teye	<i>Grewia bicolor</i>	Zeituna	<i>Psidium guajava</i>
Tid	<i>Juniperus procera</i>	Zembaba	<i>Hyphaene thebaica</i>
Tife	<i>Olinia rochetiana</i>	Zembaba	<i>Phoenix reclinata</i>
Tikur inchet	<i>Prunus africanus</i>	Zembaba	<i>Borassus aethiopicum</i>
Tilem	<i>Rhus retinorrhoea</i>	Zenfok	<i>Combretum aculeatum</i>
Tinjut	<i>Combretum collinum</i>	Zigba	<i>Podocarpus falcatus</i>
Tiringo	<i>Citrus medica</i>	Zinkila	<i>Berberis holstii</i>
Tobiaw	<i>Calotropis procera</i>	Zobbi	<i>Dalbergia melanoxylon</i>
Tree lucerne	<i>Chamaecytisus palmensis</i>	Zogdom	<i>Warburgia ugandensis</i>
Tsedo	<i>Rhamnus staddo</i>		
Tunjit	<i>Otostegia fruticosa</i>		
Ungoi	<i>Combretum aculeatum</i>		
Wachu	<i>Acacia seyal</i>		
Wanza	<i>Cordia africana</i>		
Washta	<i>Stereospermum kunthianum</i>		



USEFUL TREES AND SHRUBS FOR ETHIOPIA

Borenagna (Br)

Abairtubata	<i>Piliostigma thonningii</i>	Hidesa	<i>Dodonaea angustifolia</i>
Anno	<i>Euphorbia tirucalli</i>	Kone	<i>Hyphaene thebaica</i>
Anona	<i>Trichilia emetica</i>	Kurkurrah	<i>Zizyphus mauritiana</i>
Baddan	<i>Balanites aegyptiaca</i>	Matabut	<i>Boswellia rivae</i>
Burguge	<i>Acacia nilotica</i>	Meti	<i>Phoenix reclinata</i>
Dadach	<i>Acacia tortilis</i>	Oda	<i>Ficus sycomorus</i>
Ejas	<i>Olea europaea</i>	Wacha adi	<i>Acacia seyal</i>
Gorgor	<i>Acacia brevispica</i>	Wacho dima	<i>Acacia seyal</i>
Hammaress	<i>Acacia brevispica</i>		

English (Eng)

Abyssinian rose	<i>Rosa abyssinica</i>	Common myrtle	<i>Myrtus communis</i>
Adriatic fig	<i>Ficus carica</i>	Curry bush	<i>Hypericum revolutum</i>
African pencil cedar	<i>Juniperus procera</i>	Date palm	<i>Phoenix dactylifera</i>
African tulip tree	<i>Spathodea campanulata</i>	Dead sea fruit	<i>Calotropis procera</i>
African ebony	<i>Dalbergia melanoxylon</i>	Desert date	<i>Balanites aegyptiaca</i>
African ebony	<i>Diospyros mespiliformis</i>	Doum palm	<i>Hyphaene thebaica</i>
African wild olive	<i>Olea europaea</i>	Dragon tree	<i>Dracaena steudneri</i>
African blackwood	<i>Dalbergia melanoxylon</i>	East African greenheart	<i>Warburgia ugandensis</i>
African holly	<i>Ilex mitis</i>	East African olive	<i>Olea capensis</i>
African fan palm	<i>Borassus aethiopum</i>	Egyptian doum palm	<i>Hyphaene thebaica</i>
Alexandrian senna	<i>Cassia alexandrina</i>	Egyptian thorn	<i>Acacia nilotica</i>
Algarroba	<i>Prosopis juliflora</i>	Elgon olive	<i>Olea welwitschii</i>
Apple-ring acacia	<i>Acacia albida</i>	Elgon teak	<i>Olea welwitschii</i>
Athel tree	<i>Tamarix aphylla</i>	Falcon's-claw acacia	<i>Acacia polyacantha</i>
Australian beefwood	<i>Casuarina cunninghamiana</i>	False fig	<i>Trilepisium madagascariense</i>
Australian blackwood	<i>Acacia melanoxylon</i>	Finger euphorbia	<i>Euphorbia tirucalli</i>
Avocado	<i>Persea americana</i>	Flamboyant	<i>Delonix regia</i>
Baobab	<i>Adansonia digitata</i>	Flame tree	<i>Erythrina abyssinica</i>
Ben-oil tree	<i>Moringa oleifera</i>	Flame of the forest	<i>Spathodea campanulata</i>
Bitter grape	<i>Rhoicissus tridentata</i>	Flooded gum	<i>Eucalyptus grandis</i>
Bitter leaf	<i>Acacia mearnsii</i>	Gemelina, yemane	<i>Gmelina arborea</i>
Bitter leaf	<i>Vernonia amygdalina</i>	Giant heath	<i>Erica arborea</i>
Bitter frankincense	<i>Boswellia papyrifera</i>	Green wattle	<i>Acacia decurrens</i>
Black plum	<i>Vitex doniana</i>	Guava	<i>Psidium guajava</i>
Black incense	<i>Boswellia rivae</i>	Gum arabic	<i>Acacia senegal</i>
Black wattle	<i>Acacia mearnsii</i>	Hagenea	<i>Hagenia abyssinica</i>
Buffalo thorn	<i>Zizyphus mucronata</i>	Henna	<i>Lawsonia inermis</i>
Cabbage tree	<i>Moringa oleifera</i>	Hog plum	<i>Ximenia americana</i>
Camel's foot tree	<i>Piliostigma thonningii</i>	Hop bush	<i>Dodonaea angustifolia</i>
Candelabra euphorbia	<i>Euphorbia candelabrum</i>	Horse radish tree	<i>Moringa oleifera</i>
Candle bush	<i>Cassia didymobotrya</i>	India rubber tree	<i>Ficus elastica</i>
Cape mahogany	<i>Trichilia emetica</i>	Indian plum	<i>Flacourtia indica</i>
Cape fig	<i>Ficus sur</i>	Ironwood	<i>Prunus africana</i>
Capper	<i>Capparis tomentosa</i>	Ironwood	<i>Cassia siamea</i>
Carrot tree	<i>Steganotaenia araliacea</i>	Jacaranda	<i>Jacaranda mimosifolia</i>
Castor oil plant	<i>Ricinus communis</i>	Jerusalem thorn	<i>Parkinsonia aculeata</i>
Christ thorn	<i>Zizyphus spina-christi</i>	Jujube	<i>Zizyphus mauritiana</i>
Citron	<i>Citrus medica</i>	Kapok tree	<i>Ceiba pentandra</i>
Coffee-bean strychnos	<i>Strychnos henningsii</i>		
Common fig	<i>Ficus carica</i>		

Kassod tree	<i>Cassia siamea</i>	Salt cedar	<i>Tamarix aphylla</i>
King wattle	<i>Acacia decurrens</i>	Sausage tree	<i>Kigelia africana</i>
Large-leaved albizia	<i>Albizia grandibracteata</i>	Senna	<i>Cassia alexandrina</i>
Large-leaved St. John's wort	<i>Hypericum roeperianum</i>	Silky oak	<i>Grevillea robusta</i>
Large-podded albizia	<i>Albizia schimperiana</i>	Siris tree	<i>Albizia lebbeck</i>
Leafless tamarisk	<i>Tamarix aphylla</i>	Sissoo	<i>Dalbergia sissoo</i>
Lemon gum	<i>Eucalyptus citriodora</i>	Small-fruited teclea	<i>Teclea nobilis</i>
Lime	<i>Citrus aurantifolia</i>	Smyrna fig	<i>Ficus carica</i>
Loquat	<i>Eriobotrya japonica</i>	Snowberry tree	<i>Flueggia virosa</i>
Lowland bamboo	<i>Oxytenanthera abyssinica</i>	Soursop	<i>Annona muricata</i>
Lucky-bean tree	<i>Erythrina abyssinica</i>	Spiked acacia	<i>Albizia lophantha</i>
Madras thorn	<i>Pithecellobium dulce</i>	Spiny tree fern	<i>Alsophila manniana</i>
Mandarin	<i>Citrus reticulata</i>	Spiny monkey orange	<i>Strychnos spinosa</i>
Mango	<i>Mangifera indica</i>	Spotted gum	<i>Eucalyptus citriodora</i>
Mangrove	<i>Avicenia marina</i>	Sweet orange	<i>Citrus sinensis</i>
Manila tamarind	<i>Pithecellobium dulce</i>	Sycamore fig	<i>Ficus sycomorus</i>
Manna gum	<i>Eucalyptus viminalis</i>	Sydney blue gum	<i>Eucalyptus saligna</i>
Mauritius thorn	<i>Caesalpinia decapetala</i>	Sydney black wattle	<i>Acacia decurrens</i>
Meru oak	<i>Vitex keniensis</i>	Tagasaste	<i>Chamaecyticus palmensis</i>
Mesquite	<i>Prosopis juliflora</i>	Tamarind	<i>Tamarindus indica</i>
Mexican cypress	<i>Cupressus lusitanica</i>	Tamarisk	<i>Tamarix aphylla</i>
Mexican weeping pine	<i>Pinus patula</i>	Tangerine	<i>Citrus reticulata</i>
Monkey bread	<i>Piliostigma thonningii</i>	Tasmanian blue gum	<i>Eucalyptus globulus</i>
Monterey pine	<i>Pinus radiata</i>	Toothbrush tree	<i>Salvadora persica</i>
Mountain bamboo	<i>Arundinaria alpina</i>	Tree vernonia	<i>Vernonia amygdalina</i>
Mulberry	<i>Morus alba</i>	Tree lucerne	<i>Chamaecyticus palmensis</i>
Murray red gum	<i>Eucalyptus camaldulensis</i>	Umbrella thorn	<i>Acacia abyssinica</i>
Myrtle bush	<i>Myrtus communis</i>	Variable combretum	<i>Combretum collinum</i>
Mysore thorn	<i>Caesalpinia decapetala</i>	Velvet-leaved combretum	<i>Combretum molle</i>
Nandi flame	<i>Spathodea campanulata</i>	Wait-a-bit thorn	<i>Acacia asak</i>
Natal orange	<i>Strychnos spinosa</i>	Wait-a-bit thorn	<i>Acacia brevispica</i>
Neem	<i>Azadirachta indica</i>	Waterberry	<i>Syzygium guineense</i>
Orange	<i>Citrus sinensis</i>	Weeping wattle	<i>Acacia saligna</i>
Peach	<i>Prunus persica</i>	Whistling thorn	<i>Acacia seyal</i>
Peacock flower	<i>Albizia gummifera</i>	Whistling pine	<i>Casuarina equisetifolia</i>
Pearwood	<i>Apodytes dimidiata</i>	White mulberry	<i>Morus alba</i>
Pepper tree	<i>Schinus molle</i>	White pear	<i>Apodytes dimidiata</i>
Persian lilac	<i>Melia azedarach</i>	White teak	<i>Gmelina arborea</i>
Peruvian mastic	<i>Schinus molle</i>	White whistling thorn	<i>Acacia seyal</i>
Pigeon pea	<i>Cajanus cajan</i>	White-galled acacia	<i>Acacia seyal</i>
Podo	<i>Podocarpus falcatus</i>	Wild custard apple	<i>Annona senegalensis</i>
Poison-arrow tree	<i>Acokanthera schimperi</i>	Wild plum	<i>Ximenia americana</i>
Port Jackson willow	<i>Acacia saligna</i>	Wild banana	<i>Ensete ventricosum</i>
Radiata pine	<i>Pinus radiata</i>	Wild date palm	<i>Phoenix reclinata</i>
Red river gum	<i>Eucalyptus camaldulensis</i>	Wild willow	<i>Salix subserrata</i>
Red thorn	<i>Acacia lahai</i>	Wild almond	<i>Berchemia discolor</i>
Red stinkwood	<i>Prunus africanus</i>	Willow wattle	<i>Acacia saligna</i>
Red cedar	<i>Acrocarpus fraxinifolius</i>	Winged bersama	<i>Bersama abyssinica</i>
Reed grass	<i>Arundo donax</i>	Women's tongue	<i>Albizia lebbeck</i>
Ribbon gum	<i>Eucalyptus viminalis</i>	Yeheb nut	<i>Cordeauxia edulis</i>
River bean	<i>Sesbania sesban</i>		
Rose gum	<i>Eucalyptus grandis</i>		
Rubber plant	<i>Ficus elastica</i>		

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Gamogna (Ga)

Akrsa	<i>Acacia senegal</i>	Hazte	<i>Ximenia americana</i>
Dogama	<i>Commiphora africana</i>	Kertor	<i>Acacia albida</i>
Domay	<i>Balanites aegyptica</i>	Shera	<i>Acacia tortilis</i>
Domaye	<i>Balanites aegyptica</i>	Zagie	<i>Bersama abyssinica</i>
Gingino	<i>Grewia ferruginea</i>	Zuntsie	<i>Commiphora africana</i>

Gimirigna (Gm)

Amu	<i>Dracaena steudneri</i>	Kias	<i>Arundinaria alpina</i>
Arku	<i>Euphorbia condelabrum</i>	Mech	<i>Syzygium guineense</i>
Bal	<i>Sapium ellipticum</i>	Qeretor	<i>Acacia lahai</i>
Beru	<i>Prunus africanus</i>	Takeho	<i>Grewia ferruginea</i>
Bonga	<i>Teclea nobilis</i>	Sat	<i>Albizia grandibracteata</i>
Boter	<i>Erythrina brucei</i>	Taitos	<i>Premna schimperii</i>
Debesh	<i>Apodytes dimidiata</i>	Testes	<i>Allophylus abyssinicus</i>
Dosh	<i>Trichilia dregeana</i>	Tsego	<i>Draccena steudneri</i>
Eleselesek	<i>Salix subserata</i>	Tsogu	<i>Ricinus communis</i>
Giku	<i>Cordia abyssinica</i>	Woshu	<i>Croton macrostachyus</i>
Gormu	<i>Ceasalpinia decapetala</i>	Wush	<i>Bridelia micrantha</i>
Jampu	<i>Vernonia amygdalina</i>	Yoke	<i>Albizia lebbeck</i>
Kawu	<i>Aningeria adolfi-friedericii</i>	Zeituna	<i>Psidium guajava</i>
		Ziago	<i>Milletia ferruginea</i>

Guragigna (Gr)

Ambarda	<i>Piliostigma thonningii</i>	Gishe	<i>Rhamnus prinoides</i>
Ambilbey	<i>Pittosporum viridiflorum</i>	Koba	<i>Ensete ventricosum</i>
Areg	<i>Dracaena steudneri</i>	Kobo	<i>Ricinus communis</i>
Aset	<i>Ensete ventricosum</i>	Kuwobo	<i>Prunus persica</i>
Atat	<i>Maytenus arbutifolia</i>	Lilu	<i>Ricinus communis</i>
Bekenissa	<i>Croton macrostachyus</i>	Mekenissa	<i>Piliostigma thonningii</i>
Birbira	<i>Milletia ferruginea</i>	Oira	<i>Croton macrostachyus</i>
Deweni-guna	<i>Acacia sieberiana</i>	Sabattala	<i>Olea europaea</i>
Dima	<i>Adansonia digitata</i>	Sensel	<i>Bersama abyssinica</i>
Dokima	<i>Syzygium guineense</i>	Zigba	<i>Justicia schimperiana</i>
Engocha	<i>Rosa abyssinica</i>		<i>Podocarpus falcatus</i>

Haderigna (Hd)

Arara	<i>Prunus africanus</i>	Libanat	<i>Boswellia papyrifera</i>
Enqoto	<i>Rosa abyssinica</i>	Odoo	<i>Ficus sycomorus</i>
Gitea	<i>Cajanus cajan</i>	Wesa	<i>Ensete ventricosum</i>
Gora	<i>Rosa abyssinica</i>		

Kefigna (Kf)

Bero	<i>Erythrina abyssinica</i>	Golacha	<i>Erythrina brucei</i>
Chato	<i>Albizia gummifera</i>	Gonji	<i>Milicia excelsa</i>
Chego	<i>Maesa lanceolata</i>	Kambelo	<i>Schefflera abyssinica</i>

Keresho	<i>Apodytes dimidiata</i>	Shishu	<i>Celtis africana</i>
Kett	<i>Ilex mitis</i>	Shonga	<i>Aningeria adolfi-friedericii</i>
Kocho	<i>Ensete ventricosum</i>		<i>Premna schimperii</i>
Komy	<i>Blighia unijugata</i>	Tumo	<i>Croton macrostachyus</i>
Luiya	<i>Trichilia dregeana</i>	Wago	<i>Ehretia cymosa</i>
Megreto	<i>Teclea nobliis</i>	Wagoamo	<i>Apodytes dimidiata</i>
Najo	<i>Ocotea kenyensis</i>	Wondefo	<i>Millettia cymosa</i>
Sesno	<i>Alsophila manniana</i>	Yaago	<i>Phytolacca dodecandra</i>
Shedo	<i>Sapium ellipticum</i>	Yingamo	<i>Syzygium guineense</i>
Sheho	<i>Allophylus abyssinicus</i>	Yino	<i>Dracaena steudneri</i>
Shineto	<i>Arundinaria alpina</i>	Yudo	

**Kembatgna (Km)**

Chata	<i>Catha edulis</i>	Odeko	<i>Ficus carica</i>
Gilbana	<i>Justicia schimperiana</i>	Wese	<i>Ensete ventricosum</i>
Lomi	<i>Citrus aurantifolia</i>		

**Konsogna (Ks)**

Farengota	<i>Cajanus cajan</i>	Ohota	<i>Cajanus cajan</i>
Gahadito	<i>Commiphora erythraea</i>		

**Oromugna (Or)**

Abar	<i>Allophylus abyssinicus</i>	Anfari	<i>Buddleja polystachya</i>
Abay	<i>Myrica salicifolia</i>	Anka	<i>Erythrina abyssinica</i>
Abeyi	<i>Maesa lanceolata</i>	Ankakute	<i>Dovyalis abyssinica</i>
Adado	<i>Buddleja polystachya</i>	Areje	<i>Allophylus abyssinicus</i>
Adakebo	<i>Blighia unijugata</i>	Asra	<i>Millettia ferruginea</i>
Adami	<i>Euphorbia candelabrum</i>	Awre-mudube	<i>Ximenia americana</i>
Adamo	<i>Galiniera saxifraga</i>	Baddane	<i>Balanites aegyptiaca</i>
Adessa	<i>Vepris dainellii</i>	Barodo	<i>Salix subserrata</i>
Adesa	<i>Dichrostachys cinerea</i>	Bedena	<i>Balanites aegyptiaca</i>
Adessa	<i>Teclea nobilis</i>	Bedessa	<i>Syzygium guineense</i>
Ado-kurkura	<i>Ziziphus mucronata</i>	Begama	<i>Teclea nobilis</i>
Agamsa	<i>Carissa edulis</i>	Bero	<i>Erythrina abyssinica</i>
Akacha siligna	<i>Acacia saligna</i>	Bika	<i>Combretum molle</i>
Akessa	<i>Rhus glutinosa</i>	Birbirsu	<i>Podocarpus falcatus</i>
Alatu	<i>Salix subserrata</i>	Birtukana	<i>Citrus sinensis</i>
Alele	<i>Albizia grandibracteata</i>	Birtukwani	<i>Citrus sinensis</i>
Amalaqqa	<i>Celtis africana</i>	Bocho	<i>Pittosporum viridiflorum</i>
Ambabesa	<i>Albizia gummifera</i>	Boko	<i>Bersama abyssinica</i>
Ambabessa	<i>Albizia schimperiana</i>	Bosoka	<i>Sapium ellipticum</i>
Ambo	<i>Acacia abyssinica</i>	Botoro	<i>Stereospermum kunthianum</i>
Amezaze	<i>Acacia brevispica</i>		<i>Prunus africanus</i>
Amfare	<i>Nuxia congesta</i>	Bouraiio	<i>Buddleja polystachya</i>
Amshika	<i>Pittosporum viridiflorum</i>	Buchema	<i>Prunus africanus</i>
		Buraya	<i>Acacia lahai</i>
		Burquqqe	

USEFUL TREES AND SHRUBS FOR ETHIOPIA

Bururi	<i>Grewia ferruginea</i>	Guduba	<i>Aningeria adolfi-friedericii</i>
Bururi	<i>Mimusops kummel</i>	Guna	<i>Olinia rochetiana</i>
Butugi	<i>Manilkara butugi</i>	Gurha	<i>Acacia sieberiana</i>
Buturu	<i>Stereospermum kunthianum</i>	Hadad	<i>Premna schimperii</i>
Buturu	<i>Markhamia lutea</i>	Hagar	<i>Commiphora erythraea</i>
Chae	<i>Teclea nobilis</i>	Hagar-ad	<i>Commiphora erythraea</i>
Chalanga	<i>Commiphora habessinica</i>	Hagar-medow	<i>Commiphora erythraea</i>
Chatto	<i>Albizia gummifera</i>	Halele	<i>Albizia grandibracteata</i>
Cheke	<i>Celtis africana</i>	Hallo	<i>Acacia bussei</i>
Colacho	<i>Erythrina brucei</i>	Hamsika	<i>Ilex mitis</i>
Combolcha	<i>Maytenus arbutifolia</i>	Handode	<i>Phytolacca dodecandra</i>
Dadatu	<i>Buddleja polystachya</i>	Hanku	<i>Embelia schimperii</i>
Daga chebsa	<i>Rhoicissus revoilii</i>	Harbu	<i>Ficus sur</i>
Dandamsa	<i>Combretum molle</i>	Harbu	<i>Ficus sycomorus</i>
Dangogo siyaka	<i>Rhoicissus tridentata</i>	Harbu	<i>Ficus sur</i>
Danissa	<i>Dombeya torrida</i>	Haroresa	<i>Grewia bicolor</i>
Danissa	<i>Apodytes dimidiata</i>	Hendi	<i>Hypericum revolutum</i>
Debacho	<i>Olinia rochetiana</i>	Hida refe	<i>Rhoicissus tridentata</i>
Debobosso	<i>Rhus natalensis</i>	Homi	<i>Prunus africanus</i>
Dedatu	<i>Millettia ferruginea</i>	Hudi	<i>Ximenia americana</i>
Deressa	<i>Ocotea kenyensis</i>	Hulaqa	<i>Ehretia cymosa</i>
Dergi	<i>Fagaropsis angolensis</i>	Hurgessa	<i>Premna schimperii</i>
Dero	<i>Fagaropsis angolensis</i>	Ilka	<i>Maytenus undata</i>
Derot	<i>Acacia albida</i>	Indodi	<i>Phytolacca dodecandra</i>
Derot	<i>Acacia lahai</i>	Ingidicho	<i>Millettia ferruginea</i>
Didessa	<i>Combretum molle</i>	Jejeba	<i>Berchemia discolor</i>
Didu	<i>Galiniera saxifraga</i>	Jirma-jalesa	<i>Steganotaenia araliacea</i>
Diho	<i>Cordia africana</i>	Kafal	<i>Boswellia papyrifera</i>
Diruba	<i>Allophylus abyssinicus</i>	Karachu	<i>Acokanthera schimperii</i>
Dogoma	<i>Croton macrostachyus</i>	Karasho	<i>Polyscias ferruginea</i>
Dokenu	<i>Grewia ferruginea</i>	Karchofe	<i>Albizia gummifera</i>
Dolkiss	<i>Bersama abyssinica</i>	Kataba	<i>Myrica salicifolia</i>
Duduna	<i>Ekebergia capensis</i>	Kedida	<i>Olinia rochetiana</i>
Dumuqa	<i>Justicia schimperiana</i>	Kekayi	<i>Allophylus abyssinicus</i>
Edera	<i>Hypericum revolutum</i>	Koba	<i>Ensete ventricosum</i>
Emele	<i>Albizia grandibracteata</i>	Kofale	<i>Albizia grandibracteata</i>
Enqoto	<i>Rosa abyssinica</i>	Komate	<i>Annona senegalensis</i>
Etacha	<i>Dodonaea angustifolia</i>	Kombolcha	<i>Maytenus senegalensis</i>
Gajo	<i>Manilkara butugi</i>	Konu	<i>Trichilia dregeana</i>
Galalo	<i>Bridelia micrantha</i>	Kora	<i>Piliostigma thonningii</i>
Gale lala	<i>Rhoicissus tridentata</i>	Kuda	<i>Polyscias ferruginea</i>
Galgalem	<i>Boswellia papyrifera</i>	Kulasa	<i>Vepris dainellii</i>
Galo	<i>Psydrax schimperiana</i>	Kuraro	<i>Aningeria altissima</i>
Garamba	<i>Hypericum revolutum</i>	Kurkura	<i>Ziziphus mauritiana</i>
Garbi	<i>Acacia lahai</i>	Kuro	<i>Aningeria altissima</i>
Gerbi	<i>Acacia abyssinica</i>	Lafto	<i>Acacia sieberiana</i>
Gerbi	<i>Acacia albida</i>	Lafto	<i>Acacia lahai</i>
Gesho	<i>Rhamnus prinoides</i>	Lafto-adi	<i>Acacia sieberiana</i>
Gessa	<i>Bersama abyssinica</i>	Lankuso	<i>Dracaena steudneri</i>
Gigicha	<i>Ocotea kenyensis</i>	Lensa	<i>Grewia ferruginea</i>
Corbe	<i>Albizia gummifera</i>	Lokko	<i>Diospyros abyssinica</i>
Goro	<i>Rosa abyssinica</i>	Lotoba	<i>Acacia tortilis</i>
		Lugo	<i>Ficus sycomorus</i>

Luya	<i>Trichilia dregeana</i>	Shego	<i>Trichilia dregeana</i>
Makanissa	<i>Croton macrostachyus</i>	Showiye	<i>Dracaena steudneri</i>
Mararo	<i>Discopodium</i>	Sokeusa	<i>Acacia brevispica</i>
	<i>penninervum</i>	Sombo	<i>Ekebergia capensis</i>
Marmate	<i>Woodfordia uniflora</i>	Sondi	<i>Acacia lahai</i>
Meddesa	<i>Vepris dainellii</i>	Sotellu	<i>Millettia ferruginea</i>
Meteqamma	<i>Celtis africana</i>	Suduba	<i>Aningeria adolfi-</i>
Meti	<i>Hyphaene thebaica</i>		<i>friedericii</i>
Miesa	<i>Ilex mitis</i>	Tadessa	<i>Rhus retinorrhoea</i>
Miessa	<i>Euclea schimperii</i>	Tala	<i>Polyscias ferruginea</i>
Mito	<i>Galiniera saxifraga</i>	Talas	<i>Pittosporum viridiflorum</i>
Mito	<i>Mimusops kummel</i>	Tatess	<i>Rhus vulgaris</i>
Moghano	<i>Dalbergia melanoxylon</i>	Tatessa	<i>Rhus glutinosa</i>
Muka-arba	<i>Cassia alexandrina</i>	Tedecha	<i>Dodonia angustifolia</i>
Mukarba	<i>Albizia schimperiana</i>	Tedecha	<i>Acacia tortilis</i>
Mukarta	<i>Albizia schimperiana</i>	Titto	<i>Ilex mitis</i>
Muke	<i>Fagaropsis angolensis</i>	Tona	<i>Myrcia salicifolia</i>
Nolle	<i>Olinia rochetiana</i>	Totofe	<i>Combretum aculeatum</i>
Oda	<i>Ficus sycomorus</i>	Tucho	<i>Blighia unijugata</i>
Odesa	<i>Cordia africana</i>	Tulu	<i>Euphorbia abyssinica</i>
Ogomdi	<i>Grewia villosa</i>	Tumuga	<i>Justicia schimperiana</i>
Oolage	<i>Ehretia cymosa</i>	Tuto	<i>Citrus aurantifolia</i>
Qadida	<i>Rhamnus staddo</i>	Urgessa	<i>Premna schimperii</i>
Quduba	<i>Aningeria altissima</i>	Utro	<i>Stereospermum</i>
Qumbela	<i>Apodytes dimidiata</i>		<i>kunthianum</i>
Qura	<i>Boswellia rivae</i>	Wadadi	<i>Erica arborea</i>
Radji	<i>Myrica salicifolia</i>	Wakko-dimo	<i>Acacia seyal</i>
Riga-arba	<i>Bridelia micrantha</i>	Wanga	<i>Acacia oerfota</i>
Rigaganze	<i>Hypericum</i>	Wangay	<i>Acacia oerfota</i>
	<i>quarantinianum</i>	Weke	<i>Ensete ventricosum</i>
Roka	<i>Tamarindus indica</i>	Wese	<i>Ensete ventricosum</i>
Sabansa dima	<i>Acacia senegal</i>	Wodesa	<i>Cordia africana</i>
Sapessa	<i>Acacia senegal</i>	Wolensu	<i>Erythrina abyssinica</i>
Sarbandai	<i>Galiniera saxifraga</i>	Wolensu	<i>Erythrina brucei</i>
Sasa	<i>Albizia gummifera</i>	Wolkile	<i>Ilex mitis</i>
Seho	<i>Allophylus abyssinicus</i>	Wosiya wajo	<i>Acacia seyal</i>
Shapindi	<i>Fagaropsis angolensis</i>	Yuga	<i>Trilepisium</i>
Shawo	<i>Albizia grandibracteata</i>		<i>madagascariense</i>

Sahogna (Sh)

Aflo	<i>Acacia nilotica</i>	Nim	<i>Azadirachta indica</i>
Aflo	<i>Acacia seyal</i>	Quloum	<i>Rhamnus staddo</i>
Kistani-schahala	<i>Rhamnus staddo</i>	Tsi	<i>Acacia tortilis</i>
Momona	<i>Acacia albida</i>		

Sidamgna (Sd)

Abukato	<i>Persea americana</i>	Auera	<i>Aningeria altissima</i>
Arbet	<i>Sesbania sesban</i>	Avocato	<i>Persea americana</i>
Arengama	<i>Caesalpinia decapetala</i>	Bulchano	<i>Buddleja polystachya</i>



USEFUL TREES AND SHRUBS FOR ETHIOPIA

Choke	<i>Justicia schimperiana</i>	Kocki	<i>Prunus persica</i>
Daujicho	<i>Galiniera saxifraga</i>	Kombo	<i>Ricinus communis</i>
Degucho	<i>Podocarpus falcatus</i>	Mecincho	<i>Croton macrostachyus</i>
Donkiko	<i>Apodytes dimidiata</i>	Mikichio	<i>Ilex mitis</i>
Dubancho	<i>Syzygium guineae</i>	Mite	<i>Phoenix reclinata</i>
Gancho	<i>Sapium ellipticum</i>	Mrchiko	<i>Prunus africanus</i>
Gedincho	<i>Ehretia cymosa</i>	Odako	<i>Ficus sur</i>
Gerbebo	<i>Bersama abyssinica</i>	Oota	<i>Dovyalis abyssinica</i>
Gerbicho	<i>Prunus africanus</i>	Oroni	<i>Schefflera abyssinica</i>
Gobacho	<i>Maesa lanceolata</i>	Rejicho	<i>Discopodium</i>
Gorbe	<i>Albizia gummifera</i>		<i>peninervum</i>
Guduba	<i>Aningeria adolfi-friedericii</i>	Seghede	<i>Galiniera saxifraga</i>
		Setemo	<i>Olea capensis</i>
Gudubo	<i>Aningeria altissima</i>	Shishu	<i>Celtis africana</i>
Hecho	<i>Vernonia amygdalina</i>	Sighilu	<i>Fagaropsis angolensis</i>
Hengedich	<i>Millettia ferruginea</i>	Soecho	<i>Ocotea kenyensis</i>
Heranje	<i>Phytolacca dodecandra</i>	Tallaha	<i>Polyscias fulva</i>
Honcho	<i>Juniperus procera</i>	Teberako	<i>Bersama abyssinica</i>
Itancha	<i>Dodonaea angustifolia</i>	Tulanji	<i>Premna schimperii</i>
Kanko	<i>Embelia schimperii</i>	Wacho	<i>Acacia seyal</i>
Kedisho	<i>Olea africana</i>	Wadicho	<i>Cordia africana</i>
Kervoni	<i>Polyscias fulva</i>	Wolako	<i>Erythrina brucei</i>
Kilto	<i>Ficus sycomorus</i>		

Somalgna (Sm)

Abak	<i>Acacia tortilis</i>	Dure	<i>Ficus sycomorus</i>
Adad	<i>Acacia senegal</i>	Eddi-shebel	<i>Ziziphus mucronata</i>
Adad-medu	<i>Acacia asak</i>	Ehb	<i>Cordeauxia edulis</i>
Adad-meru	<i>Acacia senegal</i>	Endur-bakhila	<i>Steganotaenia araliacea</i>
Aday	<i>Salvadora persica</i>	Fulay	<i>Acacia seyal</i>
Agabo	<i>Acacia senegal</i>	Furgori	<i>Acacia brevispica</i>
Akab	<i>Acacia tortilis</i>	Gala	<i>Calotropis procera</i>
Amor	<i>Berchemia discolor</i>	Galo	<i>Acacia bussei</i>
Anjel	<i>Mimusops kummel</i>	Galol	<i>Acacia senegal</i>
Aras	<i>Salvadora persica</i>	Galol	<i>Acacia nilotica</i>
Armo saged	<i>Rhoicissus revouilii</i>	Galool	<i>Acacia brucei</i>
Bar	<i>Hyphaene thebaica</i>	Galool-sur	<i>Dichrostachys cinerea</i>
Baye-medow	<i>Boswellia rivae</i>	Garas	<i>Dobera glabra</i>
Bodar	<i>Celtis africana</i>	Gob	<i>Ziziphus mauritiana</i>
Boha	<i>Calotropis procera</i>	Gomur	<i>Acacia oerfota</i>
Buro	<i>Salix subserrata</i>	Got	<i>Balanites aegyptiaca</i>
Cherin	<i>Acacia sieberiana</i>	Gueza	<i>Balanites aegyptiaca</i>
Dare	<i>Ficus sycomorus</i>	Gumara	<i>Acacia oerfota</i>
Dayero	<i>Rosa abyssinica</i>	Gumero	<i>Acacia oerfota</i>
Degemut	<i>Maytenus undata</i>	Gummr	<i>Acacia oerfota</i>
Delebdoi	<i>Strychnos spinosa</i>	Gut	<i>Balanites aegyptiaca</i>
Deleddor	<i>Strychnos spinosa</i>	Gwider	<i>Acacia asak</i>
Den	<i>Dodonaea angustifolia</i>	Hadesa	<i>Strychnos henningsii</i>
Dhigdar	<i>Dichrostachys cinerea</i>	Hagar	<i>Commiphora erythraea</i>
Dokon	<i>Tamarix aphylla</i>	Hagar-ad	<i>Commiphora erythraea</i>
Dum-dum	<i>Ceiba pentandra</i>	Hagar-medow	<i>Commiphora erythraea</i>
Dur	<i>Tamarix aphylla</i>	Hamor	<i>Berchemia discolor</i>

Haras	<i>Dobera glabra</i>	Mungule	<i>Strychnos innocua</i>
Harkey	<i>Ziziphus mucronata</i>	Murfur-ad	<i>Boswellia rivae</i>
Hayab	<i>Rhoicissus tridentata</i>	Murken	<i>Boswellia rivae</i>
Hayramat	<i>Dodonaea angustifolia</i>	Ongolatz	<i>Dovyalis abyssinica</i>
Hudayo	<i>Ximenia americana</i>	Ora	<i>Acacia tortilis</i>
Hyab	<i>Rhoicissus revoilii</i>	Orgabat	<i>Carissa edulis</i>
Jajale	<i>Rhamnus staddo</i>	Qud	<i>Cordeauxia edulis</i>
Jelalo-jel	<i>Cassia alexandrina</i>	Quda	<i>Cordeauxia edulis</i>
Jerin	<i>Acacia sieberiana</i>	Quorqor	<i>Acacia brevispica</i>
Kidi	<i>Celtis africana</i>	Rede	<i>Acacia asak</i>
Kobbok	<i>Commiphora africana</i>	Rfur-ad	<i>Cajanus cajan</i>
Kobesh	<i>Grewia bicolor</i>	Rumei	<i>Salvadora persica</i>
Komesh	<i>Grewia bicolor</i>	Salboko-ghed	<i>Cajanus cajan</i>
Korguba	<i>Berchemia discolor</i>	Sarad	<i>Maytenus undata</i>
Kura	<i>Acacia tortilis</i>	Shuna-shuna	<i>Combretum aculeatum</i>
Lato	<i>Grewia ferruginea</i>	Sisai	<i>Rhus retinorrhoea</i>
Mandarut	<i>Ximenia americana</i>	Timad	<i>Acacia tortilis</i>
Marah	<i>Acacia senegal</i>	Tonkich	<i>Dracaena steudneri</i>
Marah	<i>Acacia nilotica</i>	Tseligniya	<i>Mytenus undata</i>
Masinchu	<i>Croton macrostachyus</i>	Tuwer	<i>Acacia nilotica</i>
Mohor-medu	<i>Boswellia rivae</i>	Wadicho	<i>Cordia africana</i>
Mokko	<i>Ficus sycomorus</i>	Wagireadad	<i>Acokanthera schimperi</i>
Morhod	<i>Ximenia americana</i>	Wush	<i>Croton macrostachyus</i>
Mukoy	<i>Ficus sycomorus</i>	Yag	<i>Adansonia digitata</i>

Tigrigna (Tg)

Aba	<i>Grewia bicolor</i>	Atat	<i>Maytenus arbutifolia</i>
Aba	<i>Berchemia discolor</i>	Auhi	<i>Cordia africana</i>
Adi-zana	<i>Stereospermum kunthianum</i>	Ayeh	<i>Diospyros mespiliformis</i>
Aflot	<i>Combretum aculeatum</i>	Azamaro	<i>Allophylus abyssinicus</i>
Aihada	<i>Dovyalis abyssinica</i>	Berberi-islamay	<i>Saium ellipticum</i>
Aira	<i>Diospyros abyssinica</i>	Bersma	<i>Bersama abyssinica</i>
Akalo	<i>Calotropis procera</i>	Chat	<i>Catha edulis</i>
Akiba	<i>Acacia tortilis</i>	Chea	<i>Acacia nilotica</i>
Alhem	<i>Discopodium penninervum</i>	Cheha	<i>Acacia sieberiana</i>
Amam-gemel	<i>Piliostigma thonningii</i>	Cheha	<i>Acacia abyssinica</i>
Anfararo	<i>Combretum molle</i>	Chequente	<i>Pittosporum viridiflorum</i>
Anqeba	<i>Acacia tortilis</i>	Dankwa	<i>Boswellia papyrifera</i>
Anqwa	<i>Commiphora africana</i>	Dawa	<i>Grewia bicolor</i>
Anqwa	<i>Commiphora habessinica</i>	Dinda	<i>Calotropis procera</i>
Antrokohela	<i>Steganotaenia araliacea</i>	Ekhi	<i>Cordia africana</i>
Aqba	<i>Acacia albida</i>	Gaba-harmaz	<i>Ziziphus mucronata</i>
Aqba	<i>Acacia tortilis</i>	Gamorot	<i>Acacia oerfota</i>
Argti	<i>Maytenus senegalensis</i>	Garsha	<i>Acacia albida</i>
Argwdi	<i>Maytenus senegalensis</i>	Geba	<i>Ziziphus spina-christi</i>
Asha-om	<i>Bersama abyssinica</i>	Gered chea	<i>Acacia nilotica</i>
Ashun	<i>Allophylus abyssinicus</i>	Geresa	<i>Dobera glabra</i>
		Gesho	<i>Rhamnus prinoides</i>
		Getem	<i>Schefflera abyssinica</i>
		Geva	<i>Ziziphus mauritiana</i>
		Gonnok	<i>Dicrostachys cinerea</i>

USEFUL TREES AND SHRUBS FOR ETHIOPIA

Guadade	Acacia asak	Ood	Acacia oerfota
Gumero	Acacia polyacantha	Qamshi	Allophylus abyssinicus
Gunki	Stereospermum kunthianum	Qentib	Acacia senegal
Gura	Strychnos spinosa	Qentiba	Acacia senegal
Gwmero	Acacia bussei	Qeyeh-chea	Acacia seyal
Hadai	Salvadora persica	Reway	Celtis africana
Hamat	Celtis africana	Sagla	Ficus sycomorus
Haq	Acacia asak	Sankwah	Grewia ferruginea
Haua	Celtis africana	Sasat	Dodonaea angustifolia
Hermer banba	Adansonia digitata	Sawa	Combretum collinum
Humer	Tamarindus indica	Selewa	Acacia asak
Indrur	Balanites aegyptiaca	Seno	Cassia alexandrina
Islami	Croton macrostachys	Shegla	Ficus sycomorus
Kambash	Hyphaene thebaica	Shemut	Rhus glutinosa
Karshiro	Rhoicissus tridentata	Soaueh	Erythrina abyssinica
Kato	Combretum aculeatum	Sonkuah	Dombeya torrida
Kock	Prunus persica	Suda	Justicia schimperiana
Kommer	Adansonia digitata	Swarya	Allophylus abyssinicus
Kontib	Acacia senegal	Tahisas	Dodonaea angustifolia
Kummel	Mimusops kummel	Tambush	Croton macrostachyus
Kwaa	Salix subserrata	Tekalo	Rhus retinorrhoea
Lahay	Acacia lahai	Tetale	Rhus natalensis
Laud	Acacia oerfota	Thathalo	Rhus natalensis
Laziba	Combretum molle	Tiringuin	Citrus medica
Leaw	Acacia oerfota	Tseada-chea	Acacia seyal
Lemin	Citrus aurantifolia	Tseada-chea	Acacia sieberiana
Lemun	Citrus aurantifolia	Tsedo	Rhamnus staddo
Leshem	Grewia bicolor	Tselimo	Maytenus undata
Lokua	Strychnos spinosa	Tsililo	Psydrax schimperiana
Madere	Buddleja polystachya	Tsimkuya	Maytenus senegalensis
Mebetti	Acokanthera schimperi	Ubul	Grewia ferruginea
Meger	Boswellia papyrifera	Unguak-hebay	Tamarix aphylla
Mellu	Combretum aculeatum	Unguaka	Strychnos innocua
Mlehitta	Ximenia americana	Utekki	Strychnos innocua
Momret	Adansonia digitata	Vralo	Cassia alexandrina
Nefacia	Acacia sieberiana	Walba	Rhus retinorrhoea
Nihibi	Myrica salicifolia	Weiba	Boswellia papyrifera
Nim	Azadirachta indica	Zahak	Combretum molle
Obel	Tamarix aphylla	Zellimo	Psydrax schimperiana
			Diospyros abyssinica

Wolayetgna (Wt)

Astie	<i>Ximenia americana</i>	Misira shendirra	<i>Ilex mitis</i>
Chata	<i>Albizia gummifera</i>	Odorwa	<i>Acacia abyssinica</i>
Chatya	<i>Catha edulis</i>	Onsa	<i>Prunus africanus</i>
Eta	<i>Annona senegalensis</i>	Puliessa	<i>Acacia sieberiana</i>
Fundukiya	<i>Acacia seyal</i>	Shasho	<i>Albizia lebbeck</i>
Gammo-gadie	<i>Ziziphus mucronata</i>	Shosho	<i>Aningeria adolfi</i>
Gara	<i>Acacia sieberiana</i>		- <i>friedericii</i>
Garba	<i>Prunus africanus</i>	Tintala shoa	<i>Bersama abyssinica</i>
Geregetwa	<i>Dodonaea angustifolia</i>	Tsege-reda-chisha	<i>Rosa abyssinica</i>
Guganta	<i>Acacia lahai</i>	Tundukiyac	<i>Acacia senegal</i>
Gwemoriyya	<i>Acacia brevispica</i>	Uta	<i>Ensete ventricosum</i>
Kafo atara	<i>Cajanus cajan</i>	Wola	<i>Ficus sycomorus</i>
Kafwa ateriya	<i>Cajanus cajan</i>	Worafuto	<i>Allophylus abyssinicus</i>
Kalkalla	<i>Piliostigma thonningii</i>	Yecha	<i>Ensete ventricosum</i>
Kalkallo	<i>Piliostigma thonningii</i>		
Kokora	<i>Schefflera abyssinica</i>		

# Suitable species by agroclimatic zone

## BEREHA

Acacia bussei	Cordeauxia edulis	Prosopis juliflora
Acacia oerfota	Dalbergia melanoxylon	Salvadora persica
Adansonia digitata	Delonix regia	Schinus molle
Calotropis procera	Diospyros mespiliformis	Spathodea campanulata
Cassia alexandrina	Flueggia virosa	Tamarindus indica
Ceiba pentandra	Hyphaene thebaica	Tamarix aphylla
Celtis africana	Kigelia africana	Vitex doniana
Combretum collinum	Leucaena leucocephala	Ziziphus mucronata
Commiphora erythraea	Melia azederach	Ziziphus spina-christi
Commiphora habessinica	Parkinsonia aculeata	

## DRY KOLLA

Adansonia digitata	Combretum molle	Maytenus senegalensis
Albizia lebbeck	Commiphora africana	Maytenus undata
Arundo donax	Commiphora erythraea	Melia azederach
Azadirachta indica	Croton macrostachyus	Moringa oleifera
Balanites aegyptiaca	Dalbergia melanoxylon	Parkinsonia aculeata
Berchemia discolor	Delonix regia	Phoenix reclinata
Blighia unijugata	Dichrostachys cinerea	Pithecellobium dulce
Boswellia papyrifera	Diospyros mespiliformis	Prosopis juliflora
Boswellia rivae	Dobera glabra	Salvadora persica
Bridelia micrantha	Dodonaea angustifolia	Schinus molle
Cajanus cajan	Entada abyssinica	Stegonataenia aralacea
Calotropis procera	Eucalyptus	Strychnos spinosa
Capparis tomentosa	camaldulensis	Tamarindus indica
Cassia didymobotrya	Euclea schimperi	Tamarix aphylla
Cassia siamea	Ficus carica	Terminalia brownii
Casuarina equisetifolia	Flacourtia indica	Trichilia emetica
Ceiba pentandra	Flueggia virosa	Vitex doniana
Celtis africana	Grewia ferruginea	Ximenia americana
Citrus aurantifolia	Hyphaene thebaica	Ziziphus mauritiana
Citrus sinensis	Leucaena leucocephala	Ziziphus mucronata
Combretum aculeatum	Mangifera indica	Ziziphus spina-christi
Combretum collinum	Maytenus arbutifolia	

## MOIST KOLLA

<i>Acacia asak</i>	<i>Commiphora africana</i>	<i>Millettia ferruginea</i>
<i>Acacia brevispica</i>	<i>Commiphora habessinica</i>	<i>Moringa oleifera</i>
<i>Acacia bussei</i>	<i>Dalbergia melanoxyton</i>	<i>Morus mesozygia</i>
<i>Acacia nilotica</i>	<i>Dalbergia sissoo</i>	<i>Myrtus communis</i>
<i>Acacia oerfota</i>	<i>Delonix regia</i>	<i>Oxytenanthera</i>
<i>Acacia polyacantha</i>	<i>Dichrostachys cinerea</i>	<i>abyssinica</i>
<i>Acacia saligna</i>	<i>Diospyros mespiliformis</i>	<i>Parkinsonia aculeata</i>
<i>Acacia senegal</i>	<i>Dobera glabra</i>	<i>Phoenix dactylifera</i>
<i>Acacia sieberiana</i>	<i>Dodonaea angustifolia</i>	<i>Phoenix reclinata</i>
<i>Acacia tortilis</i>	<i>Entada abyssinica</i>	<i>Pithecellobium dulce</i>
<i>Albizia grandibracteata</i>	<i>Erythrina abyssinica</i>	<i>Prosopis juliflora</i>
<i>Albizia lebbeck</i>	<i>Erythrina brucei</i>	<i>Psidium guajava</i>
<i>Aningeria altissima</i>	<i>Eucalyptus</i>	<i>Psydrax schimperiana</i>
<i>Annona muricata</i>	<i>camaldulensis</i>	<i>Rhamnus prinoides</i>
<i>Apodytes dimidiata</i>	<i>Eucalyptus citriodora</i>	<i>Ricinus communis</i>
<i>Arundo donax</i>	<i>Eucalyptus saligna</i>	<i>Salix subserata</i>
<i>Azadirachta indica</i>	<i>Euclea schimperii</i>	<i>Salvadora persica</i>
<i>Balanites aegyptiaca</i>	<i>Euphorbia candelabrum</i>	<i>Schinus molle</i>
<i>Berchemia discolor</i>	<i>Ficus carica</i>	<i>Sesbania sesban</i>
<i>Blighia unijugata</i>	<i>Ficus elastica</i>	<i>Spathodea campanulata</i>
<i>Borassus aethiopum</i>	<i>Flacourtia indica</i>	<i>Stegonataenia aralacea</i>
<i>Bridelia micrantha</i>	<i>Flueggia virosa</i>	<i>Stereospermum</i>
<i>Cajanus cajan</i>	<i>Gmelina arborea</i>	<i>kunthianum</i>
<i>Calotropis procera</i>	<i>Grewia bicolor</i>	<i>Strychnos spinosa</i>
<i>Capparis tomentosa</i>	<i>Grewia ferruginea</i>	<i>Syzygium guineense</i>
<i>Cassia alexandrina</i>	<i>Grewia villosa</i>	<i>Tamarindus indica</i>
<i>Cassia didymobotrya</i>	<i>Hyphaene thebaica</i>	<i>Teclea nobilis</i>
<i>Cassia equisetifolia</i>	<i>Jacaranda mimosifolia</i>	<i>Terminalia brownii</i>
<i>Cassia siamea</i>	<i>Kigelia africana</i>	<i>Trichilia emetica</i>
<i>Ceiba pentandra</i>	<i>Leucaena leucocephala</i>	<i>Vitex doniana</i>
<i>Celtis africana</i>	<i>Mangifera indica</i>	<i>Warburgia ugandensis</i>
<i>Citrus aurantifolia</i>	<i>Markhamia lutea</i>	<i>Woodfordia uniflora</i>
<i>Citrus medica</i>	<i>Maytenus arbutifolia</i>	<i>Ximenia americana</i>
<i>Citrus sinensis</i>	<i>Maytenus senegalensis</i>	<i>Ziziphus mauritiana</i>
<i>Combretum aculeatum</i>	<i>Maytenus undata</i>	<i>Ziziphus mucronata</i>
<i>Combretum collinum</i>	<i>Melia azederach</i>	<i>Ziziphus spina-christi</i>
<i>Combretum molle</i>	<i>Milicia excelsa</i>	

WET KOLLA

<i>Albizia grandibracteata</i>	<i>Ficus carica</i>	<i>Phoenix dactylifera</i>
<i>Aningeria altissima</i>	<i>Ficus elastica</i>	<i>Psidium guajava</i>
<i>Annona muricata</i>	<i>Flueggia virosa</i>	<i>Psydrax schimperiana</i>
<i>Annona senegalensis</i>	<i>Gmelina arborea</i>	<i>Rhamnus prinoides</i>
<i>Apodytes dimidiata</i>	<i>Grewia bicolor</i>	<i>Ricinus communis</i>
<i>Arundo donax</i>	<i>Grewia villosa</i>	<i>Salix subserata</i>
<i>Borassus aethiopum</i>	<i>Hevea brasiliensis</i>	<i>Schinus molle</i>
<i>Calotropis procera</i>	<i>Jacaranda mimosifolia</i>	<i>Sesbania sesban</i>
<i>Casuarina equisetifolia</i>	<i>Kigelia africana</i>	<i>Spathodea campanulata</i>
<i>Cyathea manniana</i>	<i>Leucaena leucocephala</i>	<i>Stereospermum</i>
<i>Dalbergia melanoxylon</i>	<i>Mangifera indica</i>	<i>kunthianum</i>
<i>Dalbergia sissoo</i>	<i>Markhamia lutea</i>	<i>Strychnos spinosa</i>
<i>Diospyros mespiliformis</i>	<i>Maytenus arbutifolia</i>	<i>Syzygium guineense</i>
<i>Entada abyssinica</i>	<i>Maytenus senegalensis</i>	<i>Teclea nobilis</i>
<i>Erythrina abyssinica</i>	<i>Melia azederach</i>	<i>Terminalia brownii</i>
<i>Erythrina brucei</i>	<i>Milicia excelsa</i>	<i>Vitex doniana</i>
<i>Eucalyptus</i>	<i>Millettia ferruginea</i>	<i>Warburgia ugandensis</i>
<i>camaldulensis</i>	<i>Morus mesozygia</i>	<i>Woodfordia uniflora</i>
<i>Eucalyptus saligna</i>	<i>Myrtus communis</i>	<i>Ximenia americana</i>
<i>Euclea schimperi</i>	<i>Oxytenanthera</i>	<i>Ziziphus mucronata</i>
<i>Euphorbia candelabrum</i>	<i>abyssinica</i>	

DRY WEYNA DEGA

<i>Acacia abyssinica</i>	<i>Carissa edulis</i>	<i>Dodonaea angustifolia</i>
<i>Acacia albida</i>	<i>Cassia didymobotrya</i>	<i>Dombeya torrida</i>
<i>Acacia brevispica</i>	<i>Casuarina</i>	<i>Ekebergia capensis</i>
<i>Acacia saligna</i>	<i>cunninghamiana</i>	<i>Entada abyssinica</i>
<i>Acacia seyal</i>	<i>Casuarina equisetifolia</i>	<i>Eucalyptus globulus</i>
<i>Acacia sieberiana</i>	<i>Catha edulis</i>	<i>Euclea schimperi</i>
<i>Acacia tortilis</i>	<i>Celtis africana</i>	<i>Euphorbia abyssinica</i>
<i>Acokanthera schimperi</i>	<i>Citrus aurantifolia</i>	<i>Euphorbia candelabrum</i>
<i>Albizia gummifera</i>	<i>Citrus medica</i>	<i>Euphorbia tirucalli</i>
<i>Allophyllus abyssinica</i>	<i>Citrus reticulata</i>	<i>Fagaropsis angolensis</i>
<i>Arundo donax</i>	<i>Citrus sinensis</i>	<i>Ficus carica</i>
<i>Berberis holstii</i>	<i>Combretum molle</i>	<i>Flacourtia indica</i>
<i>Bersama abyssinicus</i>	<i>Commiphora habessinica</i>	<i>Flueggia virosa</i>
<i>Bridelia micrantha</i>	<i>Cordia africana</i>	<i>Grevillea robusta</i>
<i>Buddleja polystachya</i>	<i>Croton macrostachyus</i>	<i>Grewia ferruginea</i>
<i>Caesalpinia decapetala</i>	<i>Cupressus lusitanica</i>	<i>Justicia schimperiana</i>
<i>Cajanus cajan</i>	<i>Dalbergia melanoxylon</i>	<i>Manilkara butugi</i>
<i>Capparis tomentosa</i>	<i>Diospyros mespiliformis</i>	<i>Maytenus arbutifolia</i>

**Dry Weyna Dega  
(contd)**

Maytenus senegalensis  
 Maytenus undata  
 Melia azederach  
 Millettia ferruginea  
 Morus alba  
 Myrica salicifolia  
 Nuxia congesta  
 Olea europaea var.  
 africana

Olea welwitschii  
 Parkinsonia aculeata  
 Phoenix reclinata  
 Phytolacca dodecandra  
 Premna schimperi  
 Schinus molle  
 Sesbania sesban  
 Spathodea campanulata  
 Stereospermum  
 kunthianum  
 Strychnos henningsii

Syzygium guineense  
 Teclea nobilis  
 Terminalia brownii  
 Trilepisium  
 madagascariense  
 Vernona amygdalina  
 Warburgia ugandansis  
 Woodfordia uniflora  
 Ximenia americana  
 Ziziphus mucronata

**MOIST WEYNA DEGA**

Acacia abyssinica  
 Acacia albida  
 Acacia brevispica  
 Acacia bussei  
 Acacia decurrens  
 Acacia lahai  
 Acacia mearnsii  
 Acacia melanoxylon  
 Acacia seyal  
 Acacia sieberiana  
 Acacia tortilis  
 Acokanthera schimperi  
 Albizia grandibracteata  
 Albizia gummifera  
 Albizia lophantha  
 Albizia schimperiana  
 Allophylus abyssinica  
 Aningeria adolfi-  
 fredericii  
 Aningeria altissima  
 Apodytes dimidiata  
 Arundo donax  
 Azadirachta indica  
 Berberis holstii  
 Bersama abyssinica  
 Borassus aethiopum  
 Bridelia micrantha  
 Buddleja polystachya  
 Caesalpinia decapetala

Cajanus cajan  
 Capparis tomentosa  
 Carissa edulis  
 Cassia didymobotrya  
 Casuarina  
 cunninghamiana  
 Catha edulis  
 Celtis africana  
 Chamaecytisus  
 palmensis  
 Citrus aurantifolia  
 Citrus medica  
 Citrus reticulata  
 Citrus sinensis  
 Combretum molle  
 Commiphora habessinica  
 Cordia africana  
 Croton macrostachyus  
 Cupressus lusitanica  
 Dalbergia melanoxylon  
 Diospyros abyssinica  
 Diospyros mespiliformis  
 Dombeya torrida  
 Dovyalis abyssinica  
 Dracaena steudneri  
 Ehretia cymosa  
 Ekebergia capensis  
 Embelia schimperi  
 Ensete ventricosum

Entada abyssinica  
 Eriobotrya japonica  
 Erythrina abyssinica  
 Erythrina brucei  
 Eucalyptus citriodora  
 Eucalyptus globulus  
 Eucalyptus grandis  
 Eucalyptus saligna  
 Euclea schimperi  
 Euphorbia abyssinica  
 Euphorbia candelabrum  
 Euphorbia tirucalli  
 Fagaropsis angolensis  
 Ficus carica  
 Ficus elastica  
 Ficus sur  
 Ficus sycomorus  
 Flacourtia indica  
 Flueggia virosa  
 Galiniera saxifraga  
 Grevillea robusta  
 Grewia bicolor  
 Grewia ferruginea  
 Grewia villosa  
 Hagenia abyssinica  
 Ilex mitis  
 Jacaranda mimosifolia  
 Juniperus procera  
 Justicia schimperiana



USEFUL TREES AND SHRUBS FOR ETHIOPIA

**Moist Weyna Dega  
(contd)**

Maesa lanceolata  
 Manilkara butugi  
 Markhamia lutea  
 Maytenus arbutifolia  
 Maytenus senegalensis  
 Maytenus undata  
 Melia azederach  
 Millettia ferruginea  
 Mimusops kummel  
 Morus alba  
 Myrica salicifolia  
 Myrtus communis  
 Nuxia congesta  
 Ocotea kenyensis  
 Olea capensis  
 Olea europaea  
 Olea welwitschii  
 Olinia rochetiana  
 Otostegia fruticosa  
 Parkinsonia aculeata

Pavetta oliveriana  
 Persea americana  
 Phoenix reclinata  
 Phytolacca dodecandra  
 Piliostigma thonningii  
 Pinus patula  
 Pinus radiata  
 Pittosporum viridiflorum  
 Podocarpus falcatus  
 Polyscias ferruginea  
 Premna schimperi  
 Prunus africanus  
 Prunus persica  
 Psidium guajava  
 Psydrax schimperiana  
 Rhamnus prinoides  
 Rhamnus staddo  
 Rhoicissus revoillii  
 Rhoicissus tridentata  
 Rhus glutinosa  
 Rhus natalensis  
 Rhus retinorrhoea  
 Rhus vulgaris

Ricinus communis  
 Rosa abyssinica  
 Salix subserata  
 Sapium ellipticum  
 Schefflera abyssinica  
 Schinus molle  
 Sesbania sesban  
 Spathodea campanulata  
 Stereospermum  
     kunthianum  
 Strychnos henningsii  
 Strychnos innocua  
 Syzygium guineense  
 Teclea nobilis  
 Terminalia brownii  
 Trichilia dregeana  
 Trilepisium  
     madagascariense  
 Vernonia amygdalina  
 Warburgia ugandensis  
 Woodfordia uniflora  
 Ximenia americana  
 Ziziphus mucronata

**WET WEYNA DEGA**

Acacia abyssinica  
 Acacia albida  
 Acacia bussei  
 Acacia decurrens  
 Acacia lahai  
 Acacia mearnsii  
 Acacia melanoxylon  
 Acacia sieberiana  
 Albizia grandibracteata  
 Albizia gummifera  
 Albizia lophantha  
 Allophylus abyssinica  
 Aningeria adolfi-  
     friedericii  
 Aningeria altissima  
 Apodytes dimidiata  
 Arundo donax  
 Bersama abyssinica

Borassus aethiopum  
 Buddleja polystachya  
 Caesalpinia decapetala  
 Casuarina equisetifolia  
 Catha edulis  
 Chamaecytisus  
     palmensis  
 Citrus medica  
 Citrus reticulata  
 Cordia africana  
 Croton macrostachyus  
 Cupressus lusitanica  
 Cyathea manniana  
 Dalbergia melanoxylon  
 Diospyros abyssinica  
 Diospyros mespiliformis  
 Dombeya torrida  
 Dovyalis abyssinica

Dracaena steudneri  
 Eckebergia capensis  
 Ehretia cymosa  
 Embelia schimperi  
 Ensete ventricosum  
 Entada abyssinica  
 Eriobotrya japonica  
 Erythrina abyssinica  
 Erythrina brucei  
 Eucalyptus citriodora  
 Eucalyptus globulus  
 Eucalyptus grandis  
 Eucalyptus saligna  
 Euclea schimperi  
 Euphorbia abyssinica  
 Fagaropsis angolensis  
 Ficus carica  
 Ficus elastica

**Wet Weyna Dega  
(contd)**

*Ficus sur*  
*Ficus sycomorus*  
*Flueggia virosa*  
*Galiniera saxifraga*  
*Grevillea robusta*  
*Grewia bicolor*  
*Grewia villosa*  
*Hagenia abyssinica*  
*Ilix mitis*  
*Jacaranda mimosifolia*  
*Juniperus procera*  
*Maesa lanceolata*  
*Manilkara butugi*  
*Markhamia lutea*  
*Maytenus arbutifolia*  
*Maytenus senegalensis*  
*Melia azederach*  
*Milettia ferruginea*  
*Mimusops kummel*  
*Morus alba*

*Myrtus communis*  
*Ocotea kenyensis*  
*Olea capensis*  
*Olea europaea*  
*Olea welwitschii*  
*Olinia rochetiana*  
*Pavetta oliveriana*  
*Persea americana*  
*Phoenix reclinata*  
*Phytolacca dodecandra*  
*Piliostigma thonningii*  
*Pinus radiata*  
*Pittosporum viridiflorum*  
*Podocarpus falcatus*  
*Polyscias ferruginea*  
*Prunus africana*  
*Prunus persica*  
*Psidium guajava*  
*Psydrax schimperiana*  
*Rhamnus prinoides*  
*Rhamnus staddo*  
*Rhoicissus revouillii*  
*Rhoicissus tridentata*

*Rhus glutinosa*  
*Rhus natalensis*  
*Ricinus communis*  
*Salix subserata*  
*Sapium ellipticum*  
*Schefflera abyssinica*  
*Schinus molle*  
*Sesbania sesban*  
*Spathodea campanulata*  
*Stereospermum  
kunthianum*  
*Strychnos innocua*  
*Syzigium guineense*  
*Teclea nobilis*  
*Terminalia brownii*  
*Trichilia dregeana*  
*Trilepisium  
madagascariense*  
*Vernonia amygdalina*  
*Warburgia ugandensis*  
*Woodfordia uniflora*  
*Ximenia americana*  
*Ziziphus mucronata*

**MOIST DEGA**

*Acacia abyssinica*  
*Acacia decurrens*  
*Acacia lahai*  
*Acacia mearnsii*  
*Acacia melanoxylon*  
*Allophylus abyssinica*  
*Aningeria adolfi-  
friedericii*  
*Apodytes dimidiata*  
*Arundinaria alpina*  
*Berberis holstii*  
*Bersama abyssinica*  
*Cajanus cajan*  
*Carissa edulis*  
*Casuarina  
cunninghamiana*  
*Casuarina equisetifolia*

*Chamaecytisus  
palmensis*  
*Croton macrostachyus*  
*Cupressus lusitanica*  
*Diospyros abyssinicus*  
*Diospyros mespiliformis*  
*Discopodium  
penninervum*  
*Dombeya schimperiana*  
*Dombeya torrida*  
*Ekebergia capensis*  
*Embelia schimperi*  
*Ensete ventricosum*  
*Erica arborea*  
*Eucalyptus globulus*  
*Eucalyptus viminalis*  
*Euphorbia tirucalli*

*Ficus elastica*  
*Galiniera saxifraga*  
*Grevillea robusta*  
*Hagenia abyssinica*  
*Hypericum revolutum*  
*Ilix mitis*  
*Juniperus procera*  
*Justicia schimperiana*  
*Maesa lanceolata*  
*Manilkara butugi*  
*Maytenus arbutifolia*  
*Maytenus undata*  
*Myrica salicifolia*  
*Nuxia congesta*  
*Olea europaea var.  
africana*  
*Olea welwitschii*

USEFUL TREES AND SHRUBS FOR ETHIOPIA

**Moist Dega (contd)**

Otostegia fruticosa  
Pinus radiata  
Pittosporum viridiflorum  
Podocarpus falcatus

Polyscias ferruginea  
Psydrax schimperiana  
Rhamnus prinoides  
Rhamnus staddo  
Ricinus communis  
Rosa abyssinica

Salix subserata  
Schefflera abyssinica  
Schinus molle  
Teclea nobilis

**WET DEGA**

Acacia abyssinica  
Acacia decurrens  
Acacia lahai  
Acacia mearnsii  
Acacia melanoxylon  
Allophylus abyssinicus  
Aningeria adolfi-  
friedericii  
Apodytes dimidiata  
Arundinaria alpina  
Chamaecytisus  
palmensis  
Croton macrostachyus  
Cupressus lusitanica  
Discopodium  
penninervum  
Dombeya schimperiana

Dombeya torrida  
Eckebergia capensis  
Embelia schimperi  
Ensete ventricosum  
Erica arborea  
Eucalyptus globulus  
Eucalyptus viminalis  
Ficus elastica  
Galiniera saxifraga  
Grevillea robusta  
Hagenia abyssinica  
Hypericum revolutum  
Ilex mitis  
Juniperus procera  
Maesa lanceolata  
Manilkara butugi  
Maytenus arbutifolia

Maytenus undata  
Myrica salicifolia  
Nuxia congesta  
Olea europaea  
Olea welwitschii  
Pinus radiata  
Pittosporum viridiflorum  
Podocarpus falcatus  
Polyscias ferruginea  
Rhamnus prinoides  
Rhamnus staddo  
Ricinus communis  
Rosa abyssinica  
Salix subserata  
Schefflera abyssinica  
Schinus molle  
Teclea nobilis

**MOIST WURCH**

Buddleja polystachya  
Croton macrostachyus  
Cupressus lusitanica  
Discopodium  
penninervum

Dombeya schimperiana  
Dombeya torrida  
Erica arborea  
Galiniera saxifraga

Hypericum  
quartinianum  
Hypericum revolutum  
Hypericum roeperianum

**WET WURCH**

Discopodium  
penninervum  
Erica arborea

Hypericum  
quartinianum  
Hypericum revolutum

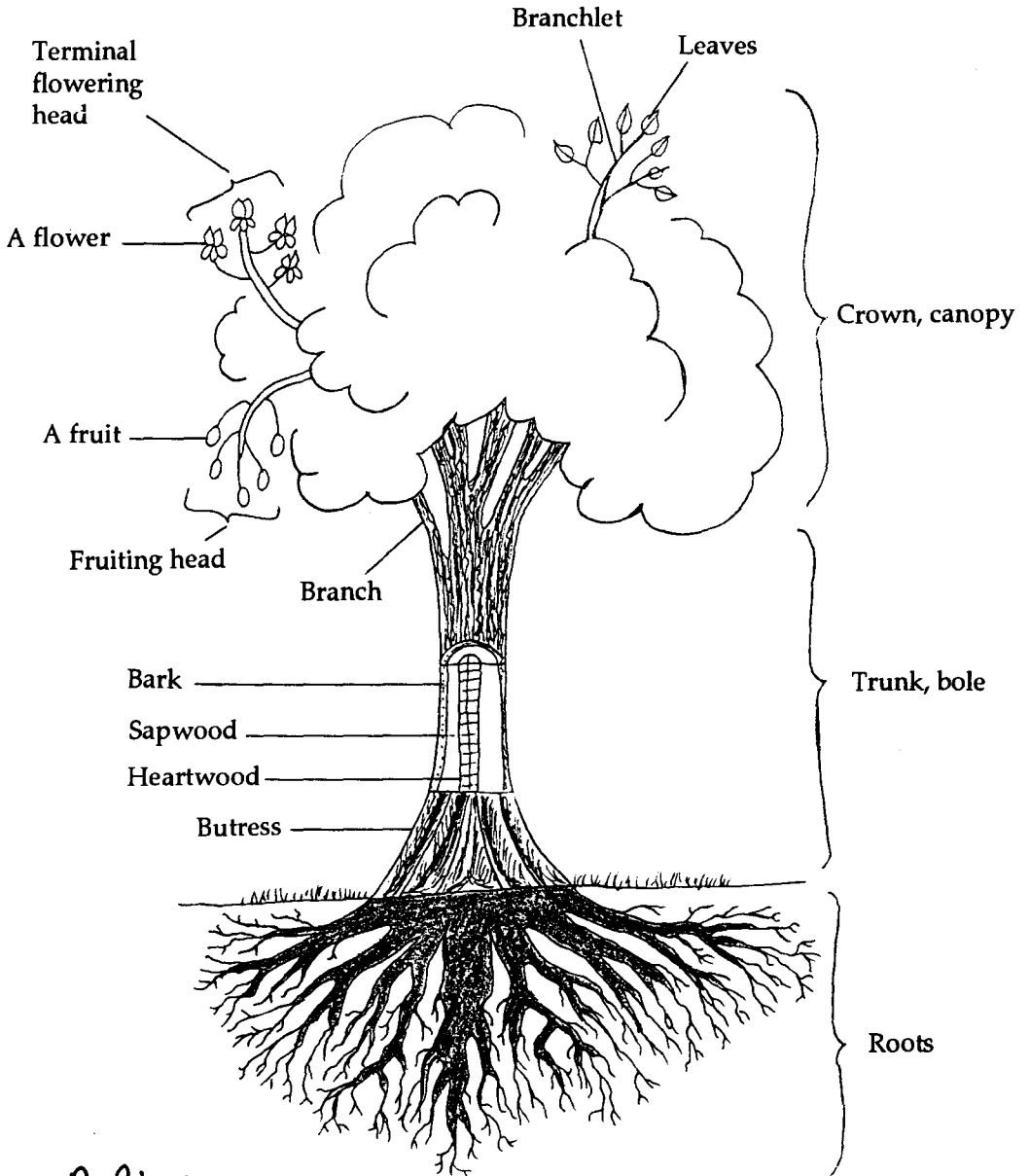
Hypericum roeperianum

**HIGH WURCH**

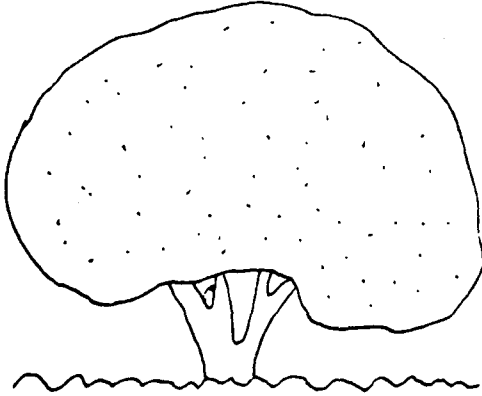
Hypericum  
quartinianum

Hypericum roeperianum

The parts of a typical tree



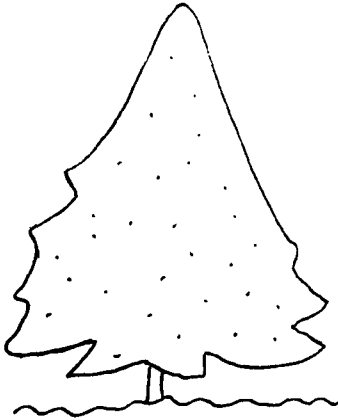
### Tree shapes



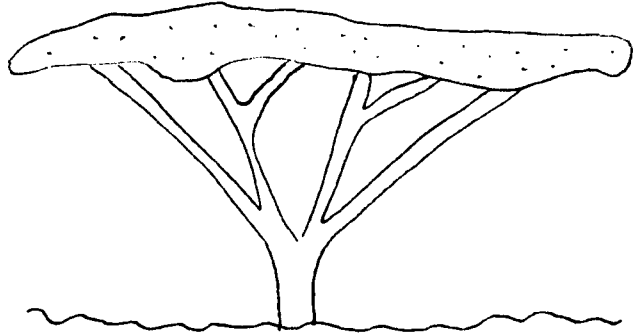
Rounded crown, dense, shady canopy



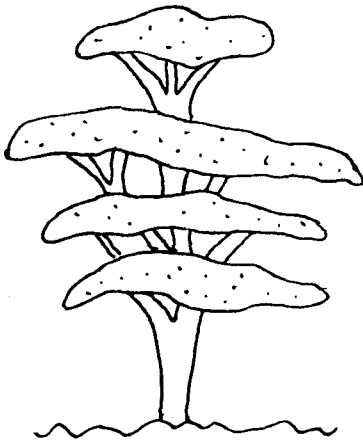
Narrow open crown, light shade



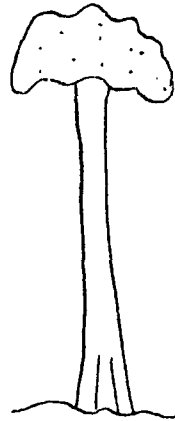
Conical crown



Flat-topped, spreading crown



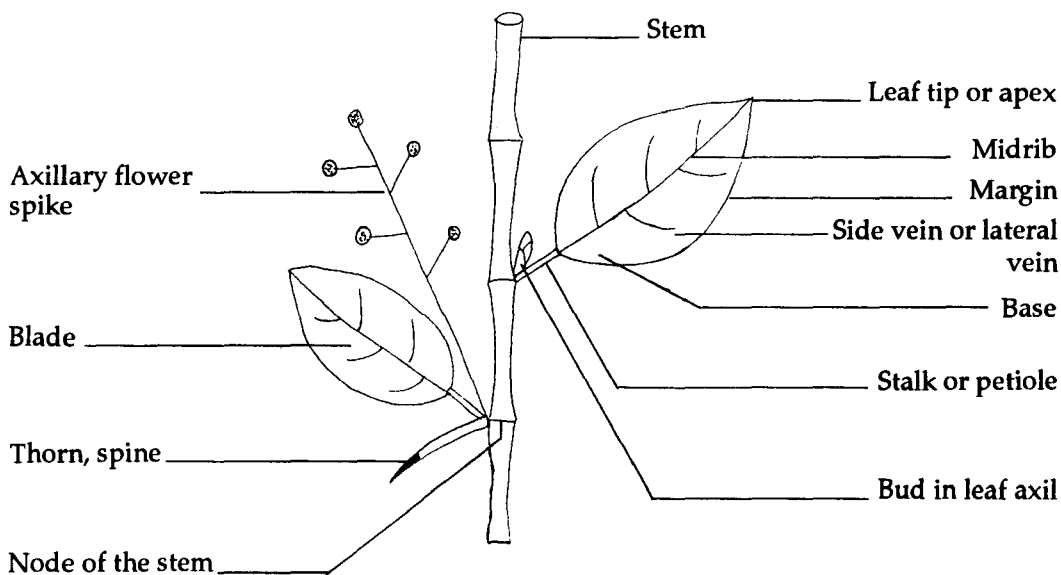
Canopy in layers



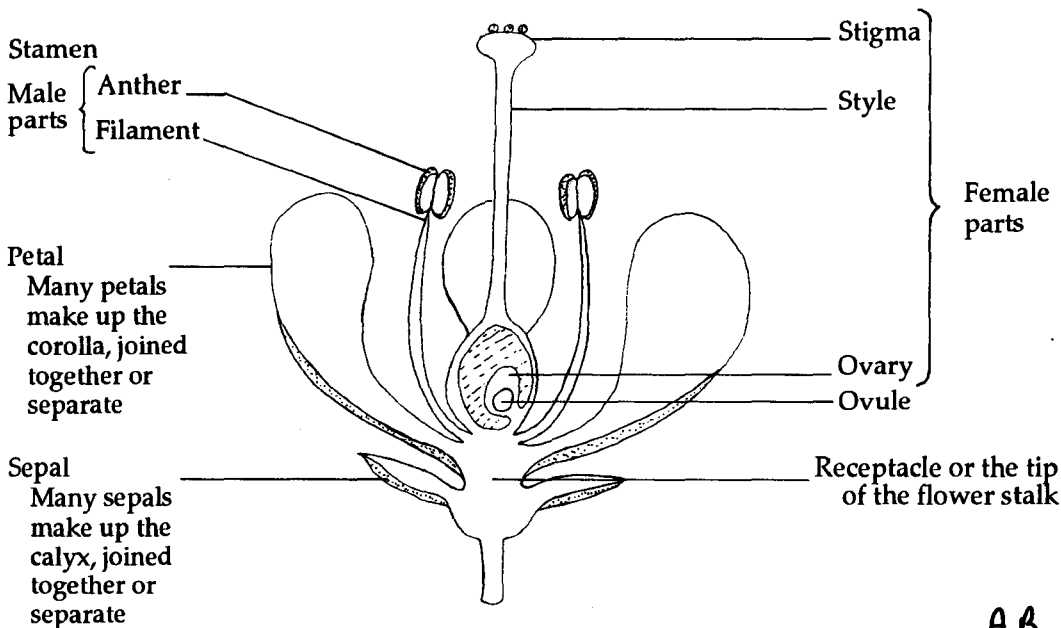
A tall bole, small dense crown

## Leaves and stems

Diagram showing two simple leaves alternate on a stem



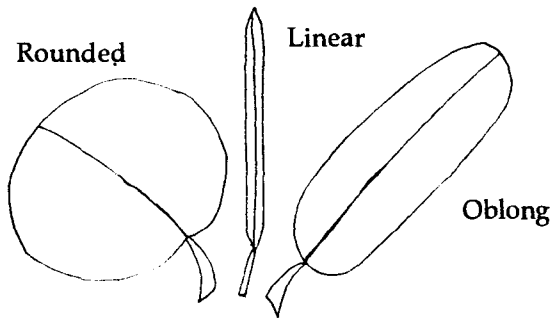
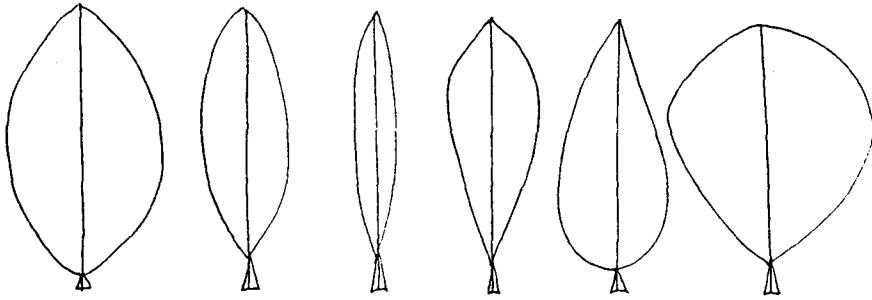
### A diagrammatic section through a typical flower



A.B.

## Leaves

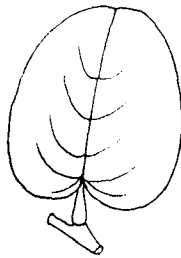
A variety of simple oval-shaped leaves



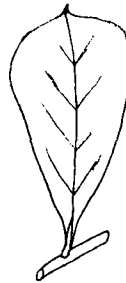
### Leaf base



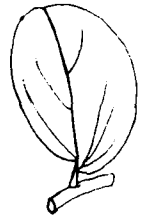
No leaf stalk  
—sessile



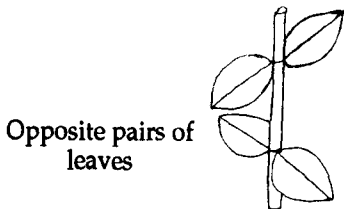
Leaf base heart  
shaped



Leaf base narrowed



Leaf base unequal  
—asymmetric



Opposite pairs of  
leaves

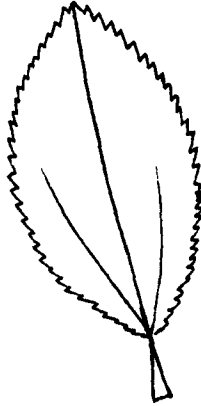


Four whorled leaves

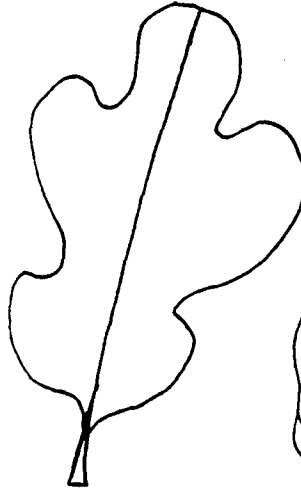
Leaf edge (margin)



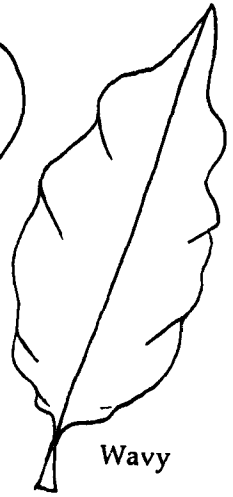
Toothed (serrate)



Finely toothed



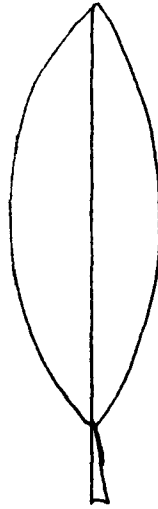
Lobed



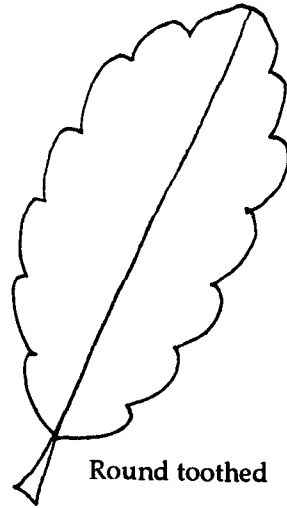
Wavy



Double toothed



Simple (entire)

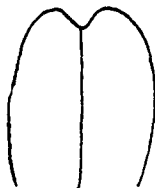


Round toothed

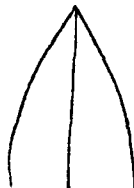
Leaf tip (apex)



Rounded



Notched



Pointed

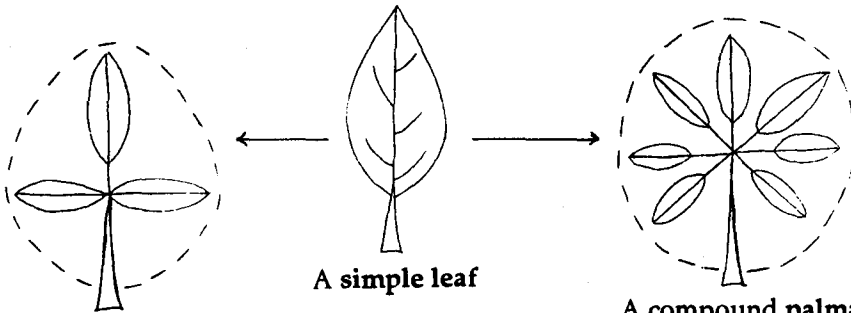


Blunt



Leaves may be simple or compound.

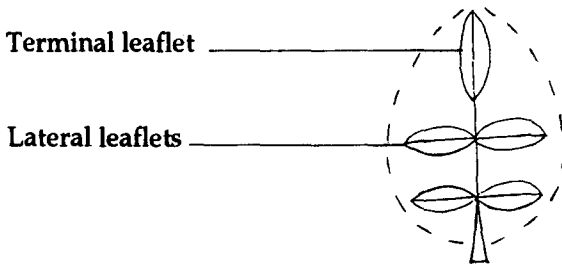
A compound leaf is a leaf whose blade is divided into smaller leaflets.



A compound trifoliolate leaf  
Three leaflets, e.g. *Rhus*

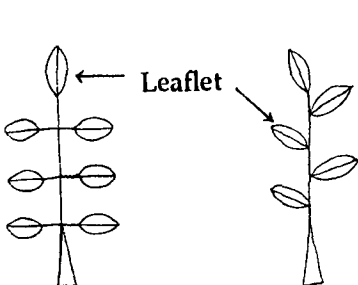
A compound palmate leaf  
(digitate)  
Many leaflets spread like fingers  
of the hand, e.g. *Adansonia*

A compound pinnate leaf



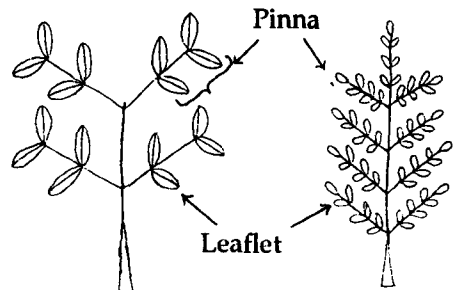
Five or more leaflets arise on  
either side of the leaf stalk,  
resembling a bird's feather (Latin  
*pinna*: wing)

Pinnate compound leaves are of several types.  
Those with very small leaflets have "feathery leaves".



Compound pinnate leaves

Once-compound leaves, e.g. *Markhamia*



Two pairs of pinnae

Four pairs  
of pinnae

Twice compound leaves  
(bipinnate), e.g. *Acacia* spp.

PART III

DETAILS ON THE SPECIES

**Indigenous**

<b>Af:</b> Keselto	<b>Or:</b> Gerbi, Ambo
<b>Am:</b> Bazra girar	<b>Tg:</b> Cheha
<b>Eng:</b> Umbrella thorn	<b>Wt:</b> Odorwa

**Ecology:** In wooded grassland, highland forest edges of Dry, Moist and Wet Weyna Dega and Wet and Moist Dega agroclimatic zones of Gonder, Gojam, Wolega, Bale, Arsi, Ilubabor, Kefa, Sidamo, western Tigray and Shewa regions, 1,500–2,800 m.

**Uses:** Firewood, charcoal, poles, posts, tool handles, medicine, fodder, bee forage, soil conservation, nitrogen fixation, shade (for cattle), fence (cut branches).

**Description:** A large flat-topped tree to 20 m when mature. BARK: Rough, grooved, dark brown. THORNS: Very variable, short or long, sometimes none. LEAVES: Compound, 15–36 pairs pinnae when mature, on a stalk to 9 cm, leaflets tiny. FLOWERS: Very many, round heads of cream flowers, buds pink-red. FRUIT: Pods to 12 cm, usually straight, red-grey-brown, splitting to set free seed.

**Propagation:** Seedlings, direct sowing, root suckers.

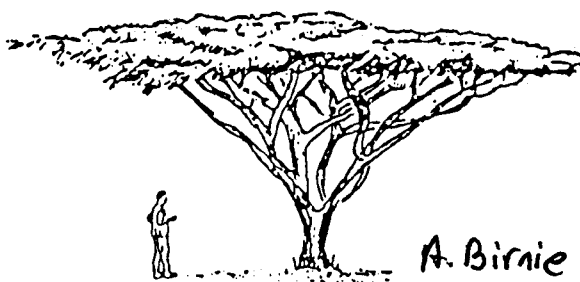
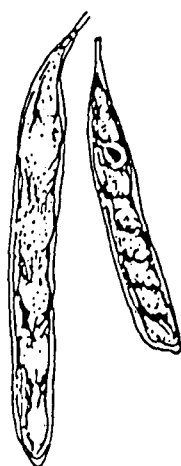
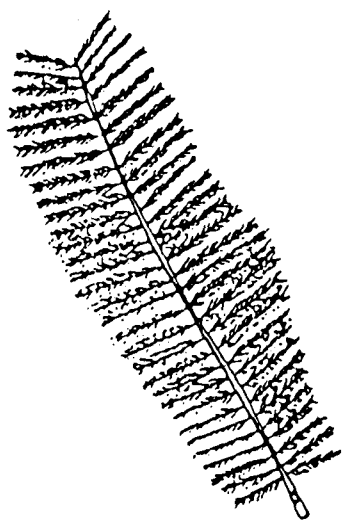
**Seed:** Seed quite small, highly susceptible to beetle attack while still in pods. Damaged seeds should be separated by floating. No. of seeds per kg: 16,000–18,000.

**Treatment:** Soak in cold water or put in hot water and allow to cool for 36–48 hours.

**Storage:** Seed can be stored for long periods if kept in a cool, dry and insect-free place.

**Management:** Growth rate is medium to fast.

**Remarks:** Spreading roots make it unsuitable for planting beside fields. Drought tolerant, will grow on degraded land and along gullies. It makes good fuelwood but the hard wood is difficult to work.



A. Birnie

**Indigenous****Am:** *Grar***Or:** *Gerbi, Derot***Eng:** *Apple-ring acacia***Sh:** *Momona***Ga:** *Kertor***Tg:** *Aqba, Garsha, Momona*

**Ecology:** Widespread in semi-arid Africa on a wide range of soil types and in different climates, preferring Dry, Moist and Wet Weyna Dega agroclimatic zones. It does well on occasionally waterlogged land. It grows up to 2,600 m in Eritrea, Tigray, Gonder, Shewa, Arsi, Harerge, Sidamo, and Gamo Gofa regions.

**Uses:** **Firewood, charcoal**, posts, timber (construction), utensils; food (pods for flavouring, boiled seeds), medicine (bark), **fodder** (pods, leaves); **mulch**, soil conservation, **soil improvement**, nitrogen fixation, shade, windbreak, fence (cut branches), tannin, dye, soap.

**Description:** A **large leafy tree** 15–30 m, wide **rounded crown** when mature, sometimes deciduous. **BARK:** Grey-brown, rough; **young twigs pale grey and zigzag**. **THORNS:** Straight to 2 cm long (shorter than *A. tortilis*). **LEAVES:** Compound, 3–10 pairs pinnae, **leaflets round tipped**, grey-green, little dot glands just visible where the pinnae grow out of the leaf stalk. **FLOWERS:** In dense **creamy spikes about 10 cm long**, very fragrant. **FRUIT:** Pods conspicuous **bright orange** to red-brown, twisted and curled, thick, hard and shiny, to 35 cm long by 5 cm wide, containing 10–20 seeds which ripen at the end of the dry season. Pods do not split open but rot on the ground to release seed. Seedlings have leaves like those of mature trees—an aid to identification.

**Propagation:** Seedlings, direct sowing.

**Seed:** No. of seeds per kg: 7,500–10,000.

**Treatment:** Nick the seed or soak in water for 24 hours.

**Storage:** Can be stored indefinitely if kept cool, dry, and insects free.

**Management:** Slow initial growth, later fairly fast growing on good sites; lopping, pollarding.

**Remarks:** The species is now called *Faidherbia albida* because so many of its parts are unlike those of any other *Acacia*. It is intercropped with sorghum and millet in West Africa. Deep-rooted so does not compete with food crops. Unlike many trees, *A. albida* is in leaf throughout the dry season so available to stock when other forage is in short supply. Fallen pods, rich in protein, can also be eaten at the beginning of the rains. At that time also fallen leaves provide mulch for crop growth.



**Indigenous****Af:** *Eibeto***Sm:** *Adad-medu, Gwider, Rede***Am:** *Sebansa***Tg:** *Guadade, Haq, Sellewa***Eng:** *Wait-a-bit thorn*

**Ecology:** A shrub or tree commonly found in Dry and Moist Kolla agroclimatic zones in Welo, Tigray, Eritrea, and Harerge regions, mainly along water courses, on rocky ground, and in deciduous bushland, 400–1,900 m.

**Uses:** Firewood, charcoal, **timber** (construction), **fodder** (camel browse).

**Description:** A tree or shrub up to 10 m. **BARK:** On young stems yellow and peeling, on older stems dark grey and fissured. **THORNS:** Variable, short, straight or recurved, single, in threes, the central thorn hooked. **LEAVES:** Compound, with **3–6 widely spaced pairs of pinnae**, on a stalk to 5 cm, leaflets grey-green with rounded tips. **FLOWERS:** **White-pale yellow on spikes to 11 cm**. **FRUIT:** **Straight flat pods, brown-purple and smooth to 12 cm long, breaking open.**

**Propagation:** Does well from seedlings. Direct seeding on moist sites is possible.

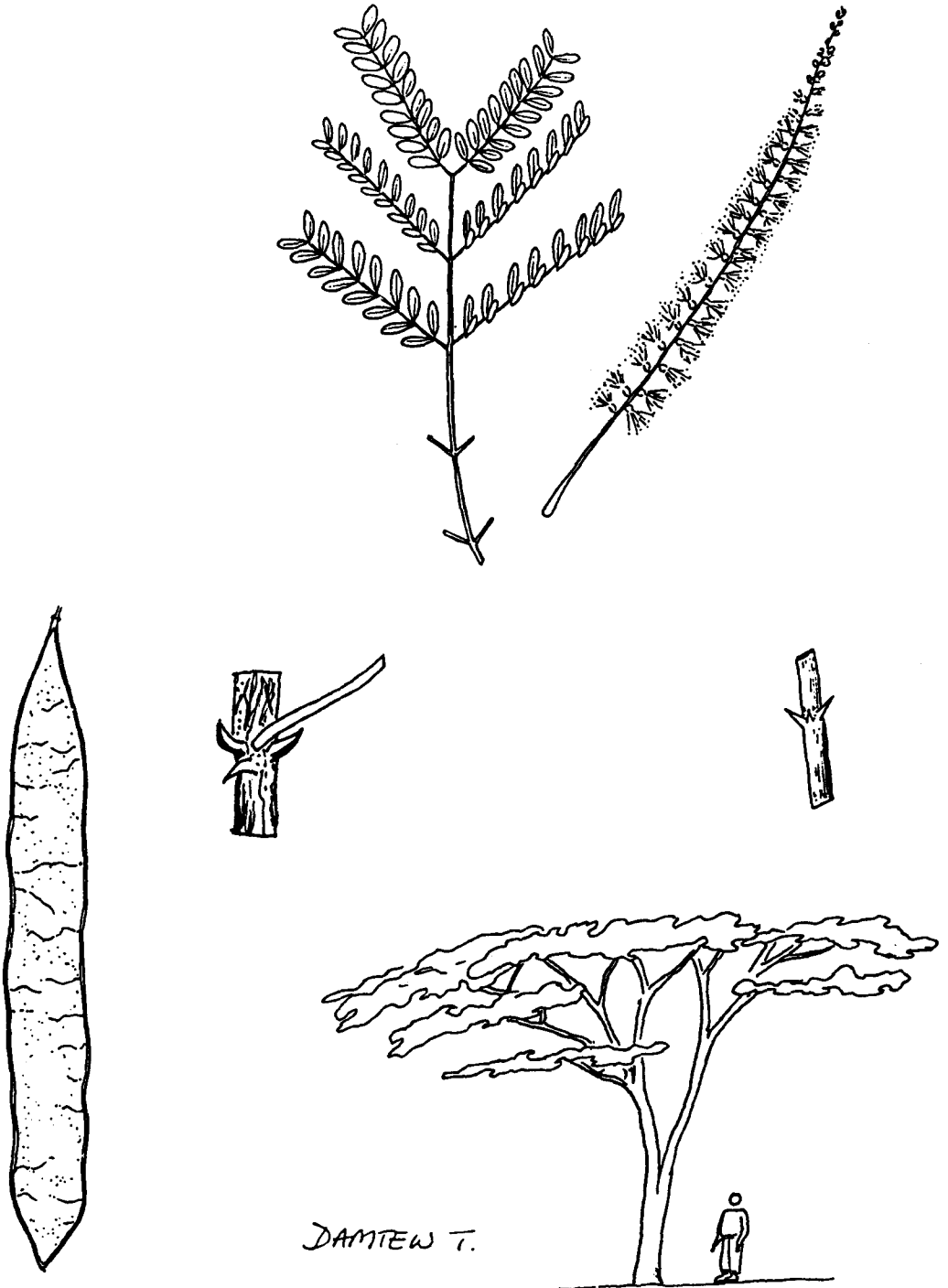
**Seed:** No. of seeds per kg: 5,000–6,000.

**Treatment:** Not necessary.

**Storage:** Can be stored for a long period.

**Management:**

**Remarks:**



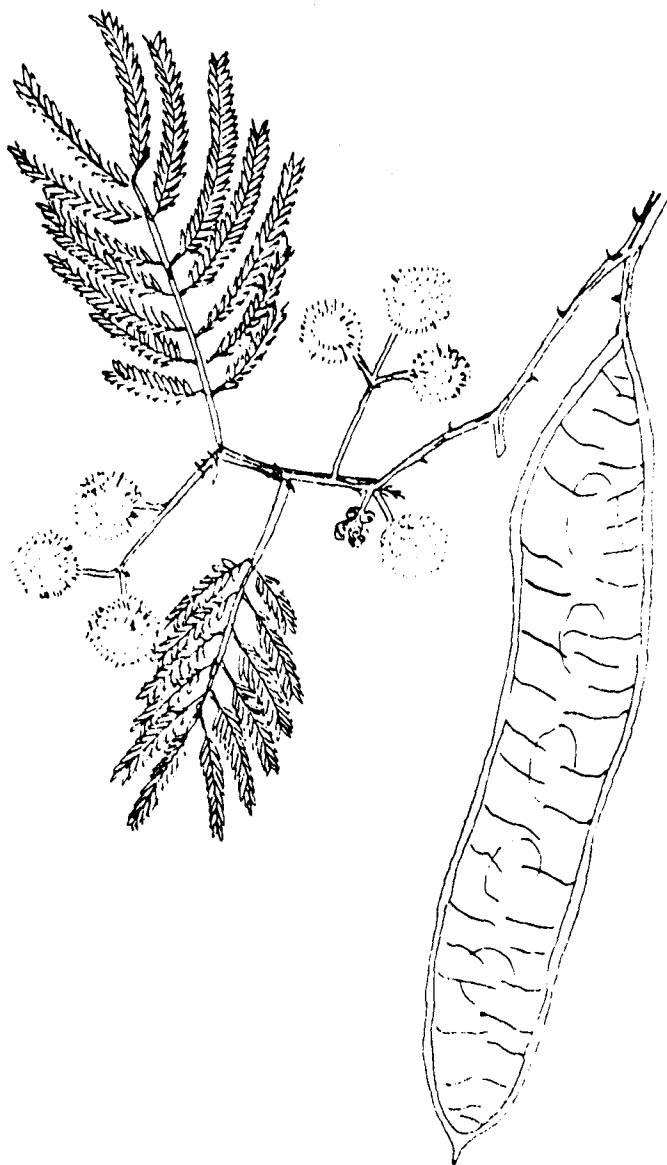


**Indigenous**

**Am:** Kontevl, Mezazign,  
Qanter, Qwentr  
**Br:** Gorgor, Hammaress  
**Eng:** Wait-a-bit thorn

**Or:** Sokeusa, Amezaze  
**Sm:** Furgori, Qorqor  
**Wt:** Gwemoriyya

- Ecology:** Found together with other shrubs and trees in bushland. It grows well in Moist and Dry Kolla and Weyna Dega agroclimatic zones of Harerge, Bale, Gonder, Sidamo, and Shewa regions, 900–2,000 m.
- Uses:** Firewood, medicine (roots), **fodder** (pods and leaves), **live fence**.
- Description:** Sometimes a slender tree to 7 m but more often a shrub, forming thickets, or **scrambling** over other plants. **BARK:** Light grey–pale brown; young stems green, hairy, often zigzag. **THORNS:** Characteristic, small, **single prickles, mostly hooked, scattered along the stems**. **LEAVES:** Compound, 5–20 pairs pinnae, leaf stalk to 10 cm. **FLOWERS:** Fragrant, yellow-white in **round heads on branching stalks to 10 cm**. The shrub is very noticeable when in flower over large areas. **FRUIT:** Pods, usually **straight to 15 cm, rough brown, thin**, so seeds inside are visible, splitting open easily on the tree.
- Propagation:** Seedlings, direct sowing.
- Seed:** No. of seeds per kg: 7,000–9,000.
- Treatment:** Immerse in hot water and soak for 24 hours.
- Storage:** Seed stores well.
- Management:** Fairly fast growing. Coppicing.
- Remarks:** Can be a troublesome weed in pasture. It commonly regenerates even after burning and clearing. However, it is a good fodder to fatten goats and cattle which eat the young pods.



## Indigenous

**Am:** Girar,                   **Sm:** Galo, Galool  
**Or:** Hallo                   **Tg:** Gumero

**Ecology:** Found in deciduous bushland and dry scrub of the Dry and Moist Kolla and Weyna Dega agroclimatic zones of Bale, Sidamo and Harerge regions. Occasionally found in Bereha zones also.

**Uses:** **Firewood**, charcoal, tannin (bark).

**Description:** Usually a small tree 3–10 m high, often branching from the base or from a trunk and with a flat top. **BARK:** Rough brown-black; **young branches grey-purple**, sometimes hairy. **THORNS:** Grey, straight to 9 cm. **Some are paler, white and swollen**, others with a **narrow stalk below the swelling**. **LEAVES:** Compound, 2–8 pairs pinnae on a short stalk, leaflets tiny. **FLOWERS:** **Cream, on spikes** to 5 cm. **FRUIT:** Pods, brown and **straight, short and oblong, about 6 cm**, split open to set free very small flat seeds.

**Propagation:** Seedlings.

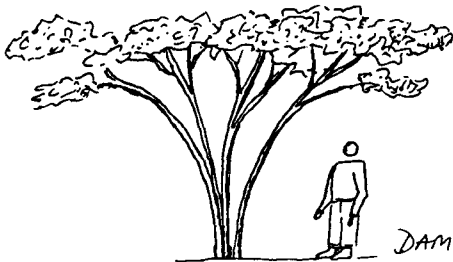
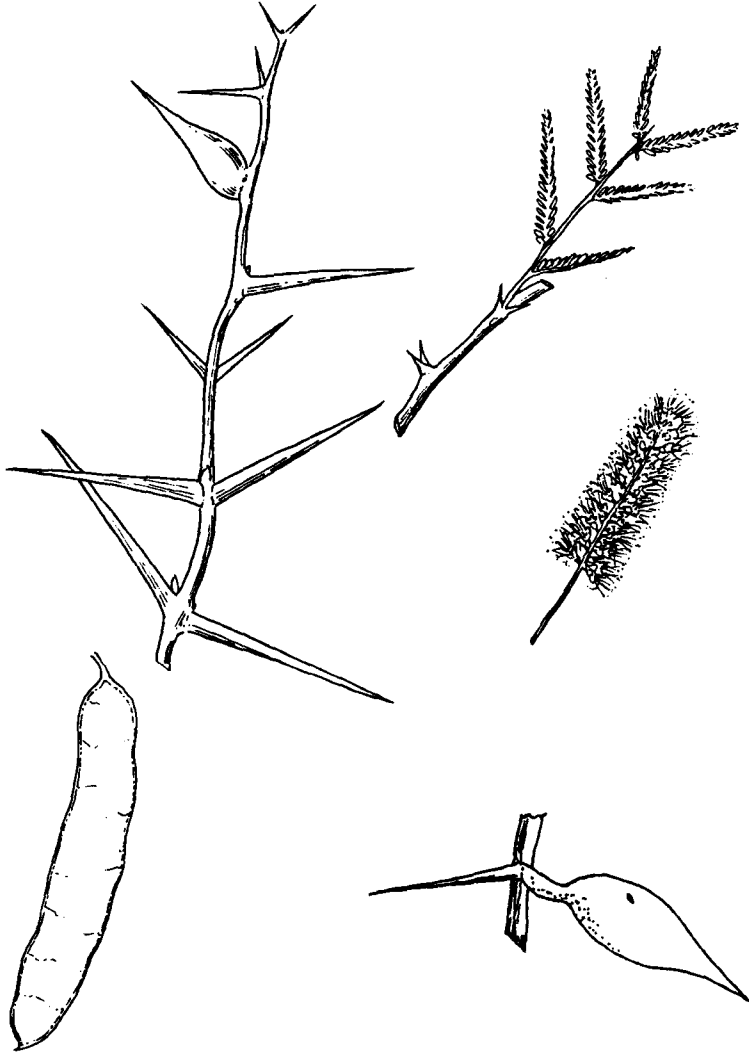
**Seed:**

**Treatment:** Soak the seeds in cold water overnight.

**Storage:** Stores well.

**Management:** Coppicing, pruning.

**Remarks:**

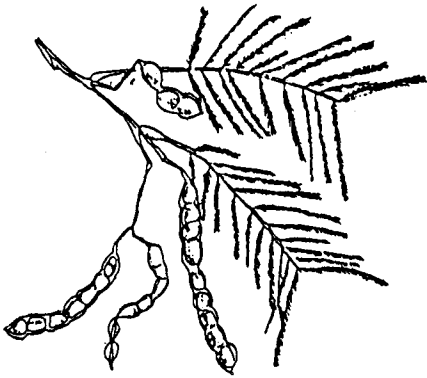
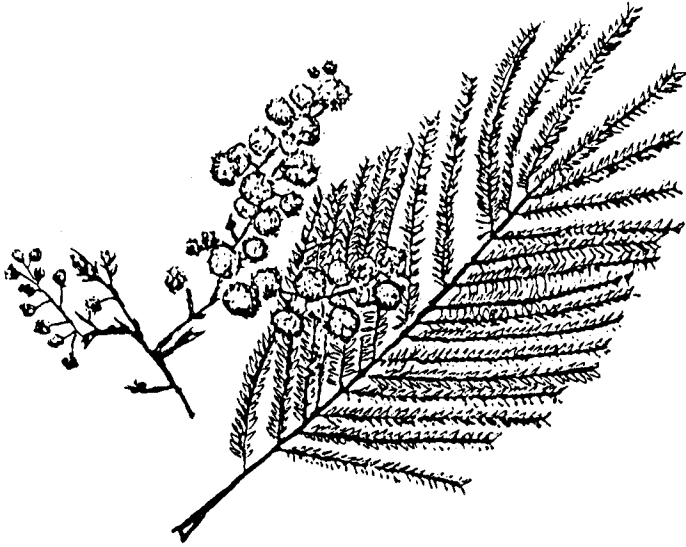


S.E. Australia

**Am:** *Akacha, Mimosa*

**Eng:** *Green wattle, King wattle, Sydney black wattle*

- Ecology:** This species grows naturally in lower mountain valleys south of Sydney, Australia and has been widely introduced elsewhere. In Ethiopia, it is cultivated in west Eritrea, Wolega and Shewa regions above 1,000 m. It grows well in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,600–3,000 m.
- Uses:** **Firewood, charcoal, poles, posts,** forage (pods), bee forage, **soil conservation,** nitrogen fixation, ornamental, shade, **windbreak, live fence,** tannin (bark).
- Description:** A beautiful tree or shrub with strong upright growth, 6–12 m or more, the **young green branchlets quite angular** with wing-like ridges. **LEAVES:** Feathery, compound with **8–15 pairs pinnae** and very many narrow leaflets 6–12 mm long. **FLOWERS:** Crowded in bright golden-yellow heads. **FRUIT:** Thin pods, brown–dark brown, breaking open one side only, jointed but **not so much narrowed between seeds** as *A. mearnsii*.
- Propagation:** Seed, root suckers.
- Seed:** No. of seeds per kilogram: 40,000–50,000; 50–70% germination in 15–20 days.
- Treatment:** Immerse in boiling water and cool for 24 hours.
- Storage:** Will store many years in a cool dry place.
- Management:** Seedlings should spend 7–8 months in the nursery before planting out. Will regenerate after coppicing.
- Remarks:** The species is closely related to, and often confused with, *A. mearnsii* and *A. dealbata*. Although the tannin from the bark is of good quality, special processes are needed to remove undesirable colouring matter. This plant may become a weed, spreading rapidly by seed in good conditions. In Ethiopian conditions it has great potential for poles and woodfuel in woodlots as well as for stabilizing soil.



A.B.

**Indigenous**

**Am:** Wttie                      **Or:** Burquqqe, Derot, Lafto, Sondi, Garbi  
**Eng:** Red thorn              **Tg:** Lahay  
**Gm:** Qeretor                  **Wt:** Guganta

**Ecology:** An upland woodland and scrub acacia, preferring Moist and Wet Weyna Dega and Dega agroclimatic zones of western Eritrea, western Tigray, western Welo, Gonder, Gojam, Shewa, Wolega, Harerge and Kefa regions, 1,700–2,600 m. An acacia found at high altitudes.

**Uses:** Firewood, charcoal, timber (heavy construction, bridges), posts, nitrogen fixation, shade, dye (bark).

**Description:** The dark trunk holds up a very flat-topped tree to 15 m. BARK: Grey to dark brown, rough, grooved, branchlets brown-purple, hairy. THORNS: Usually straight, grey-brown, small to 7 cm. LEAVES: Compound, leaf stalk 2–8 cm with 6–15 pairs pinnae, leaflets tiny, pointed. FLOWERS: In cream-yellow spikes to 7 cm, no stalk, flowering branchlets covered with red gland dots. FRUIT: Short pods, straight or curved, up to 7 cm by 3 cm wide, shiny brown, splitting on the tree to set free seed.

**Propagation:** Seedlings.

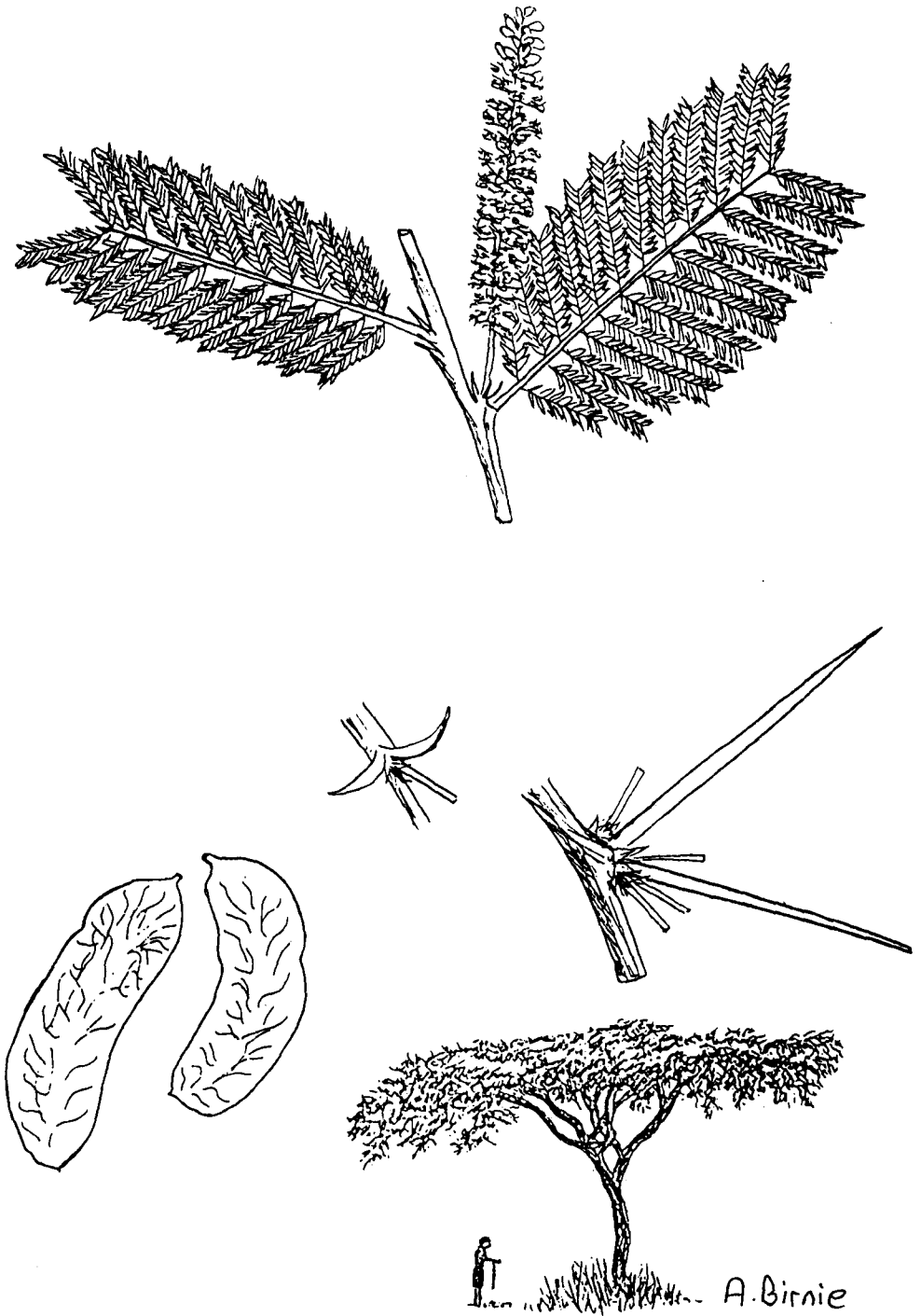
**Seed:** Many seeds are damaged by insects while still in their pods. These can be separated from good seeds by immersion in water; the bad seeds float. No. of seeds per kg:  $\pm 4,000$ .

**Treatment:** None.

**Storage:** Seed can be stored for long periods.

**Management:** Lopping.

**Remarks:** The tree is not well suited to intercropping due to its broad canopy and heavy shade. In Ethiopia, it is fairly fast growing, often bushy and flowers and fruits when 0.5–1.0 m high. Bark crushed in water can be sprinkled on hot pots to colour them red.





Australia

*Am:* *Mimosa*

*Eng:* *Black wattle*

**Ecology:** Native to Australia where it grows from hot Queensland to cool Tasmania. Now introduced world wide. In Ethiopia it performs well in Moist and Wet Weyna Dega and Dega agroclimatic zones.

**Uses:** **Firewood**, charcoal, **poles**, posts, medicine, bee forage, soil conservation, nitrogen fixation, ornamental, **windbreak**, fibre, **tannin**.

**Description:** An unarmed shrub or tree, 2-15 m, the trunk providing straight poles in close-planted plantations. Sometimes leans over due to the shallow root system. **BARK:** Smooth, green at first, later **black**, fissured **with resinous gum** when cut. **LEAVES:** Compound, feathery **dull green**, leaf stalk to 12 cm and up to 21 pairs pinnae, **leaflets tiny**. **FLOWERS:** Many **pale yellow** rounded flower heads on a **branched stalk**, **very fragrant**. **FRUIT:** Numerous dull brown pods with **3-12 joints**, straight or bent. **Sections break up** and contain the small black seeds.

**Propagation:** Seedlings, direct sowing.

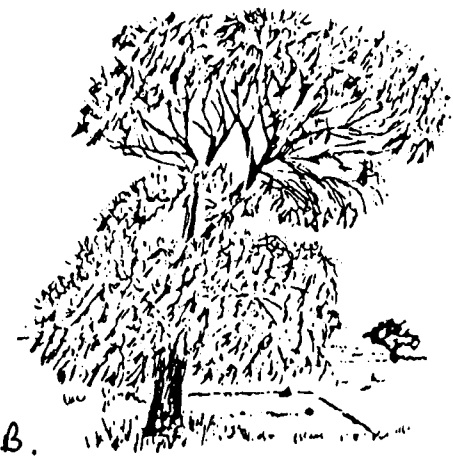
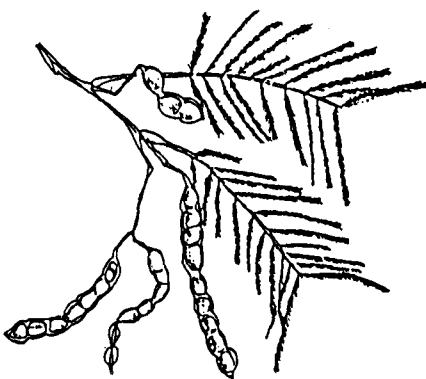
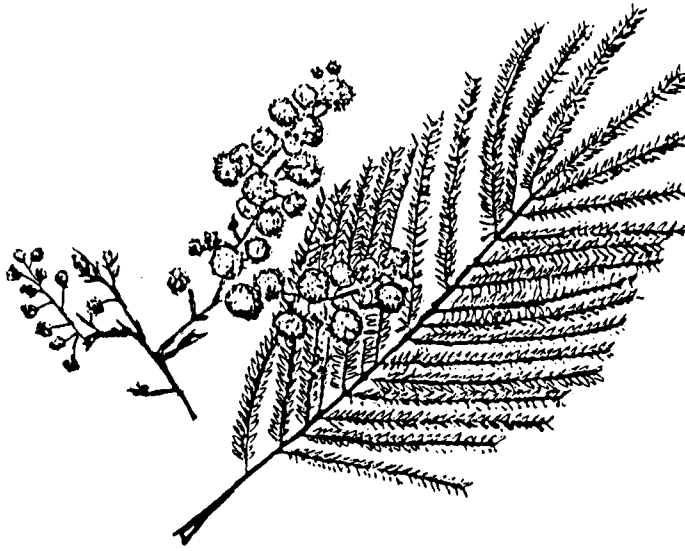
**Seed:** No. of seeds per kg: 50,000-85,000; germination 50-80 %.

**Treatment:** Immerse in boiling water and cool for 24 hours.

**Storage:** Seed can be stored for long periods.

**Management:** Thin if established by direct sowing.

**Remarks:** This species has recently been renamed *Rocosperma mearnsii*. It is the most widely used tree crop for high-quality tannin. Fast growing but short lived; a tree for woodlots. Potentially a weed on farmland and can be difficult to eradicate. It should not be intercropped due to competition for nutrients. Crops may not do well on soils previously planted to black wattle.

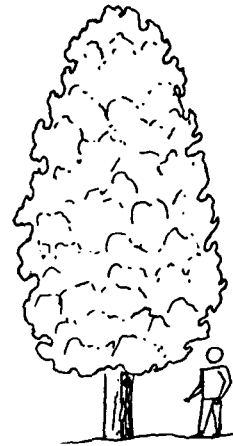
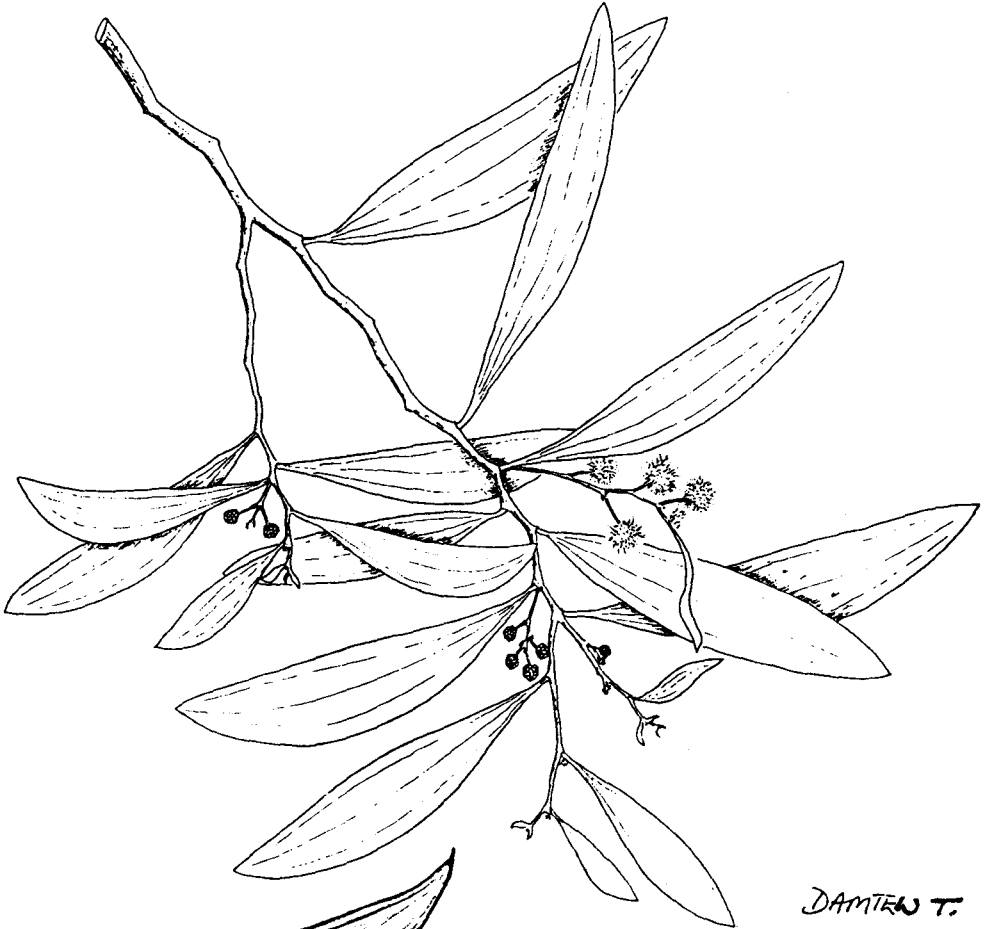


Southern Australia

*Am:* *Omedla*

*Eng:* *Australian blackwood*

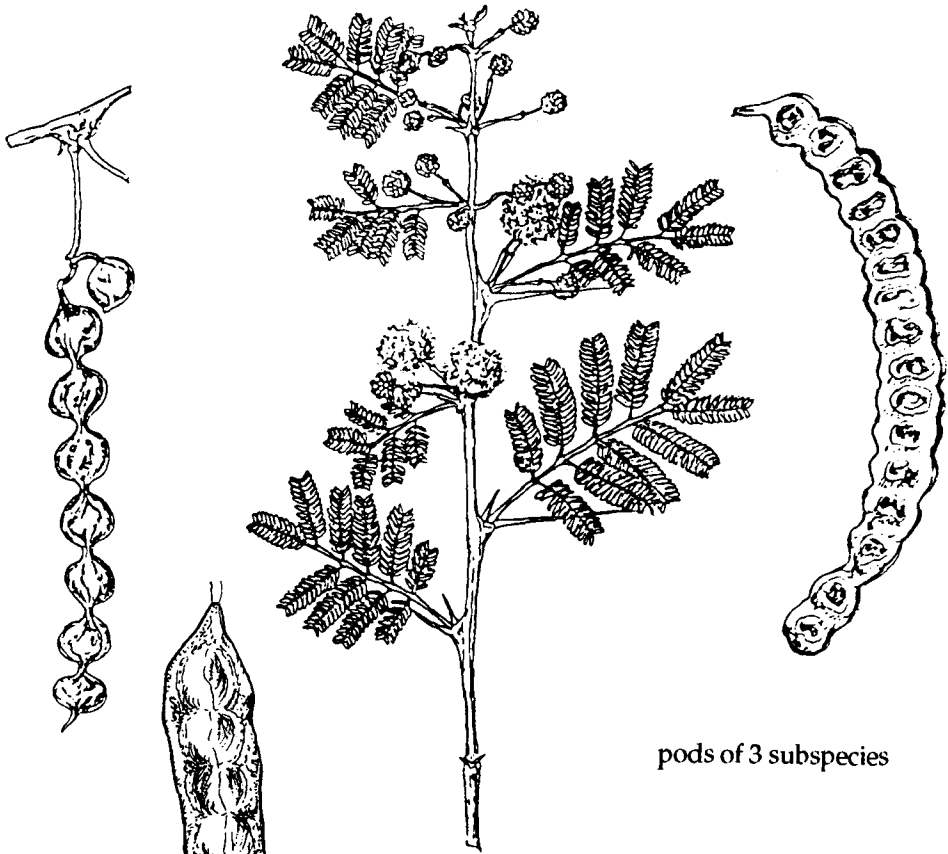
- Ecology:** One of the several exotic *Acacia* spp. introduced to Ethiopia. It is planted in cooler and wetter upland areas, Moist and Wet Weyna Dega and Dega agroclimatic zones.
- Uses:** Firewood, charcoal, **timber** (light construction, plywood), fence posts, **ornamental**, shade, **windbreak**, gum.
- Description:** A tall conical timber tree that grows to 35 m. **BARK:** Dark grey, **much fissured**. **LEAVES:** Dense grey-green, the very first leaves have feathery leaflets, but mature leaves are **flat, leathery leaf stalks**, slightly curved, to 10 cm long. **FLOWERS:** Creamy white in small round heads on a **branched stalk**. **PODS:** **Curved, twisted** and about 12 cm in length with **hanging shiny black seeds surrounded by a soft orange aril**.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 55,000–85,000.
- Treatment:** Immerse in boiling water, allow to cool. Germination rate: 55–90 %.
- Storage:** Can be stored.
- Management:** Lopping, pollarding.
- Remarks:** A very fast-growing tree producing hard and valuable timber.



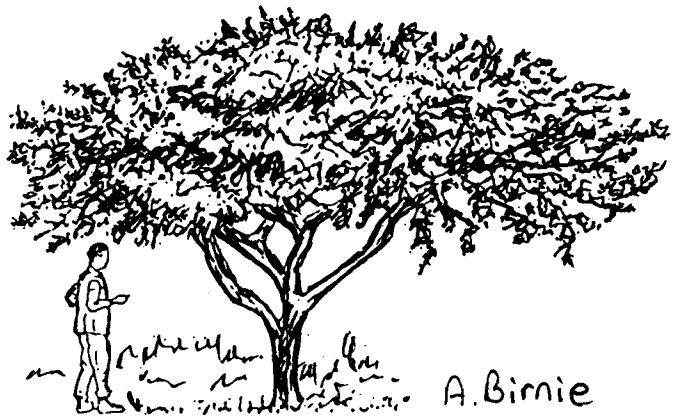
## Indigenous

<i>Am:</i>	<i>Cheba</i>	<i>Sh:</i>	<i>Aflo</i>
<i>Br:</i>	<i>Burguge</i>	<i>Sm:</i>	<i>Galol, Marah, Tuwer</i>
<i>Eng:</i>	<i>Egyptian thorn</i>	<i>Tg:</i>	<i>Chea, Gered chea</i>

- Ecology:** Common in arid and semi-arid areas in Africa. It occurs in woodlands and scrub in western Eritrea, Gamo Gofa, Kefa, Sidamo, Shewa, Arsi, and Harerge regions in Dry and Moist Kolla agroclimatic zones, 600–1,700. Subspecies *indica*, though native to India is cultivated in the Afar Plains, Eritrea, Shewa and Harerge regions.
- Uses:** **Firewood, charcoal**, poles, tool handles, carving, medicine (bark, roots), **fodder** (leaves, pods), bee forage, nitrogen fixation, soil conservation (river banks), windbreak, live fence, gum, dye (seeds), toothbrushes, **flue curing**.
- Description:** A large shrub or small tree, usually 2–6 m but can reach 14 m, **branching from the base** to make a **rounded crown**. **BARK:** On trunk rough **brown-black**, fissured. Young shoots often red-brown, hairy. **THORNS:** **Thin, grey-white** to 10 cm, often shorter, may point backwards. **LEAVES:** Compound, 2–11 pairs pinnae on leaf stalk 3–6 cm, new growth in the dry season. **FLOWERS:** Fragrant, **bright yellow round heads**. **FRUIT:** Pods, vary in different subspecies, straight or curved to 17 cm, fleshy and thick, hairy or not, narrowed between seeds or not. Seeds seen as distinct raised bumps in the pod, set free when pods rot on the ground.
- Propagation:** Seedlings, direct sowing.
- Seed:** Beetles attack the seed when still in the pod. Separate by immersion in water; bad seeds float. Germination rate 60–90%; no. of seeds per kg: 7,000–11,000.
- Treatment:** Not necessary for fresh seed. Nick stored seed or soak in cold water for 24 hours.
- Storage:** Seed stores well.
- Management:** Medium to fast-growing on good sites; lopping, pollarding.
- Remarks:** Five subspecies are recognized in Ethiopia. The pods of subspecies *indica* are hairy, grey-white, “necklace like”, the seeds separated along the pod. Young plants do not compete well so weeding is necessary. Wood is tough and termite resistant. The shrub can form thickets. This is not a preferred forage or bee tree if other browse or acacia blossom is available.



pods of 3 subspecies



A. Birnie

Indigenous

Ag: Chellegama                      Sm: Gumero, Gumara, Gummur, Gomur  
Or: Wangay, Wanga                Tg: Gamorot, Laud, Leaw, Ood

**Ecology:** Commonly occurs in deciduous bushland and semi-desert scrub or Dry and Moist Kolla and Bereha agroclimatic zones of eastern Eritrea, Bale, Sidamo, Harerge, Welo, the Afar plains, Tigray and Sidamo regions, 100–1,600 m.

**Uses:** Firewood, poles (hut frames), medicine (bark), fodder (leaves, twigs, pods), fibre (bark).

**Description:** A shrub to 5 m, **branching from the base**, irregular or flat topped. **BARK:** Grey-white but a **green underbark** with an unpleasant smell if cut. **THORNS:** Short, **conical and thick about 2 cm**, often pointing backwards. **LEAVES:** Compound, leaf stalk only 2–4 cm with 2–8 pairs pinnae, all parts sometimes hairy. **FLOWERS:** **Round**, several together, **white-cream-green, others pink-red**. **FRUIT:** Pods usually straight, **yellow-brown-grey, 6–13 cm, edge winged**, the surface softly hairy. Pods break open to release small flat green-grey seeds.

**Propagation:** Seedlings

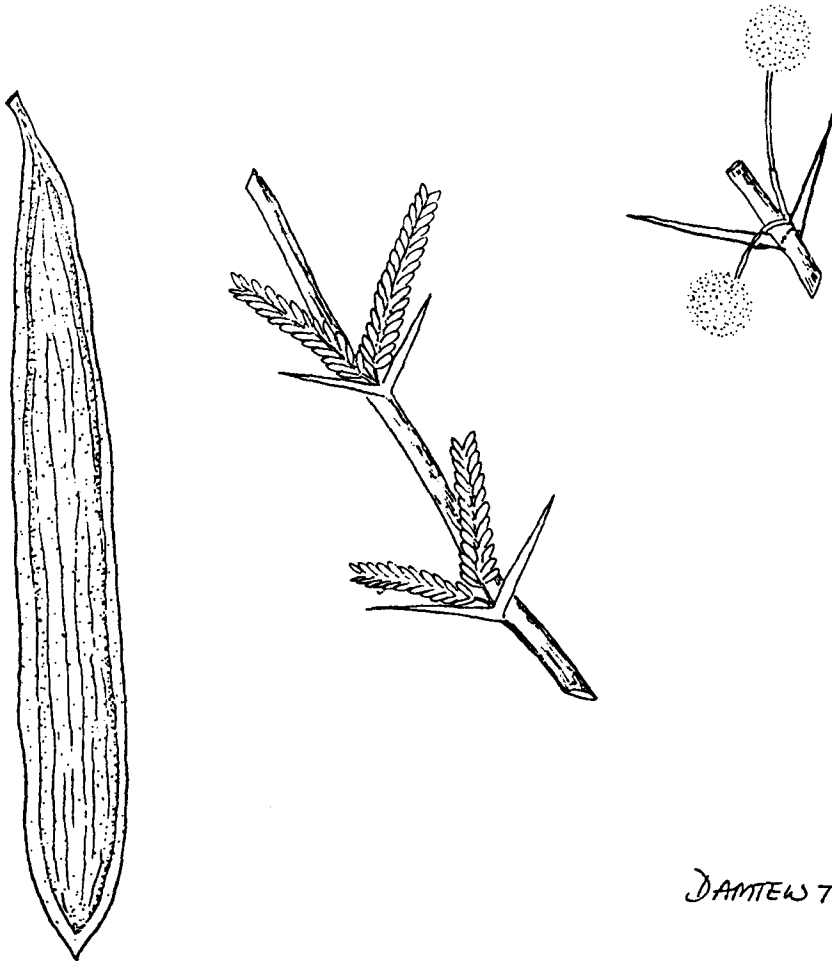
**Seed:**

**Treatment:** Soak in cold water overnight.

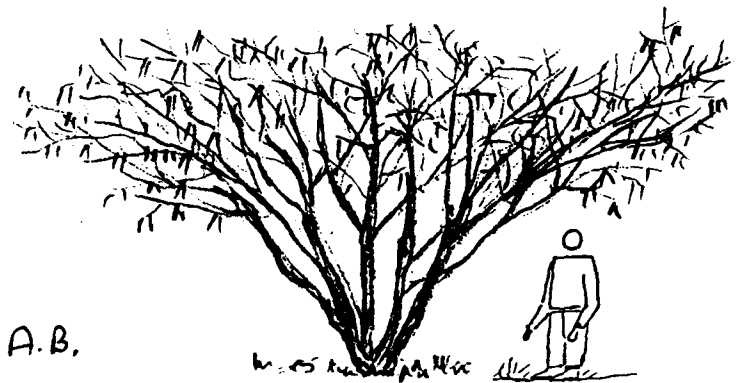
**Storage:** Can be stored.

**Management:** Coppicing, pollarding, lopping.

**Remarks:** A bark extract is used to treat rheumatism.



DANTEW T.



A.B.

W. 25 1/2 x 1 1/2 x 1/2



Indigenous

**Am:** *Gmarda*

**Eng:** *Falcon's-claw acacia*

**Tg:** *Gumero*

**Ecology:** Commonly found in wooded grassland, deciduous woodland and bushland and riverine forests in Dry and Moist Kolla agroclimatic zones of Shewa, Gonder, Gojam, western Tigray, western Eritrea, Ilubabor, Kefa, Gamo Gofa and Sidamo regions, prefers 500–1,600 m. May indicate fertile soil and groundwater but can also grow on stony soil.

**Uses:** Firewood, charcoal, timber, posts, **farm tools, medicine** (leaves, roots), fodder (leaves, pods), nitrogen fixation, ornamental, soil improvement, **live fence**.

**Description:** A tree to 25 m with feathery foliage but an open canopy often with a flattened but spreading crown. **BARK:** Yellow-brown, flaking, later grey-brown, fissured. **THORNS:** **Brown**, black tips, usually less than 1 cm and hooked. **LEAVES:** Compound, 13–40 pairs pinnae, leaflets very small and narrow, leaf stalk hairy with glands, to 20 cm. **FLOWERS:** Large, **cream-white spikes**, to 12 cm, 2 or 3 together, fragrant. **FRUIT:** Brown smooth pod, tip pointed, flat to 18 cm, splitting to set free seed.

**Propagation:** Seedlings, wildings, direct sowing.

**Seed:** Seeds prolifically. No. of seeds per kg: 14,000–16,000.

**Treatment:**

**Storage:** Seed can be stored if kept cool, dry and insect-free.

**Management:** Fast growing on good sites; pollarding, coppicing.

**Remarks:** The wood is termite resistant. The tree is host to many insects and pests.



A.B.

Australia

**Am:** *Akacha saligna*

**Eng:** *Port Jackson willow, Weeping wattle, Willow wattle*

**Or:** *Akacha saligna*

**Ecology:** A thornless exotic tree introduced from south-west Australia. The species can grow in Dry and Moist Kolla and Dry Weyna Dega agroclimatic zones. It grows on many soils but does best on light to medium loams and well-drained soils. Drought hardy.

**Uses:** **Firewood**, posts, fodder (leaves), **soil conservation**, **soil improvement**, nitrogen fixation, ornamental, shade, **windbreak**, live fence, gum (food preservative).

**Description:** A shrub or leafy tree to 10 m. **BARK:** Smooth, grey-brown. **LEAVES:** Long and thin to 22 cm (feathery acacia-type leaves in seedlings in mature tree flattened leaf stalks become leaves looking similar to eucalyptus leaves). **FLOWERS:** Bright yellow, in **small round heads**. **FRUIT:** Thin pods, straight or curved to 15 cm, narrowed between seeds.

**Propagation:** Seedlings, root suckers.

**Seed:** Germination rate: 55–90%. No. of seeds per kg: 14,000–80,000.

**Treatment:** Immerse in boiling water and cool for 24 hours.

**Storage:** Can be kept for one or two years in a cool dry place.

**Management:** Coppicing, pollarding.

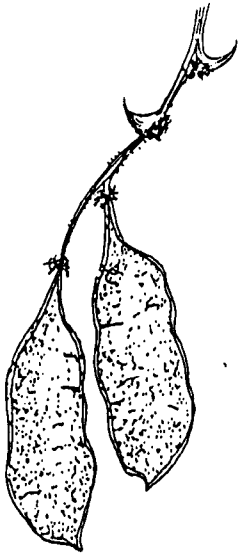
**Remarks:** The tree grows rapidly. Since it is hardy and regenerates easily, there is some danger that it could become a weed if grown on farm land. It has been used successfully to reclaim eroded land and to prevent soil erosion on the sides of steep gullies. The leaves are only eaten when there is little other livestock fodder available.



## Indigenous

**Am:** Kontir, Sbansa-girar**Sm:** Adad, Adad-meru, Agabo, Galol, Marah**Eng:** Gum arabic**Tg:** Qentib, Qentiba**Or:** Sabansa dima, Sapessa**Wt:** Tundukiyac**Ga:** Akersa

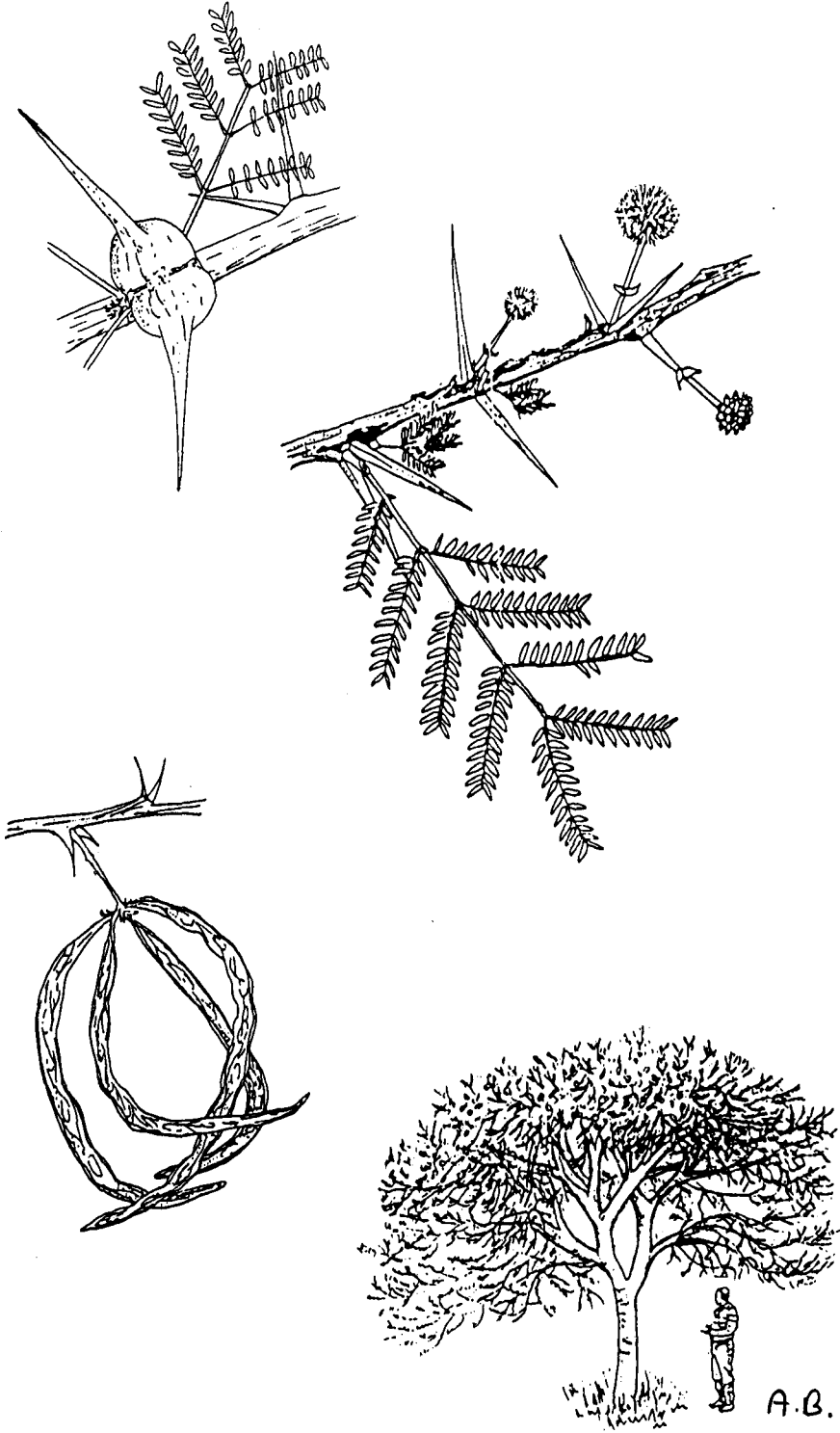
- Ecology:** Common in Dry and Moist Kolla agroclimatic zones of the Afar plain, western Eritrea, western Welo, Shewa, Bale, and Harerge; tolerates high daily temperatures and a long dry season. Prefers moist and well-drained soils. Widespread in dry scrub, wooded grassland, 600–1,700 m.
- Uses:** Firewood, charcoal, posts, poles, tools, handles, food (seed), medicine (roots), fodder (pods, leaves), soil conservation, soil improvement, **gum**, dye (seeds).
- Description:** A shrub or tree to 15 m, rounded, many low branches, or tall and thin. **BARK:** Variable, smooth or **peeling yellow and papery from red-brown base**. **THORNS:** **Prickles in threes**, the central one hooked downwards, the other two curved up, **brown to black**. **LEAVES:** Compound, usually hairy, only 3–6 pairs pinnae on a stalk to 7 cm, leaflets narrow, very small, grey-green. **FLOWERS:** **Creamy spikes**, one or more, 2–10 cm, fragrant, usually develop before the rainy season. **FRUIT:** Pods, variable, thin and flat, oblong to 14 cm, narrowing at both ends, grey-yellow becoming **papery brown**, veins clear, splitting to release seed.
- Propagation:** Seedlings, direct sowing, coppicing.
- Seed:** Not a prolific seeder. Seed susceptible to beetle attack. Germination rate is low. No. of seeds per kg: 8,000–11,000.
- Treatment:** Nick seed or soak them in cold water for 24 hours.
- Storage:** Seed stores well in a cool, dry and insect-free place.
- Management:** Slow growing; needs weeding and protection from animals during early stages, lopping, coppicing.
- Remarks:** Three subspecies are recognized in Ethiopia. Can be intercropped (e.g. with sorghum and millet). Gum arabic is traded commercially for use in dyeing, ink making and medicine. Production is best when the tree grows on poor soils.



**Indigenous**

<b>Af:</b>	<i>Adiquento, Makani,</i>	<b>Or:</b>	<i>Wosiya wajo, Wakko-dimo</i>
<b>Am:</b>	<i>Wachu</i>	<b>Sh:</b>	<i>Aflo</i>
<b>Br:</b>	<i>Wocha-adi, Wacho dima</i>	<b>Sm:</b>	<i>Fulay</i>
<b>Eng:</b>	<i>White-galled acacia,</i> <i>White whistling thorn</i>	<b>Tg:</b>	<i>Qeyeh-chea, Tseada-chea</i>
		<b>Wt:</b>	<i>Fundukiya</i>

- Ecology:** Found on seasonally flooded black-cotton soil, in river valleys and wooded grassland of Dry and Moist Weyna Dega agroclimatic zones in Gojam, Shewa, Arsi, Harerge, Ilubabor, Kefa, Sidamo, western Tigray, western Welo, and western Eritrea regions, 1,200–2,100 m.
- Uses:** Firewood, charcoal, poles, posts, medicine (bark, gum), fodder (leaves), bee forage, nitrogen fixation, soil conservation, shade, windbreak, gum, tannin (bark), dye (bark).
- Description:** A small to medium sized tree, up to 9 m, rather thin with layered branches or small, more rounded. BARK: Distinctive powdery, **white to pale green or orange-red**, often peeling to reveal greenish underbark. THORNS: Wide-angled pairs of **strong white thorns to 8 cm**. In subspecies *fistula* the bases of a pair swollen to form round ant galls. LEAVES: Compound, 3–7 pairs pinnae, raised glands just visible on leaf stalk. FLOWERS: Fragrant, **bright yellow in round heads over 1 cm across**, several beside the thorns. FRUIT: Bunches of narrow, curved pods 7–20 cm, shiny light brown, narrowed between seeds, splitting open on the tree.
- Propagation:** Seedlings, wildings.
- Seed:** No. of seeds per kg:  $\pm 20,000$ .
- Treatment:** Not necessary for fresh seed. Nick stored seed or soak in cold water for 24 hours.
- Storage:** Seed can be stored for three months if kept cool, dry and insect free.
- Management:** Medium to fast growing; lopping, pollarding, coppicing.
- Remarks:** Two varieties are recognized in Ethiopia. It is recommended for planting along stream banks. The Borena people extract a red dye from the bark. In western Ethiopia the tree is widely used to shade coffee. The gum is not as good as that of *Acacia senegal*.

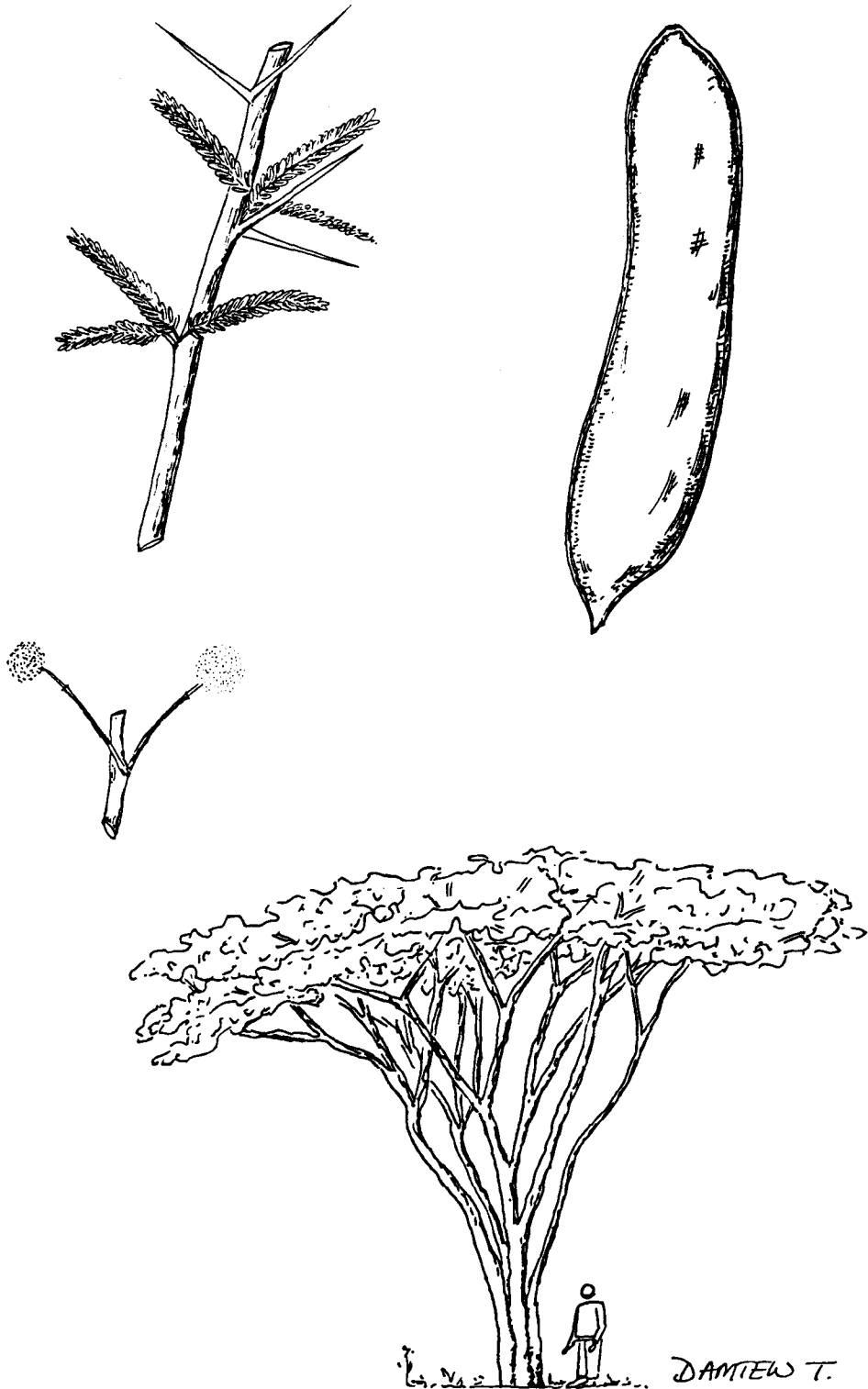




**Indigenous**

<b>Gr:</b>	<i>Deweni-guna</i>	<b>Tg:</b>	<i>Nefacia, Tseada-chea</i>
<b>Or:</b>	<i>Burquqe, Gurha, Lafto, Lafto-adi</i>	<b>Wt:</b>	<i>Gara, Pulliesa</i>
<b>Sm:</b>	<i>Jerin, Cherin</i>		

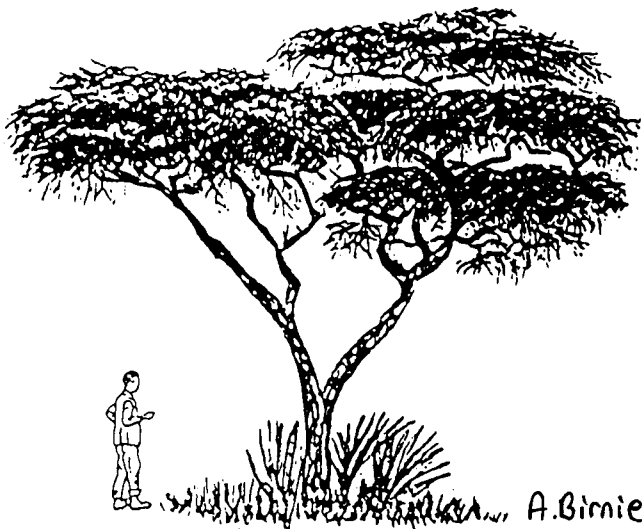
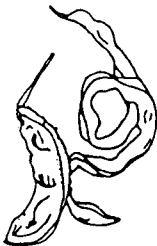
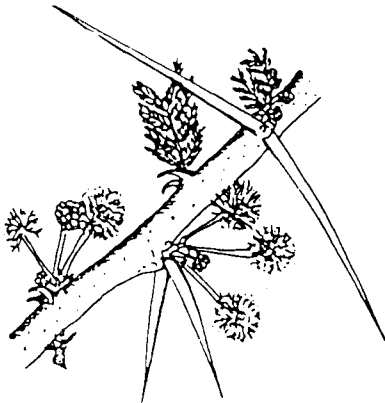
- Ecology:** Usually found in deciduous woodlands and along margins of rivers in Moist, Dry and Wet Weyna Dega and Dry and Moist Kolla agroclimatic zones of western Eritrea, western Welo, Shewa, Wolega, Ilubabor, Kefa and Sidamo regions, 500–2,200 m.
- Uses:** **Firewood, charcoal, timber** (local construction), fodder (leaves, fruit), tool handles, **fences** (cut branches), gum.
- Description:** A tree upto 18 m, sometimes with a wide bole, the crown a **shady spreading umbrella**. **BARK:** Grey-brown, rough or **papery; younger branches yellow-brown, flaking** or densely covered with pale hairs. **THORNS:** **Grey-white, straight to 9 cm**, sometimes absent on parts of the tree. **LEAVES:** Hairy or not, 8–35 pairs pinnae on a stalk to 13 cm, **leaflets tiny**. **FLOWERS:** **Cream-white in round heads**, about 1 cm across, fragrant, hairy or not. **FRUIT:** **Large and woody, to 21 x 3 cm**, slightly curved. The shiny brown pods dry out and break open on the ground to set free hard flat seeds about 1 cm long.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 3,250.
- Treatment:**
- Storage:** Can be stored.
- Management:** Lopping, pollarding, coppicing.
- Remarks:** Two varieties are recognized in Ethiopia. The wood is liable to borer attack but is used to make farm tools and mills and presses. The gum is clear and of a good quality. The foliage and fruit are good fodder.



## Indigenous

<b>Af:</b> Behbey	<b>Or:</b> Lotoba, Tedecha
<b>Am:</b> Deweni grar	<b>Sh:</b> Tsi
<b>Br:</b> Dadach	<b>Sm:</b> Abak, Akab, Kura, Ora, Timad
<b>Ga:</b> Shera	<b>Tg:</b> Akiba, Aqba

- Ecology:** Common all over Africa. Widespread in Dry and Moist Kolla and Weyna Dega agroclimatic zones of the Afar plain, Bale, Arsi, Harerge, Shewa, western Welo, western Eritrea, and western Tigray, 600–1,900 m. Favours alkaline soils and can grow on shallow soils. Produces enormous deep roots penetrating a wide area to collect water. The pods are an important source of fodder in the semi-desert areas of Africa.
- Uses:** **Firewood**, charcoal, timber, poles, **posts**, **fodder** (shoots, leaves, pods), bee forage, soil conservation, nitrogen fixation, shade (livestock), fences (cut branches), fibre (bark).
- Description:** A characteristic tree of drylands, 4–21 m, the **crown layered, flat and spreading** or rounded, sometimes a shrub. **BARK:** Grey-brown-black and **fissured when mature**. **THORNS:** Two kinds: **small hooked** and **long, straight white**, sometimes mixed pairs all on one stem. **LEAVES:** 2–10 pairs pinnae on a **short stalk** only 2–4 cm. **FLOWERS:** Fragrant, **cream**, in round heads. **FRUIT:** Yellow-brown pods, each containing up to 10 brown seeds, hang in dense bunches spirally twisted, sometimes in rings.
- Propagation:** Seedlings, wildings.
- Seed:** Slow germination, low germination rate. No. of seeds per kg: 12,000–31,000.
- Treatment:** Seed is very hard. Pour boiling water over seed and leave to soak for 24 hours.
- Storage:** Seed can be stored for a very long period without losing viability.
- Management:** Slow-growing but if well managed it grows relatively fast on dry sandy soils. Protect young plants from goats. Lopping.
- Remarks:** Often indicates the tree limit into desert areas. It can be left to grow on pasture or crop land.



**Indigenous**

<b>Ag:</b>	<i>Bisira</i>	<b>Or:</b>	<i>Karachu</i>
<b>Am:</b>	<i>Gararu, Merenz</i>	<b>Sm:</b>	<i>Wagireadad</i>
<b>Eng:</b>	<i>Poison-arrow tree</i>	<b>Tg:</b>	<i>Mebetti</i>

- Ecology:** A tree of dry woodland, thickets and grasslands, Dry and Moist Weyna Dega agroclimatic zones. It prefers rich well-drained forest soil but also grows on black-cotton and poor soils in dry areas, 1,400–2,300 m.
- Uses:** Spear shafts, **medicine**, arrow poison (white latex from roots, leaf or bark), ornamental, **shade** (livestock).
- Description:** A dense evergreen or **small rounded tree**, with short bole to 5 m, sometimes 10 m. **BARK:** Dark brown, grooved with age, young twigs flattened. **LEAVES:** **Opposite, dark shiny green above, stiff and leathery, oval to rounded 4–7 cm, tip pointed and sharp.** **FLOWERS:** Appearing with early rains, in dense, **fragrant clusters**, almost stalkless, white-pink, tubular. **FRUIT:** **Oval berries to 1.5 cm, yellow to purple.**
- Propagation:** Seedlings.
- Seed:** Produces much seed, but difficult to germinate.
- Treatment:** Soak in cold water to separate the fleshy part of the fruit from the seeds.
- Storage:**
- Management:** Slow growing. Coppicing.
- Remarks:** Children eat the ripe purple fruit, as do birds and monkeys.



**Indigenous**

**Am:** *Bamba*  
**Eng:** *Baobab*  
**Gr:** *Dima*

**Sm:** *Yag*  
**Tg:** *Hermer banba, Kommer, Momret*

**Ecology:** A conspicuous and well-known tree in tropical Africa south of the Sahara. In Ethiopia it grows in Bereha and Dry Kolla agroclimatic zones (common in Tekeze Valley), growing best in moist and well-drained soils. It is deep rooted, drought hardy, and prefers a high watertable, 700–1,700 m.

**Uses:** Fuel (dry fruit cases), carving (utensils, floats, light canoes), **food** (shoots, leaves, seeds), drink (fruit pulp is high in vitamin C), **medicine** (every part: bark, roots), fodder (leaves, shoots, fruits), mulch, ornament, shade, **fibre** (young bark, roots), tannin (bark), red dye (roots), water containers, dishes (fruit cases), storage (hollow trees).

**Description:** A deciduous tree with a **thick trunk, diameter may reach 8 m, girth 20 m, and height 25 m. Bare** for up to 9 months, the stiff bare branches resemble roots (hence the name “upside-down tree”). **BARK: Smooth, grey to 10 cm thick, young spongy wood can hold much water. LEAVES: Seedlings have simple leaves, mature leaves with up to 9 leaflets. FLOWERS: Large and white, opening at night, the unpleasant smelling nectar attracts pollinating fruit bats. FRUIT: Vry big (15–22 cm), hairy, yellow-brown capsules, hanging on long stalks on the bare tree. Many seeds, within white-pink, dry, edible pulp that contains tartaric acid.**

**Propagation:** Seedlings, cuttings.

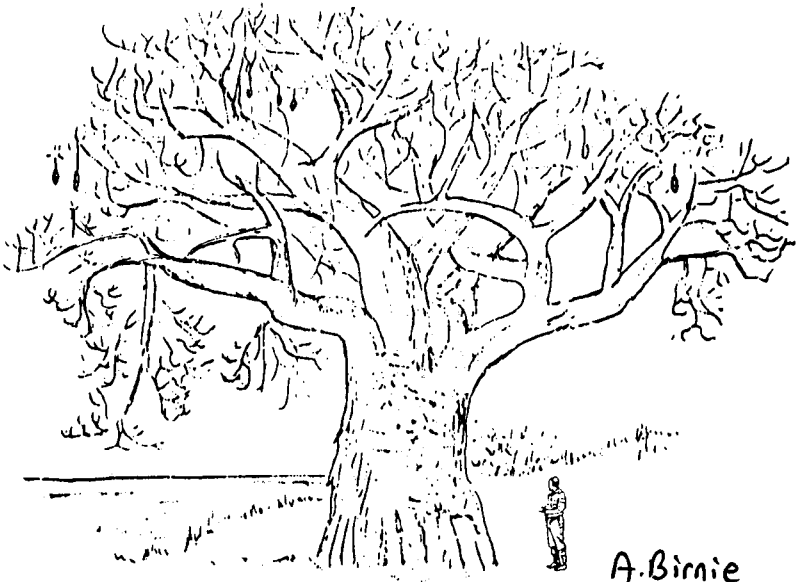
**Seed:** Seed collection is done in September–October. Poor seed germination. No. of seeds per kg: 1,500–2,500.

**Treatment:**

**Storage:** Seed can be stored for a long time if kept cool and dry.

**Management:** Lopping. The tree is fairly fast growing if undisturbed.

**Remarks:** The baobab is one of the longest living trees—up to 3,000 years—and old trees are often communal meeting places. Where baobabs are common, as in the Sahel, every part of the tree is used. Hollow trunks can store large quantities of water. The soft wet wood is hard to carve and fire resistant. The inner bark of young trees is cut to extract strong durable fibres used for baskets and rope. The bark regenerates and can be cut again in a few years.



A. Birnie



Indigenous

**Eng:** *Large-leaved albizia*

**Gm:** *Sat, Serri*

**Or:** *Shawo, Kofale, Alele, Halele, Emela*

**Ecology:** Grows in rain forest and riverine forest. Prefers Moist and Wet Kolla and Weyna Dega agroclimatic zones in Ilubabor, Kefa, Wolega, Shewa, and Sidamo regions, 1,200–1,700 m.

**Uses:** **Firewood, farm tools, medicine (roots), soap (bark), bee forage, mulch, nitrogen fixation, ornament**

**Description:** A medium-sized deciduous tree with a straight trunk to 20 m and a **flattened** or layered crown. **BARK:** Fairly **smooth, pale grey-brown**. **LEAVES:** Compound, on a stalk to 9 cm with only 2–3 pairs pinnae and 3–6 pairs leaflets, pink-red when young. The **smallest leaflets at the base**, the longest at the tip reach 7 cm, rather curved and pointed. At the base of young leaves are rounded pink-green leafy stipules, to 2 cm long. **FLOWERS:** In colourful hemispherical heads, mostly pink with **dark red anthers seen well beyond the petals**. **FRUIT:** **Flat, pale brown** pods, narrow, to 15 cm with a small pointed tip. Dense papery bunches can be seen on bare trees, 5–8 seeds are set free when the pods split open.

**Propagation:** Seedlings, wildings, and root suckers.

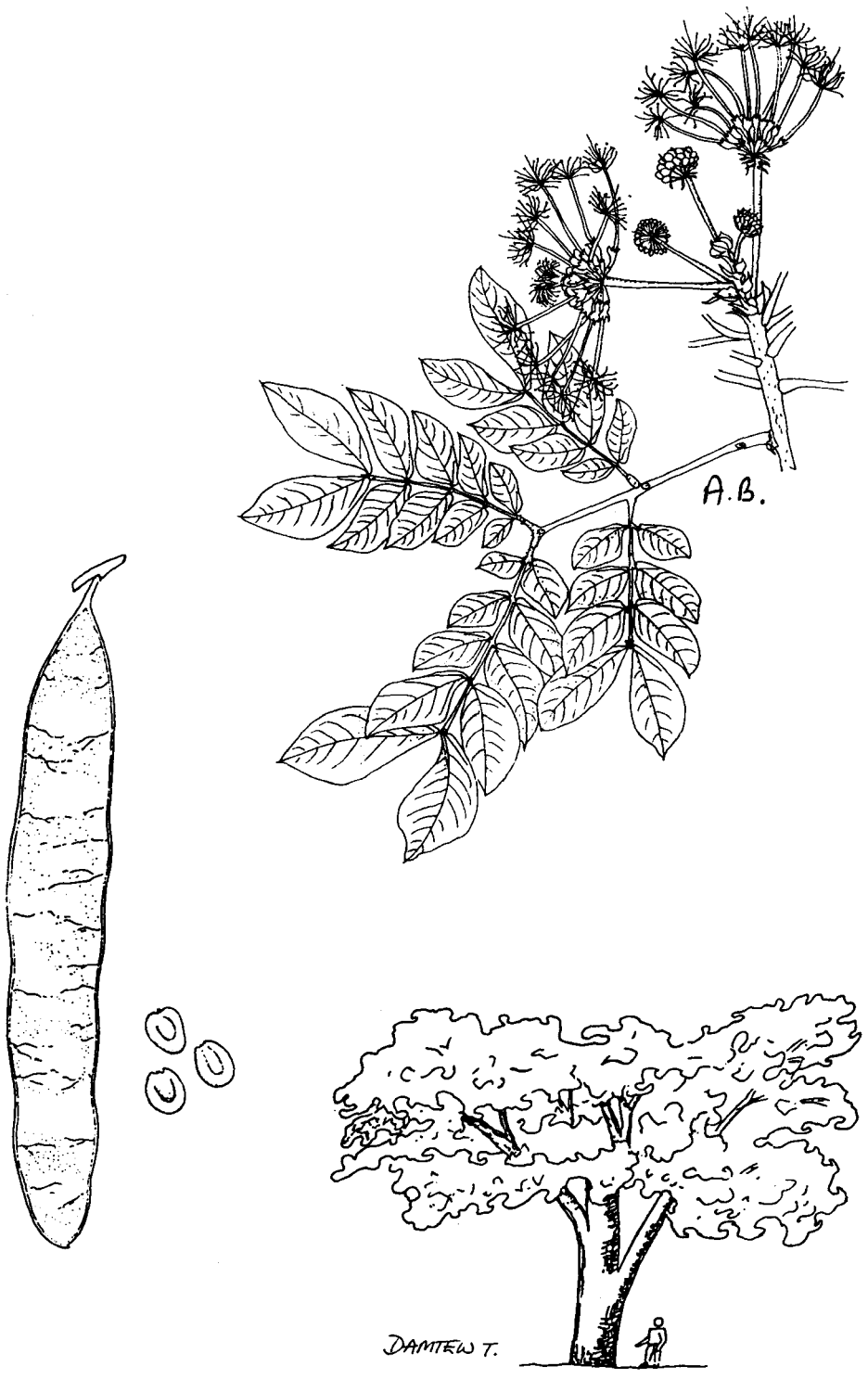
**Seed:**

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:** Fast growing on well-watered forest soils, produces many suckers from surface roots.

**Remarks:** A striking tree when in flower. The pale wood, although easily worked, is not very durable and is attacked by insects. In other properties it is similar to *A. gummifera*. The name “grandibracteata” refers to the “large bracts” of the young leaves.



**Indigenous**

**Ag:** *Kansin*                      **Or:** *Ambabessa, Chatto, Gorbe, Karchofe, Muka-arba*  
**Am:** *Sesa*                        **Wt:** *Chata*  
**Eng:** *Peacock flower*

**Ecology:** A deciduous forest tree common in Dry, Moist and Wet Weyna Dega agroclimatic zones of Gojam, Wolega, Sidamo, Ilubabor and Kefa regions, 1,600–2500 m.

**Uses:** Firewood, timber (general purpose), utensils (mortars, water troughs), medicine (pods, roots, bark), fodder (leaves), bee forage, **soil conservation**, nitrogen fixation, ornamental, **shade**, bee-hives.

**Description:** A large tree, branches **ascending to a flat top**, about 15 m high, trunk up to 75 cm in diameter in old forest trees. **BARK: Grey and smooth.** **LEAVES:** Shiny, dark green leaflets, **almost rectangular, midrib diagonal, one outer corner rounded.** **FLOWERS: White-pink clusters**, long stamens hang out, tips crimson. **FRUIT:** Very many papery pods in bundles, shiny brown, **flat with raised edges, 20 cm long and up to 3 cm wide**, often shorter. The thin pod bulges over 8–14 flat, brown seeds.

**Propagation:** Seedlings.

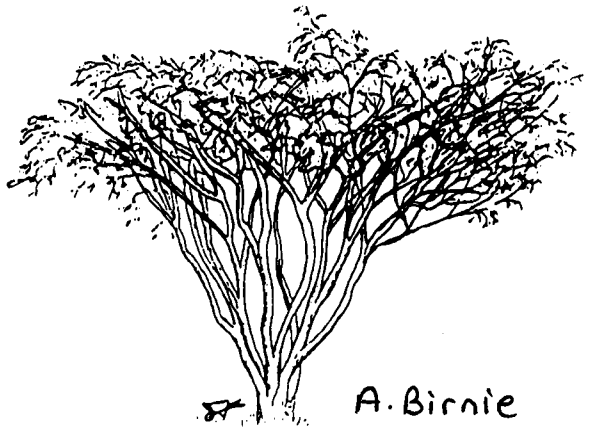
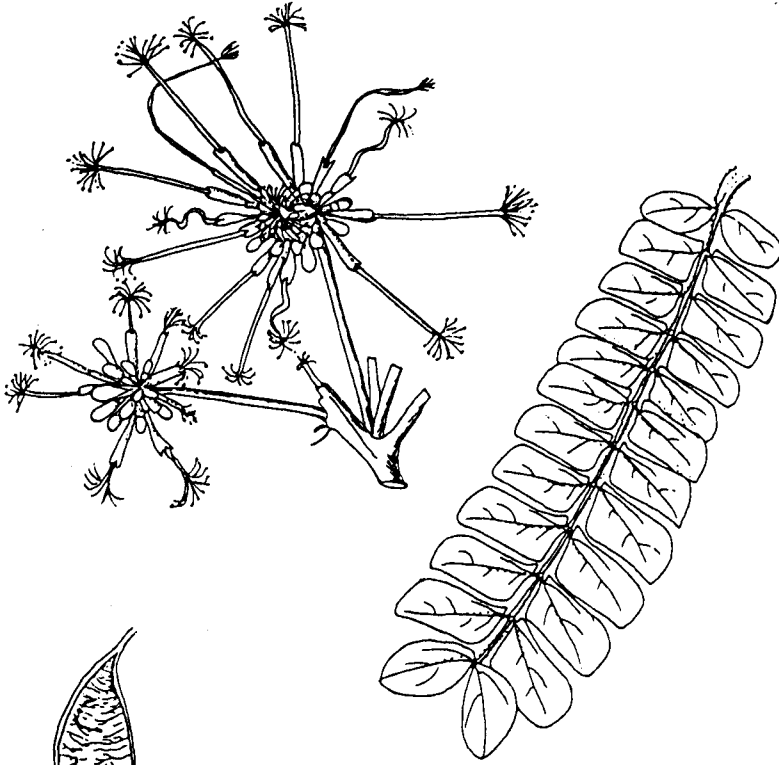
**Seed:** No. of seeds per kg: 10,000–14,000.

**Treatment:** Fresh seed requires no pre-treatment. Soak stored seed.

**Storage:** Seed can be stored up to a year before losing viability. Susceptible to insect attack therefore seed should be collected while still on the tree.

**Management:** Lopping, coppicing while young.

**Remarks:** The most widespread Albizia in Ethiopia. Usually quick growing. Leaves hasten ripening of unripe bananas. The most appropriate tree for shading coffee in plantations up to 2,500 m. Despite its name, the tree gives only small amounts of gum if the smooth bark is cut.



A. Birnie

Tropical Asia (India, Burma, Andaman Islands)

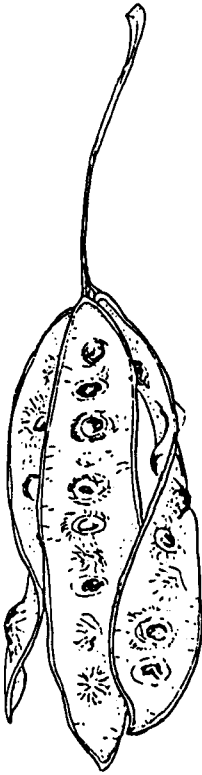
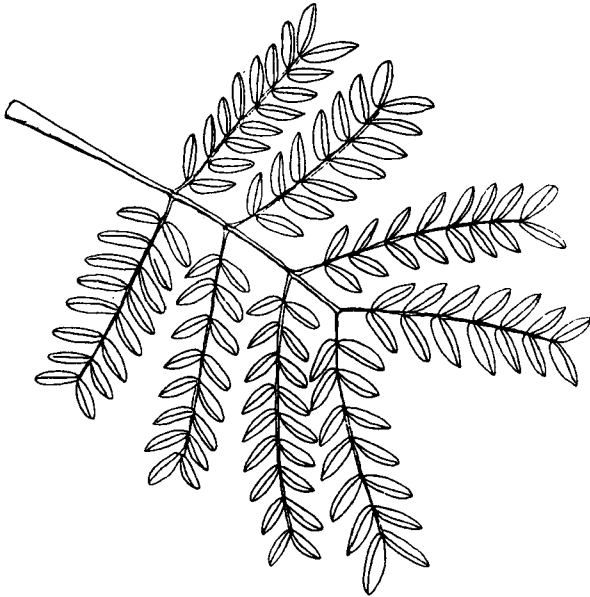
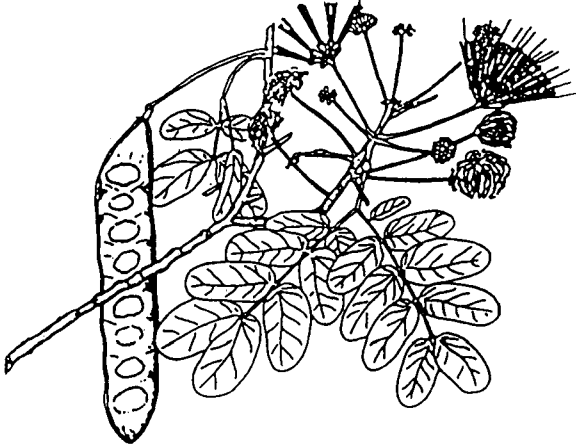
**Am:** *Lebbek*

**Gm:** *Yoke*

**Eng:** *East-Indian walnut, Siris tree, Woman's tongue*

**Wt:** *Shasho*

- Ecology:** Commonly planted in the tropics as a shade tree. Introduced into the Dry and Moist Kolla agroclimatic zones for roadside plantation and shade, especially in Dire Dawa (Hararghe) and Ghinda (western Eritrea). It is becoming naturalized in Shewa and other lowland areas. Roots are near the surface so requires a high water table. The shallow roots make it liable to fall in storms. Prefers black-cotton soil but will grow in a wide range of soils: acid, alkaline and saline.
- Uses:** **Fuelwood, charcoal, poles, posts, timber (furniture, floors), medicine, fodder (leaves, pods), bee forage, mulch, soil conservation, nitrogen fixation, ornamental, shade, windbreak, tannin (bark), soap (bark).**
- Description:** A deciduous tree which may reach 25 m, usually 8–14 m; trunk often short, crown low and spreading. **BARK:** Grey-violet with rusty-brown breathing pores. **LEAVES:** Compound, 2–4 pairs pinae, 3–11 pairs leaflets, each oblong, tip rounded, usually 2–3 cm. **FLOWERS:** Green-yellow, fragrant brush heads on a stalk, short-lived. **FRUIT:** Shiny yellow-brown pods in clusters decorate the tree for a long time, each pod up to 30 cm long, bulging over seeds, the seeds and pods “chatter” in the wind.
- Propagation:** Seedlings, direct sowing, coppicing, cuttings, root suckers.
- Seed:** Seed collection from January to March. Seeds prolifically and seed germination is good. No. of seeds per kg: 7,000-12,000.
- Treatment:** Not necessary, but nicking improves germination rate.
- Storage:** Seed can be stored for up to a year. Prevent insect attack.
- Management:** Fast growing on good sites; lopping, pollarding, coppicing, pruning.
- Remarks:** Hard and heavy wood used for furniture. The tree is recommended in lowland areas to hold soil on stream banks and to mark farm boundaries.



A. B.



Australia

*Am:* *Shifere*

*Eng:* *Spiked acacia, Crested wattle*

**Ecology:** The tree grows as an ornamental in Addis Ababa (2,400 m), and western Eritrea, Shewa, Harerge and Bale regions. It does best in the Moist and Wet Weyna Dega agroclimatic zones.

**Uses:** Firewood, fodder (leaves), bee forage, **soil conservation, soil improvement, nitrogen fixation, ornamental, shade.**

**Description:** A many-branched shrub or small graceful tree 4–15 m, with a straight trunk and large **spreading crown**, semi-deciduous. LEAVES: Compound, the leaf stalk to 20 cm with 6–12 pairs pinnae and many leaflets. Each leaflet is **narrow and pointed about 1 cm long, silky hairy below. Young leaves have brown hairs.** FLOWERS: Differ from those of other Albizia. These are small and green-yellow on 1–3 **short, dense spikes, to 8 cm**, beside leaves. Many yellow anther filaments conspicuous, over 1 cm long. FRUIT: A narrow pod to **11 cm long, the edges thick, the tip with a distinct blunt point.** The pod is swollen over the **8–11 seeds** inside.

**Propagation:** Seedlings.

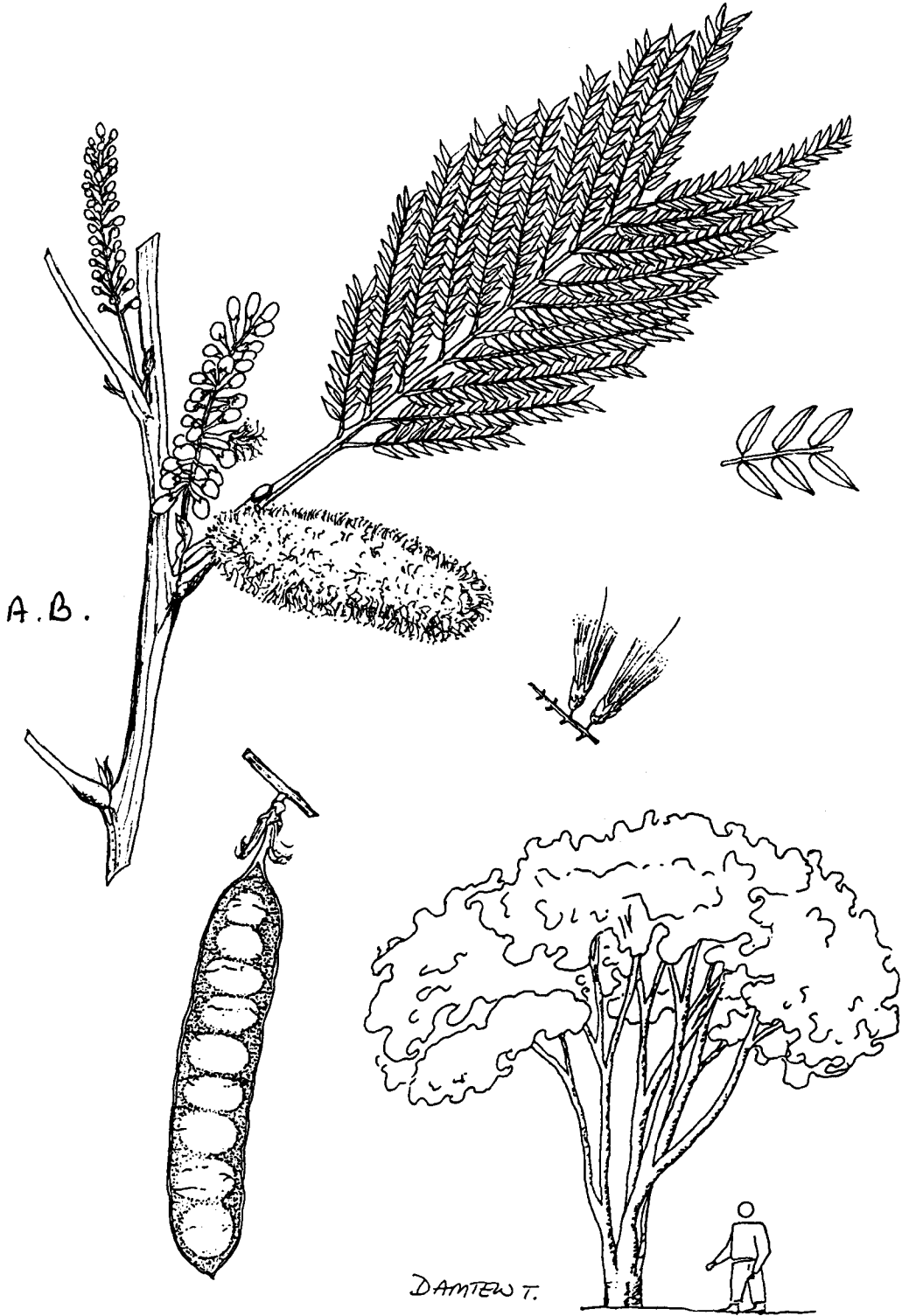
**Seed:**

**Treatment:** Immerse in hot water, soak 24 hours.

**Storage:**

**Management:** A fast-growing but short-lived tree. Pruning, lopping.

**Remarks:** It makes poor fuel but is a useful tree for reclaiming land because it is fast growing, relatively drought resistant and tolerates infertile and seasonally waterlogged soils. It may form dense stands along river banks, as in the Western Cape, South Africa.





**Indigenous**

**Am:** *Sassa, Imasa, Sembaru*  
**Eng:** *Large-podded albizia*  
**Or:** *Ambabessa, Mukarba, Mukarta*

**Ecology:** A dominant tree in the upper canopy of wet lowland or lower highland forests in Moist and Wet Weyna Dega agroclimatic zones, 1,400–2,200 m.

**Uses:** Firewood, charcoal, **timber** (joinery, plywood, matchboxes and construction), medicine, bee forage, soil conservation, nitrogen fixation, shade.

**Description:** A large semi-deciduous tree to 25 m or more, the crown more rounded than flat. **BARK:** Smooth grey or rough brown. **LEAVES:** Compound, on a stalk about 25 cm long, **generally hairy and paler below**, shiny dark green above, one leaflet less than 2 cm long, 4–7 pairs pinnae, the leaflets varying in shape but the midrib a diagonal and the **tips rounded**. **FLOWERS:** Very many, **white**, in round heads. **FRUIT:** Large clusters of **dull brown pods**, hang on the tree for a long time. Each pod about 25 cm long by 3.5 cm across (maximum 34 x 6 cm), the edge thickened. Seeds set free when the pods break open.

**Propagation:** Seedlings, wildings.

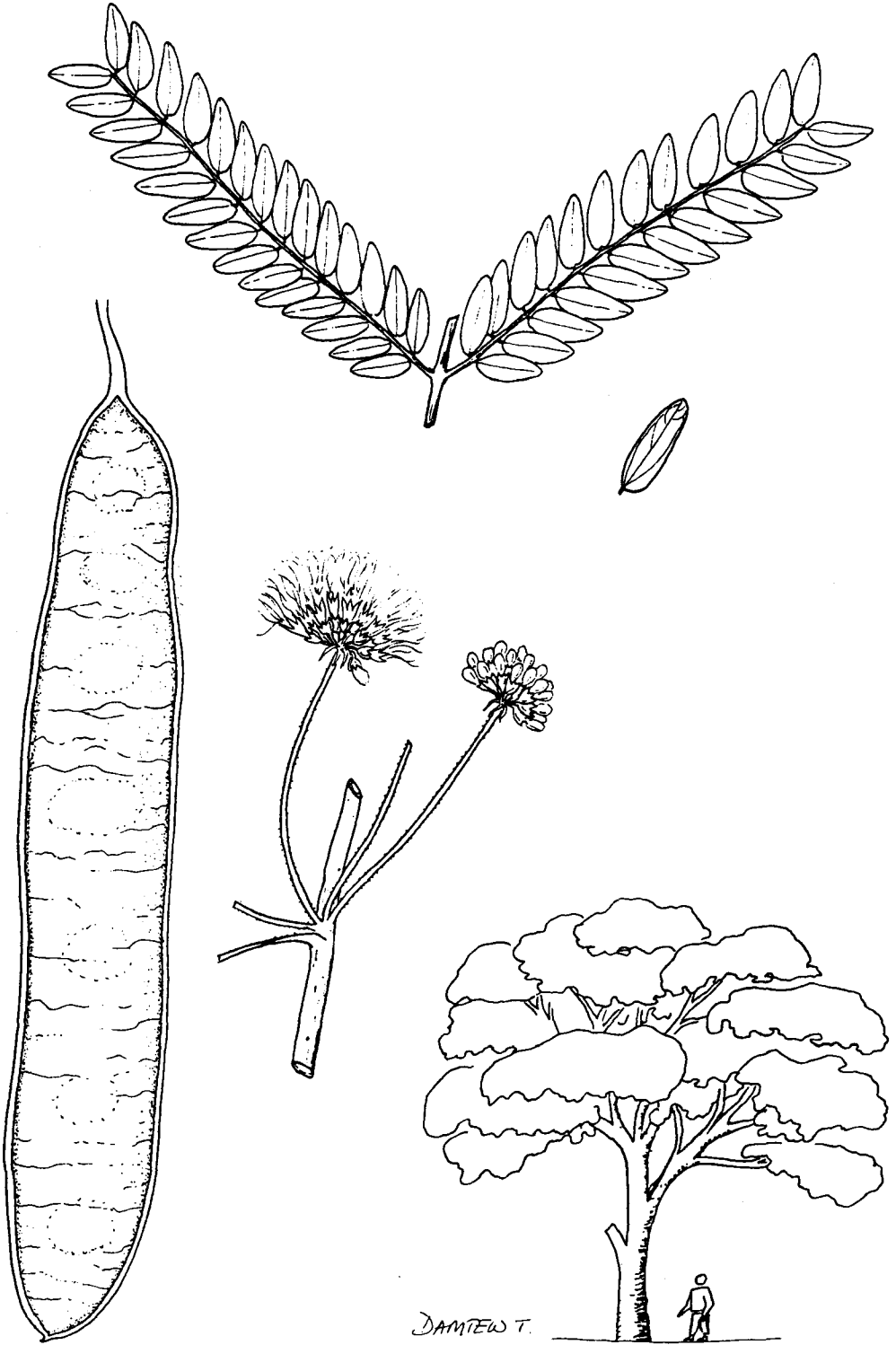
**Seed:**

**Treatment:** Not necessary.

**Storage:** Can be stored but is susceptible to insect attack.

**Management:** Coppicing, crown reduction.

**Remarks:** Pods persist a long time on the tree. They may split open but often rot on the ground.



**Indigenous**

**Am:** Embus, Qequewe      **Or:** Abar, Areje, Diruba, Kekayi, Seho  
**Gm:** Testes                      **Tg:** Ashun, Azamaro, Qamshi, Swarya  
**Kf:** Sheho                          **Wt:** Worafuto

**Ecology:** A tree of high montane forest (together with Juniperus, Podocarpus, Anningeria, Olea, Albizia, Croton) and in riverine forests or forest edges, often persisting after forest clearing. Occurs in western Eritrea, Tigray, Gonder, Welo, Shewa, Arsi, Gojam, Wolega, Kefa, Sidamo, Bale, and Harerge regions of Dry, Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,600–2,800 m.

**Uses:** Firewood, timber, farm tools, yokes (*kenber*).

**Description:** A large forest tree to 25 m. **BARK:** Smooth grey, the mature trunk up to 1 m across, often fluted. **LEAVES:** Compound with 3 leaflets on a stalk to 12 cm, edges slightly toothed and hairs only in the vein axils below, tip pointed. The leaflets have short stalks and the big central one is up to 21 cm long. **FLOWERS:** Yellow-white in much-branched heads to 20 cm. **FRUIT:** Bunches of rounded soft red berries, about 7 mm across, very small seeds inside.

**Propagation:** Seedlings.

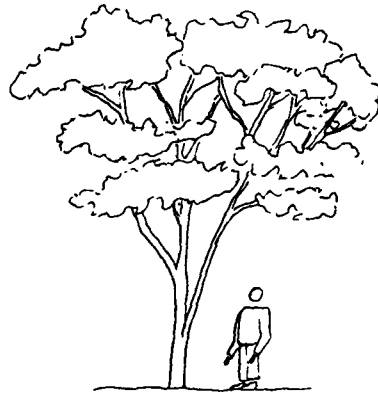
**Seed:**

**Treatment:** No need.

**Storage:** Can be stored for about a year if kept dry, cool and free from borers.

**Management:** Pollarding, coppicing.

**Remarks:** It may make the surroundings untidy as it continually sheds leaves and ripe fruit.



DANTEW T.

**Am:** Keraro                      **Or:** Guduba, Suduba  
**Gm:** Kawu                        **Sd:** Guduba  
**Kf:** Shonga                      **Wt:** Shosho

**Ecology:** An upper-storey tree in evergreen rain forest and Olea forests in Moist and Wet Weyna Dega and Moist and Wet Dega agroclimatic zones of Sidamo, Ilubabor, Wolega, Kefa, Arsi, Shewa and Bale regions, 1,200–2,100 m.

**Uses:** Firewood, **timber** (general purpose, joinery, plywood, veneer).

**Description:** A very tall tree, to 50 m, with a clear straight bole to about 16 m, topped by a rather small dense crown, mature trees buttressed at the base. **BARK:** Pale, grey-brown, smooth to lightly grooved, much white latex if cut and an unpleasant smell. Flower and leaf stalks, buds and shoots covered with golden-brown hairs. **LEAVES:** Stiff and large to 22 x 8 cm, usually smaller, dark shiny green above, hairy pale orange below, 10–20 pairs prominent veins, the tip pointed, on a twisted stalk to 2 cm. **FLOWERS:** Cream-green, very small, in clusters beside leaves, sepals and flower stalks brown, hairy, soon falling to the ground. **FRUIT:** Hard, green, narrow to 4 cm with a beak, the soft hairy skin milky but inside is one shiny brown seed to 3 cm long with a large white scar (hilum). This seed contains edible oil.

**Propagation:** Seedlings and wildings.

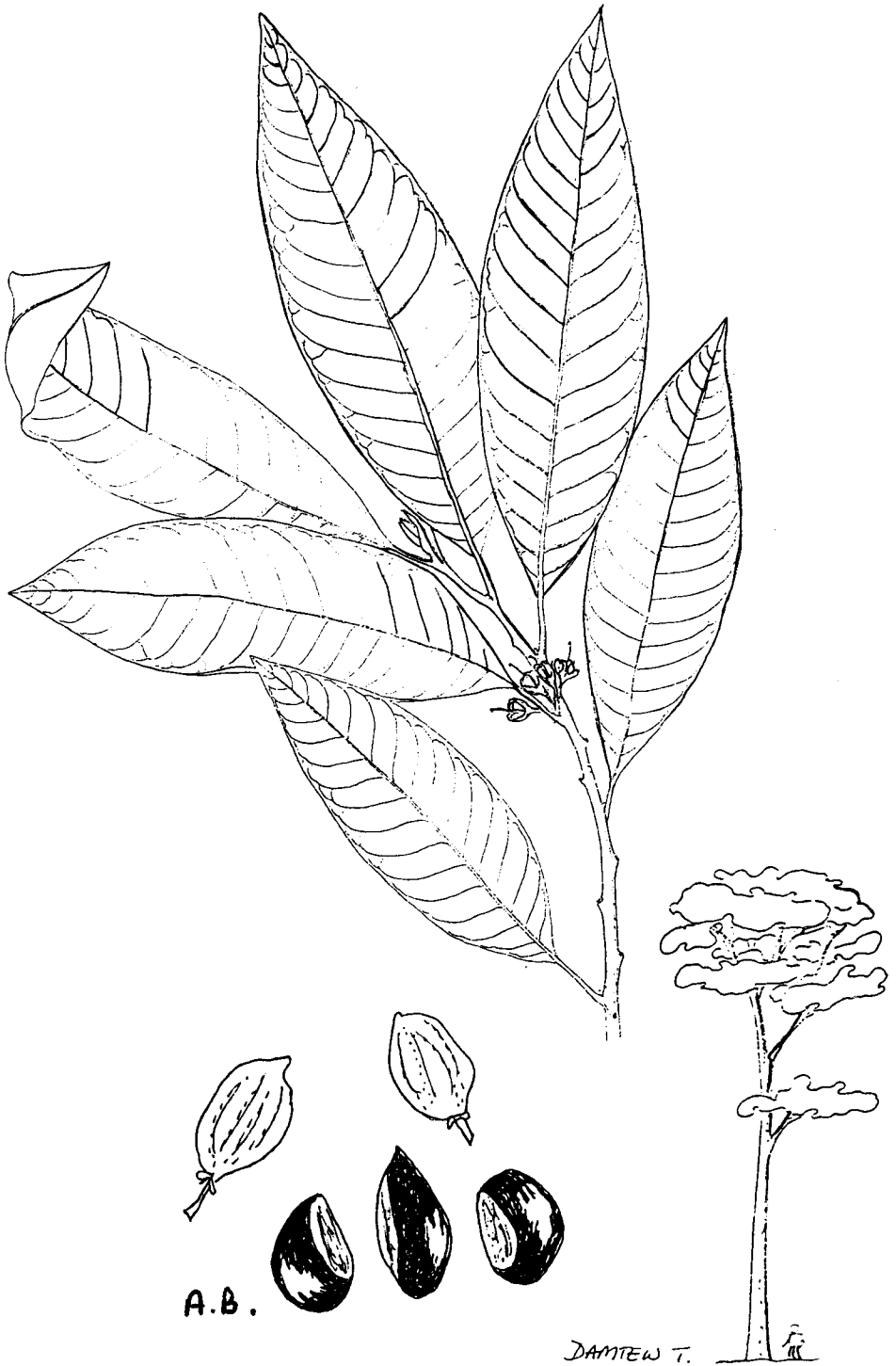
**Seed:** Fruit mature in April.

**Treatment:** Not required but seed should be sown fresh.

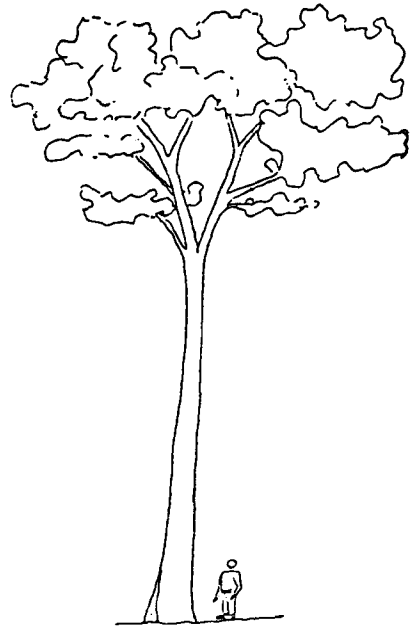
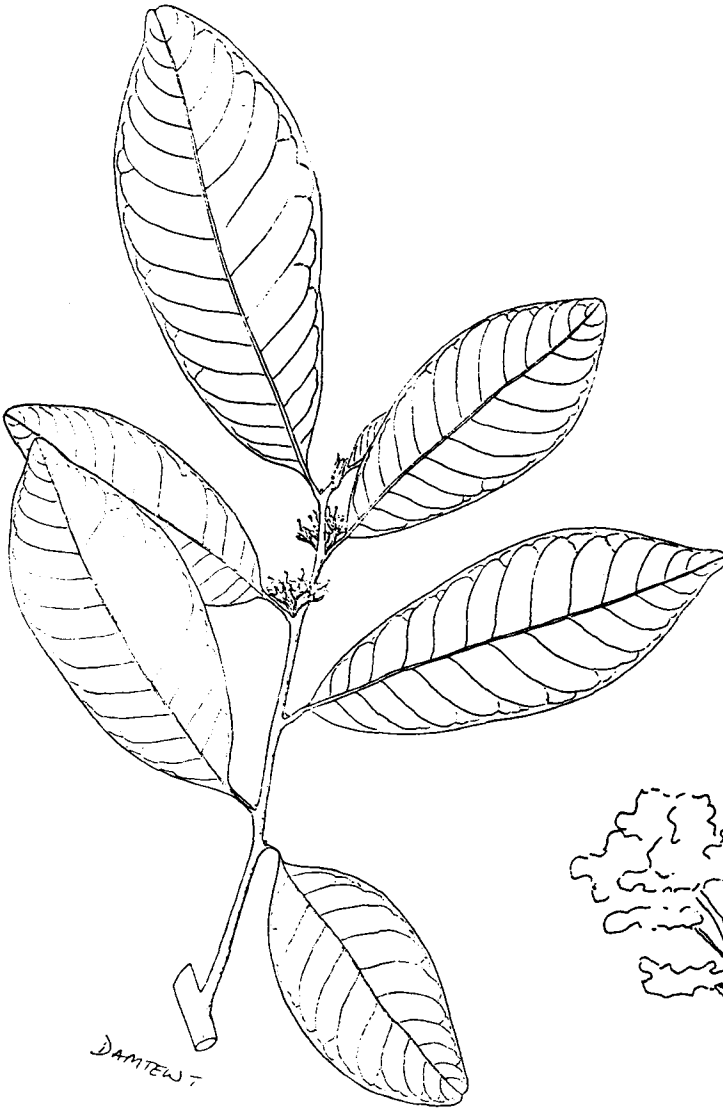
**Storage:** Seed has a very short viability period.

**Management:** Weeding when young.

**Remarks:** This valuable timber tree has been planted in plantations.



**Indigenous****Am:** *Kerero***Or:** *Kuraro, Kuro, Quduba***Sd:** *Auera, Gudubo***Ecology:** Grows naturally in Moist and Wet Kolla and Weyna Dega agroclimatic zones of Ilubabor and Kefa regions, 1,000–1,700 m.**Uses:** Firewood, **timber** (furniture, veneer).**Description:** **A tall tree to 45 m**, the trunk straight to 30 m, diameter of 1–2 m at breast height, slightly buttressed at base. **BARK:** Smooth grey; when cut white latex drips slowly from the fibrous red-brown inner bark. **LEAVES:** Large and long, oval, to 13 x 7 cm, **tip usually blunt and rounded**, stalk 1 cm, young leaves hairy brown but mature leaves hairless (only a few on the midrib), veins yellow and clear below, raised on the upper surface; clear dots visible when the leaf is viewed against strong light with a hand lens. **FLOWERS:** Very small on stalks in fragrant cream-yellow clusters besides the leaves, buds hairy. **FRUIT:** Oval to **rounded, red to 2 cm across**. Inside, the shiny brown seed is up to **1.5 cm long** marked with a long pale scar.**Propagation:** Seedlings, wildings.**Seed:** No. of seeds per kg: 1,000.**Treatment:** Not necessary.**Storage:** Seeds lose viability very quickly; need to sow it fresh.**Management:** Relatively fast growing. Weeding, pruning.**Remarks:** The pale pink heartwood is easy to saw and plane and takes a good polish. It is, however, not durable if used for outdoor construction.





West Indies, Tropical America

**Eng:** *Soursop*

**Ecology:** An exotic fruit tree planted throughout the warm tropical lowlands. It is commonly grown in Dire Dawa in the upper ranges of the Dry, Moist and Wet Kolla agroclimatic zones, 900–1,500 m. One of several *Annona*, this species has the largest fruit, 1–4 kg in weight, but normally much less. In drought conditions the tree may lose its leaves.

**Uses:** **Food (fruit), drink, medicine, ornamental, insecticide, fish poison.**

**Description:** A slender evergreen tree 5–7 m in height, usually less, with a bole which may be 30 cm in diameter, the **branches very low and wide**, giving an open shady crown. **BARK:** Grey with a pattern of shallow grooves. **LEAVES:** Alternate, **dark green, shiny** and leathery 8–15 cm long, **oval with a sharp tip**, dull or yellowish below where there are **small pits in vein axils**. Crushed leaves have a strong, unpleasant smell. **FLOWERS:** **Solitary and large, 2–5 cm across**, often opposite leaves and hanging down, **3 outer fleshy petals**, curved, almost triangular, **3 inner yellow-green petals**, thinner and rounded, edges overlapping. **FRUIT:** Kidney or **heart-shaped to 25 cm long**, the leathery dark green skin covered with **soft curved spines**. Inside **woolly white fibrous pulp** covers many large brown-black seeds. The fleshy receptacle and fruit walls are edible and have a distinctive acid-sweet taste. (Single fruits grow together making one “compound” fruit, but the outline of individual fruits can be seen on the skin, each with its own spine. As pollination is often incomplete the fruit may have a distorted shape.)

**Propagation:** Seedlings.

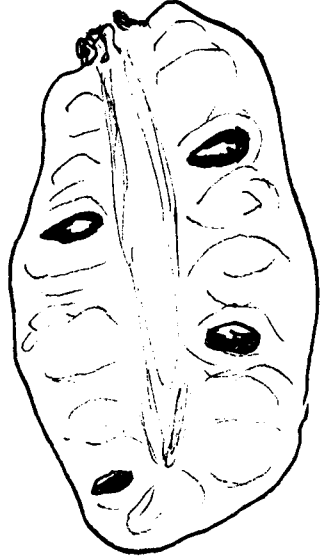
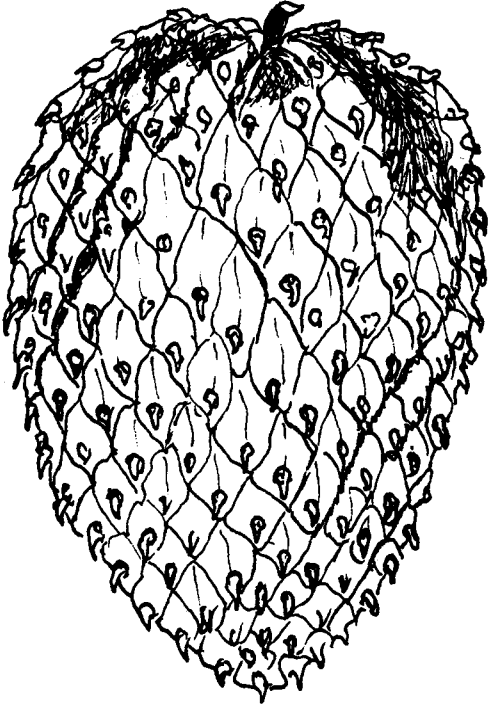
**Seed:**

**Treatment:** Not necessary.

**Storage:** Can be stored for several months.

**Management:** Regular weeding, pruning above 1 m to encourage branching.

**Remarks:** This a desirable tree in home gardens as the delicious fruit can earn good cash and be used for juice, sherbet and icecream. However, one tree rarely produces more than a dozen fruit, which take 3 months to ripen, and are often attacked by birds such as mousebirds. All parts have insecticidal properties and can be used to kill fish—a fruit can be used as bait. A powder or oil from the seeds has been used to kill lice and bedbugs. Contact with the eyes causes great irritation.



Indigenous

**Af:** *Gishita*                      **Or:** *Komate*  
**Am:** *Giishta, Yebere lib*   **Wt:** *Eta*  
**Eng:** *Wild custard apple*

**Ecology:** Found in Combretum woodland and wooded grassland in the Moist and Wet Kolla agroclimatic zones of Wolega, Ilubabor, Gamo Gofa and Bale regions, 500–1,600 m.

**Uses:** Firewood, timber, poles, **tool handles**, **food** (fruit), **medicine** (roots, gum, fruit), fodder (leaves, fruit), ornamental, windbreak, fibre (bark), yellow-brown dye (bark).

**Description:** A shrubby tree, 2–10 m. **BARK:** **grey and smooth**, thick and folded when old, young stems hairy and orange-red. **LEAVES:** **Broadly oval**, 15 x 10 cm, blue-green, **hairy below**, fragrant when crushed, on a short thick stalk. **FLOWERS:** Solitary or in bunches of 2–4, **small flowers hanging down below twigs**, **yellowish with petals and sepals in threes**; petals thick and hard, many stamens. **FRUIT:** **Rounded 2–7 cm smooth with divisions**. Pick green and unripe. When orange-yellow and smelling like pineapple the sweet pulp is edible. Seeds numerous and orange-brown.

**Propagation:** Seedlings, wildings.

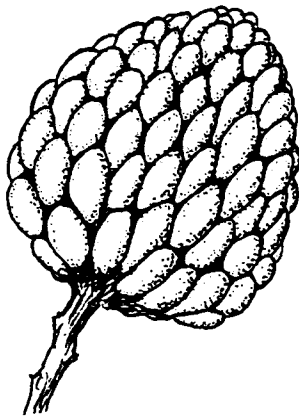
**Seed:** No. of seeds per kg: 3,000–4,000.

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:**

**Remarks:** Roots used to treat chest colds, fruit for diarrhoea, dysentery and vomiting. Gum from the bark can be used to seal cuts and wounds and even to plug leaking pots. The fibres from young sucker shoots are used for binding.



DAMTEW T.

Indigenous

**Am:** Cheleleqa, Donga      **Or:** Dannisa, Oda-seda, Qumbala  
**Eng:** White pear, Pearwood    **Sd:** Donkiko  
**Kf:** Wondefo

**Ecology:** A tree found in Podocarpus-Olea-Syzygium upland rain forest in Moist and Wet Kolla agroclimatic zones above 1,350 m, Moist and Wet Dega below 2,600 m and Moist and Wet Weyna Dega.

**Uses:** Firewood, **timber** (construction, doors, veneer), ornamental.

**Description:** A tall forest tree to 25 m with a thick trunk in rain forest but much smaller in drier areas; crown rounded. **BARK:** Smooth, grey-white, **flaking in patches with age**. **LEAVES:** **Shiny**, dark green, oval to 13 cm, tip usually rounded, **edge very wavy**, **midrib pale and clear below**, other veins not at all clear but branching irregularly. **Leaves dry black**. **FLOWERS:** Very small and fragrant, **white**, like stars, **black anthers**, in loose heads to 9 cm long at the end of branchlets, all over the tree. **FRUIT:** Small and flat, **8 mm**, **green then black when ripe** with a **soft red bump** making it kidney-shaped; thin style remaining. One seed inside.

**Propagation:** Seedlings, wildings.

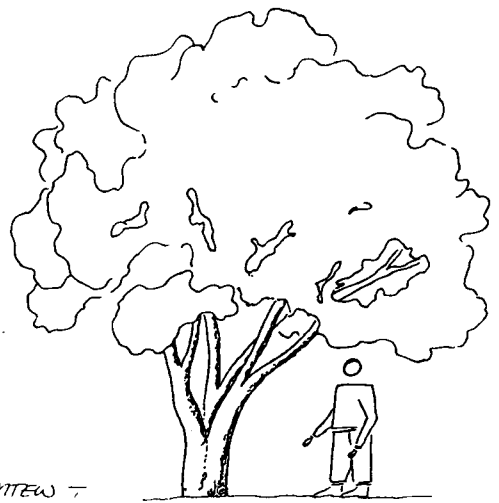
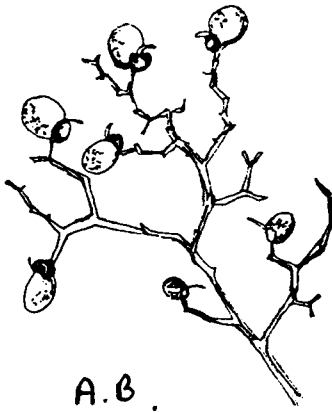
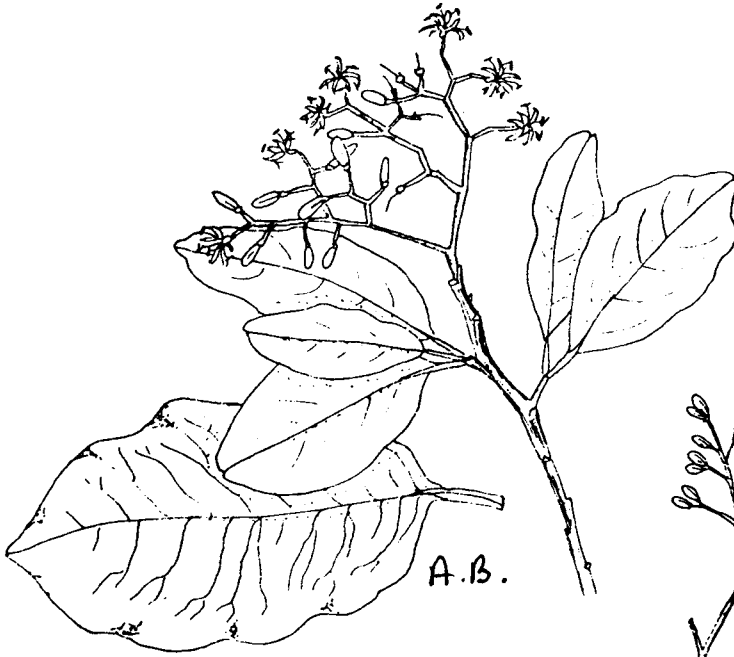
**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:**

**Remarks:** Two varieties, *acutifolia* and *dimidiata*, are recognized in Ethiopia. The pale wood is very hard but easy to saw and plane. It can rot and suffers from borer attack.



**Indigenous**

**Ag:** Anini  
**Am:** Kerkha  
**Eng:** Mountain bamboo

**Gm:** Kias  
**Kf:** Shineto

**Ecology:** Mountain gorges and tops, usually in Moist and Wet Dega agroclimatic zones, up to 3,000 m. The grass grows in dense stands with a leafy canopy and stems so close that one can only pass through with difficulty. A valuable forest crop which should not be overexploited.

**Uses:** The woody stems of this giant grass have many local uses: **roofing poles, fences, walls, local furniture, local spinning tools, containers for grain, basketry.** The stem is split into strips of different sizes. Shoots, leaves and young stems can be used for fodder and are eaten by wild animals. Bamboo fencing has been used in soil-conservation structures.

**Description:** A very large **hollow-stemmed** grass, usually 6–8 m but can reach 12–25 m. **STEMS:** Smooth, woody and hollow, growing from swollen underground stems (rhizomes). Whorls of thin branches grow at the upper nodes between stem sections. In good conditions stems may be 7–10 cm in diameter. **LEAVES:** Grow from the branchlet nodes. Pale green, to 20 x 1 cm, the tip long and thin. Feel rough due to short hairs. The leaves arise from a large straw-coloured leaf sheath to 50 cm long which has purple hairs. **FLOWERS:** Rarely seen, in heads 10–20 cm long. After flowering the plant dies down.

**Propagation:** Rhizomes, natural regeneration, seed (possible but rare).

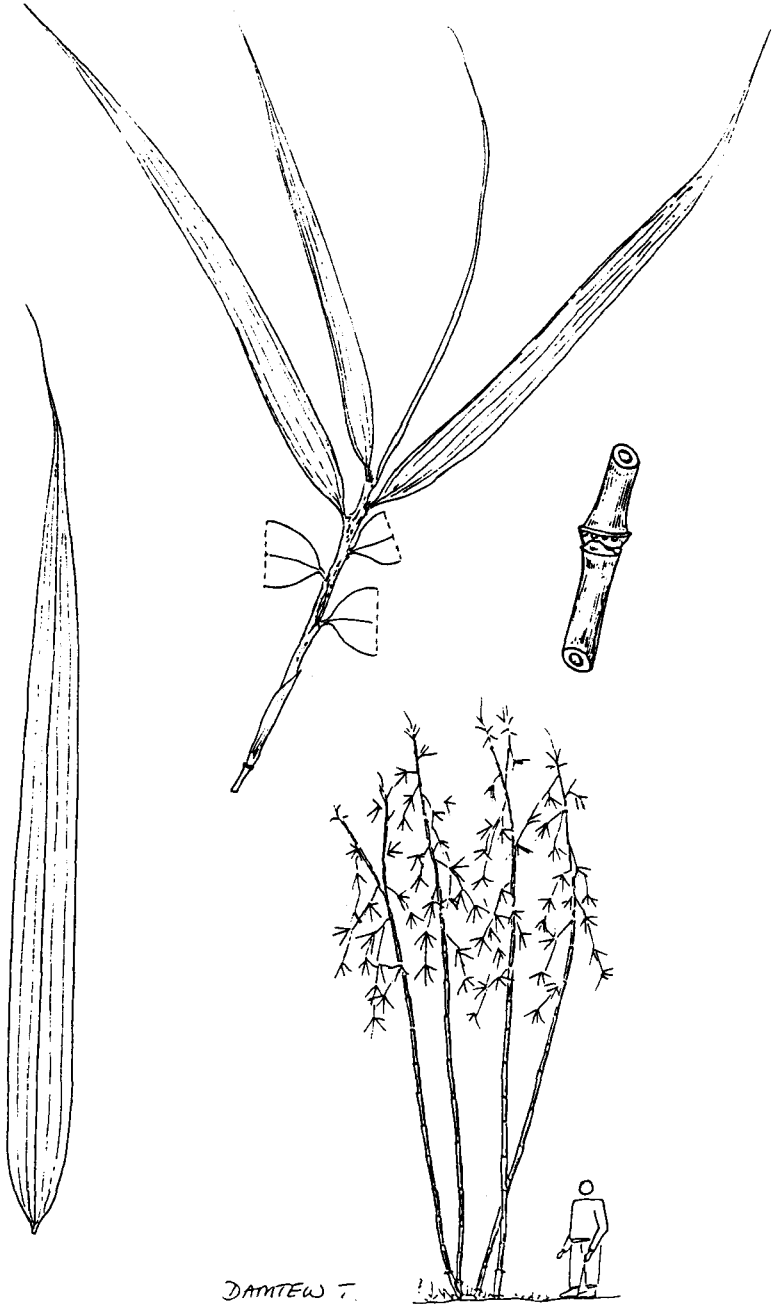
**Seed:**

**Treatment:**

**Storage:**

**Management:** Seed of *A. alpina* watered daily will germinate readily. Transfer seedlings to boxes when 2.5 cm high. Plant out 8–12 months later, above 2,500 m. Offsets from one-year old culms can also be planted out and will develop quicker than seedlings.

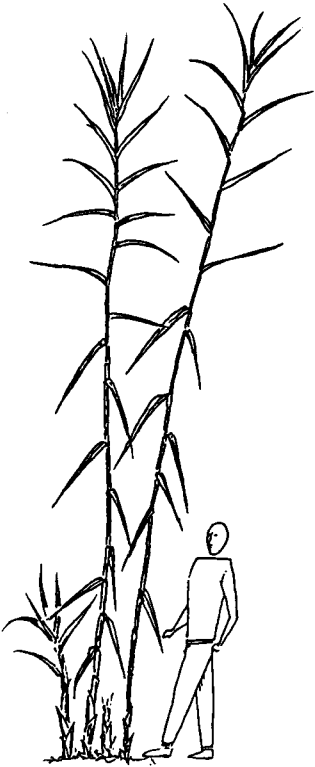
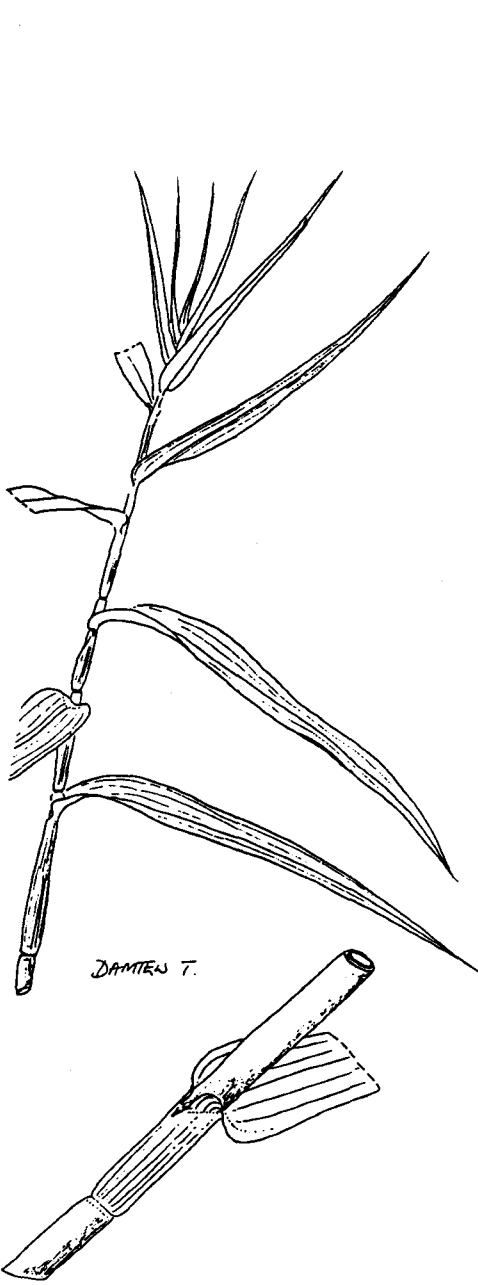
**Remarks:** Susceptible to termites and borers. In Tanzania bamboo has been used for village water pipes. This species flowers between 15 and 40 years and then dies down, so a local stand of the grass will be of even age and size.





**Indigenous****Am:** *Shembeko, Meka***Eng:** *Reed grass*

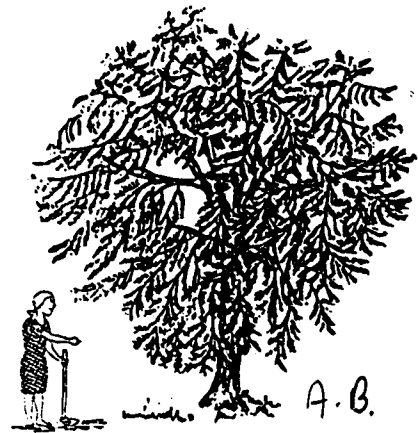
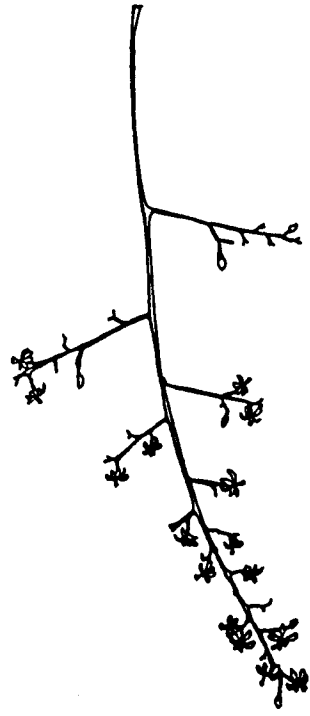
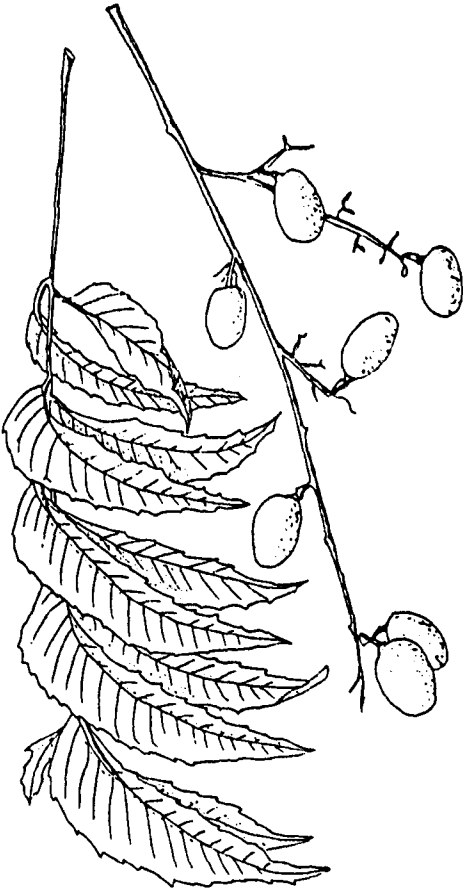
- Ecology:** Grows in dense clumps by water courses even in Dry Kolla agroclimatic zone, but most common in Moist and Wet Kolla as well as in Dry, Moist and Wet Weyna Dega agroclimatic zones, up to 2,400 m.
- Uses:** **Furniture** (local), fodder, fences, **spinning tools, grain stores, thatching, basketry.**
- Description:** A leafy **perennial grass 2–6 m high**, usually in dense clumps. Stems or culms grow up from a thick, knotty underground stem or rhizome. Stems are hollow and some may branch. **LEAVES:** As in many grasses, the leaf base or sheath surrounds the stem. Leaf blades are **spaced regularly** around stem, **each one 30–50 cm x 5–7 cm wide with a long pointed tip.** **FLOWERS:** This grass does not normally flower in Ethiopia. Upright flowering heads reach up to 60 cm and produce typical grass seed elsewhere.
- Propagation:** Rhizomes.
- Seed:**
- Treatment:**
- Storage:**
- Management:** It multiplies on favourable sites. Cut back the rhizomes to control growth.
- Remarks:** The grass is widely cultivated in Ethiopia, especially for thatching and fencing. The stem is used to make the local spinning tool, *asket*. Dry stems are used to build grain stores.



North-east India, Burma

**Am:** *Kinin*                      **Sh:** *Nim*  
**Eng:** *Neem*                      **Tg:** *Nim*

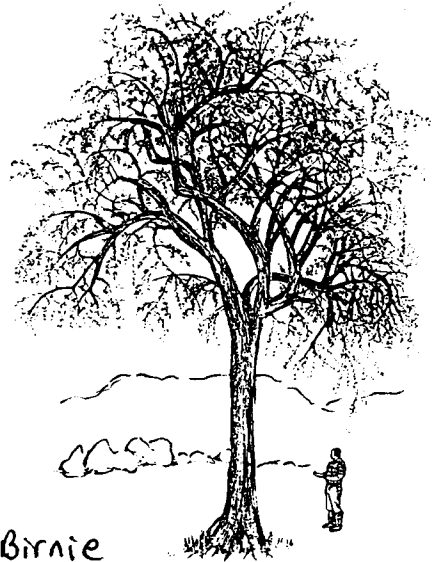
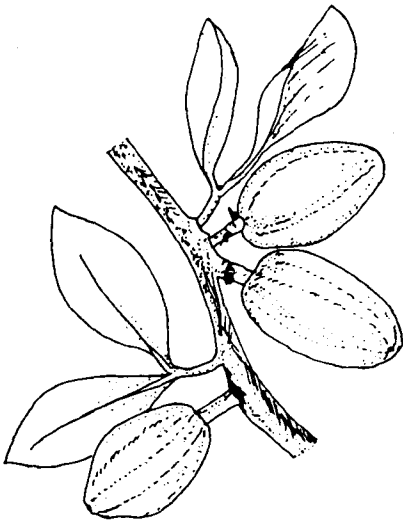
- Ecology:** A tree well known in its native India and now one of the most widely planted trees in Africa, and pan-tropically, in arid and semi-arid regions. It is drought resistant and does well on poor soils. Roots grow deep and spread over a wide area, but it does not stand waterlogging. In Ethiopia, it is widely planted in the Dry and Moist Kolla and Moist Weyna Dega agroclimatic zones of Eritrea, Ilubabor, Kefa, Wolega, Harerge and Shewa regions, 400–2,000 m.
- Uses:** Firewood, charcoal, timber (furniture), poles, **medicine** (leaves, bark, roots), fodder (leaves, oil-seed cake), bee-forage, soil conservation, **ornamental, shade, windbreak, insecticide** (azadirachtin), oil, soap.
- Description:** A fast-growing, medium-sized tree which may reach 20 m, with a **dense, leafy, oval-shaped canopy, evergreen** except in the driest areas. **BARK:** Pale grey-brown, grooved. **LEAVES:** Glossy green, crowded at the ends of branches; **compound to 40 cm long, each leaflet curved and long, pointed, the edge roughly saw-toothed**, leaf blades unequal, a **smaller leaflet at the leaf tip**. **FLOWERS:** Small, fragrant, cream-white, hanging in long graceful sprays. **FRUIT:** **Oval yellow berries when ripe, 2 cm long, thin skinned with oily pulp**, usually 1 or 2 seeds.
- Propagation:** Seedlings, wildings, direct sowing.
- Seed:** No. of seeds per kg:  $\pm 5,000$ .
- Treatment:** Not necessary.
- Storage:** Seed should not be stored as it loses viability quickly.
- Management:** Fast growing after the first year; lopping, pollarding. Should be weeded during establishment.
- Remarks:** The wood is tough and resistant to decay and termites. A tree that is highly valued in Ethiopia for its medicinal uses. Leaf powder mixed in water makes an effective fumigant against seed borers in grain stores. Major uses are for shelterbelts and planting on degraded land.



**Indigenous**

<b>Ag:</b>	<i>Qutsa, Qutta,</i>	<b>Ga:</b>	<i>Domay, Domaye</i>
<b>Am:</b>	<i>Bedeno, Jemo, Kudkuda</i>	<b>Or:</b>	<i>Bedena, Baddano</i>
<b>Br:</b>	<i>Baddan</i>	<b>Sm:</b>	<i>Got, Gueza, Gut</i>
<b>Eng:</b>	<i>Desert date</i>	<b>Tg:</b>	<i>Indrur</i>

- Ecology:** Common in the Dry and Moist Kolla agroclimatic zones of Eritrea, the Rift Valley in Gamo Gofa, and in Sidamo, Shewa, Gojam and upland Harerge regions, 700–1,800 m.
- Uses:** Firewood, charcoal, poles, timber (furniture), utensils, tool handles, food (fruit), medicine (roots, fruit, bark), fodder (shoots, fruit), mulch, shade, windbreak, gum, ceremonial meetings, fencing (cut branches), oil (fruit).
- Description:** A small evergreen tree about 10 m, crown rounded in tangled mass of thorny branches. BARK: Smooth and green, later dark, cracked, corky. THORNS: To 8 cm, soft at first, then woody. LEAVES: Distinctive pairs of grey-green leaflets, ovate. FLOWERS: Fragrant, yellow-green clusters. FRUIT: Oblong to 5 cm, both ends round, yellow when ripe, a hard pointed seed within surrounded by yellow-brown bittersweet flesh, seed easily separated.
- Propagation:** Seedlings, direct sowing, root suckers.
- Seed:** Seed large, 4 x 2 cm. Plant the seed with the stem end down for best results. Germinates in 1–4 weeks. No. of seeds per kg: ±1,000.
- Treatment:** Soak seed in cold water for 24 hours.
- Storage:** After removal from the fruit the seed can be stored for up to one year. Store dry and insect-free.
- Management:** A slow-growing tree. Coppicing; protect young seedlings from browsing.
- Remarks:** An important species for dry areas as it produces fruit even in very dry years. The wood is termite-resistant. Extracts of the fruit and bark can be used to kill the snail hosts of bilharzia. The free-swimming stages of both bilharzia and guinea worm are also killed if the extract is put into the infected water.



A. Birnie

Indigenous

**Ag:** *Zinkila*

**Am:** *Yeset af, Zinkila*

**Ecology:** A shrub that grows on the edges and clearings of Juniperus-Hagenia-Olea forest; very rare in Ethiopia except at a few places in Dry and Moist Weyna Dega and Dega agroclimatic zones of Shewa (Wof Washa forest and Menz), Tigray and Welo, 2,300–3,000 m.

**Uses:** Firewood, **hedges**.

**Description:** A high-altitude shrub, spiny and evergreen, usually 2 m. **Young branches red** to brown. **BARK:** Red-brown becoming dark grey. **LEAVES:** Leathery and stiff, 2–3 cm long, widest at the prickly tip, edge spiny and toothed. **Sharp spines with 3–5 parts** grow below the leaf clusters at nodes. **FLOWERS:** Yellow, in stalked clusters, sensitive stamens which move upwards and inwards when touched. **FRUIT:** Dark purple, long oval with 1–4 seeds inside.

**Propagation:** Seedlings, seeds (direct seeding).

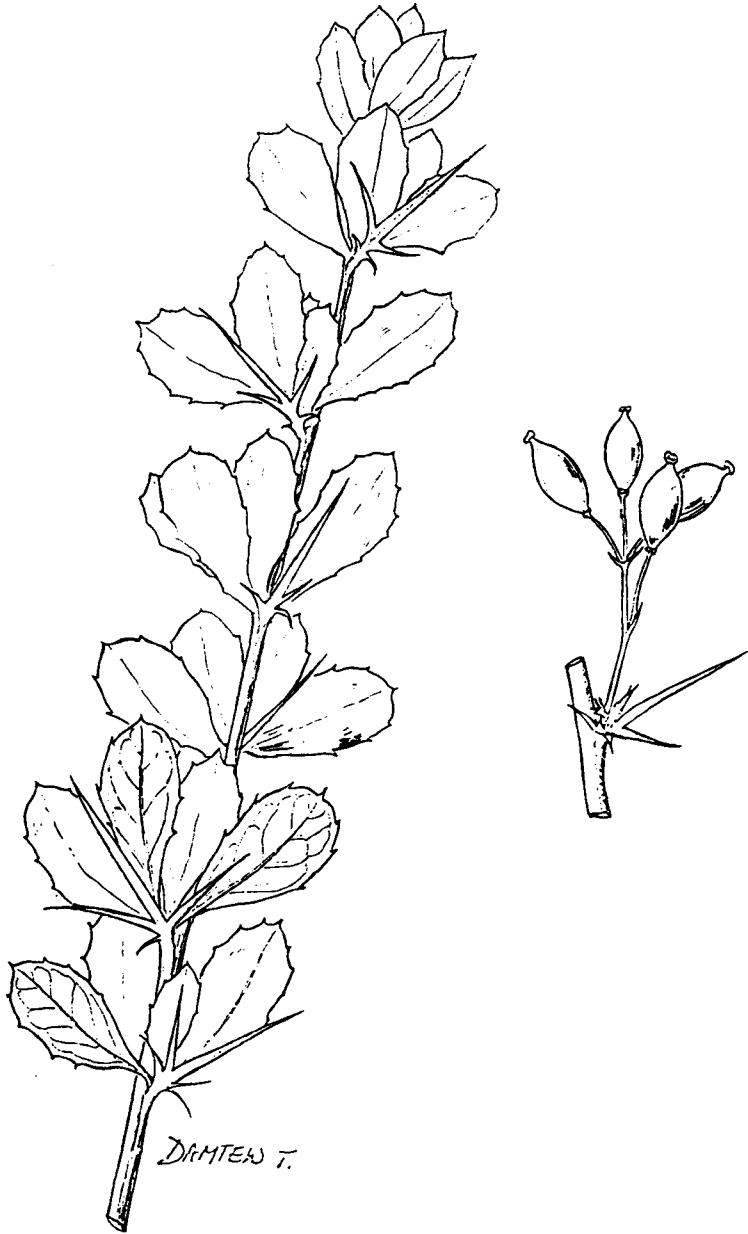
**Seed:**

**Treatment:**

**Storage:**

**Management:** Trimming, lopping.

**Remarks:**





**Indigenous**

**Am:** Jejeba                      **Sm:** Amor, Hamor, Korguba  
**Eng:** Wild almond        **Tg:** Aba  
**Or:** Jejeba

**Ecology:** Grows in dry open woodland or along river valleys at lower altitudes in Dry and Moist Kolla agroclimatic zones, commonly in Eritrea, Welo, Shewa, Gamo Gofa, Bale and Harerge regions, 800–1,900 m.

**Uses:** Poles, timber (construction, furniture), food (fruit), drink (leaves), medicine (roots), **bee forage**, fodder (fruit, leaves), ornamental, shade, windbreak, resin, **black dye** (powdered heartwood, roots).

**Description:** A semi-deciduous shrub or tall tree to 18 m with erect spreading branches making a heavy rounded crown. **BARK:** Grey-black, cracking and scaly, corky spots on young greenish branches. **LEAVES:** Shiny dark green, **sticky when young**, oval to 11 cm, **lateral nerves making a clear pattern**. **FLOWERS:** Small yellow-green, stalked, in loose clusters, attracting bees. **FRUIT:** **Oblong, yellow about 2 cm long** with 1–2 flat seeds in sweet edible flesh.

**Propagation:** Seedlings, root suckers.

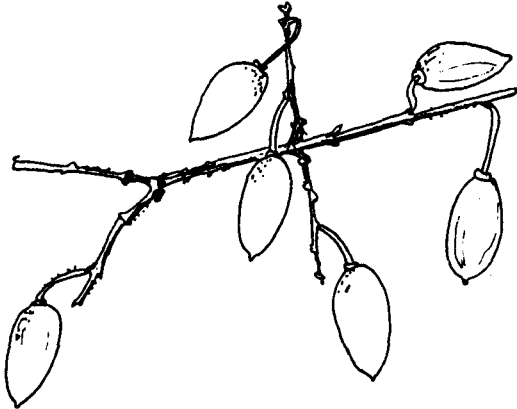
**Seed:**

**Treatment:** Immerse in hot water and allow to cool overnight.

**Storage:**

**Management:** Coppicing.

**Remarks:** The sapwood is light and yellow, the heartwood yellow-brown and resinous; one of the hardest woods in East and Central Africa. Fruit may be boiled to eat with sorghum and leaves used as a tea. The dye is used by basket makers.



**Indigenous**

<b>Ag:</b> Azmiri	<b>Or:</b> Boko, Dolkiss, Gessa
<b>Am:</b> Azamir	<b>Sd:</b> Teberako
<b>Ga:</b> Zagie	<b>Tg:</b> Asha-om, Bersma
<b>Gr:</b> Sabattala	<b>Wt:</b> Tintala shoa
<b>Eng:</b> Winged bersama	

**Ecology:** Found in forest, at forest edges or on cleared land as well as in grassland, open woodlands, on slopes and hills in the Dry, Moist and Wet Weyna Dega and lower Dega agroclimatic zones, 2,000–2,400 m.

**Uses:** Firewood, live fence.

**Description:** A shrub or small leafy tree usually 3–7 m but to 15 m in forest. The trunk may be crooked. **BARK:** Brown and smooth becoming grey and rough. **LEAVES:** Compound with 5–10 pairs of dark green leaflets, plus one at the tip. The leaf stalk may reach 60 cm and be **lightly winged** while **hairy at the base**. The wing is most conspicuous in young leaves. Each leaflet is about 10 cm long, narrowed to a pointed tip; the edge may be slightly toothed or not. **FLOWERS:** Grow from **thick upright spikes**, like “candles” to 35 cm, buds and stalk **hairy**, opening to **green-cream flowers**, slightly pink, each 2 cm across. **FRUIT:** Thick **woody capsules**, rounded to 2.5 cm across with golden hairs at first. Capsules crack open into 3–5 sections each with a **bright orange-red seed**, 1 cm, wrapped for **half its length** in a **waxy yellow aril**.

**Propagation:** Seedlings, cuttings, root suckers.

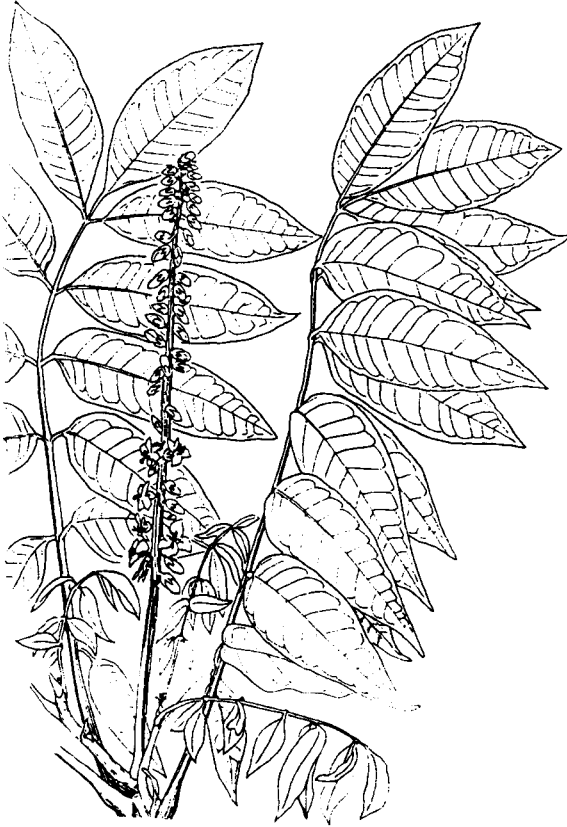
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** This species easily regenerates under mature trees and it may invade cultivated land if it is left fallow even for a few years. Only the subspecies *abyssinica* is recognized in Ethiopia.



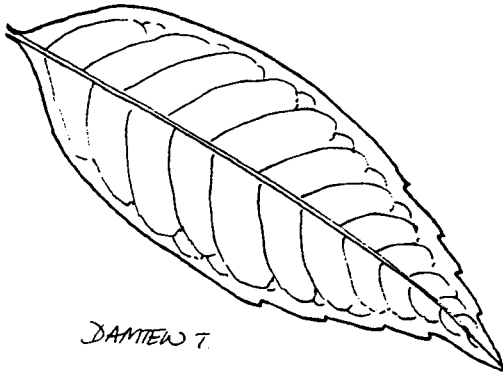
mature fruit head

A.B.

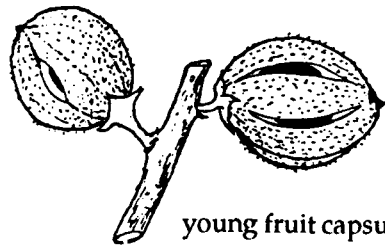


seed

open woody capsules



DAMTEW T.



young fruit capsules

Indigenous

**Kf:** *Komy*

**Or:** *Adakebo, Tucho*

**Ecology:** A tree of evergreen lowland and upland forest in the Dry and Moist Kolla agroclimatic zones of Ilubabor, Kefa, North and South Omo and Eritrea, 500–1,700 m.

**Uses:** **Timber**, shade.

**Description:** An understory tree 7–12 m, but to 25 m in forest. It has a **dense, shady, rounded crown** (like mango). **BARK:** Thin, **grey to dark green**, rather smooth but with **horizontal ridges** and little rounded bumps. **LEAVES:** Compound, only 1–3 pairs leaflets on a short stalk, **dramatic pink-red at first**, later **shiny dark green**, dull below. Each leaflet about 12 cm and quite wide, **smaller leaflets at the base**, the edge wavy and **tip long and pointed**. **FLOWERS:** Small, fragrant and white on a drooping head 7–8 cm. Male trees and female trees. **FRUIT:** **Bright yellow-orange-red capsules** decorate the tree, each soft, hairy, **rather triangular to 4 cm** long with 3 winged lobes. The become woody and split into 3 sections each of which **twists back to set free 1 cm shiny brown-black seeds**. Each has a small **yellow cup-like aril**.

**Propagation:**

**Seed:** Seeds germinate easily.

**Treatment:**

**Storage:**

**Management:** Fast growing.

**Remarks:** Leaves and fruit have been reported to be poisonous—not even eaten by baboons. The red heartwood has been used for building and furniture. Common as a shade tree in coffee plantations.



Indigenous

*Am:* Zembaba

*Eng:* African fan palm

**Ecology:** A palm tree widespread throughout the less dry areas of tropical Africa. It needs a high water table and thus is normally found along water courses, often in dense stands. In Ethiopia it is found along flood plains and water courses in the Moist and Wet Kolla and Weyna Dega agroclimatic zones of western Ilubabor and Kefa regions.

**Uses:** Poles, **timber** (roofing, door frames), tool handles, food (fruit, seeds, young seedlings), palm wine (sap of flower shoots), medicine (roots, flowers, oil), fodder (fruit, young leaves), thatch, fibre (leaves), **baskets, mats** (leafstalks, leaves), oil (fruit, pulp).

**Description:** The tallest indigenous palm, to 25 m. **TRUNK:** 80 cm in diameter, smooth grey, **thickened above the middle** after about 25 years; dead leaves remain on the young trunk. **LEAVES:** Large **fan-shaped**, blue-green to 4 x 3 m, deeply divided into leaflets, thorny at the base. **FLOWERS:** Male and female on different trees, males producing branched spikes to 2 m carrying the pollen. **FRUIT:** In **large bunches** weighing 20 kg or more, **each fruit round**, about 15 cm across, **orange-brown** in a calyx cup. Inside **yellow-white oily edible pulp** around 3 seeds each 8 cm, brown, woody.

**Propagation:** Direct sowing, seedlings.

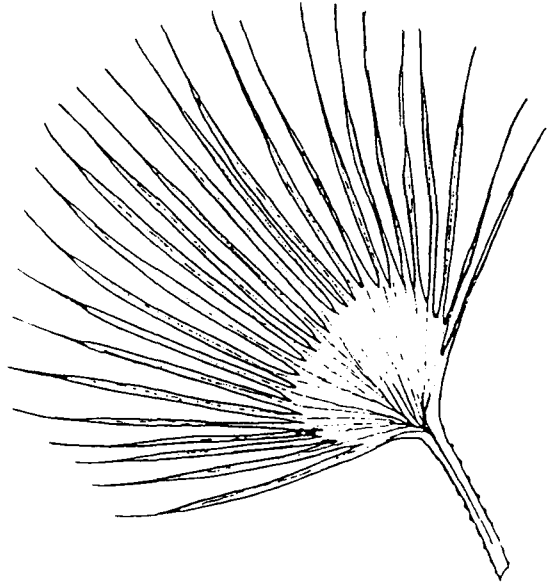
**Seed:** Seed should be dried in the shade. No. of seeds per kg:  $\pm 10$ .

**Treatment:** Not necessary.

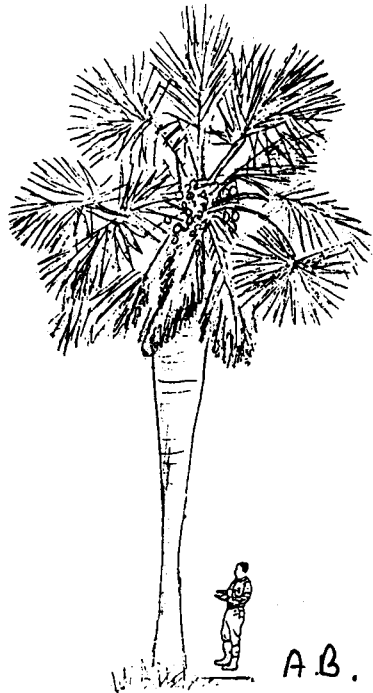
**Storage:** Seed has very short viability. It should be sown directly after removing it from the pulp.

**Management:** Growth rate depends on the site, but generally slow growing.

**Remarks:** Elephants eat the fruit and have contributed to the distribution of the tree. The wood is hard and heavy and resistant to termites and fungi. The trunk and leaf stalks are used to make roof poles. A very useful tree where it is abundant.



fruit





## Indigenous

**Ag:** *Fatuka***Am:** *Kererrrie, Ye-tigre etan zaf***Eng:** *Bitter frankincense***Hr:** *Libanat***Or:** *Galgalem, Kafal***Tg:** *Dankwa, Meger, Walba***Ecology:**

Found in Acacia-Commiphora woodland and wooded grassland, in the Dry Kolla agroclimatic zone of western Eritrea, Tigray, Gonder, Gojam and Shewa regions, often on steep rocky slopes, lava flows or sandy river valleys, 950–1,800 m.

**Uses:**

Live hedge, **incense** (resin).

**Description:**

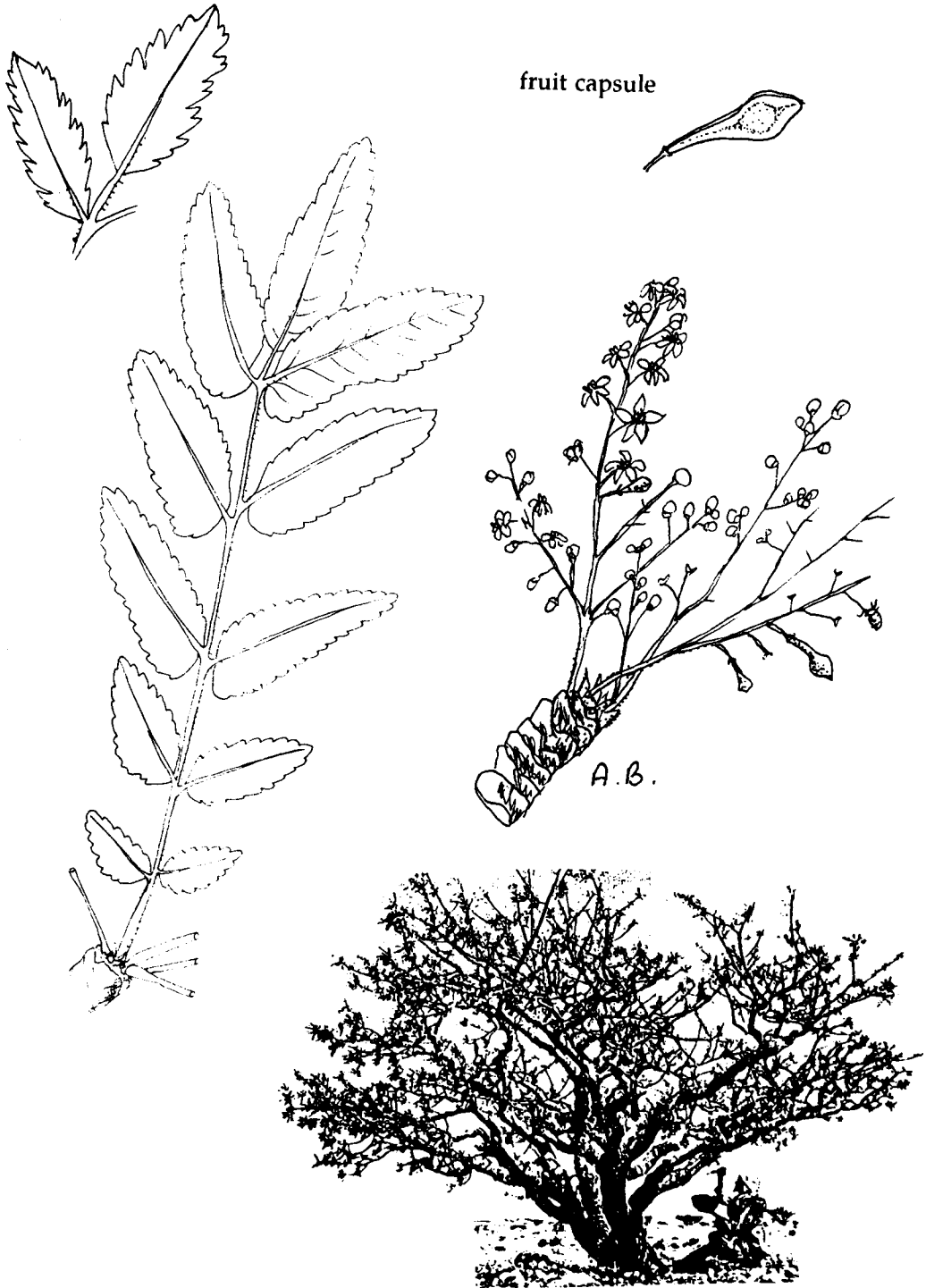
A deciduous tree to 4–12 m or more, with thick branches tipped with clusters of leaves, the crown rounded. **BARK:** Smooth, pale yellow-brown, peeling off in large papery pieces. A cut looks red-brown and a fragrant milky resin drips out. **LEAVES:** Large and compound on a stalk to 45 cm, 6–8 pairs leaflets plus one at the tip, each oval, 4–8 cm, densely hairy below, the edge sharp or round-toothed, sometimes double-toothed. **FLOWERS:** Sweet smelling, develop on loose heads at the ends of thick branchlets, appearing before the new leaves. The red flower stalk, to 35 cm, bears the white-pink flowers with 5 petals and 10 yellow stamens. **FRUIT:** Red capsules about 2 cm long, 3-sided with 3 hard seeds inside.

**Propagation:**

Seedlings, cuttings.

**Seed:****Treatment:****Storage:****Management:****Remarks:**

Harvesting of resin can take place most of the year. The bark is scraped for resin-gum droplets. This first cutting is thrown away and a second cutting taken weeks later is only of low quality. A third cutting produces quality frankincense. A few tons of frankincense are produced annually in the southern Arabian peninsula alone for rituals and health use. *B. sacra* of Saudi Arabia and Somalia has better-quality frankincense. *B. carteri* provides the resin for the frankincense of commerce, but *B. papyrifera* has a very similar resin and is used as frankincense in Ethiopia. *B. ogadensis*, special to Harerge, has simple leaflets and produces a good resin also.



**Indigenous****Am:** *Ye-Sidamo etan zaf***Or:** *Qura***Br:** *Matabut***Sm:** *Murfur-ad, Mohor-medu, Murken***Eng:** *Incense tree,  
Black incense**Baye-medow***Ecology:**

Found in Acacia-Commiphora wooded grassland on red sandy to stony soils of the Dry Kolla agroclimatic zone of Sidamo, Bale and Harerge regions, 250–800 m.

**Uses:**

**Incense** (resin), soil conservation.

**Description:**

A spreading deciduous shrub or tree to 6 m. **BARK:** Yellow-grey, peeling in small papery pieces and breaking off in thick, irregular scales. Branchlets grey and hairy. **LEAVES:** Compound, about 7 cm with 7–10 pairs hairy leaflets, each with small rounded teeth. **FLOWERS:** Flowers with 5 pink petals appear with the new leaves, on several stalks to 4 cm long, at the tips of thick branchlets. **FRUIT:** A 3-angled capsule about 2 cm long, containing 3 hard seeds.

**Propagation:**

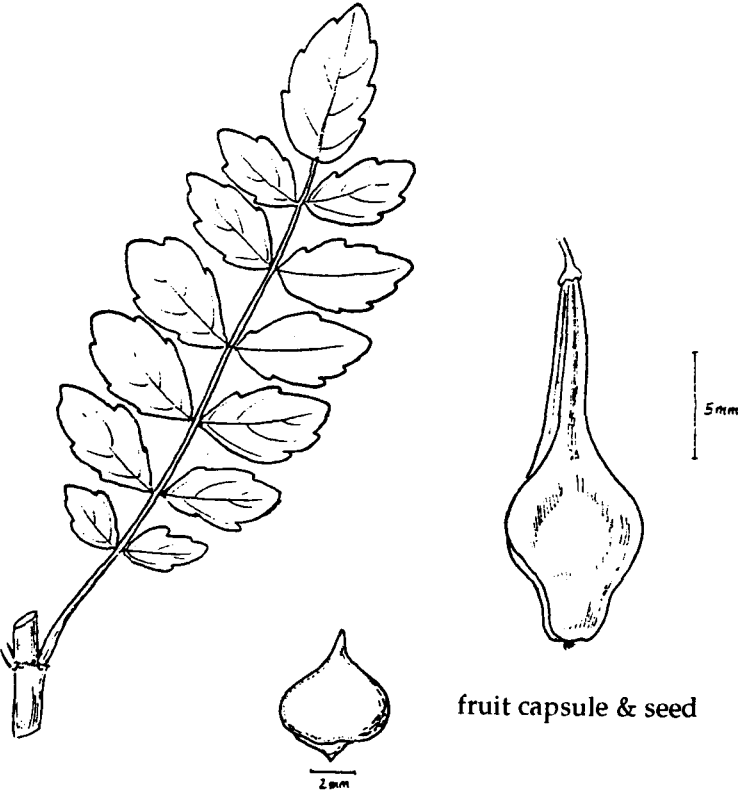
Cuttings, seedlings, direct seeding.

**Seed:****Treatment:**

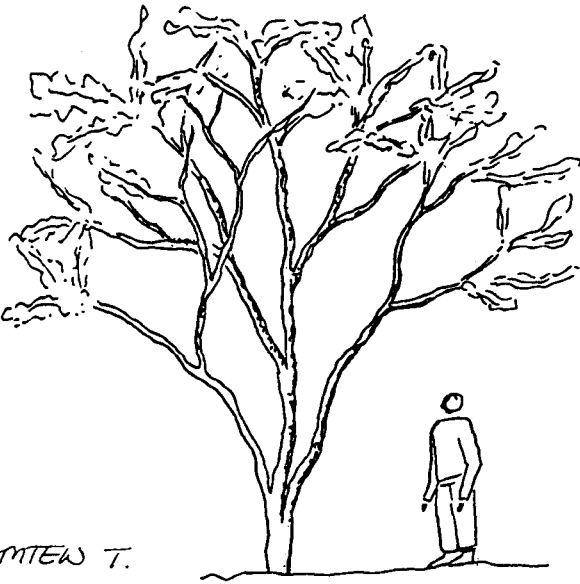
Not necessary.

**Storage:****Management:****Remarks:**

The resin is used locally for incense. It is chewed in Somalia. This is the more important resin in southern Ethiopia. It also grows in Gamo Gofa region on a small scale.



fruit capsule & seed



DAMTEW T.

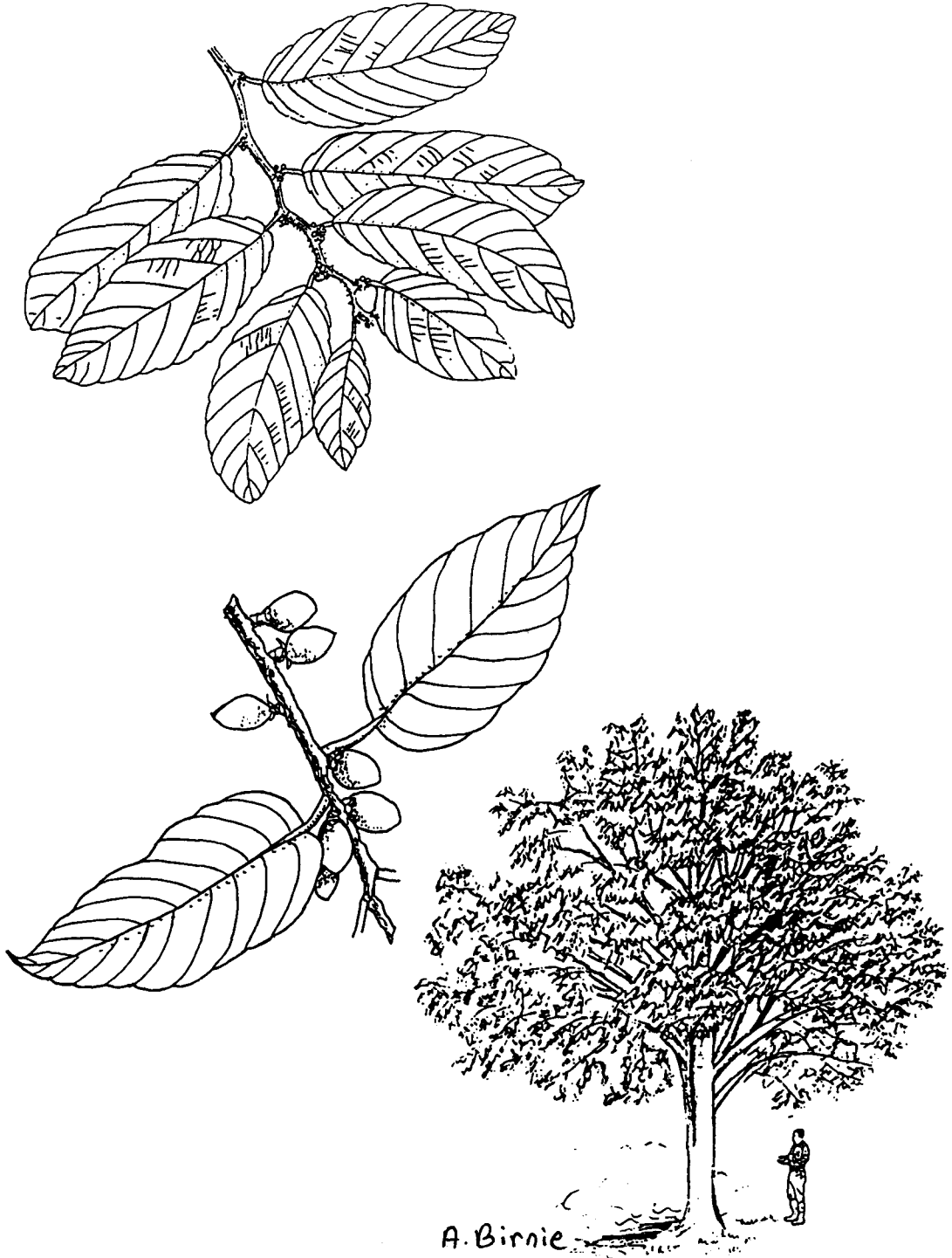
**Indigenous**

*Am: Yeneber tifer*

*Gm: Wush*

*Or: Galalo, Riga-arba*

- Ecology:** Grows in forests, by rivers, forest edges or open woodlands in Moist Kolla and Weyna Dega agroclimatic zones of Gojam, Shewa, Arsi, Bale, Kefa, Wolega, Ilubabor and Sidamo regions, 1,200–2,200 m.
- Uses:** Firewood, charcoal, poles, timber, tool handles, food (fruit), medicine (bark, roots), fodder (leaves), mulch, shade.
- Description:** A medium-sized leafy evergreen tree with dense spreading crown, to 13 m, rarely to 27 m. BARK: Grey-brown, flaking with age, young stems zigzag, dotted with paler breathing pores. LEAVES: Appear compound but actually alternate along branches, dark shiny green above, to 15 × 8 cm, usually smaller, veins parallel, extending along margin, leaf stalks slightly hairy. FLOWERS: Small, yellow, bunched in leaf axils, male and female flowers on different trees. FRUIT: soft, purple-black, oval, up to 8 mm long, sweet and edible when ripe.
- Propagation:** Seedlings.
- Seed:** Prolific seeder.
- Treatment:** Fresh seed should be used.
- Storage:** Short viability period (oily seed); do not store.
- Management:** Fast growing on good sites. Pollarding, coppicing.
- Remarks:** The tree is becoming scarce due to over-exploitation. The wood is resistant to termites and the tree can be grown beside crops.



Indigenous

**Ag:** Askwar

**Sd:** Bulchano

**Am:** Anfar, Atquar

**Tg:** Madere

**Or:** Adado, Anfari, Buchema, Dadatu

**Ecology:** Often grows in secondary scrub of semi-arid upper highland forest and at forest edges in Dry, Moist and Wet Weyna Dega and Moist Wurch agroclimatic zones, 2,200–3,600 m.

**Uses:** Firewood, charcoal, timber (local house construction), fodder (leaves), live fence.

**Description:** A much-branched shrub or small tree, usually 4–5 m, occasionally to 12 m. BARK: Red-brown or grey, short bole deeply grooved. LEAVES: Long and narrow to 15 cm, tip pointed, light grey-green above, underside and stems with dense white-brown hairs, on a 1 cm stalk. FLOWERS: Bright orange on a long spike to 20 cm, flowers tubular, in small groups with sharp and rather unpleasant smell. FRUIT: Small dry capsules, open at the tip.

**Propagation:** Seedlings, wildings, and cuttings.

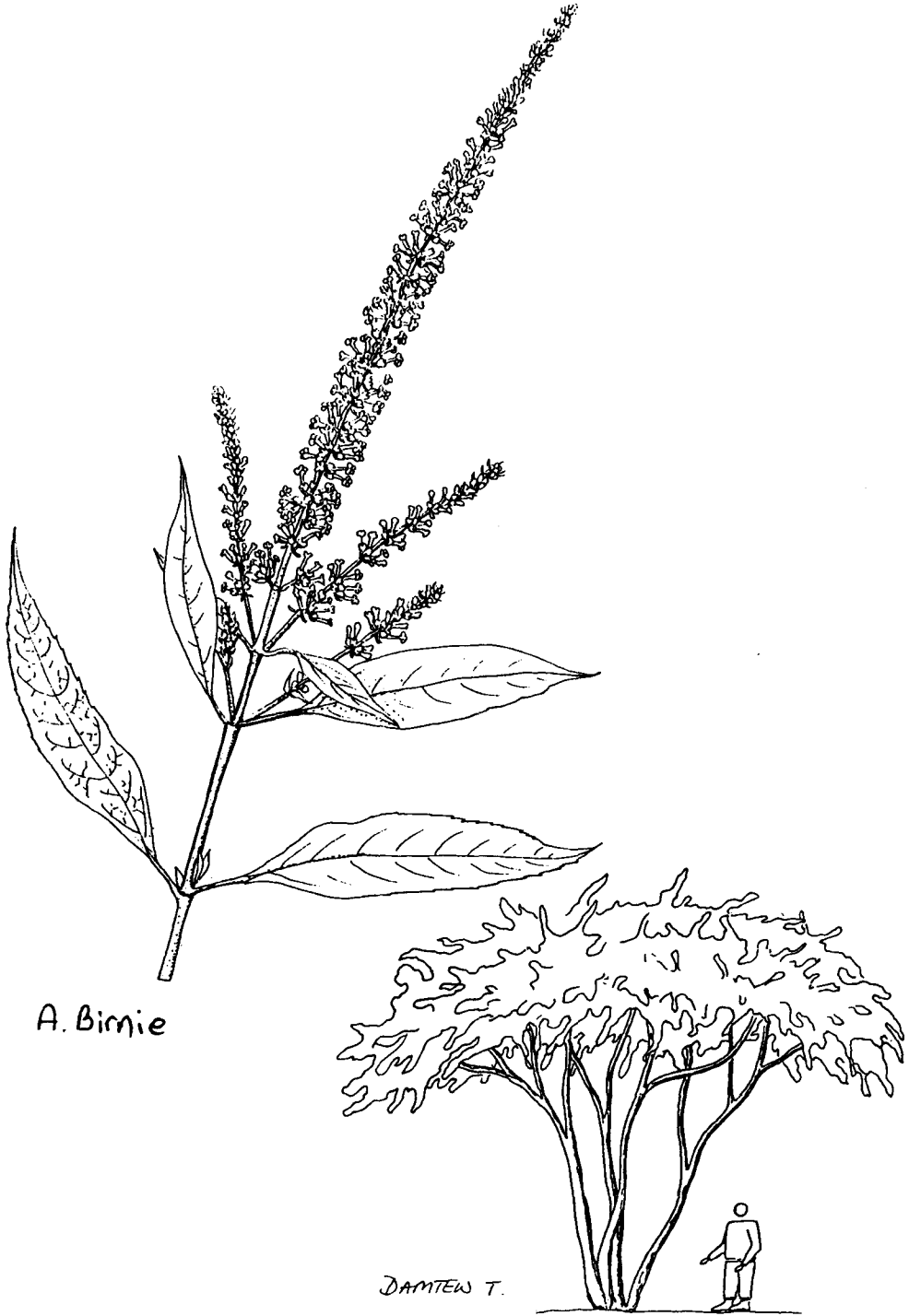
**Seed:**

**Treatment:**

**Storage:**

**Management:** Lopping, coppicing, and pollarding.

**Remarks:** The dry wood can be used to start fires by rubbing sticks (friction).



A. Birnie

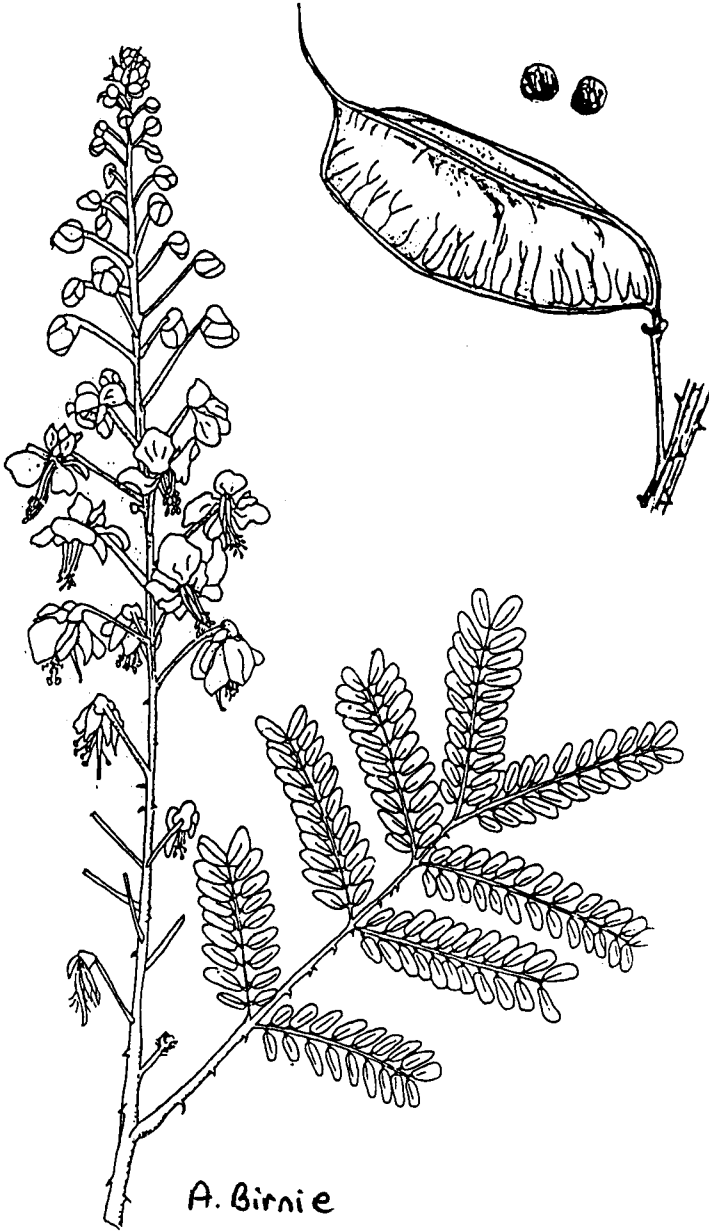


Tropical and subtropical Asia

*Am: Yeferenji kitkita*

*Eng: Mauritius thorn, Mysore thorn*

- Ecology:** Widely grown as a live fence, often becoming naturalized in wooded grasslands and upland evergreen bushlands of western Welo, Shewa, Arsi, Harerge, and Kefa regions. It prefers hillsides and valley slopes in Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,600–2,100 m.
- Uses:** Medicine, fodder (leaves, pods), **bee forage**, mulch, **ornamental**, nitrogen fixation, **live fence**, necklaces (seeds).
- Description:** A shrub or **climber** occasionally reaching 10 m. **LEAVES:** Feathery compound with 6–10 pairs pinnae and **oblong leaflets**. **Hooked prickles** scattered along branches and even on the leaf stalk. **FLOWERS:** Showy **pale yellow** in spikes to 30 cm, 2 cm across with orange stamens hanging down. **FRUIT:** Clusters of **brown pointed pods**, held **erect on woody stalks**, scattering many seeds as they open.
- Propagation:** Seedlings, direct sowing.
- Seed:** Germination rate  $\pm 60\%$ .
- Treatment:** Soak in cold water for 24 hours.
- Storage:** Seed can be stored for a long period if it is kept free from insects.
- Management:** Trim as a live fence.
- Remarks:** Fairly fast growing. May develop into a serious weed in good soil if not checked, especially in pasture land. Burning in the dry season is an effective control measure. The thorns are so effective that a *C. decapetala* hedge has been compared to barbed wire.



S.E. Asia

*Am:* Yergib ater, Yewof ater

*Ks:* Farengota, Ohota

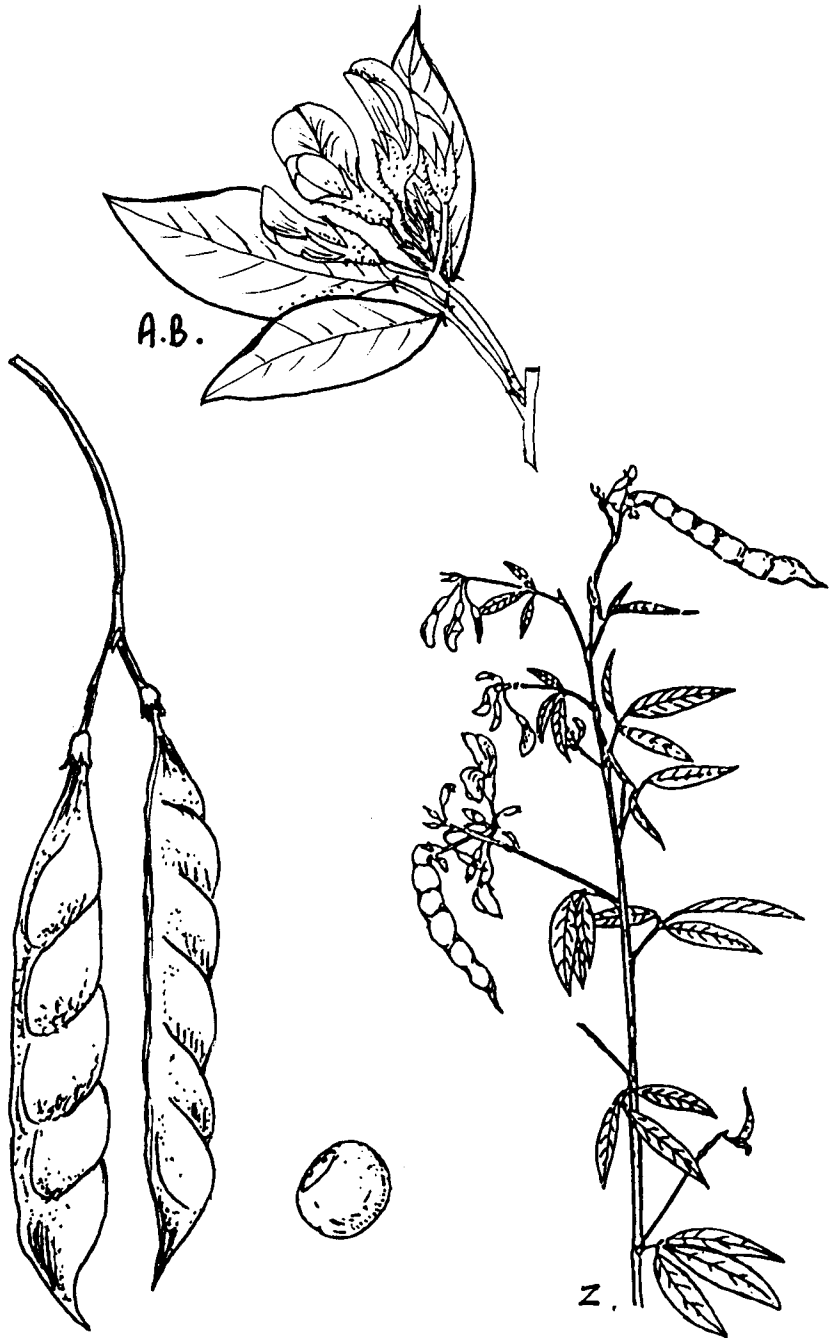
*Eng:* Pigeon pea

*Sm:* Salboko-ghed

*Hd:* Gitea

*Wt:* Kafo atara, Kafwa ateriya

- Ecology:** This is a hardy, widely adaptable crop growing on a variety of soils if not waterlogged or saline and it is drought resistant. An important crop cultivated in Dry and Moist Kolla, Weyna Dega and Dega agroclimatic zones, 1,000–2,400m.
- Uses:** **Firewood, food (seeds),** fodder (leaves and pods), bee forage, basket work (stems), nitrogen fixation, **soil improvement, soil conservation,** windbreak, mulch.
- Description:** A slender shrub 2–5 m, annual or perennial, becoming woody with age. Thick stems ribbed and densely pubescent. **LEAVES: Trifoliate, leaflets hairy, silver below, 2–8 cm long. FLOWERS: Usually yellow, in terminal groups,** the large petal has red lines outside, buds yellow, sticky. **FRUIT:** Straight or upcurved pods, to 10 cm long, sticky and hairy with 4–5 yellow-green-grey seeds inside.
- Propagation:** Direct sowing, seedlings.
- Seed:** Seed highly susceptible to insect attack.
- Treatment:** Soak in water for 12 hours.
- Storage:** Seed stores well if kept dry, cool and insect free.
- Management:** Fast growing. Weeding.
- Remarks:** A useful, high-yielding crop for dry areas which may produce fruit over 4–5 years, but it is susceptible to many pests and diseases. Improved perennial “tree-types” are available. It can be used as a contour hedge in erosion control.



Indigenous

*Am:* Ghinda, Qimbo, Tobiaw      *Sm:* Boha, Gala  
*Eng:* Apple of Sodom, Dead Sea fruit    *Tg:* Akalo, Dinda,

**Ecology:** Grows in dry deciduous bushlands and on bare road-side cuttings, often along permanent or seasonal water courses or above underground water in the Bereha and all Kolla agroclimatic zones.

**Uses:** Firewood (old stalks), **medicine** (bark, latex), fibre (stem), seed fluff (stuffing), medicine for camels.

**Description:** A branched shrub, usually 2–3 m but up to 5 m. **BARK:** Corky and peeling, the **round stems full of white latex**. **LEAVES:** **Large and oval**, pale grey-green and fleshy, about 20 cm long, **in pairs around the stems**. **FLOWERS:** In stalked clusters of 3–10 between the leaves, each 2 cm across, with **5 white-pale mauve lobes tipped with dark purple**. **FRUIT:** Develop in twin-lobed round bodies **over 10 cm long**. **Green and spongy**, then dry out to release numerous flat brown seeds with long silky hairs.

**Propagation:**

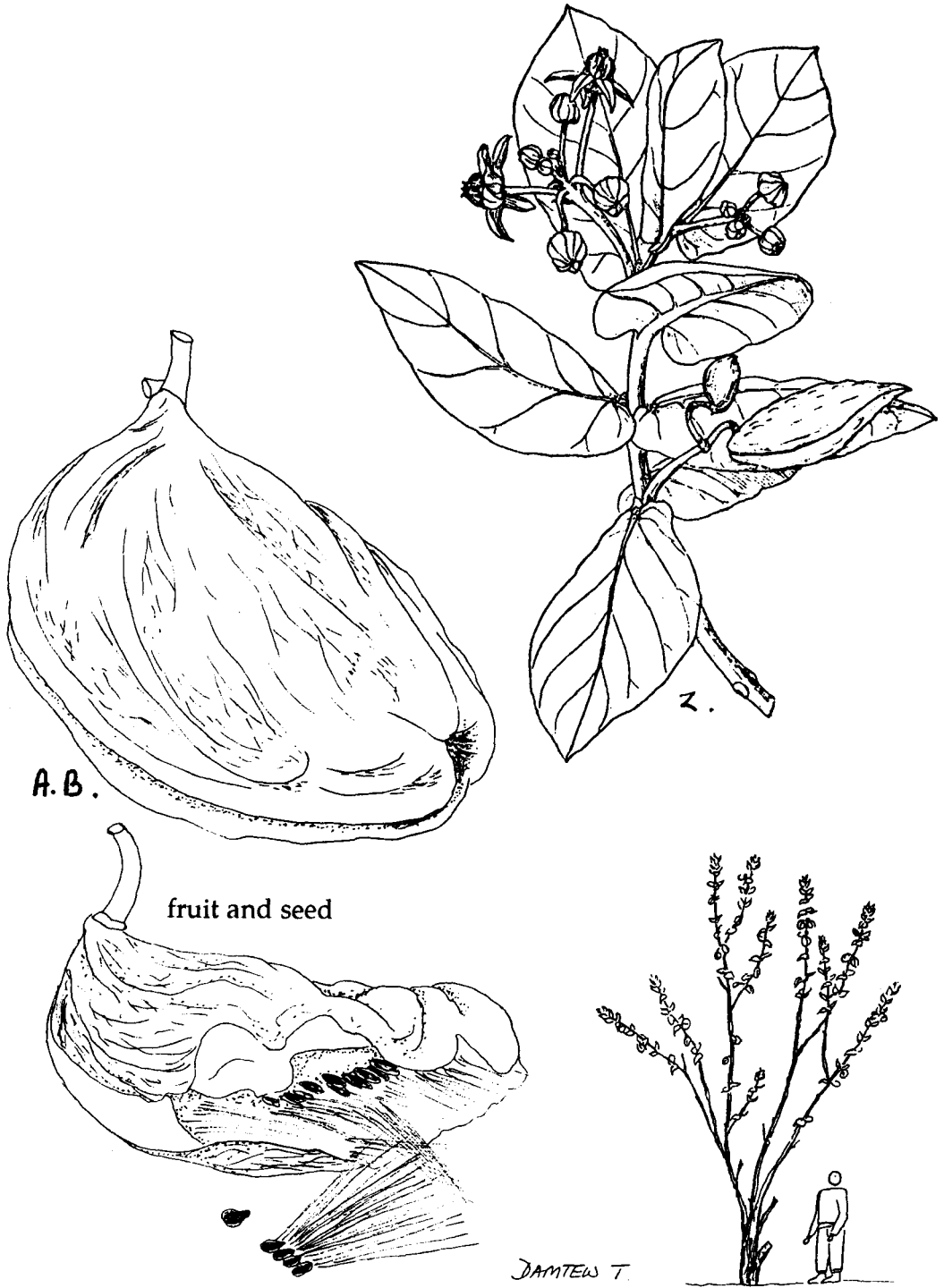
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** All parts of this plant produce latex which can burn the skin. The plant contains a powerful heart poison (calotropin) which has been used to poison arrow heads. It grows around the Dead Sea and in the oases of Jordan, the Arabian peninsular and the Sudan.



Indigenous

*Am: Gumero*

**Ecology:** A shrub occurring in semi-arid and humid lowland, highland woodlands, forest edges and scrub in Dry and Moist Kolla and Weyna Dega agroclimatic zones, 1,200–2,300 m.

**Uses:** Firewood, **medicine** (roots, leaves, bark), **live fence, fencing** (cut branches).

**Description:** A thorny shrub to 3 m or a climber reaching 10 m. **Thorns small, curved back**, in pairs beside leaves. **LEAVES:** Long and oval to 3–9 cm, **grey-green, thick and leathery**, on a short stalk, may be hairy below, slightly pink. **FLOWERS:** To 5 cm across with very many white stamens, 4 small white petals, 4 sepals. The ovary is on a stalk. Flowers are usually in groups. **FRUIT:** Hang down on **long stalks to 5 cm, rounded 1–5 cm across, shiny orange-red**, drying black, **persisting** on the bush.

**Propagation:** Seedlings, cuttings.

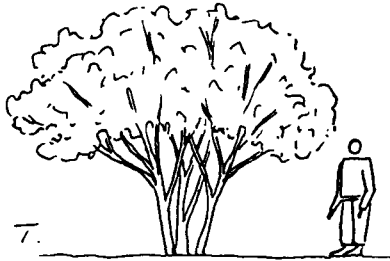
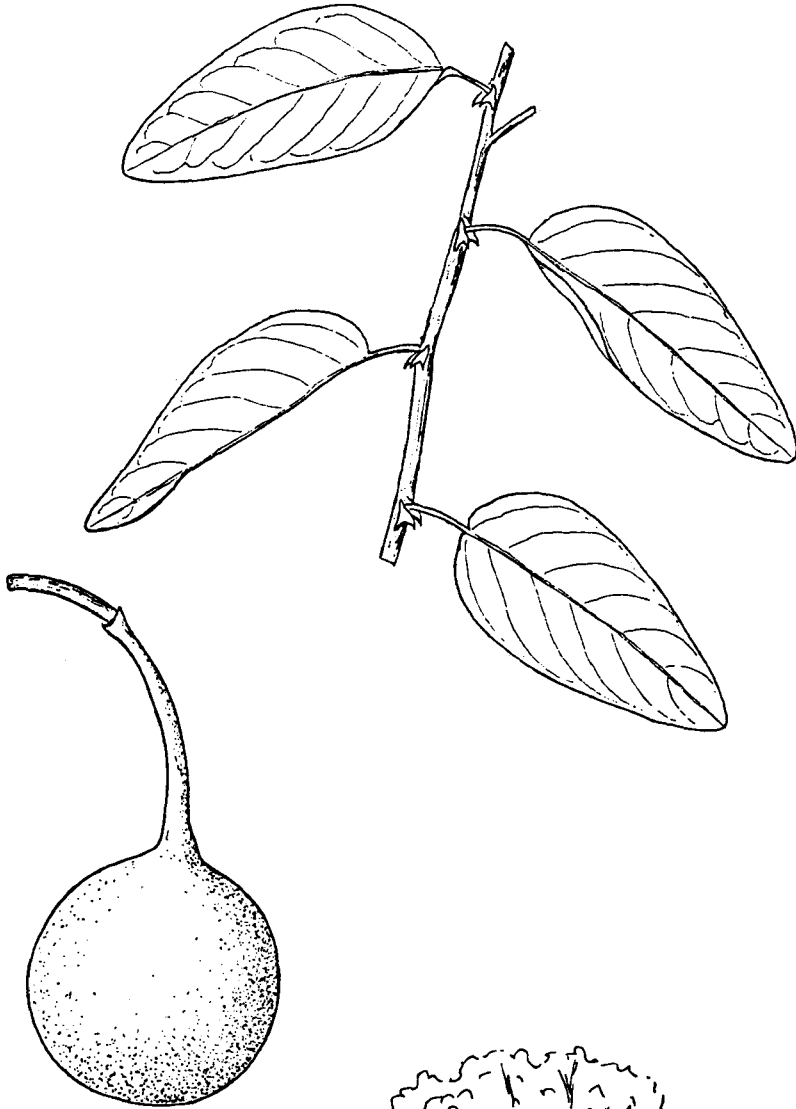
**Seed:**

**Treatment:**

**Storage:**

**Management:** Lopping.

**Remarks:** May become a serious weed unless controlled. Roots can be very poisonous. In Ethiopia they are mixed with garlic and roots of *Adathoda schimperi* to form a juice which is believed to ward off the evil eye.



JAMTEW T.



**Indigenous**

*Am: Agam*

*Or: Agamsa*

*Sm: Orgabat*

**Ecology:** Grows in woodlands and forests where Euphorbia, Acacia, and Croton commonly occur in Dry and Moist Weyna Dega and Dega agroclimatic zones, 1,500–2,500 m.

**Uses:** Firewood, food (fruit), medicine (roots), ornamental, live fence.

**Description:** A spiny shrub or small tree to 5 m. BARK: Grey, smooth with **straight woody spines to 5 cm**, often in pairs, rarely branching. Milky latex. LEAVES: **Opposite**, leathery, **shiny dark green to 5 cm, tip pointed**, base rounded, stalk very short. FLOWERS: Fragrant, in **pink-white terminal clusters**, each flower to 2 cm, lobes overlap to the right. FRUIT: Rounded berries about **1 cm, purple-black when ripe**, sweet and edible, 2–4 seeds.

**Propagation:** Seedlings, wildings.

**Seed:**

**Treatment:**

**Storage:**

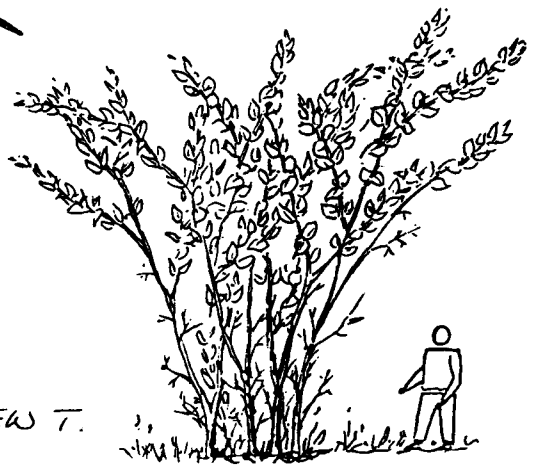
**Management:** Reducing multiple stems, lopping.

**Remarks:** An important food and medicinal plant in Ethiopia. Although difficult to establish, it can be grown from seed to develop into an attractive and impenetrable hedge. It makes excellent firewood.



A. Birnie

DAMTEW T.



Indigenous

**Af:** *Sanu*

**Or:** *Muka-arba*

**Ag:** *Senno*

**Sm:** *Jelalo-jel*

**Eng:** *Alexandrian senna*

**Tg:** *Seno, Utekki*

**Ecology:**

A shrub in semi-desert scrub and grassland, particularly on floodplains and shorelines. This species grows from central Sahara eastwards to India and southwards to Kenya. It is found in Bereha and Dry and Moist Kolla agroclimatic zones of eastern Welo, eastern Eritrea, and the Afar plains, 0–800 m.

**Uses:**

**Farm tools, soil conservation, medicine (leaves, pods).**

**Description:**

An annual woody herb or shrub, 1–4 m, with few branches, hairy when young. **LEAVES:** Compound, on stalks 5–15 cm, with 4–9 pairs of grey-green leaflets, each narrow oval 2–6 cm, shortly stalked, slightly hairy, the tip sharply pointed. **FLOWERS:** In erect spikes 5–30 cm long, 5 greenish sepals overlap 5 bright orange-yellow petals with well-marked veins, 10 stamens of three sizes. **FRUIT:** Flat oblong pods, papery cream-yellow, 3–7 cm long, slightly curved, dark flat seeds are visible inside, finally set free when pod splits.

**Propagation:**

Seedlings.

**Seed:**

**Treatment:**

**Storage**

**Management:**

**Remarks:**

There are two varieties in Ethiopia. A traditional and widely used purgative, variety *alexandrina* is grown commercially in the Sudan and India. In the Sudan the crop grows on poor sandy soils with some irrigation.



A. Birnie



(*Senna didymobotrya*)

Indigenous

*Eng: Candle bush*

**Ecology:** A small bush of montane wooded grassland, evergreen thicket and bushland, often riparian, or in disturbed places. Found in Dry and Moist Kolla and Weyna Dega agroclimatic zones of Arsi, Sidamo, Wolega and Shewa and western Welo, 1,400–2,400 m.

**Uses:** Firewood, **medicine** (leaves, stems, roots), mulch, soil conservation.

**Description:** An attractive bushy shrub 1–5 m, young stems quite hairy. **LEAVES:** Compound on spreading stalks to 30 cm, without glands, characteristic **leafy stipules** at the base **over 2 cm long, heart-shaped and pointed**, 8–18 pairs of oval hairy leaflets to 6 cm long, each with a rounded apex bearing a **clear, stiff, hair-like tip**. Crushed leaflets have peculiar bitter smell. **FLOWERS:** On erect stalks to 30 cm, in dense clusters, conspicuous as thin shiny **brown** sepals overlap and cover the **rounded buds**. Below each bud is a leafy bract. Open flowers at the base of the head have **bright yellow petals over 2 cm long**, the stamens of 3 sizes with straight stalks. **FRUIT:** Oblong, **dark-brown** pods, to **12 cm** by 2 cm across, **flattened** with sections across holding the flat seeds. Pods break open when dry.

**Propagation:**

**Seed:**

**Treatment:**

**Storage:**

**Management:**

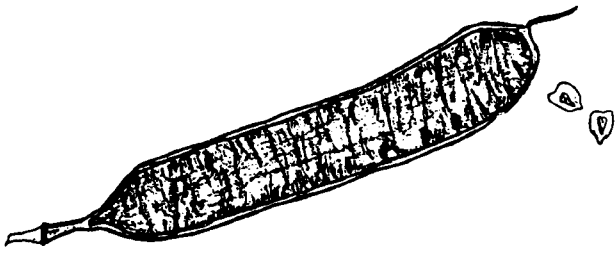
**Remarks:**

The leaves, pods and roots are poisonous.

(*Senna didymobotrya*)



A. Bitnie

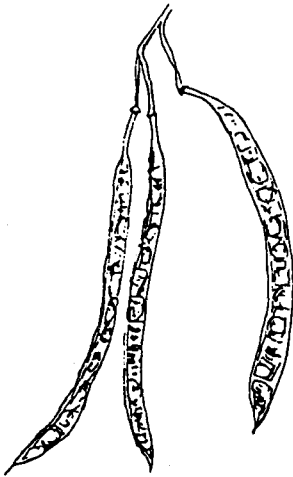
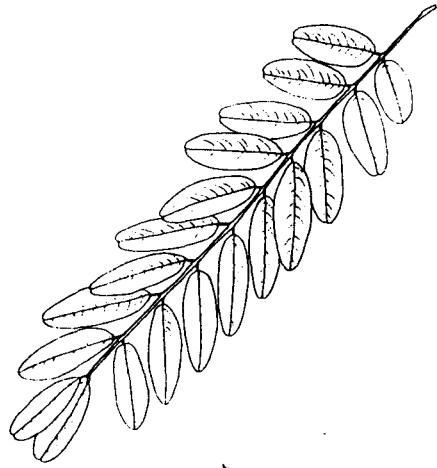
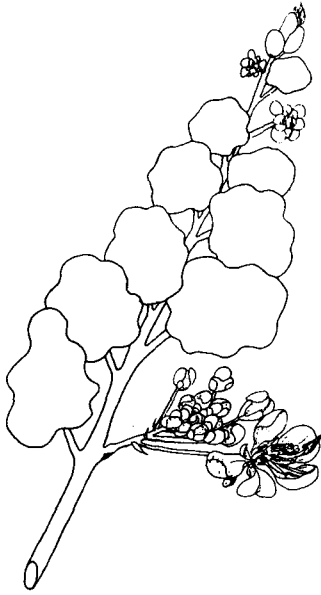


S. E. Asia

*Am: Yeferenji digita*

*Eng: Ironwood, Kassod tree*

- Ecology:** Cultivated all over the tropics from subhumid to semi-arid and even arid zones. Prefers a high watertable. Grows in Dry and Moist Kolla agroclimatic zones. Tolerates a variety of soils, but does better in light to medium ones.
- Uses:** **Firewood**, charcoal, poles, timber (furniture), medicine, fodder (foliage), bee forage, mulch, **ornamental**, shade, **soil conservation**, **windbreak**.
- Description:** An evergreen ornamental tree to 15 m, often shrub-like. **BARK:** Smooth, pale grey-brown. **LEAVES:** Compound, with 4–16 pairs of **leaflets**, **oblong**, round at base and **tip** which may be **notched**, dark, **shiny green** above, **stalk** to 30 cm, grooved. **FLOWERS:** **Pale yellow** in dense heads to 20 cm long, each flower 3 cm across. **FRUIT:** Pods in dense cluster, **flat yellow-brown** and **smooth**, slightly curved, 20 seeds within.
- Propagation:** Seedlings, wildings, direct sowing.
- Seed:** Prolific seeder. No. of seeds per kg:  $\pm 39,000$ .
- Treatment:** Soak stored seed. Fresh seed requires no pre-treatment.
- Storage:** Seed can be stored for up to a year but germination rate falls with time.
- Management:** Lopping, coppicing.
- Remarks:** The name of this tree has recently been changed to *Senna siamea*. The tree is fast growing and since it is not browsed it is easy to establish. Foliage is poisonous to pigs but not to cattle or sheep. Competes with crops and is susceptible to powdery mildew attacks on the leaves. It is termite-resistant. Coppices well. The dense wood makes good firewood, although the fire is smoky.



A. BIRNIE

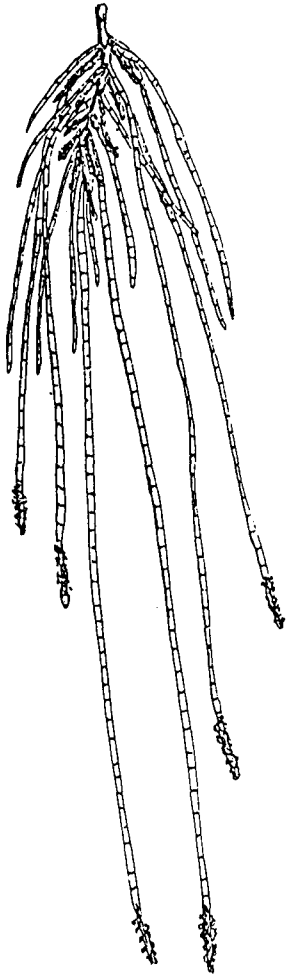


N.E. Australia, Pacific Islands

*Am:* Shewshewe, Arzelibanos

*Eng:* Australian beefwood

- Ecology:** In its native Australia this tree is found along streams and rivers and prefers well-drained soils. Grows in Dry and Moist Weyna Dega and Dega agroclimatic zones, probably in all regions of Ethiopia, 1,500–2,800 m. The most commonly grown of all Casuarina.
- Uses:** **Firewood, charcoal, poles, posts, timber, fodder** (young branchlets), mulch, **soil conservation, nitrogen fixation, ornamental, shade, windbreak.**
- Description:** An evergreen tree to 20 m, pyramidal in shape when young, the base wide when mature and a shady crown. **BARK:** Grey-black, much cracked with age. Thin **branchlets** have taken over leaf function in this family—leaves are minute scales at each joint. The grey-green branchlets are **9–20 cm long, on upturned branches.** **FLOWERS:** Male flowers are seen as yellow pollen-bearing tips to branchlets and female flowers are tiny heads with hairy red stigmas on woody branches. **FRUIT:** In dense cluster, **prickly brown** and cone-like, **1 cm long.** They ripen and shed hundreds of winged seed, pale in colour.
- Propagation:** Seedlings.
- Seed:** Seeds prolifically. Germination rate 55–90%. No. of seeds per kg: 1,400,000–1,600,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for up to a year.
- Management:** Side prune to get a clear bole. Add soil from below old trees for root nodule formation.
- Remarks:** Fairly fast growing. In Australia, branchlets are used as fodder when nothing else is available (hence the name “beefwood”). The wood is very hard and thus difficult to saw and season, though it is susceptible to termite attack. The special root association with a fungus enables Casuarina to fix nitrogen.



branchlet with tiny leaves



stamens of male flowers



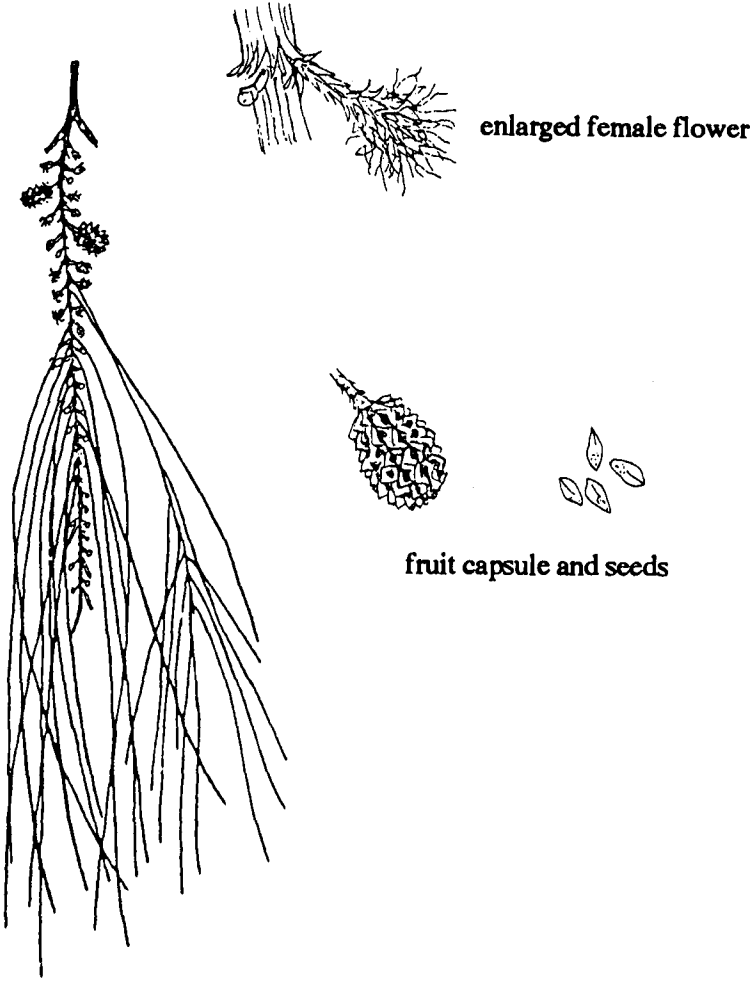
A.B.

S.E. Asia, Pacific, E. Africa

*Am: Arzelibanos, Shewshewe*

*Eng: Whistling pine*

- Ecology:** Cultivated and naturalized in Ethiopia, especially in western Eritrea and Shewa regions, in Dry, Moist, and Wet Kolla agroclimatic zones, 0–1,400m. The extensive root system enables the tree to grow in poor soils.
- Uses:** **Firewood, charcoal, poles, timber** (construction), fodder (young leaves), mulch, **soil conservation**, soil improvement, nitrogen fixation, **ornamental**, shade, **windbreak**, dye, tannin (bark).
- Description:** A tree to 20 m with “weeping” foliage. **BARK:** Grey-black cracked with age. **LEAVES:** Minute scale leaves just visible on the green branchlets, **branchlets to 30 cm hang down in crowded tufts**. **FLOWERS:** Pollen-bearing tips on some branchlets, female flowers in tiny heads with red stigmas. **FRUIT:** Prickly brown, like cones, **in clusters, each to 2.5 cm long**, releasing hundreds of tiny winged seeds.
- Propagation:** Seedlings, wildings.
- Seed:** Seeds prolifically. Good germination rate. No. of seed per kg: 600,000–900,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for at least one year.
- Management:** Fast growing. Side pruning to get a clear bole.
- Remarks:** The species is said to exhaust moisture and lower the watertable. Tolerant to salt water. The tree suppresses undergrowth, and the dry branchlets on the ground may become a fire hazard. The charcoal produces an intense heat with little smoke or ash.



A. Birnie

**Indigenous**

<i>Af:</i> Kat	<i>Km:</i> Chata
<i>Am:</i> Chat	<i>Tg:</i> Chat
<i>Gr:</i> Chat	<i>Wt:</i> Chatya

**Ecology:** Grows in semi-humid lowland and lower highland forests, particularly in Dry, Moist and Wet Weyna Dega agroclimatic zones of Tigray, Welo, Wolega, Shewa, Harerge and Sidamo regions, 1,400–2,200 m.

**Uses:** Firewood, **medicine** (leaves, roots, bark), **stimulant drug** (shoots, stalked leaves).

**Description:** A much-branched shrub or tree, usually kept to 2–7 m but reaching 25 m in forests. Trees look like eucalyptus with rounded clusters of bending branchlets bearing the leaves. **BARK:** Smooth grey-white, later rough and dark brown. **LEAVES:** **Opposite oval** to 11 cm, long leathery grey-green above, paler below with clear veins, edge **regularly toothed**; leaf stalks reddish about 1 cm allowing leaves to twist in the wind. **FLOWERS:** Very small, **pale yellow in bunched clusters beside the leaves**. **FRUIT:** **Red-brown capsules, 1 cm long, 3-sided, containing small winged seeds.**

**Propagation:** Seedlings. Usually propagated by root cuttings or suckers.

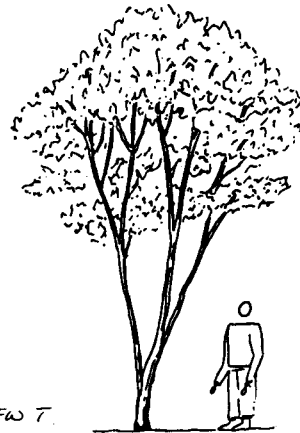
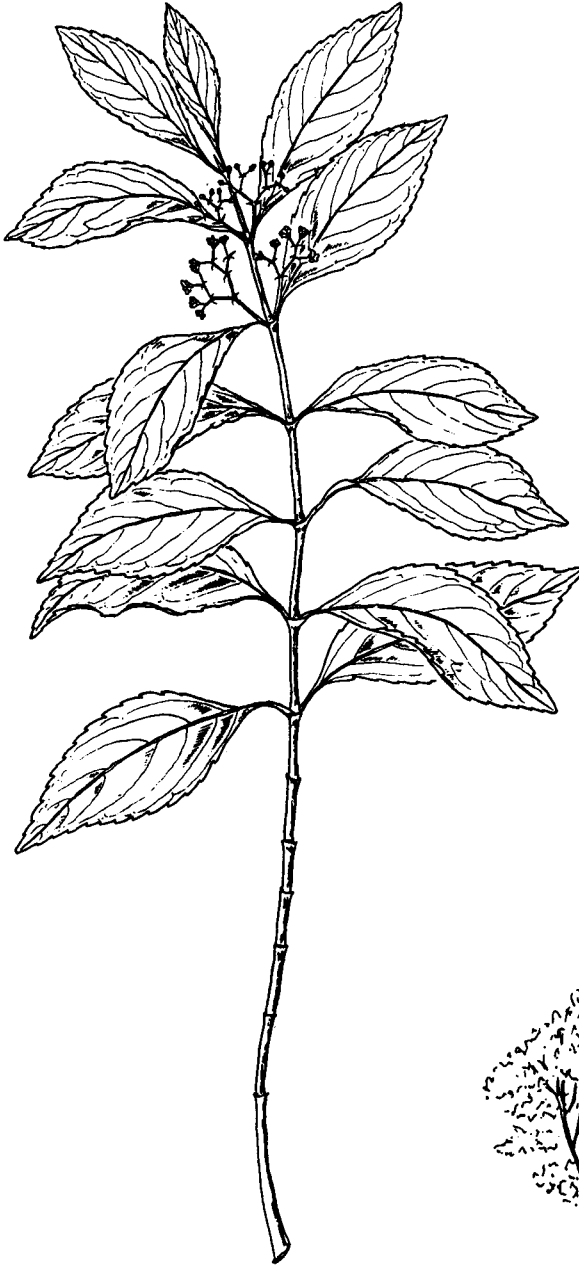
**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:** Pollarding, trimming.

**Remarks:** An important cash crop for small-scale farmers. It is particularly important in Harerge and southern Shewa but is also commonly used in Wolega, Sidamo, western Tigray and Welo. The leaves are chewed as a mild stimulant.



DAMTEW T.

South and Central America

**Am:** Yetit zaf  
**Eng:** Kapok tree

**Sm:** Dum-dum

**Ecology:**

A distinctive tree, widely grown in the tropics. It does best at low altitudes in well-drained soils. In Ethiopia it is planted from Bereha to Dry and Moist Kolla agroclimatic zones. Semi-naturalized, especially in Harerge, eastern Eritrea, Tigray, Arsi, Wolega, and Ilubabor regions, 500–1,600 m.

**Uses:**

Fodder (leaves and shoots), medicine, **ornamental**, **fibres** (mattresses).

**Description:**

A tall deciduous tree to 30 m with conspicuous, **horizontal layered branches**, the trunk covered with sharp conical spines when young, **heavily buttressed with age**, very shallow rooted. **BARK:** Young branches green, old bark grey, smooth. **LEAVES:** Compound, **5–11 leaflets**, shortly stalked, radiating from a **main stalk to 20 cm**, each drooping, long and narrow, 8–16 cm. **FLOWERS:** Open at sunset, small, 1–3 together, the smell unpleasant; 5-part calyx, 5 petals joined at the base, to 3 cm long, dirty white, densely silky hairy outside, 5 stamens. **FRUIT:** Large **woody capsules to 30 cm**, conspicuous hanging on the bare tree, contain round **black seeds with long silky white fibres**—called kapok—around them.

**Propagation:**

Seedlings, cuttings.

**Seed:**

No. of seeds per kg: 10,000–45,000. Germination rate 50–85 %.

**Treatment:**

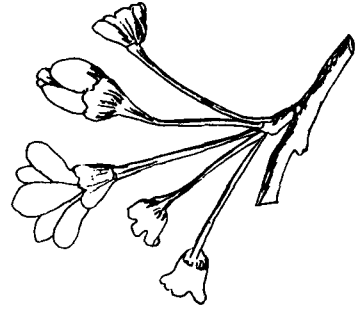
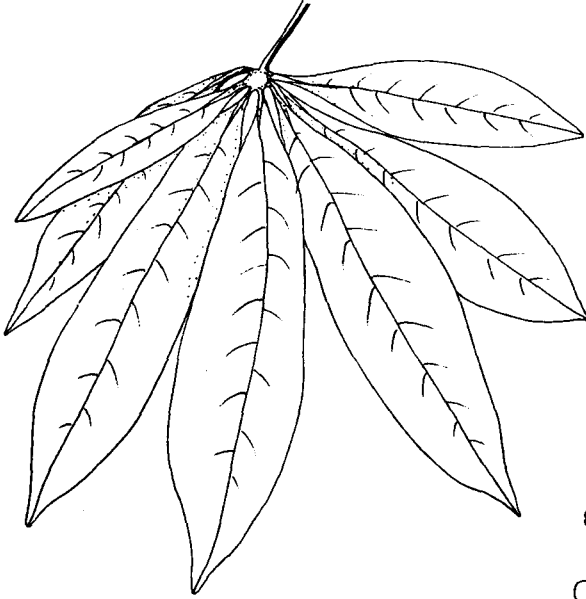
Soak seed in cold water for 24 hours.

**Storage:****Management:**

Coppicing, lopping and pollarding.

**Remarks:**

The wood is so soft it has few uses. Kapok fibre burns easily but is water-repellent and lighter than cotton. The unripe fruit and seed oil are edible and an important crop in parts of the world, e.g. Java, Thailand, Malaysia and Sri Lanka. Press cake from seed residue contains 26 % protein. It produces a high yield after 8–10 years with abundant rain in the growing season and a dry period for flowering and fruiting. Easily damaged by high winds, the tree is very shallow rooted. In West Africa seeds are powdered and added to soup. Flowers open in the evening and are usually pollinated by bats.



A. Birnie



fruit capsule & seed





**Indigenous**

**Ag:** *Equa*

**Am:** *Amlaka, Kawoot*

**Kf:** *Shishu*

**Or:** *Amalaqqa, Cheke, Meteqamma*

**Sd:** *Shishu*

**Sm:** *Bodar, Kidi*

**Tg:** *Haua, Hamat, Reway*

**Ecology:**

A tree with a very wide range of habitats. It is common in dry evergreen, semi-arid or semi-humid lower highland forest. Grows well in Dry and Moist Kolla and Weyna Dega agroclimatic zones in all regions, 1,300–2,200 m.

**Uses:**

**Firewood, timber** (local construction, farm tools), **tool handles, fodder** (leaves), shade.

**Description:**

A deciduous forest tree about 12 m but reaching 35 m, with a spreading crown. **BARK: Smooth, grey** often marked with **horizontal rings**. Young shoots have rust-coloured hairs. **LEAVES: Clearly 3-veined from the base** of the oval leaves, **rough and dull green** above, hairs on veins below, **edge toothed over top two thirds**, base a little unequal, tip drawn out and pointed. **FLOWERS: Very small, greenish**, on thin stalks, in clusters beside leaves, female flowers above male flowers on the stalk. **FRUIT: Yellow or orange**, round and **hairy**, less than 1 cm on **stalks about 2 cm** long, hard seeds inside.

**Propagation:**

Seedlings.

**Seed:**

**Treatment:**

**Storage:**

**Management:**

Side pruning.

**Remarks:**

The timber rots and splits easily, but it is very strong and useful for tool handles and building. Leaves are browsed by animals, including cattle, and the leaves and fruits are important in the diet of black and white colobus monkeys.



Canary Islands

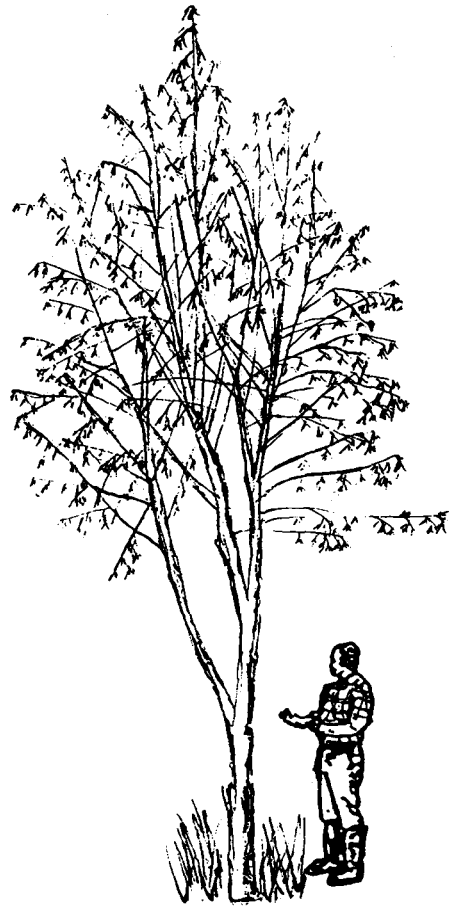
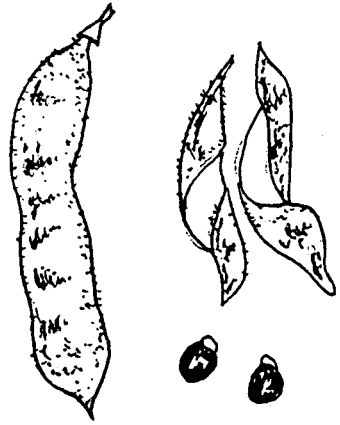
*Am:* Tree lucern

*Eng:* Tagasaste, Tree lucerne

- Ecology:** Recently introduced to Ethiopia it is growing well in moist and dry highlands and could be successful in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,700–3,300 m. It grows best in high-rainfall cool highlands.
- Uses:** Firewood, **fodder** (leaves, pods), bee forage, soil conservation, **soil improvement**, mulch, nitrogen fixation, windbreak, live fence.
- Description:** An evergreen shrub or small tree to about 6 m. **LEAVES:** Compound with **3 stalked leaflets**, the central largest to 7 cm, narrow and oblong to a pointed tip, narrowed to the base, stalk to 2 cm long. **FLOWERS:** White. **FRUIT:** **Hairy pods to 5 cm** long containing 8–10 small **black seeds**.
- Propagation:** Seedlings, direct seeding, cuttings.
- Seed:**
- Treatment:** Inoculate the seed with cow-pea innoculum. Immerse the seed in hot water for a minute.
- Storage:** Seeds can be stored for 4–5 years.
- Management:** Plant seedlings at two months. Prune frequently to encourage low, bushy and readily accessible regrowth and to reduce the amount of woody stem.
- Remarks:** Tolerates drought, repeated browsing or harvesting. The leaves are excellent fodder with a high food value. Small birds are fond of the seeds. Relatively free of pests and diseases, this species needs to be protected from grazers at first. Growth is slow until the deep roots are established.



A. Birnie



Indonesia, India — naturalized

*Am:* Lomi  
*Eng:* Lime  
*Km:* Lomi

*Or:* Tuto  
*Tg:* Lemin, Lemun

**Ecology:** All plants in the citrus group originated in Asia, and limes probably came from Indonesia or India. This species is the most widespread citrus in Ethiopia and it has become naturalized as a riverine tree or shrub at 1,000 m. It grows in Dry and Moist Kolla and Weyna Dega agroclimatic zones, up to 2,500 m.

**Uses:** Food (fruit), **medicine** (leaves, fruit).

**Description:** An evergreen shrub or much-branched tree to 5 m with very many short sharp spines on the stems and beside leaves. **LEAVES:** Oval, rather small, shiny green 4–8 cm, the leaf stalk with a narrow “wing”, an extra leafy growth and a “joint” with the leaf blade, edge smooth or round-toothed. **FLOWERS:** Both buds and flowers white, 1–7 flowers in a leaf axil, each about 2 cm across. **FRUIT:** Round or oval, to 6 cm diameter, but usually smaller, peel very thin, green or yellow, difficult to remove, pulp green, very acid but juicy.

**Propagation:** Seedlings, grafting.

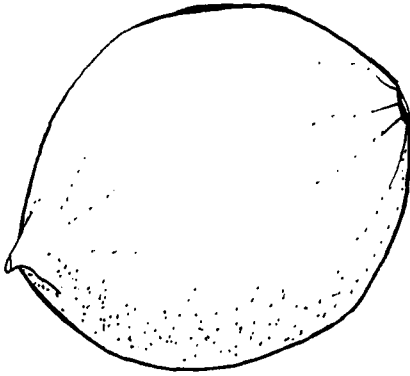
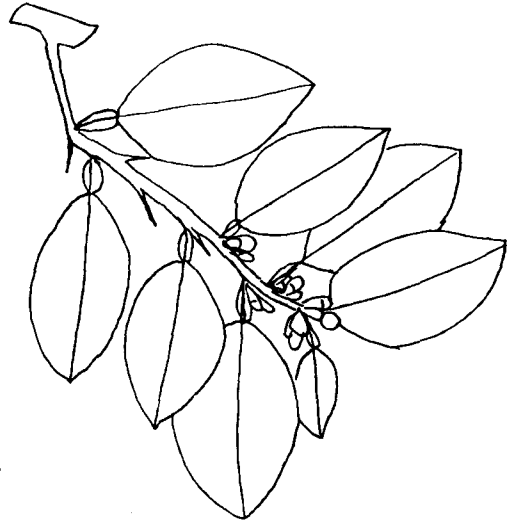
**Seed:**

**Treatment:** Not necessary.

**Storage:**

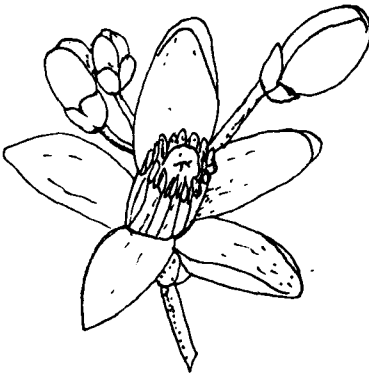
**Management:** Pollarding to encourage branching first and bending the branches horizontally. This keeps the height easily reachable for picking.

**Remarks:** A plant that is of economic importance because of its fruit.



X1

A.B.



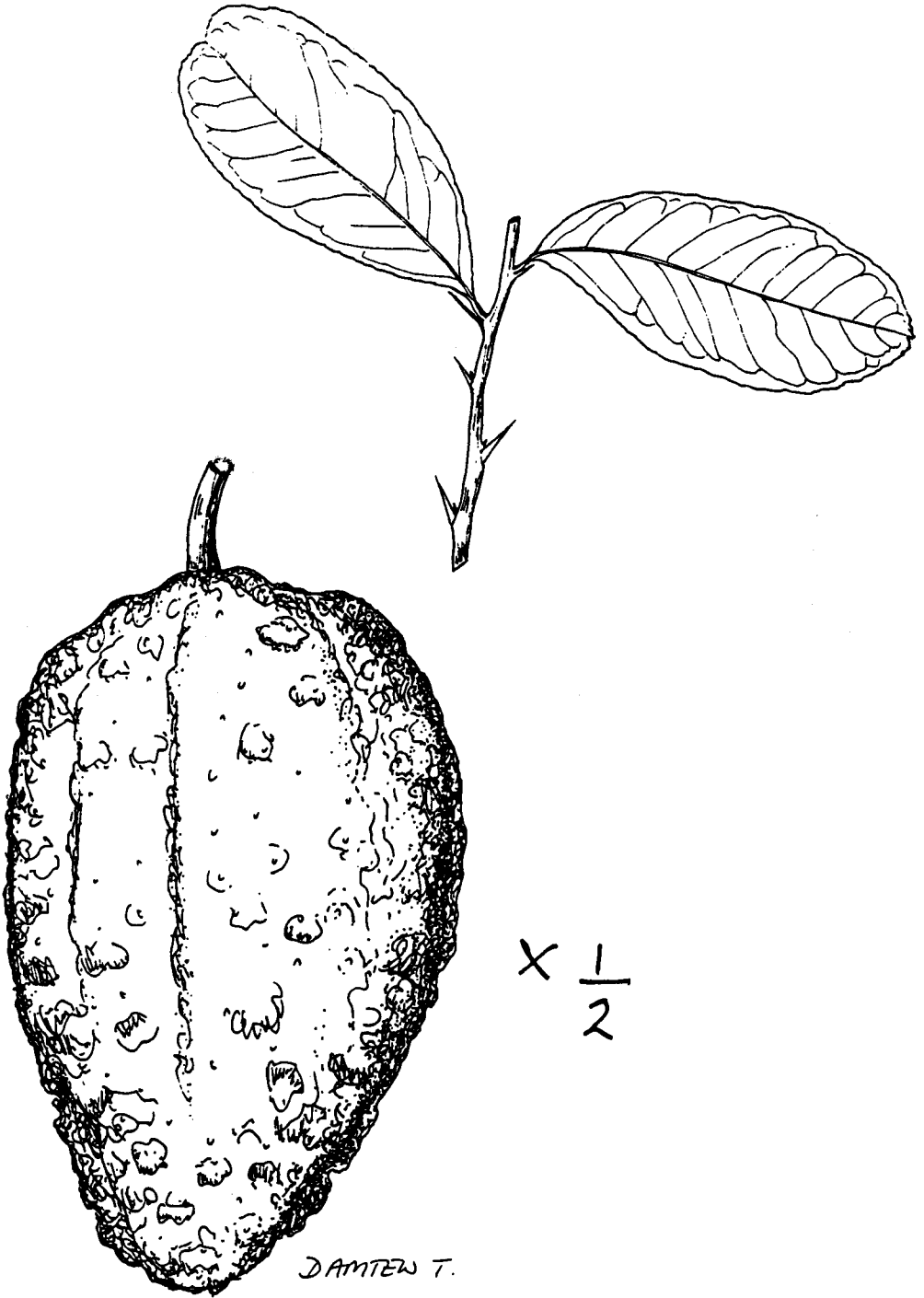
S.E. Asia

*Am:* Tiringo

*Eng:* Citron

*Tg:* Tiringuin

- Ecology:** Commonly cultivated in irrigated areas of Moist Kolla and Dry, Moist and Wet Weyna Dega agroclimatic zones.
- Uses:** Food (fruit), **medicine** (leaves, fruit).
- Description:** An evergreen spiny shrub or small tree. **LEAVES:** Distinguished by having **no "wing" on the stalk**, and no joint to the leaf blade; the rather large leaves have a toothed edge. **FLOWERS:** Of two kinds, some losing the central ovary, petals white inside but pink-purple outside. **FRUIT:** **Big and oval-oblong, yellow, the skin bumpy, 20–30 cm long.** Most of the inside is **thick white peel**, with a small amount of very acid pulp around the seeds.
- Propagation:** Seedlings and grafting.
- Seed:**
- Treatment:** Not necessary.
- Storage:**
- Management:** Mixed planting with trees that could serve as a support.
- Remarks:** This fruit is prized for its reputed medicinal properties. Cultivated since the nineteenth century, it can occasionally be seen for sale in local markets and in Addis Ababa. The thick aromatic peel is suitable for making candied peel.





S.E. Asia, Cochin China, Vietnam

*Am: Menderin*

*Eng: Mandarin, Tangerine*

**Ecology:** Grows under rain-fed conditions in Moist and Wet Weyna Dega agroclimatic zones. If irrigated, it grows even in Dry Weyna Dega agroclimatic zones, 1,500–1,800 m.

**Uses:** Food (fruit).

**Description:** A small evergreen tree 2–8 m, sometimes spiny. LEAVES: Shiny dark green above, yellow-green below, **narrowly oval** to 8 cm long, the **edge usually with widely spaced rounded teeth**, the stalk very narrowly winged. FLOWERS: In leaf axils, about 2 cm across, 5 white petals. FRUIT: Typically bright orange when ripe but others staying green in Ethiopia. Fruit are **rounded but flattened to 8 cm diameter**. The peel is **thin and loose**. Inside the orange juicy pulp around the seeds is **very sweet**.

**Propagation:** Seedlings, wildings.

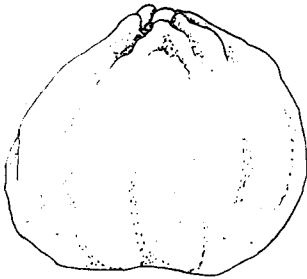
**Seed:**

**Treatment:** Not necessary.

**Storage:**

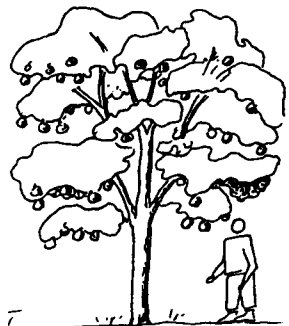
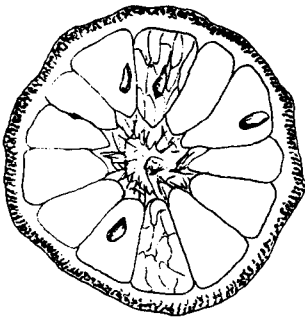
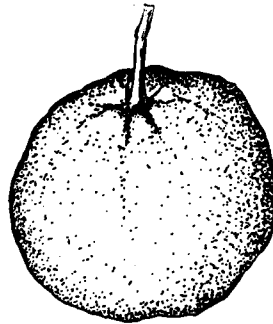
**Management:** Pollarding to initiate branching and keep the tree short.

**Remarks:** This fruit has always been cultivated in China and Japan. In Ethiopia it produces good-quality fruits in plantations between 1,500 and 1,800 m. (Experts do not agree on the difference between this species and *C. deliciosa*.) This species is the hardiest of the cultivated citrus. There are many cultivars.



$\times \frac{1}{2}$

A.B.



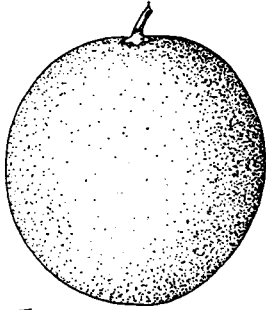
Southern China, Vietnam

*Am:* Birtukan

*Eng:* Sweet orange

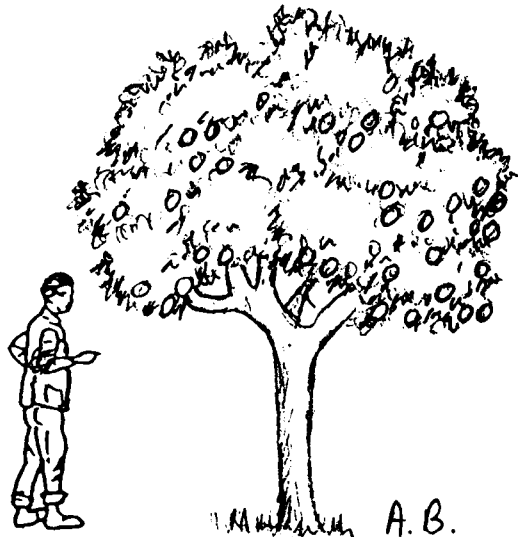
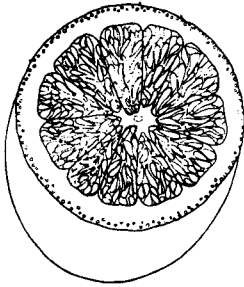
*Or:* Birtukana, Birtukwani

- Ecology:** Grows in Dry and Moist Kolla and Weyna Dega agroclimatic zones. It performs better under irrigation, 1,000–1,800 m.
- Uses:** Food (fruit), juice (fruit).
- Description:** An evergreen shrub or tree, 6–12 m, twigs angled when young, often with thick spines. LEAVES: Oval, 5–15 cm x 2–8 cm, shiny dark green above, the stalk narrowly winged, having a line or break with the leaf blade (articulation). FLOWERS: Very fragrant, one or many in leaf axils, 2–3 cm across, 5 white petals, 20–25 stamens in groups, style with a round stigma. FRUIT: Rather variable in colour and shape, rounded green-yellow-orange, 4–12 cm across, the relatively thin skin hard to remove, the pulp surrounding the seeds sweet-sour but juicy.
- Propagation:** Seedlings, wildings, grafting.
- Seed:**
- Treatment:** Not necessary
- Storage;**
- Management:** Pruning to encourage branching and keep the tree low. This allows easy harvesting of the fruit.
- Remarks:** The most widely cultivated citrus in plantations giving good-quality fruits. The climate in Ethiopia enables oranges to be produced throughout the year. They are used both for eating and for juice. There are many cultivars of the sweet orange. Desirable cultivars are nowadays budded on to rootstock trees that are themselves grown from seed.



DAMTEW T.

$\times \frac{1}{2}$



Indigenous

**Am:** Zenfok, Ungoi  
**Or:** Totofe

**Sm:** Shuna-shuna  
**Tg:** Aflot, Kato, Mellu

**Ecology:** Common in Acacia-Commiphora and Combretum woodland and bushland on red sandy to silty soil or rocky slopes. Grows in riverine forests in Dry and Moist Kolla agroclimatic zones of eastern Eritrea, Tigray, Gonder, Welo, Kefa, Gamo Gofa, Sidamo, Bale and Harerge regions, 400–1,600 m.

**Uses:** Firewood, **fodder** (leaves), hedge, **local brooms**.

**Description:** A deciduous **thin scrambling shrub** to 4 m, young branches with red-brown hairs, later yellow-brown, hairy. **LEAVES:** Usually pale green, **small, 4–7 cm**, wider at the rounded tip, which may be notched, **hairy both sides, only 4–6 pairs of veins**, very clear below. On older twigs the **leaf stalk becomes a hooked spine**, hairy, over 1 cm long. **FLOWERS:** Yellowish-white, fragrant. **FRUIT:** Small, green-yellow-brown with **5 papery wings**, almost round to 2 cm, tip notched, on a **thin stalk to 1 cm**.

**Propagation:** Seedlings, wildings, root suckers.

**Seed:**

**Treatment:** Break off wings of the fruit and take out the seeds before sowing.

**Storage:** Seeds cannot be stored for long. Use fresh seed.

**Management:** Coppicing.

**Remarks:**



Indigenous

*Am:* Tinjut

*Eng:* Variable combretum

*Tg:* Sawa

**Ecology:** It occurs in arid and semi-arid savannah, steppe, and scrub in Acacia, Combretum-Terminalia, woodland and wooded grasslands with incense trees. It grows in Dry and Moist Kolla agroclimatic zones, 500–1,700 m.

**Uses:** **Firewood, medicine** (leaves), fencing (cut branches).

**Description:** A small- to medium-sized tree 4–12 m. **BARK:** Red-brown when young, later grey, rough, scaly and thick. **LEAVES:** Difficult to describe as they vary greatly both in size and other details. Usually rather tough, not thin, **darker above than below**. The underside is **densely dotted with tiny silvery scales** only visible with a lens. Leaves hairy or not, usually ovate 9 x 4 cm but they may reach 22 x 8 cm, the side veins 6–20 pairs. Leaf stalk 1–4 cm. **FLOWERS:** Cream-white-yellow, sweet-scented and **very small, on spikes about 6 cm long**, usually shorter than the leaves. The tree stands out when covered with flowers. **FRUIT:** 4-winged, the shape variable but generally **oval 2.5–5.5 cm, rust-red when young**, later dark golden-brown, even grey to purple, dull, hairy or shiny. The many scales catch the light so the **surface shines** like metal.

**Propagation:** Seedlings.

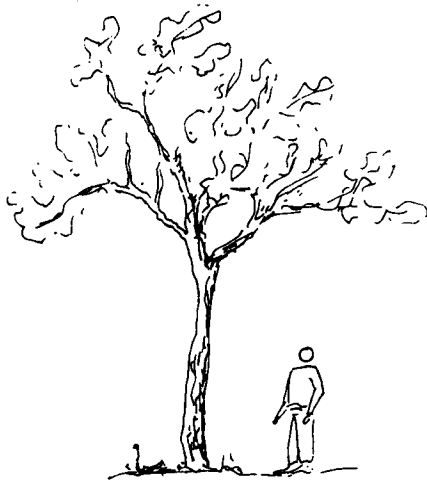
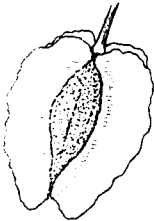
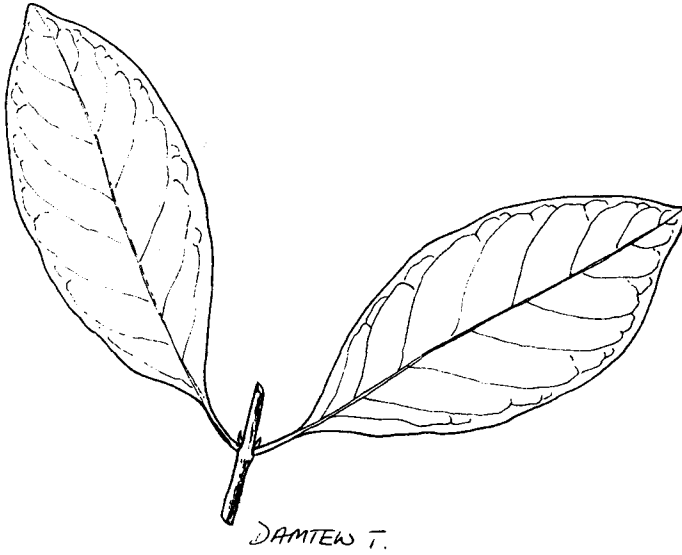
**Seed:**

**Treatment:** Remove fruit wings before sowing. Open fruit to get seeds.

**Storage:** Seeds store only for a short period; sow fresh seeds.

**Management:** Coppicing, lopping, pollarding.

**Remarks:** Four subspecies are recognized in Ethiopia. The hard and durable wood burns well. It is used to smoke brewing and milking pots and the smoke is also believed to repel evil spirits.





**Indigenous**

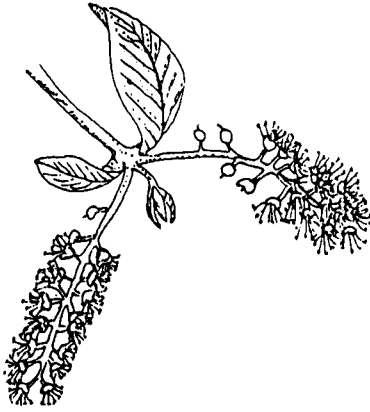
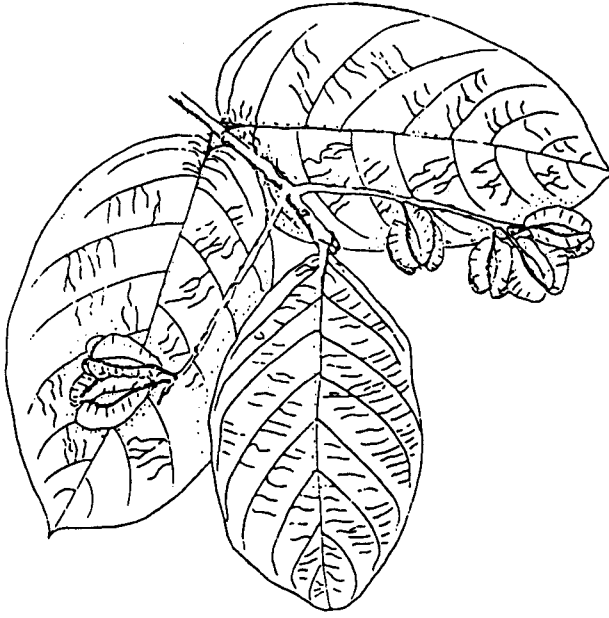
**Am:** *Agalo, Avalo*

**Or:** *Bika, Dandamsa, Didessa*

**Eng:** *Velvet-leaved combretum*

**Tg:** *Anfarfaro, Haziba, Weiba*

- Ecology:** Widespread in Combretum and Combretum-Terminalia woodlands and wooded grassland and bushlands in Dry and Moist Kolla and Weyna Dega agroclimatic zones in most regions of Ethiopia, often on stony hills, 500–2,200 m.
- Uses:** **Firewood, charcoal, poles, posts, timber (construction), tool handles, medicine (roots, leaves, bark), bee forage, mulch.**
- Description:** A small deciduous tree, to 15 m, the trunk often crooked and branching near the base. **BARK:** Distinctive, older trunks **dark brown-black, deeply grooved in squares** like “crocodile skin”. Branchlets peeling in fibrous strips. **LEAVES:** Large, **soft and hairy** both sides, up to 21 x 12.5 cm, **rounded at the base, tip pointed.** **FLOWERS:** Greenish-yellow spikes to 10 cm, sweet scented, attracting insects, produced before or with new leaves. **FRUIT:** **4-winged, yellow-green at first drying bright golden-brown, up to 2 cm.** Wings wider than the fruit. Fruit may hang on the tree until the next season.
- Propagation:** Seedlings, root suckers.
- Seed:** Remove seed wings before sowing. No. of seeds per kg: 10,000–15,000.
- Treatment:** Not necessary, seed germinates easily, open fruit to get seed.
- Storage:** Seed can be stored for only a very short period. Sow fresh seed for best germination results.
- Management:** Slow growing. Lopping and coppicing
- Remarks:** The species is very variable. The hard yellow wood burns well giving intense heat. The wood is moderately termite resistant.



A. Birnie

**Indigenous****Ag:** *Qwa***Sm:** *Kobbok***Am:** *Anqa***Tg:** *Anqwa***Ga:** *Dogama, Zuntsie***Ecology:**

Grows on rocky sites, clay or sand with minimal rainfall. This tree is typical of much thorny bush, open savanna and desert of Dry and Moist Kolla agroclimatic zones in eastern and western Eritrea, Tigray, Gonder, Wolega, Kefa, Shewa, Gamo Gofa, Sidamo, Bale and Harerge regions, 500–1,900 m.

**Uses:**

Firewood, utensils, **food** (fruit), drink (bark tea), **fodder** (for camels, goats), medicine (roots, bark, fruit, resin), **live fence**, **gum-resin**.

**Description:**

Often a spiny shrub but may become a tree to 6–10 m, the trunk a straight cylinder bearing many horizontal spiny branches. **Most shoots are spine-tipped**. **BARK:** Grey-green, the thin **shiny surface peeling off, showing green below**. Old bark squared and grooved. When cut a **yellow resin** drips out and hardens. Youngest shoots hairy. Deciduous, bare for many months. **LEAVES:** Soft, bright green and **hairy**, compound with **3 leaflets**, central one much longer than the other two (can be 10 times larger), edge wavy, round-toothed, fragrant when crushed. **FLOWERS:** Small, **red**, tubular, **in tight clusters**, often on thorns on the bare tree. **FRUIT:** **Pink-red**, soft, about **1 cm**, **pointed**, a stony seed inside.

**Propagation:**

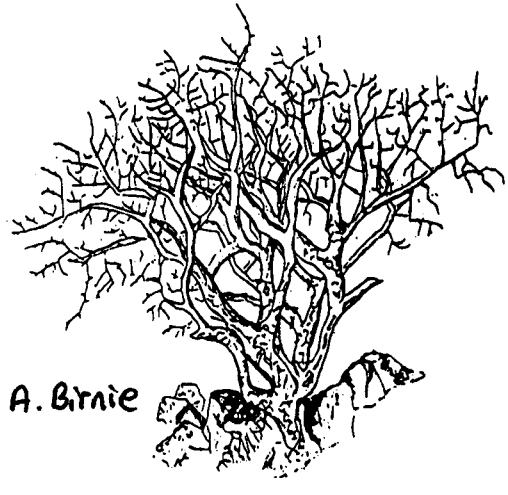
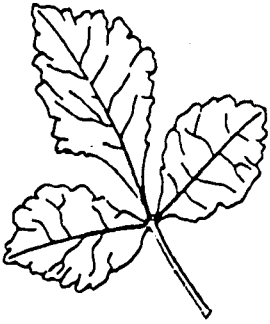
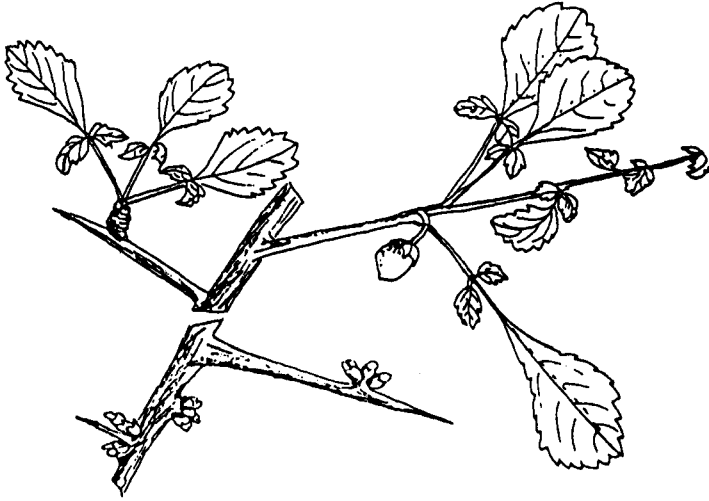
Large cuttings.

**Seed:****Storage:****Treatment:****Management:**

Slow growing. Lopping.

**Remarks:**

Two varieties are recognized in Ethiopia. Leaves contain bitter tannin and so they are not browsed by cattle but are important fodder for camels and goats. It comes into leaf just before the rains.



A. Brnie

Indigenous

*Ko:* *Gahadito*

*Or:* *Hagar, Hagar-ad, Hagar-meadow*

*Sm:* *Hagar, Hagar-ad, Hagar-meadow*

**Ecology:** Found in Acacia-Commiphora woodlands, wooded grassland and bushland, dry coastal bushland, often on rocky slopes. It is known to occur in Bereha and Dry and Moist Kolla agroclimatic zones of eastern Eritrea, the Afar Plain, Gojam, Sidamo, Bale and Harerge regions, sea level to 1,500 m.

**Uses:** Resin (incense, insecticide).

**Description:** A sizeable tree 6–20 m. Mature trees have a trunk to 5 m before branching, 30–50 cm in diameter. Young twigs grey-green and hairy. **BARK:** Smooth blue-grey, often with pink spots. The outer bark peels away in yellow-white flakes, large and thin, to reveal blue-green underbark. A cut shows red layers and yellow sap. **LEAVES:** Compound, usually 3 leaflets, sometimes on a grooved stalk to 7 cm (can be hairy, grey-green). The edge of the leaflet is round-toothed, the middle leaflet longest, to 9 cm, narrowed to the base. **FLOWERS:** Produced with the leaves, green-yellow and tiny, 1–5 on a hairy stalk to 4 cm long. **FRUIT:** Ovoid but flattened, 1–3 on stalks, each about 1 cm long, smooth or hairy with a stony seed inside.

**Propagation:** Seedlings, cuttings.

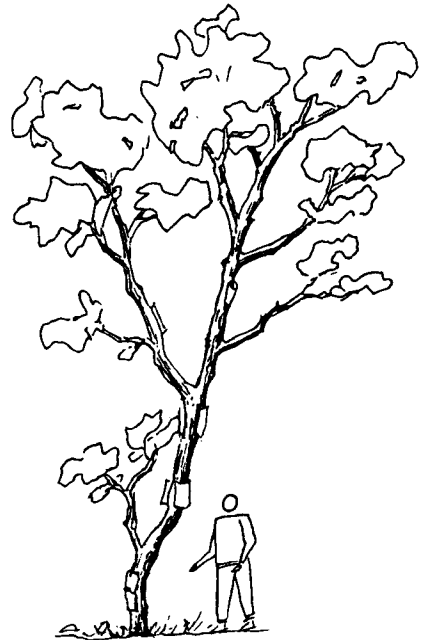
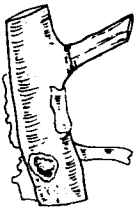
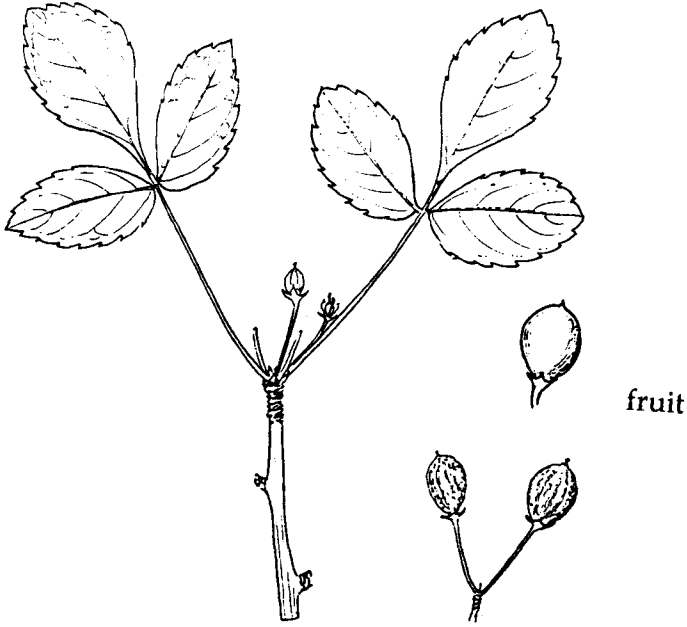
**Seed:**

**Treatment:**

**Storage:**

**Management:** Lopping, pollarding, coppicing.

**Remarks:** This is a very variable and valuable species that is a dominant part of the vegetation over large areas of southern Ethiopia. The resin is used as an insecticide by the Borena people and it is also used for incense.



DAMTEW T.

Indigenous

**Am:** *Anqwa*

**Or:** *Chalanga*

**Tg:** *Anqwa*

**Ecology:**

Found in association with *Acacia* and *Balanites*, on sandy to loamy and black-cotton soil in Bereha and Dry and Moist Kolla and Weyna Dega agroclimatic zones of Gonder, Gojam, Ilubabor, Sidamo, and Bale. It is common on the Afar Plain, and in Eritrea, Tigray and Welo regions, 150–1,900 m.

**Uses:**

**Firewood, live fence, myrrh or balm (resin).**

**Description:**

A spiny shrub or tree up to 4 m, side shoots spine-tipped. **BARK:** Grey-brown, black and cracked into squares on old trees, branchlets smooth, purple-brown. Peeling bark comes off in **large papery strips** across the underbark. **LEAVES:** Usually **simple but 1–3 clustered together** on spiny side shoots, **narrow oval to 4 cm x 2 cm**, the edge with **small rounded teeth**. **FLOWERS:** 1–3 together, very small, yellow-green-pink on cushion-like side branches. **FRUIT:** About 1 cm, oval to rounded with a small pointed beak, containing a stony seed.

**Propagation:**

Seedlings, cuttings.

**Seed:**

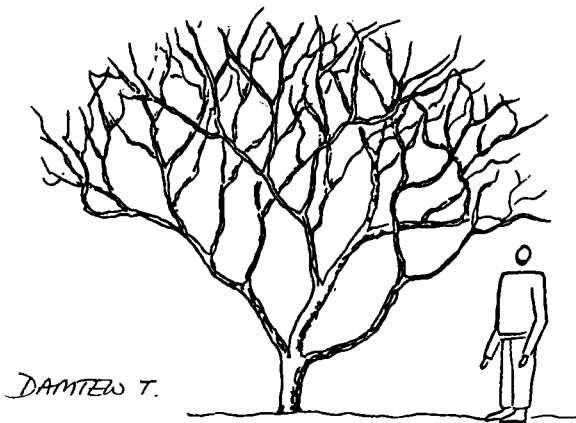
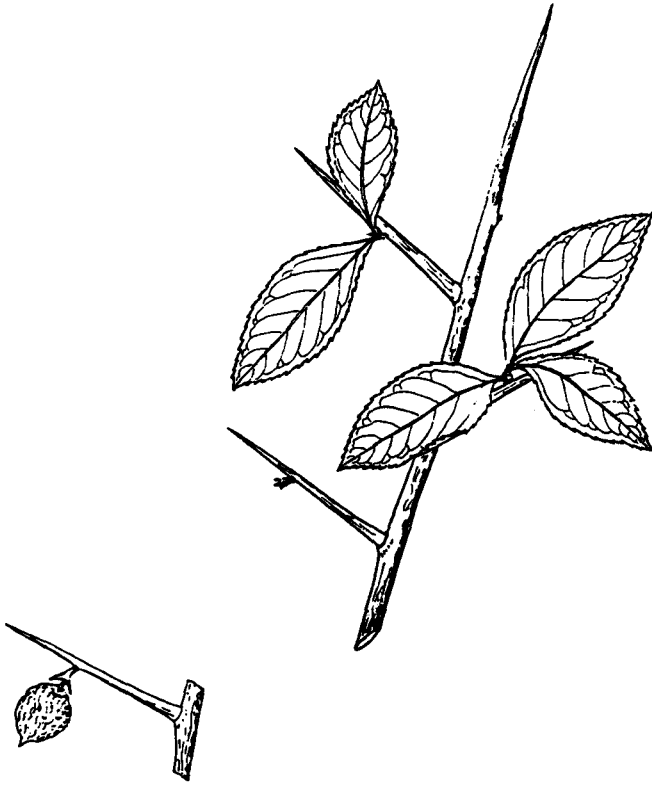
**Treatment:**

**Storage:**

**Management:**

**Remarks:**

This species, *C. erythraea* and other *Commiphora* are all used locally for their fragrant resin. *C. myrrha* produces the best-quality myrrh collected commercially in S. Ethiopia, Somalia and the Arabian peninsula.





**Indigenous**

*Eng: Yeheb nut*

*Sm: Ehb, Qud, Quda*

- Ecology:** Found in semi-arid bushland and scrub on sandy soils of the Bereha agroclimatic zones in eastern Ogaden in the Harerge region and extending to Somalia, 0–600 m. The roots go deep to tap underground water sources.
- Uses:** **Firewood, food (seeds), fodder (foliage), bee forage, mulch, soil conservation, nitrogen fixation, live fence, dyes (red dye from leaves), tannin.**
- Description:** A stiff erect evergreen shrub or small tree, 2 m, with **red glands** on stems and leaves. **LEAVES: Leathery**, compound, with **1–6 pairs of leaflets**, each one to **3 cm long**, oval-oblong, the underside covered with **red glands**, **FLOWERS:** Buds with glands, **5 yellow petals**, over 1 cm long. **FRUIT:** Pods only 4–6 cm long with a **thin upturned beak**. Inside are **1–4 fat oval seeds**, the “nuts”, each 2–4 cm long.
- Propagation:** Seedlings, self-seeding once established.
- Seed:** Good germination. No. of seeds per kg: ±300.
- Treatment:**
- Storage:** Seeds are susceptible to insect attack so should not be stored for long.
- Management:** Young seedlings develop a strong tap-root before the lateral roots, thus it is slow growing while establishing its massive root system. After 4 years, the tree can produce large quantities of pods, almost continuously under good conditions.
- Remarks:** The leaves have a high tannin content. it used to be a common tree in Somalia where the nuts are used as food by pastoralists and the leaves infused as tea. Now it has become rare due to over-exploitation during famine. A red dye is easily extracted from the young stems. As the seeds are well liked and nutritious the tree has potential as a food crop in the driest areas, and it has already been tried in Kenya and Tanzania.



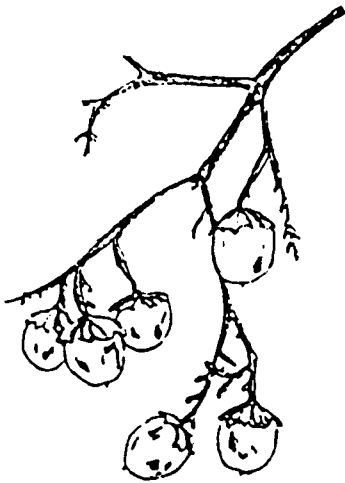
A. Birnie

**Indigenous**

**Am:** Wanza  
**Gr:** Odesha  
**Or:** Diho, Wodesa

**Sm:** Wadicho  
**Tg:** Auhi, Ekhi

- Ecology:** A tree common in Polyscias and Podocarpus forest, as a forest remnant in cultivated areas, and is used in coffee plantations. It grows well in Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,600–2,200 m.
- Uses:** **Firewood, timber** (furniture, beehives, boxes, mortars), food (fruit), medicine (bark, roots), **fodder** (leaves), **bee forage, mulch**, soil conservation, ornamental, **shade**.
- Description:** A much-branched deciduous tree with rounded crown and often crooked trunk, to 25 m, from a short bole. **BARK:** Grey or pale brown, finely grooved but rough with age. **LEAVES:** Large, oval, 20 x 15 cm, base rounded, veins prominent below; young shoots, leaf stalks, underside of leaves covered with soft brown hairs. **FLOWERS:** Showy, funnel shaped, thin white petals, sweet scented and attractive to bees. **FRUIT:** Yellowish, 1 cm in hairy cups. Flesh sticky and edible, each fruit containing 4–6 seeds.
- Propagation:** Wildings, seedlings, direct seeding.
- Seed:** Germination rate 50–80 %; slow germination. No. of seeds per kg: 2,500–4,500.
- Treatment:** None required.
- Storage:** Seed stores well for up to a year.
- Management:** Requires 5–7 months in a nursery before planting out. Easy to raise and fast growing. Pollarding, lopping, coppicing.
- Remarks:** The heartwood is hard and durable and takes a good polish so the timber is prized for furniture, but it can be twisted and difficult to saw. Plantations should be dense to encourage straight growth. A useful tree for homesteads and on crop land.



A.B.



Indigenous

*Am:* Bisana

*Sm:* Masincho, Wush

*Gu:* Bekenissa, Mekenissa

*Tg:* Islami, Tambush

*Or:* Dogoma, Makanissa

**Ecology:** Widespread on forest margins, along roadsides, and in Juniperus-Podocarpus habitats. It grows mostly on soils of volcanic origin in Dry, Moist and Wet Weyna Dega, and Dega, as well as in upper altitudes of Dry Kolla agroclimatic zones in western Eritrea, Tigray, Gonder, Gojam, Welo, Bale, Shewa, Ilubabor, Kefa, Sidamo and Harerge regions, 1,100–2,500 m.

**Uses:** **Firewood**, charcoal, **poles**, **timber**, tool handles, forage (young leaves), **medicine** (sap, leaves, roots, bark), **bee forage**, **mulch**, soil conservation.

**Description:** A **deciduous** tree, crown rounded, light and open with slender trunk and spreading branches, reaching 25 m. **BARK:** Pale grey, fairly smooth when young and longitudinally fissured when old. **LEAVES:** Large and **heart-shaped**, to 15 x 10 cm, crowded at the end of branchlets on long stalks to 10 cm, veins prominent, and **2-stalked glands just visible at the leaf base**. Leaf edge with a few widely spaced teeth, paler below due to soft hairs. **FLOWERS:** Creamy yellow, **sweet scented in erect spikes** to 25 cm, all over the tree. Flowers appear only briefly, the flower spike turning down as fruits mature. **FRUIT:** **Pea-sized capsules on drooping spikes** to 30 cm, split open to release 3 shiny grey seeds with a cream aril.

**Propagation:** Seedlings, wildings.

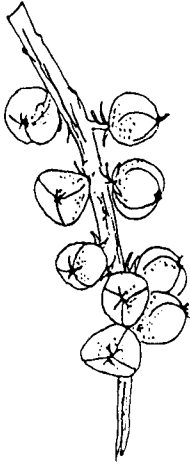
**Seed:** No. of seeds per kg: 16,000–27,000. Seeds usually damaged by insects while on the tree. Damaged seeds are black inside.

**Treatment:** Not necessary; check for viability of seeds since the inside must be white-cream coloured.

**Storage:** Seeds store for a short period.

**Management:** Fairly fast growing on good sites, slow on drier sites. Lopping, pollarding, coppicing.

**Remarks:** Seed and resin are poisonous. When cut for firewood it has an unpleasant spicy odour. A good tree for inter-cropping. The fruit and decoctions of the roots are used as a medicine for venereal diseases. Pulverized bark together with dried Hagenia flowers is an effective purgative. The soft light wood is very perishable; not a good timber tree.



fruit capsules



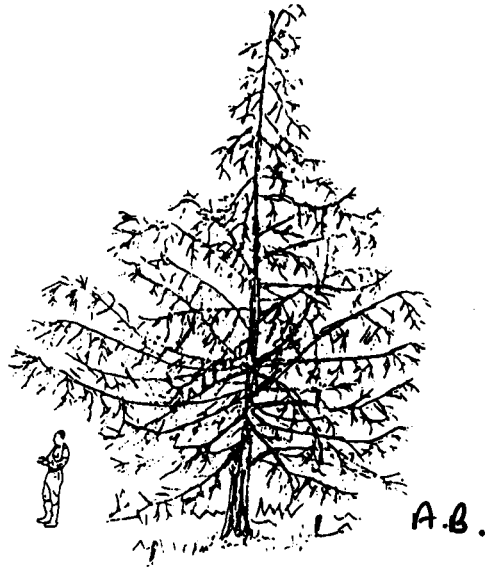
A. Birnie

Mexico, Guatemala

*Am: Yeferenji-tid*

*Eng: Mexican cypress*

- Ecology:** A fast-growing cypress. After eucalyptus it is one of the commonest plantation trees in Ethiopia. It grows best in Dry, Moist, and Wet Weyna Dega and Dega agroclimatic zones. The tree is only moderately drought resistant and requires deep moist soils.
- Uses:** Firewood, poles, posts, timber (furniture, construction), ornamental, shade, windbreak, live fence.
- Description:** A large evergreen conifer to 35 m with a straight trunk, **generally conical** but not regular in shape, branches wide spreading. The **branchlets grow in many planes** and branches hang down. BARK: Red-brown with vertical grooves, grey with age. LEAVES: Dull blue-green, in **4 ranks, with spreading pointed tips**. CONES: Male cones like fat tips on branchlets, produce clouds of yellow pollen; female cones round, **1.5 cm across**, waxy-grey colour when young. Cones ripen in 2 years becoming brown, scales open to release many winged seeds. Scales have a central thin "peg".
- Propagation:** Seedlings, wildings.
- Seed:** Germination rate  $\pm 90\%$ . No. of seeds per kg: 160,000–290,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for 6 months.
- Management:** Fast-growing on good sites, moderate on poorer sites. Weeding during early establishment, trimming as a hedge. Pruning and thinning of trees in woodlots used for timber.
- Remarks:** Cypress can produce poles after 10 years and general-purpose timber in as little as 20 years. The tree is susceptible to *Monochaetia unicornis* (canker) pathogen and *Oemida gahani* woodborer. From Kenya south to Malawi cypress plantations have been badly affected by a cypress aphid and many thousands of trees have died in recent years.





Indigenous

Eng: *Spiny tree fern*

Kf: *Sesno*

**Ecology:** Usually found in wet shady forests in the river valleys of Wet Kolla and Weyna Dega agroclimatic zones. Commonly found along the road from Tepi to Mizan in Ilubabor region. It is a lower-storey tree in humid rain forest, often with Podocarpus and Albizia.

**Uses:** The woody stems are used for **house construction** as they resist both termites and decay.

**Description:** This **tree fern** is usually up to about 6 m but can reach 10 m with a trunk 15 cm in diameter. It tends to lean over. The trunk is covered with brown scales and the spiny bases of old leaves. Mosses and small ferns fill the spaces in between. **LEAVES: Arching fronds 2-3 m long** crowning the stem, leaf blade divided, leaf edges deeply lobed. The lower part of the leaf stalk, the leaves and stem all have sharp spiny thorns. The **fruiting bodies (sori) lie along the veins on the underside of the leaflets.**

**Propagation:** Vegetative propagation from underground stems (rhizomes).

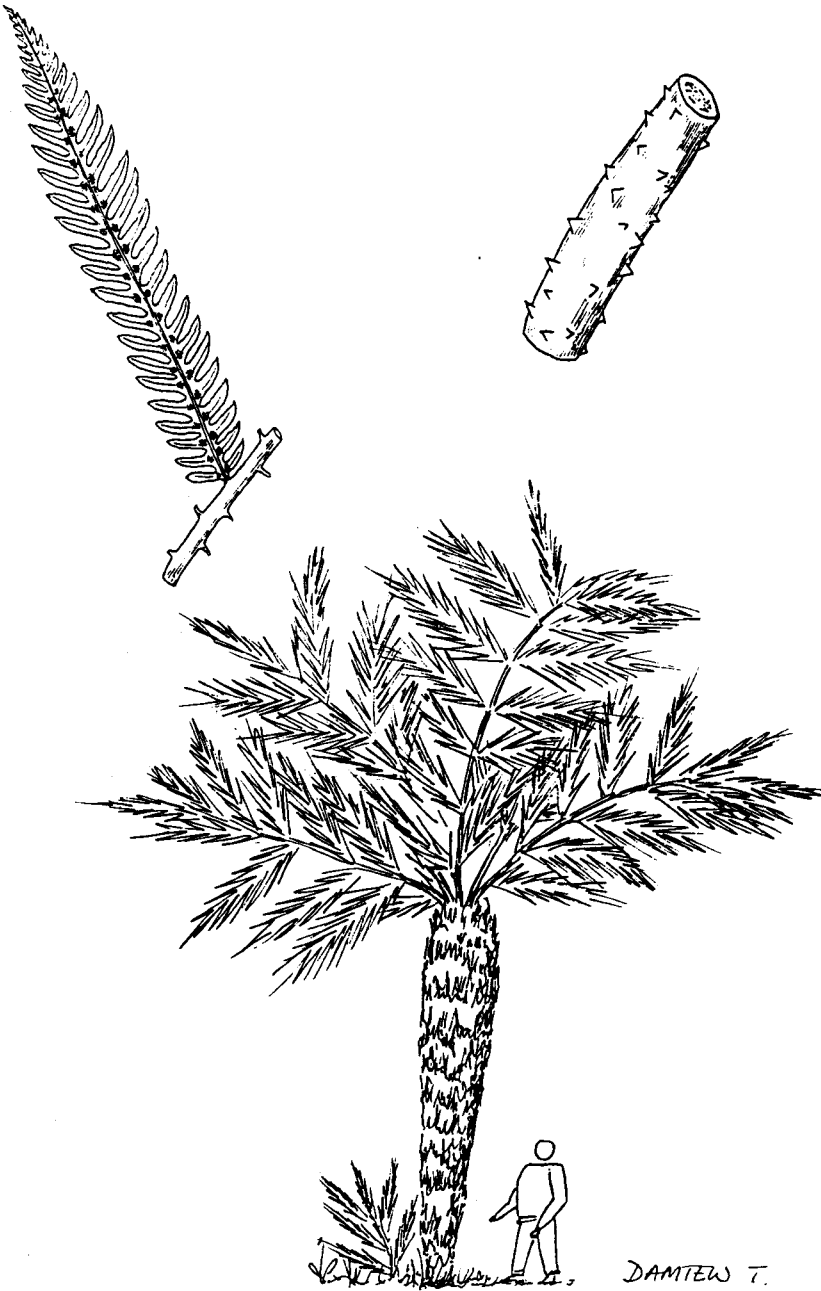
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** Strongly shade demanding.



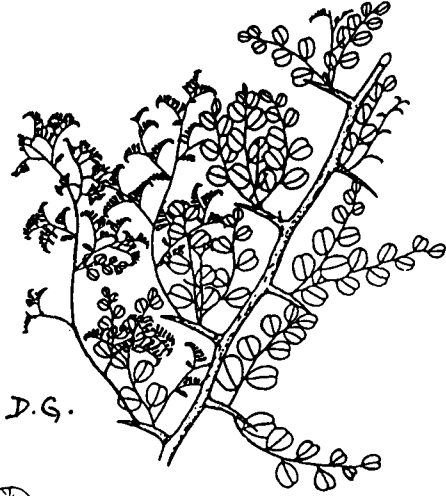
Indigenous

*Am:* Zobbi

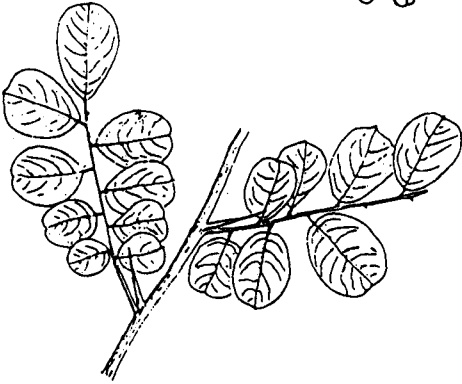
*Eng:* African blackwood, African ebony

*Or:* Moghano

- Ecology:** A small tree native to tropical Africa and India. Found in lower Dry Kolla agroclimatic zones associated with *Entada abyssinica* and *Combretum* spp., and also in Moist and Wet Kolla and Weyna Dega zones. Prefers a high watertable: 400–1,900 m in Ethiopia but coastal in east Africa.
- Uses:** **Firewood, timber** (construction), carving, medicine (bark, roots, leaves), fodder (fruit, leaves), bee forage, nitrogen fixation, walking sticks.
- Description:** A spiny shrub or tree much branched from the base, 5–12 m, the bole diameter no more than 20–30 cm, often twisted. Branchlets, **grey-white some becoming thorns and bearing the leaves**. **BARK:** Smooth, pale grey becoming rough, flaky and darker with age. **LEAVES:** Compound, on stalks to 20 cm long, leaflets 9–13, each leaflet **small, 1–2 cm, the tip rounded or notched**. **FLOWERS:** Very small and white in sweet-scented branched sprays, to 12 cm long. **FRUIT:** Bunches of thin **flat pods, to 7 cm long, papery and pointed both ends with 1–2 seeds inside**.
- Propagation:** Seedlings, wildings, cuttings, root suckers.
- Seed:** Good germination rates. Water sparingly so the seed does not rot. Number of seeds per kg: 6,000–16,000.
- Treatment:** Not necessary.
- Storage:** Seed will store well.
- Management:** Slow growing. Side prune to get a clear bole.
- Remarks:** The very hard, durable, termite-resistant, purple-black heartwood is very valuable for special uses such as musical instruments and carvings. The hard wood blunts tools so it is not suitable for furniture, etc.



D.G.

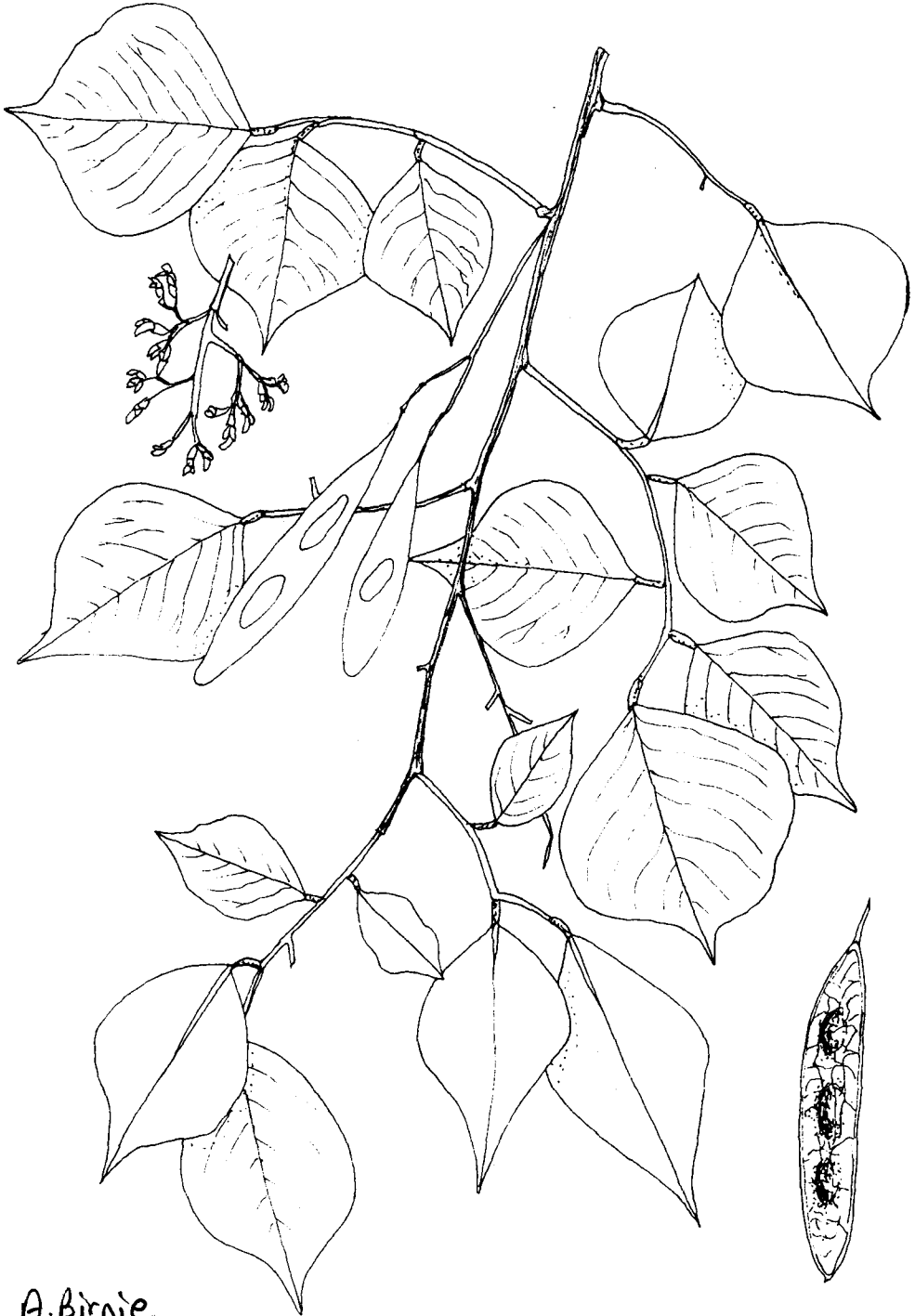


A.B.

India, S.E. Asia

*Eng: Sissoo*

- Ecology:** Cultivated in Shewa. Grows in high-rainfall areas tolerating a variety of soils and performs well in Moist and Wet Kolla agroclimatic zones, 700–1,600 m.
- Uses:** **Firewood, charcoal, poles, posts, timber** (construction, furniture), **tool handles**, carving, fodder (pods, leaves), bee forage, soil conservation, soil improvement, nitrogen fixation, ornamental, **shade, windbreak**, oil (seeds), tannin (bark).
- Description:** A medium to large tree, 10–15 m in dry areas but up to 30 m on good sites, with a light crown, the bole often crooked. **LEAVES:** Compound, about 5 leaflets **alternate on a stalk to 15 cm**, each leaflet **widest at the base**, to 6 cm long with a **fine pointed tip**, clear veins raised above, on a flexible 0.5 cm stalk. **FLOWERS:** In dense clusters on stalks to 10 cm, pink-white, “pea-flower” shaped. **FRUIT:** Very many **oblong pods, flat, thin and papery, to 7 cm**, pale brown when dry, the 1–3 seeds visible within.
- Propagation:** Seedlings, direct sowing, cuttings, root suckers.
- Seed:** Germination rate  $\pm 70\%$ . Number of seeds per kg: 12,000–53,000. Not necessary to extract seeds from the pod. Break and soak in water for 48 hours.
- Treatment:** Not necessary.
- Storage:**
- Management:** Lopping, pollarding and coppicing. Thorough weeding is necessary for saplings.
- Remarks:** Fresh leaves may cause digestive disorders when fed to livestock during the dry season. It is, therefore, better to convert the leaves into silage. It harbours mistletoes. A taproot develops quickly in the seedling and will penetrate stony soils to the water table becoming deeply rooted. Long surface roots hold soil together and so help prevent erosion. The dark brown heartwood is a durable timber and makes excellent firewood and charcoal. In Nepal, **sissoo stumps, 2–3 cm stem and 20 cm root**, are the commonest method of planting.



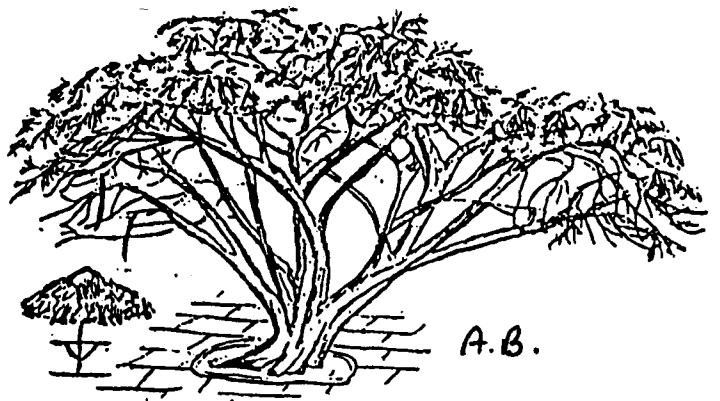
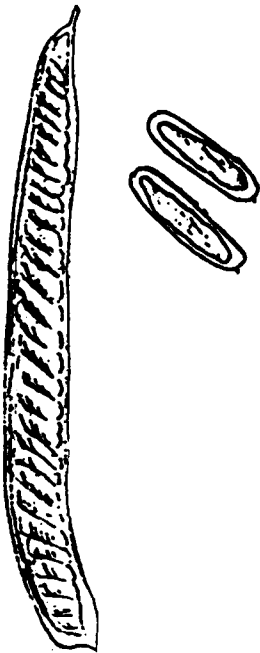
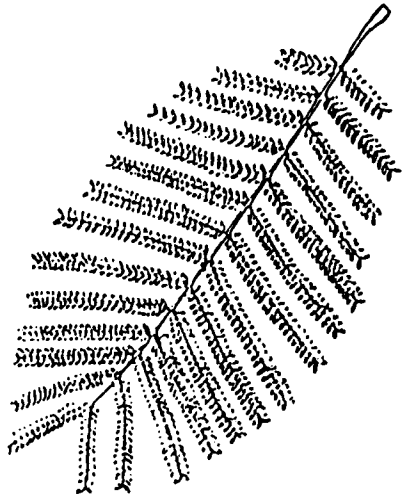
A. Birnie

Madagascar

*Am: Dire Dawa zaf, Gorade*

*Eg: Flamboyant*

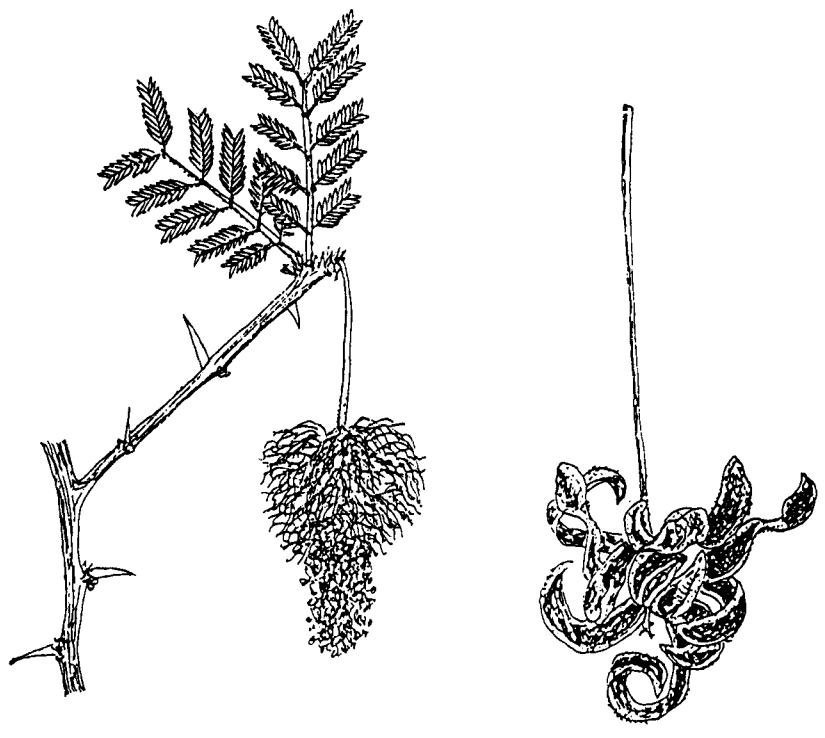
- Ecology:** Widely planted in Bereha and Dry and Moist Kolla agroclimatic zones, especially at Dire Dawa, 200–1,600 m.
- Uses:** Bee forage, **ornamental, shade, beads** (seeds).
- Description:** A medium-sized deciduous tree with **an umbrella crown**, reaching a maximum 15 m. **BARK:** Grey, smooth. **LEAVES:** Compound, up to 45 cm long, **light green and feathery**, leaflets numerous, **each less than 1 cm long**. **FLOWERS:** Brilliant **scarlet-red-orange in clusters**, others appearing on the bare tree, each flower to **10 cm across with 5 petals**, one cream and heavily spotted. **FRUIT:** **Heavy flat pods to 75 cm long** remaining many months on the tree. When dry they break open to release oblong seeds.
- Propagation:** Seedlings, direct sowing.
- Seed:** Seeds prolifically. High germination rate. No. of seeds per kg:  $\pm 2,000$ .
- Treatment:** Immerse seed in boiling water for 5 minutes and allow to cool.
- Storage:** Seed can be stored for long periods as it is not damaged by insects.
- Management:**
- Remarks:** A fast-growing species which has a shallow root system making it unsuitable to grow near buildings. The dense canopy prevents its use for intercropping. It is a popular avenue tree.





**Indigenous****Am:** Ader, Ergett-dimmo**Sm:** Dhigdar, Galool-sur**Or:** Adesa**Tg:** Gonnok

- Ecology:** Found in a variety of habitats: open grassland, river banks, rocky hillsides, coastal plains. Often found in Dry and Moist Kolla agroclimatic zones.
- Uses:** **Firewood, charcoal, poles, posts, tool handles, medicine** (leaves, roots), **fodder** (leaves, pods), bee forage, nitrogen fixation, soil conservation, **live fence, fibre (bark), fencing** (cut branches).
- Description:** A small shrubby tree, although it can reach 6 m. The feathery leaves show it is close to the genus *Acacia*. **BARK:** Grey, thick and fibrous. **Thorns short and single, alternate and slightly hooked.** **LEAVES:** Compound, leaflets narrow, slightly hairy, to 1 cm. **FLOWERS:** In **two-coloured heads**, upper half pink, lower half yellow. They hang on a thin stalk 2–5 cm long. **FRUIT:** A **twisted cluster of thin flattened pods**. Each spiral pod contains 4 seeds. The pods fall to the ground and rot to set free the seed.
- Propagation:** Seedlings, direct sowing, root suckers.
- Seed:** The tree seeds prolifically when in open land.
- Treatment:** Immerse seed in hot water and cool for 24 hours.
- Storage:**
- Management:** Coppicing, lopping and pollarding.
- Remarks:** The tree can be an aggressive weed, has vigorous root suckers and can form a dense thicket. The timber is very heavy and hard but of quite small dimensions.



A. Birnie

Indigenous

*Am:* Selechegn

*Or:* Lokko

*Tg:* Aira, Zellimo

- Ecology:** Found in dry evergreen woodland, humid and semi-humid lowland woodland, semi-humid and humid highland forests in Moist and Wet Weyna Dega, and Moist Dega agroclimatic zones, 1,400–3,000 m.
- Uses:** **Firewood, charcoal,** timber (furniture, local construction), implements, tool handles, shade, walking sticks.
- Description:** A tall evergreen tree with a straight, slender trunk about 20 m but reaching 40 m in forests. It has a **small mushroom-shaped crown.** **LEAVES:** Shiny dark green, long oval to 16 cm, narrowing to the tip, the **edge wavy, midrib clear below.** The short stalk is grooved. **Dry black leaves** can be seen below a tree. **FLOWERS:** Small, white and fragrant in clusters beside the leaves. **FRUIT:** Round to 1.5 cm across held in a **cup-shaped calyx,** about 1 cm long, **the tip pointed, red-yellow then black** when ripe. Sometimes in dense clusters.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 2,500–3,000.
- Treatment:** Not necessary.
- Storage:** Seeds store for several years.
- Management:** Pruning, pollarding, coppicing.
- Remarks:** The wood is pale, hard and tough, difficult to plane and not durable. The heartwood is darker.



A. Birnie

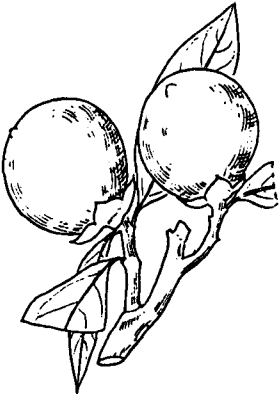
Indigenous

*Am:* Ayeh

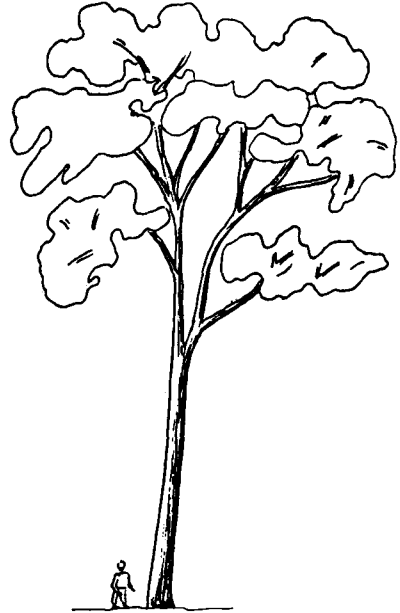
*Eng:* African ebony

*Tg:* Ayeh

- Ecology:** An evergreen tree of medium- to low-altitude woodlands, mostly on rocky hillsides in lowland savannah, Euphorbia thickets, and along river banks in Bereha, Dry, Moist, and Wet Kolla and Weyna Dega agroclimatic zones.
- Uses:** **Firewood, timber** (construction, furniture), **carving**, food (fruit: fresh, fermented drink), medicine (bark, roots, fruit), bee forage, shade, walking sticks.
- Description:** A medium to large tree, to 25 m. There may be a tall clear bole from a buttressed base to the dense rounded crown. Young parts have silvery hairs. **BARK: Grey-black, rough and squared, grooved.** **LEAVES:** Alternate, shiny dark green, to 14 x 3 cm, the midrib raised below, edge wavy, tip rounded. **FLOWERS:** Fragrant, male clustered, female solitary, cream-white petals, 1 cm long. **FRUIT: Rounded to 2.5 cm in a calyx cup, the 5 segments curling back, fruit yellow, later purplish, pulp soft and sweet with 4–6 brown, hairy seeds.**
- Propagation:** Seedlings, cuttings.
- Seed:** Good germination. No. of seeds per kg: 2,700–3,200.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for very long periods.
- Management:** Pruning, coppicing, pollarding.
- Remarks:** Slow growing. *Diospyros* spp. produce valuable black heartwood, "ebony". Only a few trees yield the black wood after felling. Pale at first, the timber gradually becomes dark brown. The wood is hard and tough with a fine grain and is fungus and termite resistant.



DAMTEW T.



Indigenous

*Am:* Ameraro

*Or:* Mararo

*Tg:* Alhem

**Ecology:** A shrubby species growing at the margins of evergreen cedar and Podocarpus forests and woodlands, usually in Dry, Moist and Wet Dega and Wurch agroclimatic zones, above 2,200 m.

**Uses:** Firewood, farm tools (especially *digir*), live fence.

**Description:** Shrub or small tree up to 5 m high, stems slightly fleshy, branchlets brown, hairy. **BARK:** Smooth, pale to dark brown. **LEAVES:** Very large and oval, to 25 x 10 cm, edge wavy. **FLOWERS:** Yellow-green-white, very small, in bunches beside the leaves; the triangular calyx lobes bend back. **FRUIT:** Orange-yellow berries, about 1 cm across.

**Propagation:** Cuttings, seedlings.

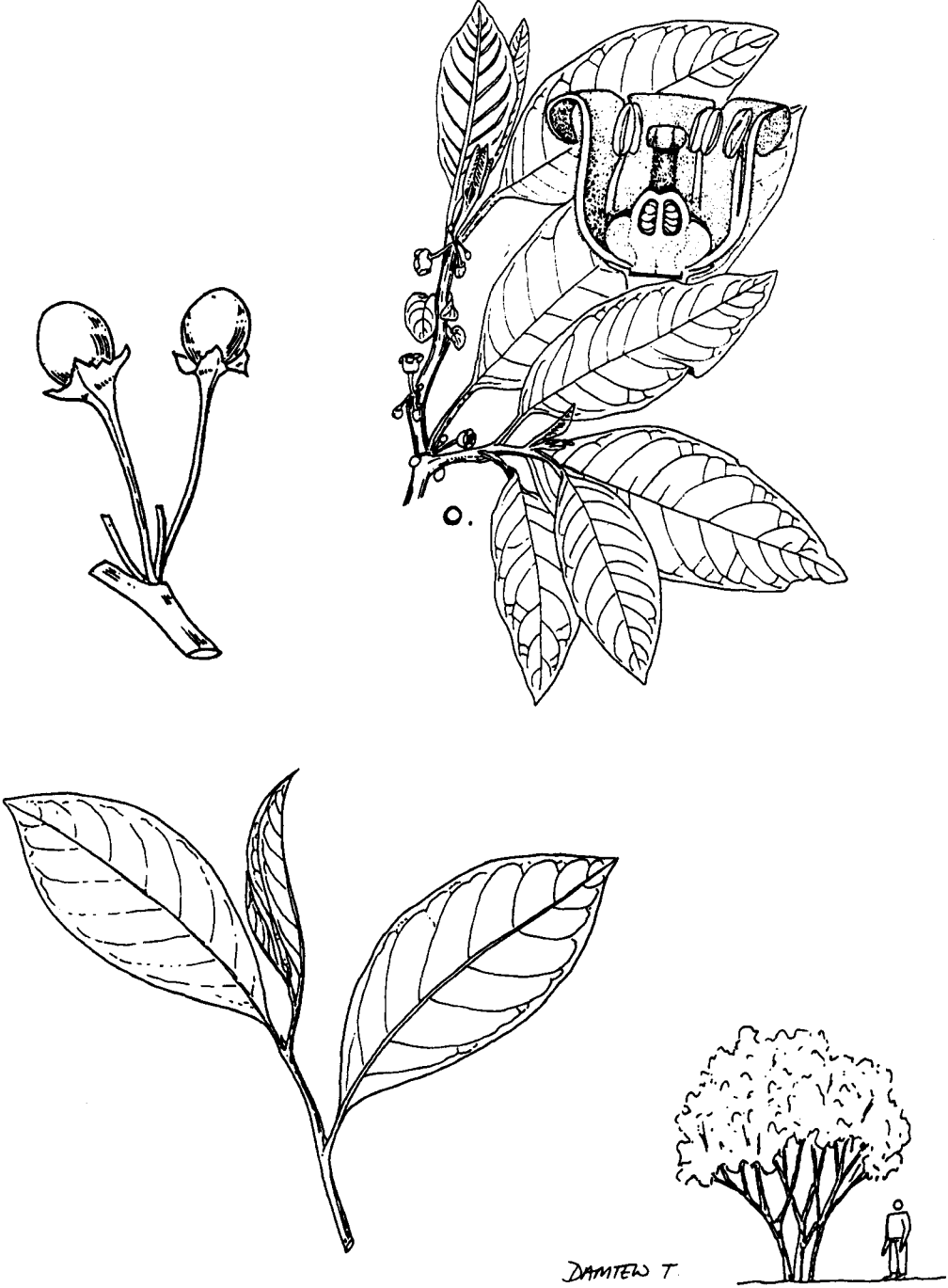
**Seed:**

**Treatment:**

**Storage:**

**Management:** Pollarding, lopping, coppicing.

**Remarks:** The large leaves are used locally for baking bread.





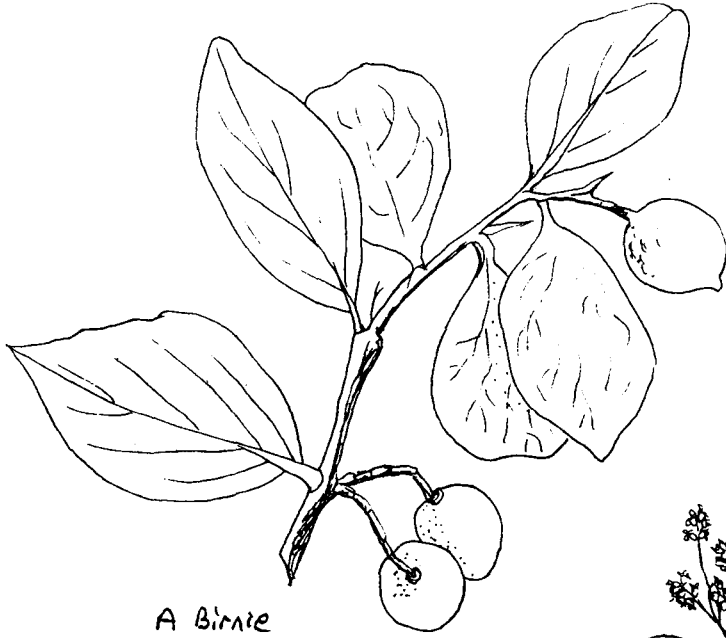
Indigenous

*Af:* Garas

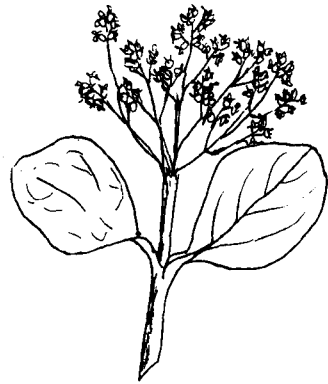
*Sm:* Garas, Haras

*Tg:* Geresá

- Ecology:** A shrub which grows on rocky hillsides in dry areas and on saline, heavy, or calcareous loam soils. It does well in Dry and Moist Kolla agroclimatic zones, 400–1,300 m.
- Uses:** Firewood, timber (local use), food (fruit, seeds), fodder (leaves), shade, containers, tooth brushes (stems), gum.
- Description:** A much-branched, evergreen shrub or tree to 8 m. BARK: Green to dark **grey and patchy**. LEAVES: Opposite, yellow to **grey-green, thick**, smooth, veins hardly seen, up to 7 cm long, tip usually notched. FLOWERS: White, in branched heads. FRUIT: **Ovoid to 2 cm, with 1–2 flat seeds in soft edible pulp.**
- Propagation:** Direct sowing, wildings.
- Seed:** Seeds should be sown directly into pots. No. of seeds per kg: ±1,400.
- Treatment:** Not necessary.
- Storage:** Seeds do not store well. Therefore, use fresh seed for best results.
- Management:** Slow growing but very hardy once established.
- Remarks:** The fruits and seeds are a very important food during times of drought. It is sensitive to waterlogging.



A Birnie



**Indigenous**

<b>Ag:</b> <i>Kerara</i>	<b>Or:</b> <i>Etacha, Tedecha</i>
<b>Am:</b> <i>Kitkita</i>	<b>Sd:</b> <i>Itancha</i>
<b>Br:</b> <i>Hidesa</i>	<b>Sm:</b> <i>Den, Hayramat</i>
<b>Eng:</b> <i>Hop bush</i>	<b>Wt:</b> <i>Geregetwa</i>

**Ecology:** Grows in a variety of habitats from riverine forest to rocky soils or arid marginal areas in Dry and Moist Kolla and lower Weyna Dega agroclimatic zones, 1,100–1,800 m.

**Uses:** **Firewood**, charcoal, poles, tool handles, medicine (leaves, roots), bee forage, **soil conservation, windbreak, live fence.**

**Description:** A thin-stemmed shrub or small evergreen tree, 3–8 m with a light crown. All parts are smooth and resinous when young. **BARK:** Dark grey, grooved, peeling. Branchlets red and sticky. **LEAVES:** Simple, up to 13 cm long, tip pointed, thin, **narrow, stiffly erect**, tapering to a stalk; young leaves **light green, shiny and sticky.** **FLOWERS:** Green-yellow, male and female separate, insignificant. **FRUIT:** Very many distinctive capsules, each 2 cm across with 3 papery wings, sometimes inflated, green-red-pink, appearing like “blossom”, becoming light brown, small seeds inside.

**Propagation:** Seedlings, wildings, direct sowing.

**Seed:** Germination rate 30–70 %. No. of seeds per kg: ±100,000.

**Treatment:** Not necessary.

**Storage:** Seed can be stored for up to a year.

**Management:** Fast growing. Little or no management required once established.

**Remarks:** The species is not browsed which makes it easy to establish. The wood is hard and heavy. A good live fence for dry areas, susceptible to fire but regenerating rapidly after burning. It is especially useful as a tree to reclaim poor land from marshes to sand dunes. It regenerates rapidly after bush fires.



A. Birnie

(*D. schimperiana*, *D. goetzenii*)

Indigenous

*Am:* *Wulkeffa*

*Or:* *Danissa*

*Tg:* *Sonkuah*

**Ecology:** A common understorey tree in the semi-humid highland woodlands and forests with *Juniperus*, *Arundinaria*, *Hagenia*, *Celtis*, *Podocarpus* and *Olea capensis*. It grows in nearly all regions in Dry, Moist and Wet Weyna Dega, Moist and Wet Dega and Moist Wurch agroclimatic zones, 1,600–3,400 m.

**Uses:** Firewood, **timber** (house construction, turnery), poles, **farm tools, bee forage, mulch**, soil improvement, **string, cloth** (bark fibres).

**Description:** A shrub or **much-branched tree**, 12–15 m, with a **shady umbrella crown** and a trunk diameter about 50 cm. **BARK:** **Grey and smooth**, only lightly grooved with age; clear breathing pores (lenticels); inner bark thick, orange-brown, very fibrous. **LEAVES:** Large, hairy and **heart-shaped**, the **leaf bases overlapping**, to 30 cm long, **tip pointed**, edge sharply toothed, vein network very clear below with 5 or more veins radiating from the centre. **Young stems and leaf stalks often red.** **FLOWERS:** Often abundant, pale pink or white, full of nectar, in showy clusters on **branched hairy stalks** to 30 cm, calyx of 5 hairy sepals, 5 petals rounded but one-sided, red-purple in centre; many stamens with orange anthers; 5 pink stigma. **Petals remain around the fruit**, turning yellow-brown as they dry. **FRUIT:** Oval capsules to 1 cm, densely hairy, about 10 small brown seeds inside.

**Propagation:** Seedlings.

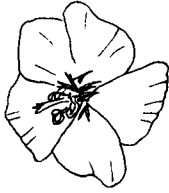
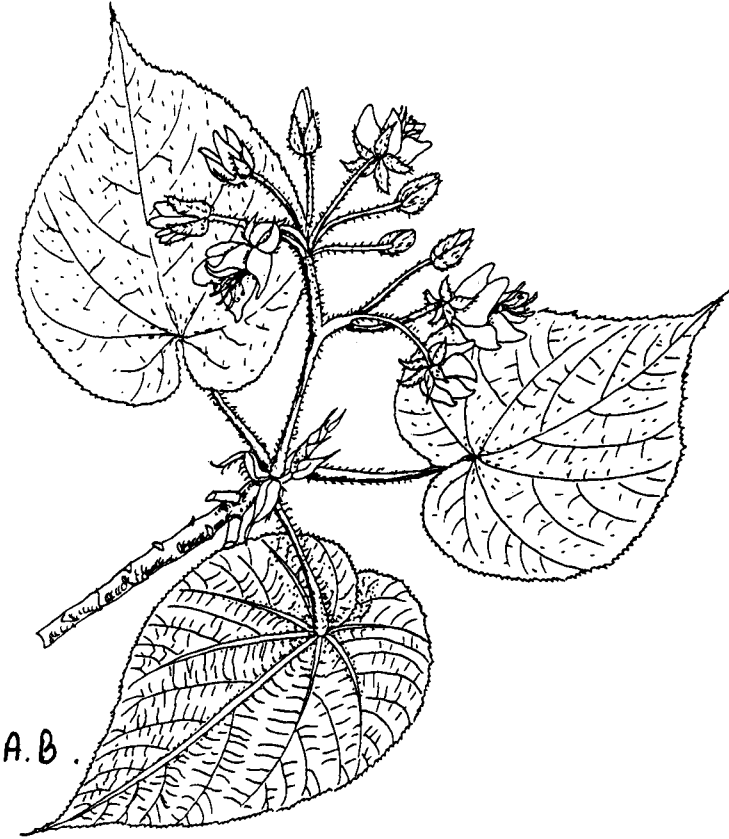
**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:** Coppicing, lopping, pollarding.

**Remarks:** Bark fibres may be used to make cloth or string. The tree is considered one of the best nectar-producing trees so a good place to put bee-hives. High-quality soil may be found below as fallen leaves produce a rich mulch. The timber is soft and lightweight but strong, easy to saw and plane. The heartwood is dark brown but the rest of the wood is uniformly pale.



JAMTEW T.

Indigenous

**Am:** *Koshim*  
**Or:** *Ankakute*

**Sm:** *Ongolatz*  
**Tg:** *Aihada*

**Ecology:** Usually found along river courses in humid lower highland forest and Mimusops forest of Moist and Wet Weyna Dega agroclimatic zones, 1,600-2,200 m.

**Uses:** Medicine (roots), food (**fruit**), bee forage, **live fence**.

**Description:** An evergreen spiny shrub or tree to 8 m, crown rounded. **BARK:** Grey, spines to 4 cm long. Branchlets with **very clear dotted breathing pores** (lenticels). **LEAVES:** Shiny, dark green, **oval, to 5 cm, tip blunt, edge unevenly rounded**. **FLOWERS:** Green sepals, females single but male flowers in clusters with many stamens. **FRUIT:** A **round berry about 2 cm across**, surrounded by the calyx, green and hairy at first then smooth **orange-yellow**, with **edible sweet-sour flesh** around the seeds.

**Propagation:** Seedlings.

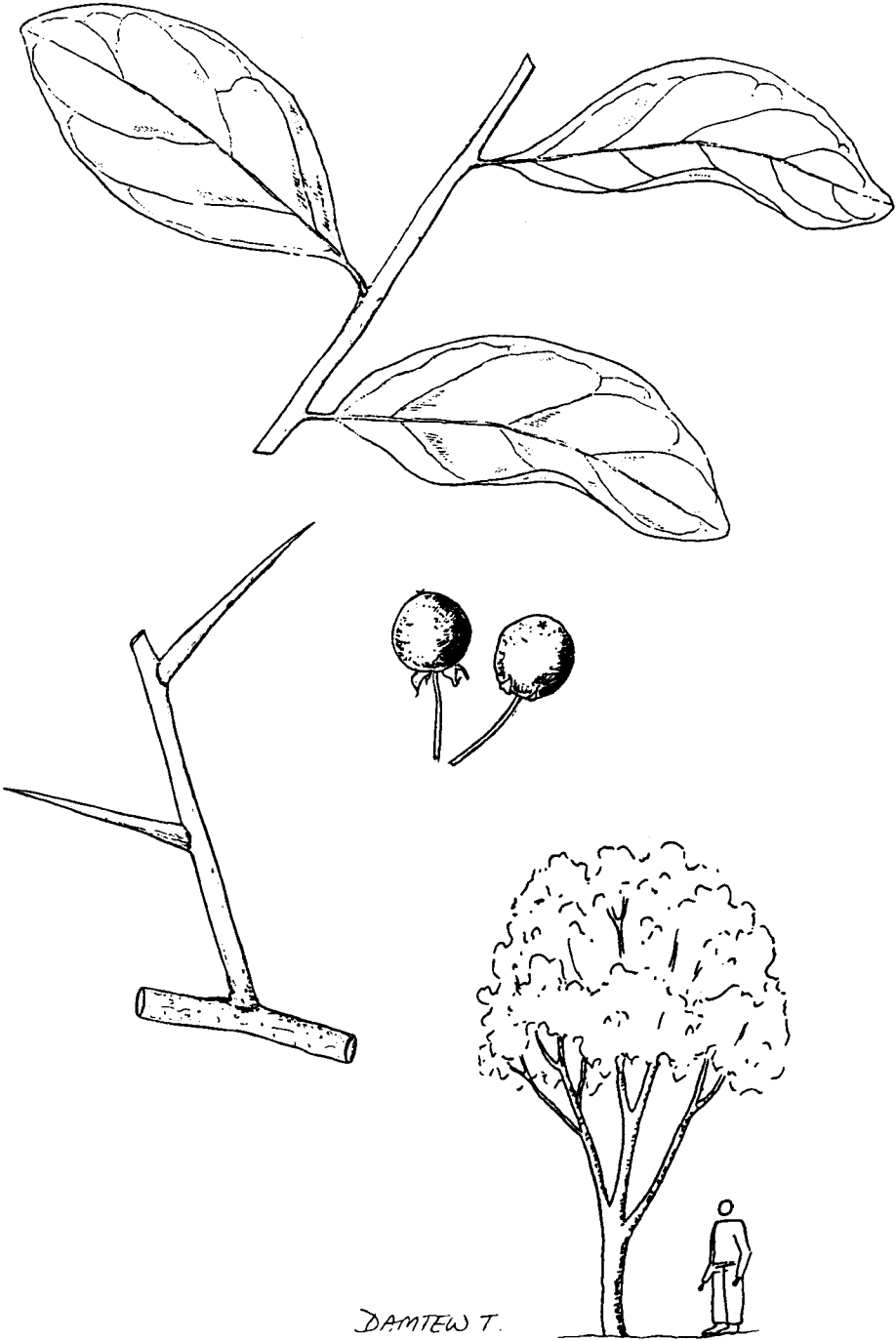
**Seed:**

**Treatment:** After soaking the fruit in cold water for 24 hours break up the flesh to release the seeds.

**Storage:** Stores well.

**Management:** Lopping, coppicing.

**Remarks:**





**Indigenous****Am:** *Itsepatos, Moata***Eng:** *Dragon tree***Kf:** *Yudo***Gr:** *Areg***Or:** *Lankuso, Showiye***Sm:** *Tonkich*

**Ecology:** An under-storey tree in humid lower highlands and *Cordia* and *Olea* forests, particularly in wetter and less dense parts. Prominent in Moist and Wet Weyna Dega agroclimatic zones in Ilubabor, Gojam, Wolega, and Sidamo regions. It can be seen as a remnant of former forest in Gojam (Finote-selam) and in Shewa.

**Uses:** Baking local breads (leaves), **ornamental**.

**Description:** An evergreen tree, usually 15 m but up to 18 m. The trunk often branches from the base with large branches rising steeply. Near the ground the base may be swollen. **BARK:** Smooth, grey-red-brown, with horizontal leaf scars. **LEAVES:** Dark shiny green crowding the branches **like palms**, the leaves **over 1 m long and 12 cm wide**, strongly fibrous, with **no clear veins** but the centre thickened, the edge wavy. **FLOWERS:** **Pale white-yellow-green**, 6 narrow petals joined in a tube, in tight clusters all over a **big flowering head about 1 m high**. **FRUIT:** Small green berries, becoming red then black and juicy, about 1 cm across; eaten by birds. The angular branchlets remain for some time and turn orange.

**Propagation:** Cuttings.

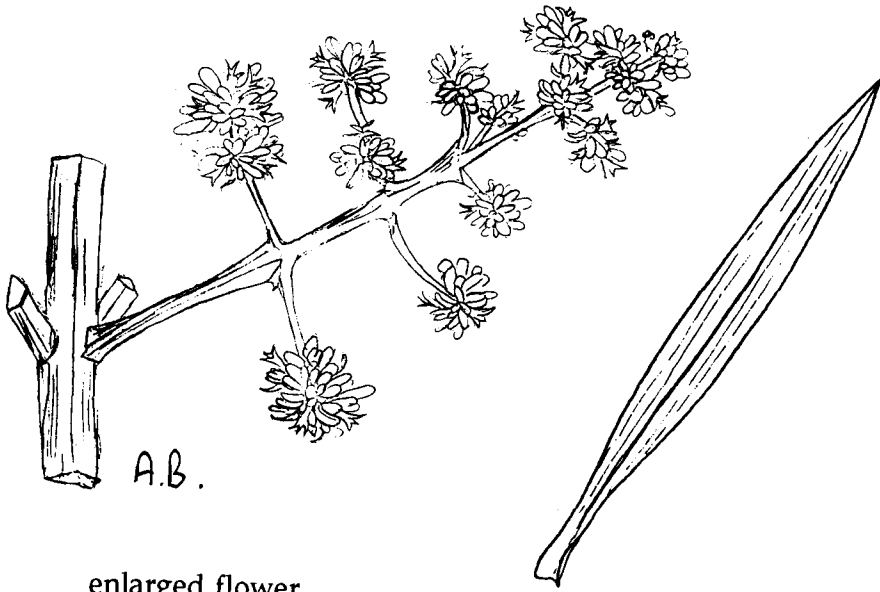
**Seed:**

**Treatment:** Not necessary.

**Storage:**

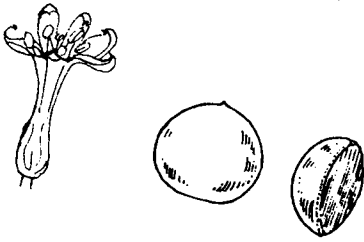
**Management:**

**Remarks:**

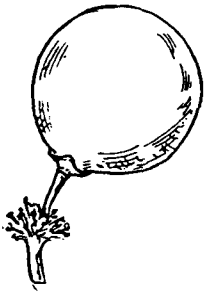


A.B.

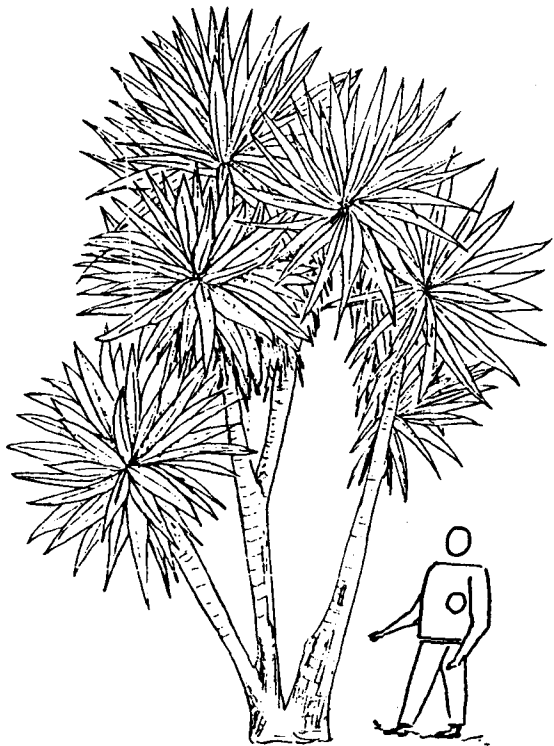
enlarged flower



seed-fruit enlarged



DAMTEW T.



Indigenous

*Am: Game*

*Or: Hulaga, Oolaga*

**Ecology:** Commonly occurring in evergreen forest and forest patches, usually on steep mountain sides in the Weyna Dega agroclimatic zones, 1,500–2,000 m.

**Uses:** **Firewood, timber (furniture), farm tools, fodder (leaves), mulch.**

**Description:** A deciduous shrub or tree 2–9 m, often branching from the base, with weak drooping branches. **LEAVES:** Oval but wide or narrow to 20 cm x 12 cm, the **tip pointed, base rounded**, on a stalk 1–3 cm. The leaf is rarely flat and bubbles up between the veins. **Veins are raised below and have hairs.** **FLOWERS:** In **loose large heads** to 15 cm across (only), on **hairy stalks**, often covering the tree. The small flowers are **white-yellow-pink**, quite fragrant. The **divided style and brown-black anthers hang out** of the bell-like flowers. **FRUIT:** Ripen October to December in large heads. Round orange-red and berry like, the fruit turn black. Each is **pointed** and breaks into **4 parts**, each containing a hard, comma-shaped seed.

**Propagation:** Seedlings, direct sowing.

**Seed:** No. of seeds per kg: 20,000–30,000.

**Treatment:** Not necessary.

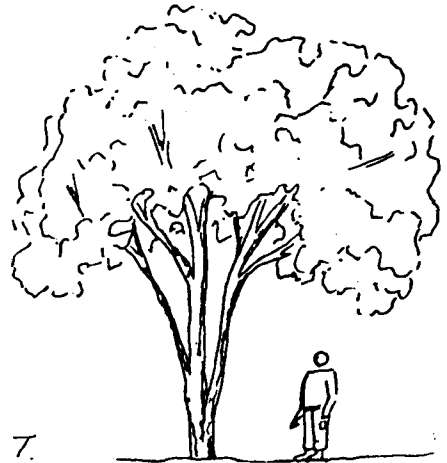
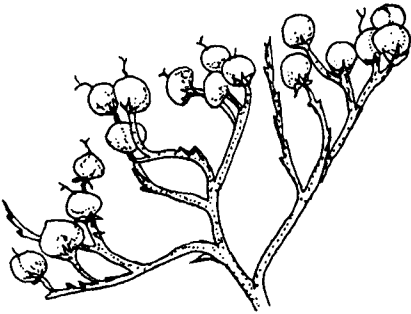
**Storage:** Seeds can be stored. Cut the fruiting head when 80 % of the fruit are mature to extract the seed.

**Management:** Pruning, pollarding, lopping and coppicing.

**Remarks:** There are two varieties in Ethiopia: var. *divariata* and var. *silvatica*. The latter occurs in rain forest and riverine forest. The light, durable wood is often used to make yokes for oxen. Roots and leaves are poisonous to man but the root juice is used to help heal wounds.



A.B.



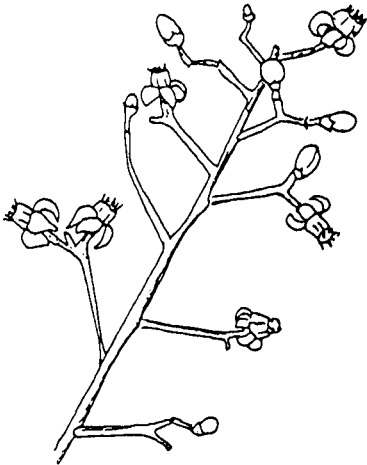
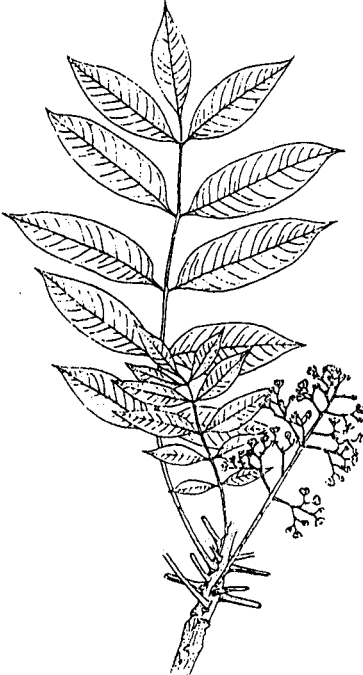
DAMTEW T.

Indigenous

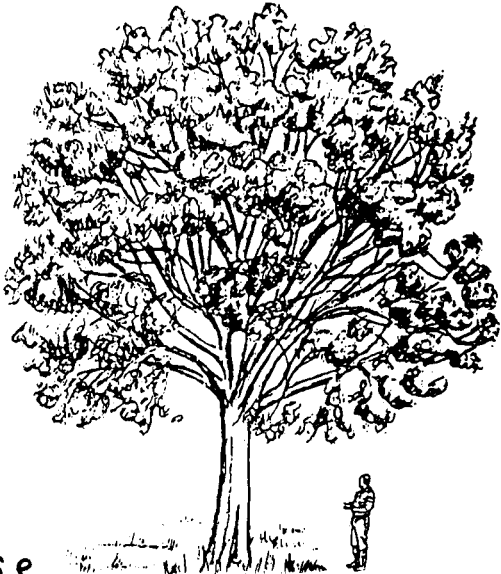
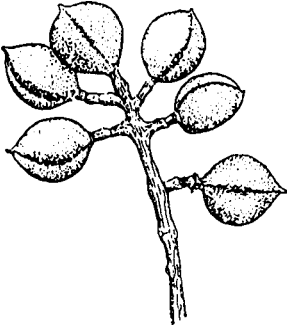
*Am:* Lol, Sombo

*Or:* Duduna, Sombo

- Ecology:** A semi-deciduous to evergreen tree with a spreading crown widely distributed in a variety of habitats, often a shady meeting place in open grassland. It occurs in Dry, Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,600–3,000 m.
- Uses:** **Firewood, poles, timber** (furniture, light construction), tool handles, medicine, fodder (leaves), bee forage, **soil conservation, ornamental, shade, windbreak.**
- Description:** A tree reaching 20–30 m, occasionally higher. **BARK:** Grey-brown and rough with age; a cut is **red with white streaks**, branchlets dotted with whitish breathing pores. **LEAVES:** Compound, mostly crowded **at the ends of branches** on stalks to 30 cm long, leaflets **3–6 pairs** plus one, shiny green but some hairs below, up to 15 cm long, **leaf blades unequal-sided.** **FLOWERS:** In loose sprays, up to 8 cm, each flower small and white and heavily scented. **FRUIT:** **Rounded**, 1–2 cm long, thin-skinned and orange on long stalks, drying and splitting to set free 2–4 seeds.
- Propagation:** Seedlings, wildings.
- Seed:** Good germination. No. of seeds per kg: 2,900–8,600.
- Treatment:** Not necessary.
- Storage:** Seeds do not store for long.
- Management:** Fairly fast growing.
- Remarks:** Wildings are used most commonly for propagation. The light pale wood with an even grain makes attractive furniture.



D.G.



A. Birnie

Indigenous

*Am:* Enkoko

*Or:* Hanku

*Sd:* Kanko

**Ecology:** An under-storey tree in semi-humid highland forest, Celtis, Podocarpus, Juniperus, Ekebergia and Aningeria forests of Moist and Wet Weyna Dega and lower Dega agroclimatic zones, 1,700–2,600 m.

**Uses:** Firewood, **medicine** (fruit).

**Description:** A tree to 7 m but often a shrubby climber. **BARK:** Smooth red-brown. **Twigs without hairs** but with raised pale dots, the breathing pores. **LEAVES:** Oval, wide or narrow to 8 cm x 4 cm, **tip rounded**, narrowing to the base, a red midrib and stalk to 2 cm. The midrib and **15 or more side veins** are raised below. **FLOWERS:** Green-white-cream and tiny, on a hairy stalk from the leaf axil. **FRUIT:** Very many on stalks, each rounded, 6 cm across, red when ripe, tipped by the old style, one seed inside.

**Propagation:** Seedlings, wildings.

**Seed:** No. of seeds per kg: 15,000–20,000.

**Treatment:** Not necessary.

**Storage:** Can be stored for several years.

**Management:** The tree should be grown with other light-demanding and straight-growing trees to give it support.

**Remarks:** The fruit are commonly sold in shops as a medicine against tape worm. The leaves are reported to be edible and are used as food in eastern Africa.



seed

DAMTEW T.



**Indigenous**

**Am:** Enset, Guna-guna, Koba   **Kf:** Kocho  
**Eng:** Wild banana           **Km:** Wese  
**Gr:** Aset, Koba               **Or:** Koba, Weke, Wese  
**Hd:** Wesa                       **Wt:** Uta, Yecha

**Ecology:** Like the common banana, this fleshy tree is a giant herb. Outside Ethiopia it also grows in the Sudan, East and Central Africa and in a few suitable places in South Africa. It grows in wet upland valleys and ravines and along streams in the forests of lower mountain slopes, 1,600–2,400 m. In south-central Ethiopia *enset* is extensively cultivated for food up to 3,000 m in Moist and Wet Weyna Dega and Dega agroclimatic zones.

**Uses:** **Food** (stems, rootstock), ornamental, **fibres** (stem, leaf, midrib), **thatch** (leaves), soil conservation, beads (seeds).

**Description:** A leafy herb 6–12 m, swollen below, the “false stem” formed by the leaf bases. **LEAVES:** Large leaves grow in spirals, each one to 6 m long and 1 m wide, bright green with a thick pink-red midrib and a short red stalk. The leaf blades tear with age. **FLOWERS:** In large hanging heads 2–3 m long, the white flowers with 1 petal protected by large dark red bracts, 5 stamens produce sticky pollen. **FRUIT:** Although the small yellow clusters look like normal bananas they are not edible. Each leathery fruit, about 9 cm long, contains many hard seeds, brown-black to 2 cm long with only a thin layer of pulp. The whole plant dies down after fruiting.

**Propagation:** Suckers.

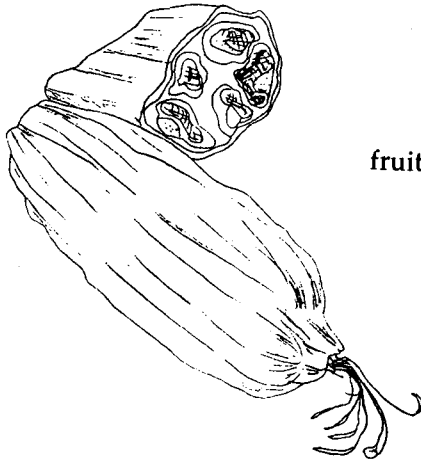
**Seed:**

**Treatment:**

**Storage:**

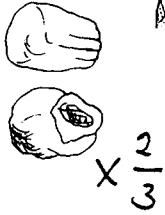
**Management:**

**Remarks:** *Ensete* differs from *Musa*, the true banana, in the terminal head of flowers and by dying after flowering. The leaf blades make a good durable thatch and the midrib a strong fibre for rope or sacking. A meal or flour is made from the pulp inside the stem and rootstock. Pollination is commonly brought about by bats transferring the sticky pollen.

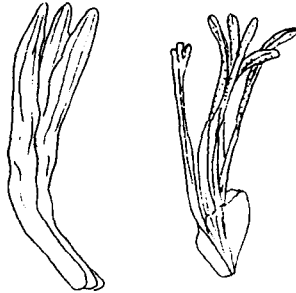


fruit, section

young seeds



flower

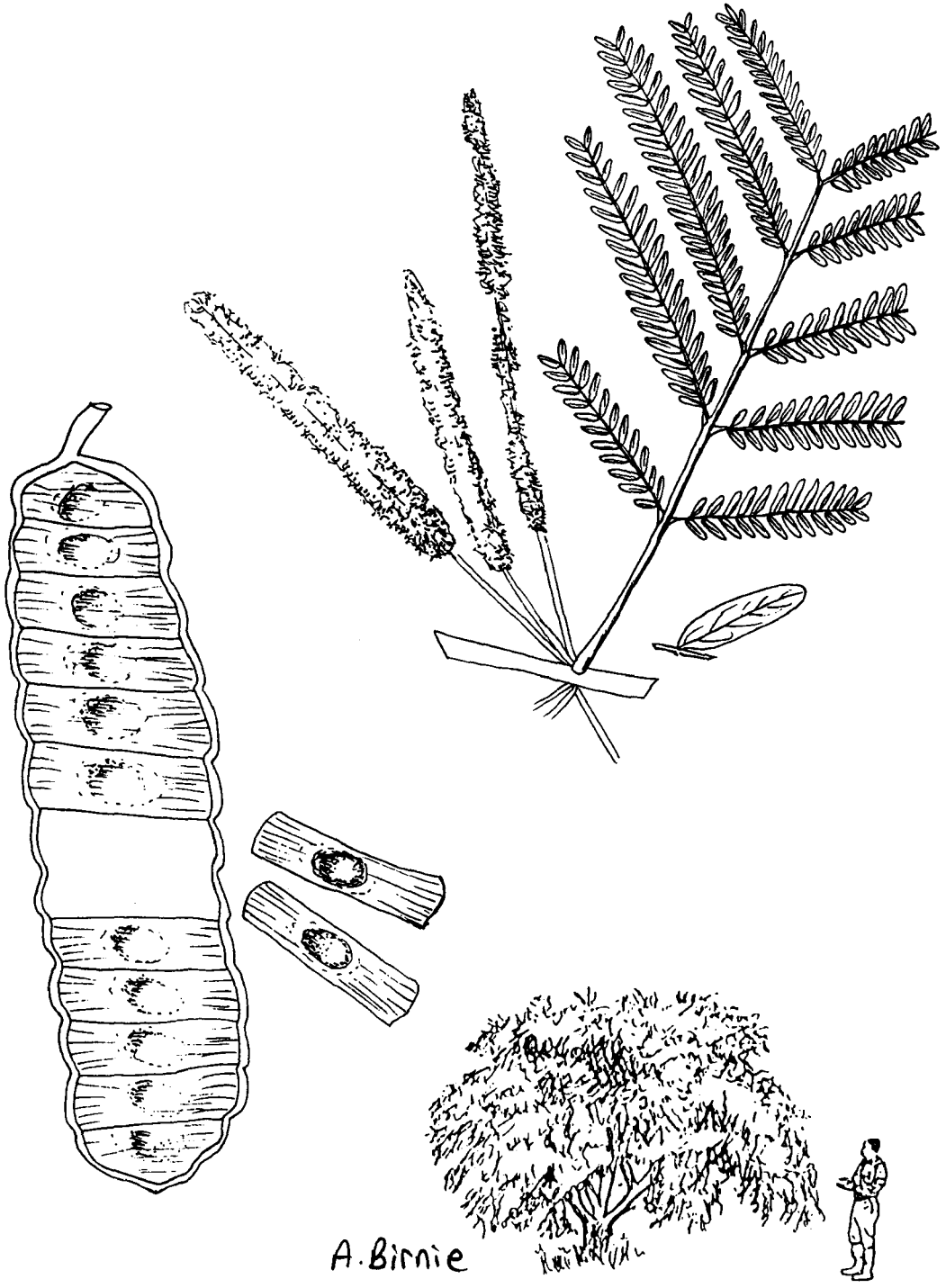


A. Birnie

Indigenous

*Am: Kentefa, Kontir*

- Ecology:** Found in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones in almost all regions, 1,300–2,050 m.
- Uses:** Firewood, medicine (roots), nitrogen fixation, shade, **live fence**, fencing (cut branches).
- Description:** A deciduous tree without thorns, 3–10 m, dense, leafy, spreading crown, flat or rounded. **BARK:** Grey-brown, rough or smooth. **LEAVES:** Compound, feathery like acacia, 4–22 pairs of pinnae on a stalk about 13 cm long, pink when young, the **leaflets narrow about 1 cm**, tip rounded. **FLOWERS:** **Cream-white-yellow** in upright spikes, long and **narrow to 16 cm**, sweet scented. **FRUIT:** Woody pods which are **long and wide, to 39 x 8 cm**, straight but wavy. The central **1-seeded sections** break away from the woody rim of the pod leaving a **pod skeleton** on the tree. About 10 papery winged seeds are released.
- Propagation:** Seedlings.
- Seed:** Germination  $\pm 70$  %. No. of seeds per kg: 3,600–4,200.
- Treatment:** Not necessary.
- Storage:**
- Management:** Fast growing on good sites.
- Remarks:**



Indigenous

*Am: Adale, Asta adale*

*Eng: Giant heath*

*Or: Wadadi*

**Ecology:** A large species for this family, typical of African highlands. It grows on dry rocky ground with thin soils in Moist and Wet Dega and Wurch agroclimatic zones, 2,500–3,300 m.

**Uses:** **Firewood**, charcoal, fodder (leaves, shoots), **bee forage**, **live fence**, **fence** (cut branches).

**Description:** A much-branched evergreen shrub or narrow tree to 5 m. **LEAVES:** Grow **closely around the stems** as in most heaths, narrow and pointed, grey-green and tough, **to 1 cm long**. Branchlets hairy. **FLOWERS:** Abundant, **white-pink**, at the ends of short side shoots. Each flower is like a **tiny hanging bell**, the purple stigma outside the white flower. **FRUIT:** A **capsule** containing many tiny seeds.

**Propagation:** Seedlings.

**Seed:** No. of seed per kg: 40,000–50,000.

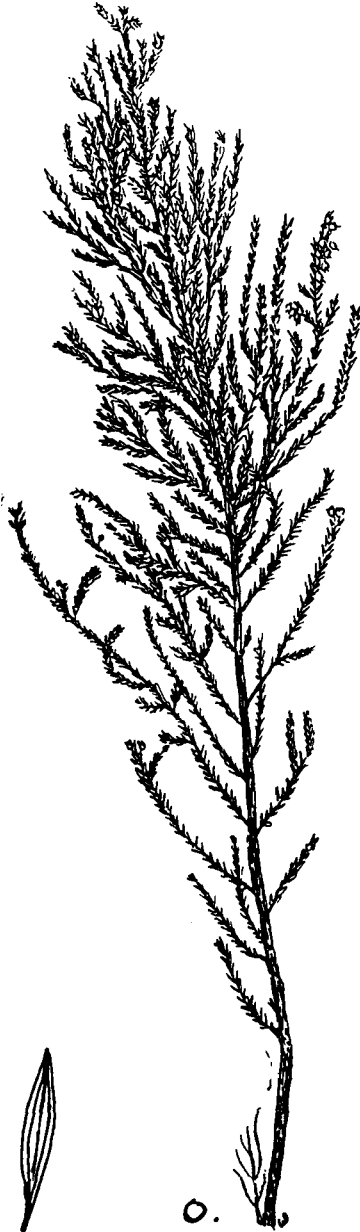
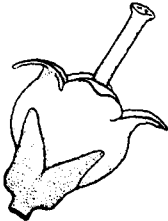
**Treatment:**

**Storage:**

**Management:** Lopping, coppicing.

**Remarks:** Branches are burnt to smoke out new beehives. The branches make a useful fence around homesteads.

enlarged flower

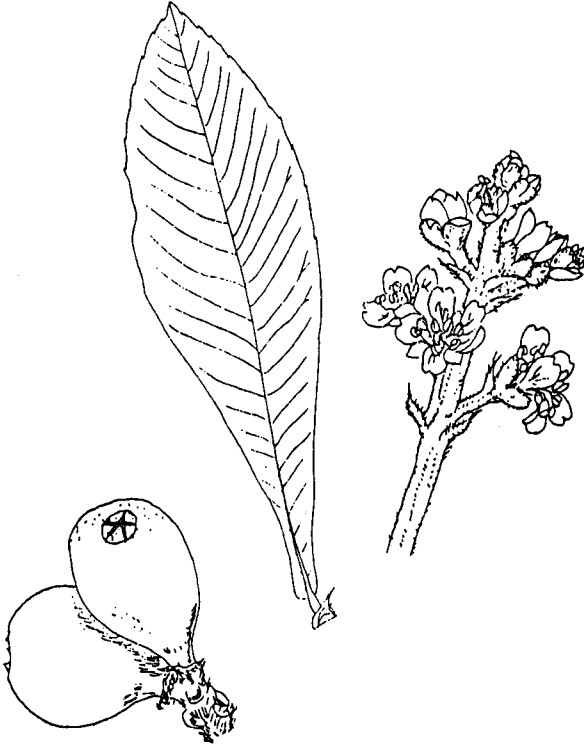


China, Japan

*Am:* Woshmella

*Eng:* Loquat

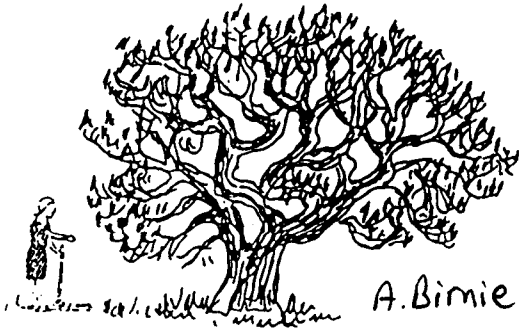
- Ecology:** A small evergreen tree very widely planted in its native China, Japan and northern India, and also in the Mediterranean. Mainly planted in cities and towns, 1,500–2,400 m. It grows well in Moist and Wet Weyna Dega agroclimatic zones. Requires moderate to heavy rainfall but is drought resistant once established.
- Uses:** Firewood, poles, posts, carving, **food** (fruit), **bee forage**, mulch, **ornamental**, shade, windbreak, jam, syrup (fruit).
- Description:** A dense evergreen shrub or **small tree** to 7 m, **branching close to the ground**. **BARK:** Grey and rough, young stems hairy. **LEAVES:** Stalkless, **dark green, shiny above, woolly hairs below**, about 35 cm long, the tip pointed and the edge prickly, toothed, young leaves paler, foliage in **upward pointing tufts**. **FLOWERS:** **Cream-white, scented**, in pyramidal heads at the end of branches, each flower 2 cm across, flower **buds covered with golden-brown hairs**. **FRUIT:** In loose clusters, **yellow, egg shaped**, usually 2–7 cm long, acid-sweet flesh around a few large brown-black seeds.
- Propagation:** Direct sowing, seedlings, wildings.
- Seed:** No. of seeds per kg:  $\pm 600$ .
- Treatment:** Not necessary.
- Storage:** Seed does not store well. It should be sown while still fresh.
- Management:** Pruning.
- Remarks:** Seeds are poisonous and should be removed before cooking. Grafted trees, when available, remain smaller but make stronger growth and produce fruit faster.





**Indigenous****Am:** Korch, Korra, Kuara**Or:** Anka, Wolensu,**Eng:** Flame tree, Lucky-bean tree**Tg:** Soaueh**Kf:** Bero

- Ecology:** Found all over the country in open woodland or grasslands of the Moist and Wet Kolla and Weyna Dega agroclimatic zones, 500–2,000 m. As with many trees in areas with frequent fires, young trees establish a deep root system before stem growth.
- Uses:** Firewood, **carving** (utensils, mortars, drums, bee-hives), medicine (bark, roots), **bee forage**, mulch, soil conservation, nitrogen fixation, ornamental, **live fence**, necklaces (seeds), curios (seeds), **ceremonial**, veterinary medicine (leaves).
- Description:** A deciduous tree with a short trunk and thick spreading branches, rounded crown, 6–12 m. **BARK:** Deeply grooved, brown, thick and corky, with or without woody spines. **LEAVES:** Compound with 3 leaflets, **largest leaflet rounded to 15 cm**; branchlets and underleaves covered with **grey-brown hairs, veins and stalks sometimes prickly**. **FLOWERS:** **Orange-red heads**, often appearing on the bare tree. Both narrow calyx lobes and petals are coloured, each flower to 5 cm long. **FRUIT:** Woody pods, 4–16 cm long, hairy, strongly narrowed between seeds, opening to set free 1–10 **shiny red seeds** with a grey-black patch.
- Propagation:** Seedlings, cuttings, direct sowing.
- Seed:** Low germination rate. No. of seeds per kg:  $\pm 6,800$ .
- Treatment:** Not necessary.
- Storage:** Seed stores for long periods if kept cool, dry and insect free.
- Management:** Pollarding, coppicing. Slow growing. Propagation from cuttings is successful if done immediately after the rainy season.
- Remarks:** The tree is resistant to fire and termites. The soft white wood is a poor timber but can be carved fairly easily. The tree is used on stream banks and for soil-conservation terraces. The seeds contain a poison but it is only released if they are crushed. Leaves have been used to treat skin diseases in cattle.



Indigenous

*Am:* Ergofit, Kermo ayederk, Korch

*Kf:* Colacho

*Or:* Wolensu

- Ecology:** A tree found only in Ethiopia. It is widespread in open woodland, upland forest edges or grasslands of the Moist and Wet Kolla and Weyna Dega agroclimatic zones, 500-2,000 m.
- Uses:** Firewood, carving (**bee-hives**, mortars, drums), **medicine** (bark, roots), **fodder** (leaves), bee forage, mulch, nitrogen fixation, soil conservation, ornamental, necklaces and curios (seeds), **ceremonial**.
- Description:** A small deciduous tree, usually 5–10 m, with a single trunk but thick spreading branches to a rounded crown. **BARK:** Thick and corky, branches prickly. **LEAVES:** Compound, with **3 oval leaflets, not hairy**, the middle one stalked and largest to 23 x 16 cm, nerves below and leaf stalks prickly. **FLOWERS:** In **big heads** on the bare tree, **orange-red**, occasionally pale yellow, each flower with a brown hairy calyx to 3 cm, split on one side and a red petal to 5 cm. **FRUIT:** **Long leathery pods to 15 cm split open along both sides, 2–4 red seeds with white patches lie in soft white tissue.**
- Propagation:** Seedlings, cuttings.
- Seed:** Low germination rate. No. of seeds per kg:  $\pm 6,800$ .
- Treatment:** Not necessary.
- Storage:** Seed can be stored for long periods if it is kept cool, dry and free from insects.
- Management:** Pollarding, coppicing.
- Remarks:** The tree is grown easily from large cuttings 5–10 cm in diameter. It is traditionally used for live fences. It stands heavy pollarding and leaves are fed to cattle, though the leaf crop is not heavy. Along river courses the tree may not lose its leaves. The tree is recommended for live fencing, stream-bank and boundary planting and for soil conservation. It is moderately fire and termite resistant. This species is endemic to Ethiopia.



A. Birnie

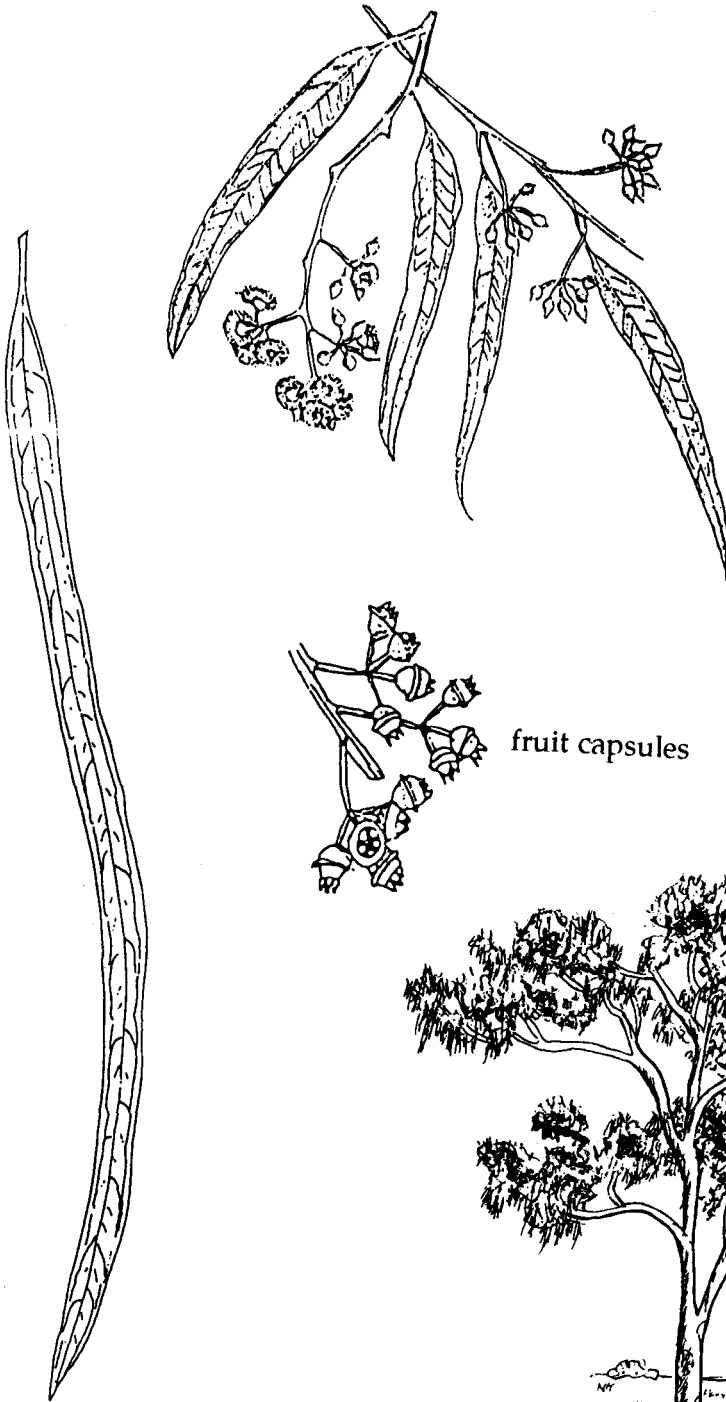
DAMTEW T.

Eastern Australia

*Am:* Key bahir zaf

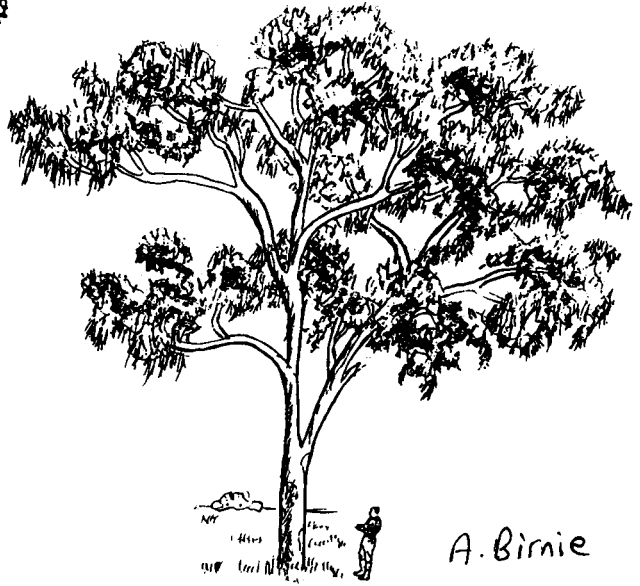
*Eng:* Red river gum, Murray red gum

- Ecology:** Widely distributed in its native Australia and one of the first *Eucalyptus* spp. used elsewhere, both in the Mediterranean and the tropics. Does well in semi-arid regions and tolerates a long dry season. It does well in deep silt or clay soil in Dry and Moist Kolla agroclimatic zones, 900–1,800 m, and tolerates some salinity.
- Uses:** **Firewood, charcoal, poles (power lines), posts, timber (construction), bee forage, ornamental, windbreak.**
- Description:** A tall evergreen tree to 30 m, **deeply branched** but also with a long straight bole. **BARK:** White to brown, **thin and peeling in long strips**; when cut it exudes **red gum**. **LEAVES:** Grey-blue, long and drooping, to 30 cm. **FLOWERS:** White clusters, short **conical bud caps**. **FRUIT:** Very small rounded capsules on thin stalks, each less than 1 cm, 4 valves.
- Propagation:** Seedlings, direct sowing in tree nursery; plant out after 4–5 months.
- Seed:** No. of seeds per kg: 100,000–2,100,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for a long time.
- Management:** Coppicing, pollarding.
- Remarks:** Young trees require protection from termites. The species has been primarily introduced for quick-growing fuelwood. It is also useful for homestead plantation, woodlots and along roads. The timber is red, heavy and hard. Do not plant near crops because of root competition for water. All gum-tree flowers have much nectar and attract bees.



buds

fruit capsules



A. Birnie

Eastern Queensland (Australia)

**Am:** *Shito bahir zaf*

**Eng:** *Lemon gum, Spotted gum*

**Ecology:** Grows in a wide range of climates, and performs very well in Moist Kolla and in Moist and Wet Weyna Dega agroclimatic zones, 1,300–2,000 m.

**Uses:** **Firewood, charcoal, poles, timber, bee forage, medicine (leaves), windbreak, essential oils (citronellal).**

**Description:** The tree may reach 40 m, with evergreen drooping foliage, the crown rounded. **BARK: Jigsaw patterned, with patches of grey, brown, yellow; older bark smooth grey-white. LEAVES: Very long and narrow, veins parallel to the edge. FLOWERS: Smooth oval buds on stalks, white flowers. FRUIT: Rather large, oblong cup-shaped, about 1 cm, in clusters.**

**Propagation:** Seedlings.

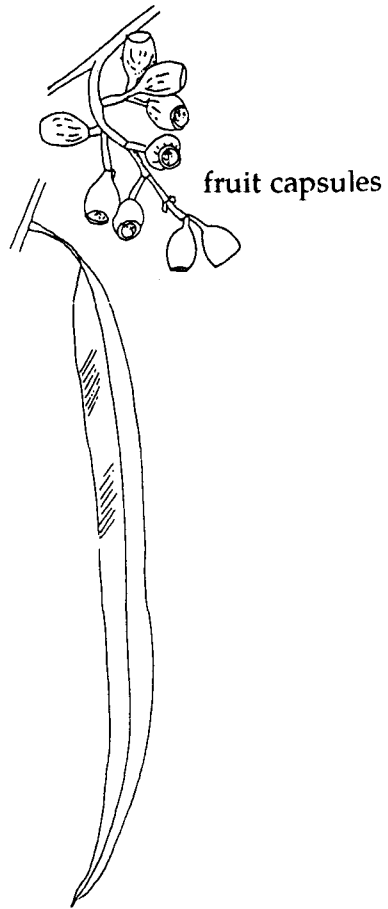
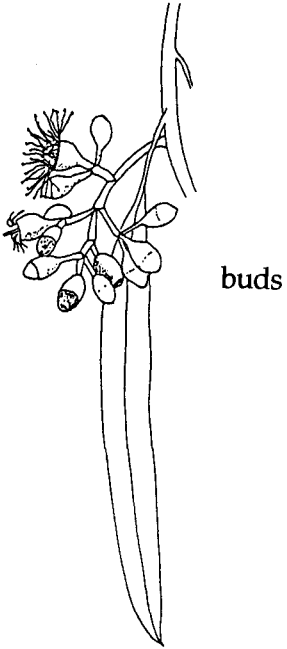
**Seed:** Species is not a prolific seeder like other *Eucalyptus* spp. Germination rate 60–90 %. No. of seeds per kg: 110,000–1,200,000.

**Treatment:**

**Storage:** Seed can be stored.

**Management:** Coppicing.

**Remarks:** The tree is easily identified by the strong scent of lemon oil in the leaves which perfumes the air, especially after rain. Young seedlings are susceptible to termite attack. Large branches are brittle and break off in high winds. It produces heavy, durable wood from the straight trunk, but the timber is often attacked by borers (*Lyctus* spp.).





S.W. Australia

*Am: Nech bahir zaf*

*Eng: Tasmanian blue gum*

**Ecology:** A tree suitable for high-altitude areas as it tolerates frost. It performs well in upper Dry, Moist and Wet Weyna Dega and Dega agroclimatic zones, 2,000–3,200 m.

**Uses:** **Firewood, charcoal, poles (power lines), posts, timber** (heavy and light construction), veneer, plywood, medicine, bee forage, windbreak, essential oil (young leaves).

**Description:** A tall tree to 55 m, rather narrow, the crown rounded and open, the main stems straight. **BARK:** Blue-grey, smooth, peeling in long strips, rough at base. **LEAVES:** Young leaves, opposite, oval, **blue-grey without stalks**, mature leaves deep **blue-green**, shiny, very long and **thin to 30 cm, slightly curved**, stalked, smelling of camphor if crushed, **tip sharp**. **FLOWERS:** **Buds grey-green, wrinkled, 2.5 cm**, usually 1, rarely 2 or 3, together, the white flowers to **4 cm across**. **FRUIT:** Woody, **half spheres, rough, 3 cm across**, 4-angled, no stalks. Dull black seeds escape from slits.

**Propagation:** Seedlings, direct sowing.

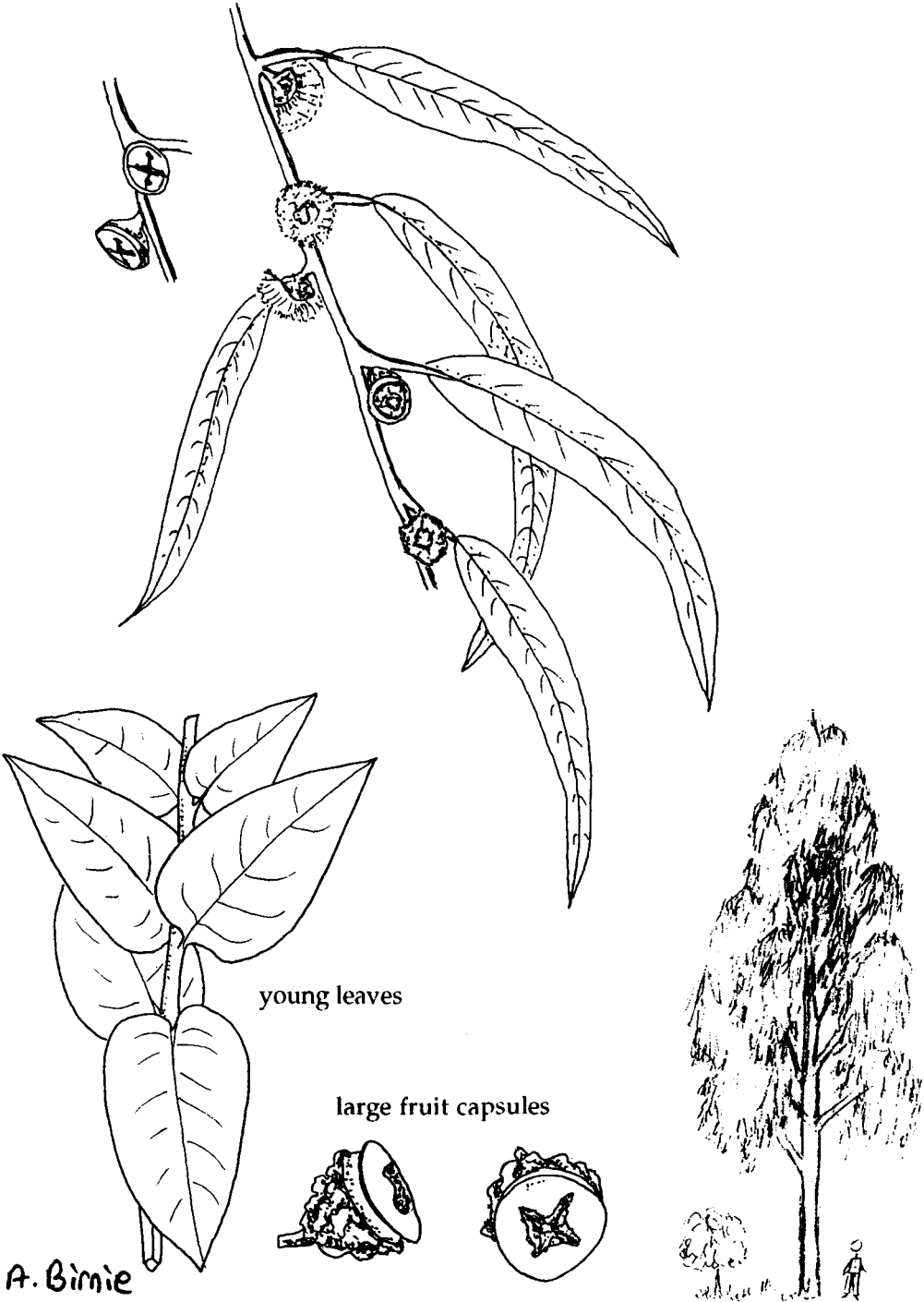
**Seed:** No. of seeds per kg: 60,000–400,000.

**Treatment:** Not necessary.

**Storage:** Seed can be stored for a long time.

**Management:** Coppicing.

**Remarks:** The young leaves of this species have been used to produce an oil used in pharmaceutical products. The wood is hard, heavy and strong, the oil making it termite resistant, and it is often used for telegraph poles. In some places it is liable to attack by beetles. The tree tolerates frost. It is a strong competitor for moisture and nutrients and therefore should not be planted with crops.



Northern New South Wales, Queensland (Australia)

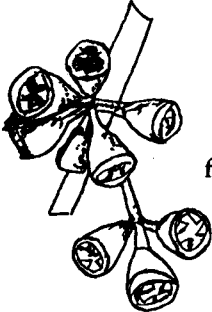
*Am:* Key bahir zaf

*Eng:* Flooded gum, Rose gum

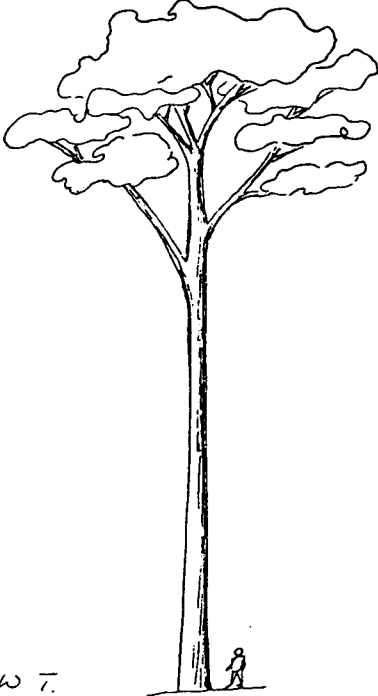
- Ecology:** This gum tree grows best in humid subtropical conditions, but has been widely planted all over the world (e.g. South Africa, Brazil). In Ethiopia it grows successfully in Moist and Wet Weyna Dega agroclimatic zones. It has shown excellent growth in Arsi region. It performs exceptionally well on light and medium neutral to acid soils that are free draining and moist, 1,600–2,300 m.
- Uses:** **Firewood**, charcoal, **poles** (building, electricity transmission), **posts**, **timber** (heavy and light construction, furniture, boxes, veneer, plywood), **bee forage**, **shade**, ornamental, windbreak, short-fibre pulp for paper.
- Description:** An evergreen tree 40–55 m, to a diameter of 2 m; with an excellent **straight trunk** and widespreading thin crown, self-pruning of branches in plantations. **BARK:** Reddish at first, later pale grey, **fibrous bark** extends **several metres up the trunk** (more than in *E. saligna*). Upper bark is **smooth, silvery white** (greenish). **LEAVES:** Similar to those of *E. saligna*. **FLOWERS:** White, small. Buds (larger than in *E. saligna*) with a bluish bloom (waxy powder). **FRUIT:** Pear-shaped, **gradually narrowed to an ill-defined stalk**, teeth of capsule 4–6, **mostly 5**, pale, the **blunt tips turned inward** like “clutching fingers”.
- Propagation:** Seedlings
- Seed:** No. of seeds per kg: 600,000–650,000. Germinates in 7–8 days.
- Treatment:** Not necessary.
- Storage:** Can store for several years if kept in cool, dry and airtight containers.
- Management:** A fast-growing tree. Coppicing, coppice reduction. Protect from termite attack when young.
- Remarks:** It is fire sensitive and has a tendency to split when being felled. It produces flowers and seeds in 4–5 years, and is moderately frost resistant as well as salt and wind tolerant. The pink to pale red-brown timber is softer and lighter than that of many gums and more easily worked. (*E. saligna* and *E. grandis* have been confused over the years and they will hybridize. Both do well in Ethiopia and points of comparison have been mentioned.)



A. Bitnie



fruit capsules



DAMTEW T.

Coastal Eastern Australia

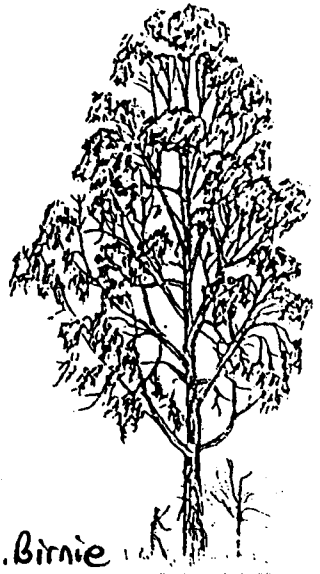
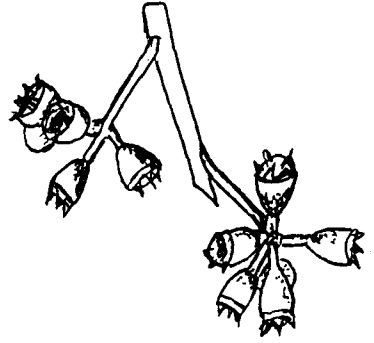
*Am: Saligna bahir zaf*

*Eng: Sydney blue gum*

- Ecology:** A tree widely planted in the tropics for fuel, from Brazil, Hawaii, East and South Africa to New Zealand. This is the dominant eucalyptus species grown in the highlands in Arsi region. It will grow in Moist and Wet Kolla and Weyna Dega agroclimatic zones, 1,400–2,200 m.
- Uses:** **Firewood, charcoal, poles, timber, furniture (pulpwood, veneer, plywood, construction), medicine, bee forage, shade, windbreak.**
- Description:** A tall tree, usually 40–50 m but may reach 60–70 m, the crown irregular to rounded, the trunk straight and up to 1.5 m across, this width continued up to  $\frac{2}{3}$  of the tree's height. **BARK:** On old trunks grey to brown, **rough with thick ridges** from the base to about 9 m, and peeling in strips. **Upper branches smooth bluish-white (greenish).** **LEAVES:** Long and thin to a **pointed tip, curved to 20 cm**, to 3 cm across, dull green, paler below, the flat stalks 1–2 cm, yellow-pink. **FLOWERS:** Small and white, 3–4 buds in a group (smaller than *E. grandis*). Capsules dark brown, in groups of 4–8, each only 5–6 mm, **tapering suddenly** at the base to a clear stalk of 5–6 mm (smaller and more delicate than *E. grandis*). **Teeth of capsule usually 3–4, same colour as cup, tips sharp-pointed, straight or spreading.**
- Propagation:** Seedlings, direct sowing.
- Seed:** The tree is a prolific seeder. No. of seeds per kg: 1,700,000–2,000,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for several years.
- Management:** It is very fast growing on good sites. Coppicing.
- Remarks:** The species should not be planted near crops as yields are adversely affected. A good tree for woodlots. This species grows naturally on slopes and is most suitable for moist cool mountains (see *E. grandis*). The roots have swellings (lignotubers) just below the soil surface (absent in *E. grandis*). These were not recognized for many years until they were observed on seedlings in South Africa. The timber is light red to red-brown and moderately heavy, tough and durable; suitable for many purposes but mainly fuelwood.



fruit capsules



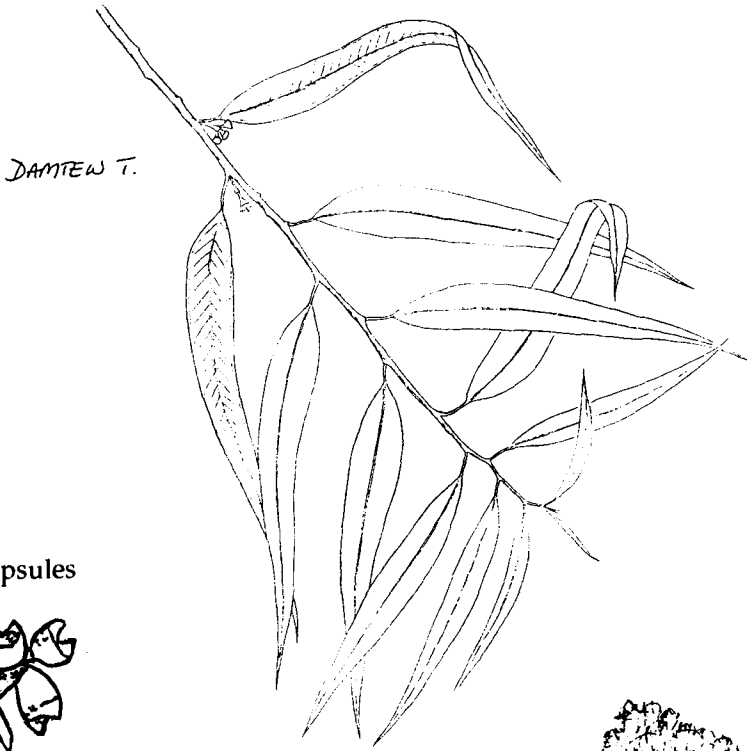
A. Birnie

New South Wales, Tasmania (Australia)

**Am:** *Key bahir zaf*

**Eng:** *Manna gum, Ribbon gum*

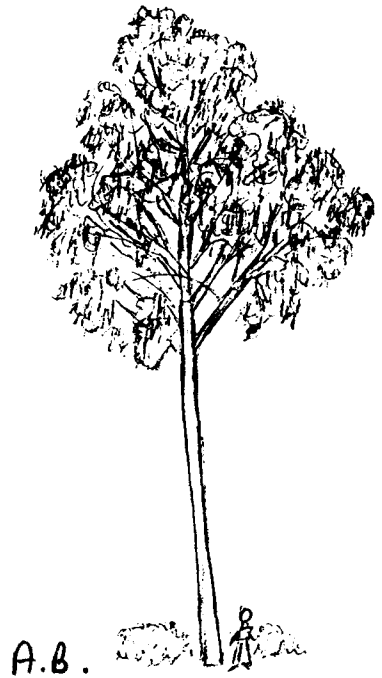
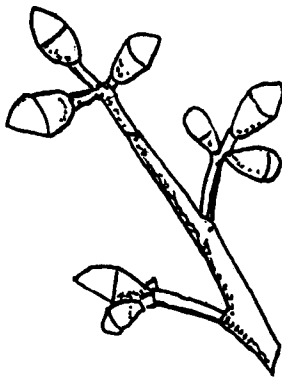
- Ecology:** A tree which prefers Moist and Wet Dega agroclimatic zones and does well in moist and well-drained deep soils. It occurs in Moist and Wet Dega agroclimatic zones, 2700–3300 m. A good alternative to *E. globulus* in the highlands.
- Uses:** **Firewood, poles, timber** (light construction, boxes, veneer, plywood, building, flooring), **bee forage**, ornamental, **windbreak**, paper (short-fibre pulp).
- Description:** A slender upright tree, reaching 30–50 m. The clean white trunk bears thin, bendy branchlets and the bole may be 1.5 m in diameter. The tree is strongly light demanding. **BARK:** Often all white or rough grey at the base, long ribbons of bark shed from the upper trunk or branches, frequently hanging in branch forks. **LEAVES:** Young leaves characteristically opposite without stalks. Mature leaves stalked 10–20 cm, narrow and pointed, pale green. **FLOWERS:** Beside leaves, in threes, no stalks and bud cap conical. **FRUIT:** Stalkless, in threes, at right angles to each other, base rounded, 5–8 mm across the 3–4 valves protruding.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 300,000–400,000.
- Treatment:** Not necessary, germinates in 5–6 days.
- Storage:** Can be stored for several years in a dry, cold and airtight container.
- Management:** Coppicing.
- Remarks:** It is fire and frost resistant but the sapwood is susceptible to borer beetle attack. The pale yellow or pink wood is moderately hard, the grain straight but not strong or durable. In Ethiopia it is useful for poles and fuel in homesteads, woodlots and pathway plantations. The branchlets bend easily and have been used for weaving. White, sugary sap spilling out from young shoots gives it the name “manna” gum.



fruit capsules



buds





Indigenous

*Am: Dedeho*

*Or: Miessa*

**Ecology:** A small tree that grows in dry woodland, bushland, riverine forest and marginal arid areas in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 1,500-2,300 m.

**Uses:** Firewood, farm tools, food (fruit), ornamental, live fence, boundary marking.

**Description:** A shrub or small tree 3–4 m. **BARK:** Grey-black, rather smooth. **LEAVES:** Usually **opposite, shiny** and leathery, dark green above but **dull and pale below, long, oval, about 5 cm**, the tip rounded, narrowing to the base. The thick edge often curls right under. **FLOWERS:** Small, **cream-white and sweet-scented**, in short sprays to 8 cm, beside leaves, male flowers with many stamens. **FRUIT:** Round and very small, **less than 1 cm**, green at first, **ripening purple-black** with thin edible flesh around the seeds.

**Propagation:** Seedlings.

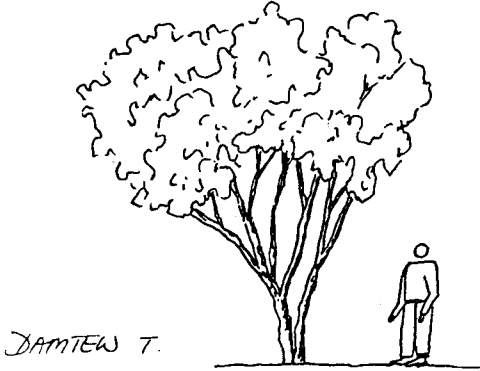
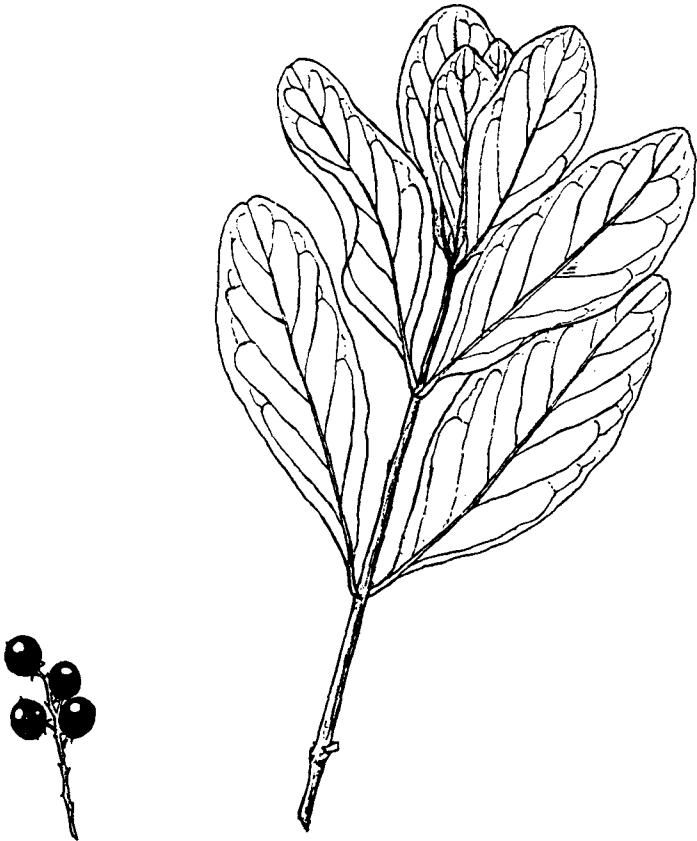
**Seed:**

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:** Coppicing.

**Remarks:** The wood is heavy and hard and burns very well.



Indigenous

*Am: Kulkual*

*Or: Tulu*

**Ecology:** A spiny tree euphorbia which grows in moist montane forest, humid woodlands, and scrub savannah. It performs well in Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,400–2,400 m, usually above 1,900 m.

**Uses:** Firewood, **timber** (roofing, matches, boxes, local tables, wooden saddles).

**Description:** A succulent **leafless tree** up to 10 m high, the crown almost flattened. The **thick main trunk**, woody with age, usually has **more than 5 angles** or ribs, **often 8-sided**. The mass of upturned green branches has taken over the function of leaves. The 3–8 thick ribs may be winged and the stems are narrowed or constricted at intervals making segments. Along the ribs are small rounded shields from which grow pairs of straight spines, to 1 cm, leaves and flowers. **LEAVES:** Develop only on seedlings, soon falling, later only scales. **FLOWERS:** In crowded groups at the tips of branches, each with 5 bright yellow glands. **FRUIT:** Capsules, **large and rounded when fresh, to 2 cm across**, about 1 cm high, stalked, green at first then deep red with white lines (*E. candelabrum* smaller, more deeply lobed). The 3-part capsule dries to release small plain grey seeds.

**Propagation:** Cuttings.

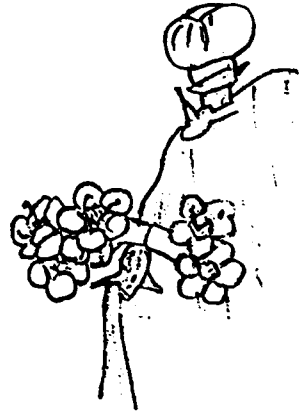
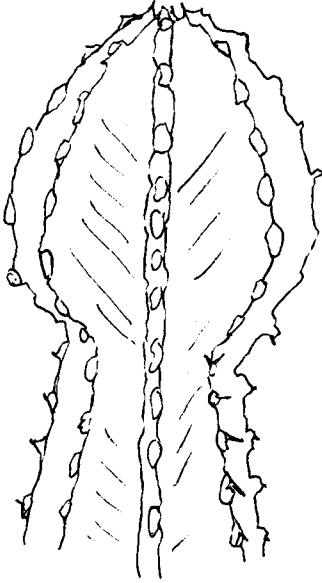
**Seed:**

**Treatment:**

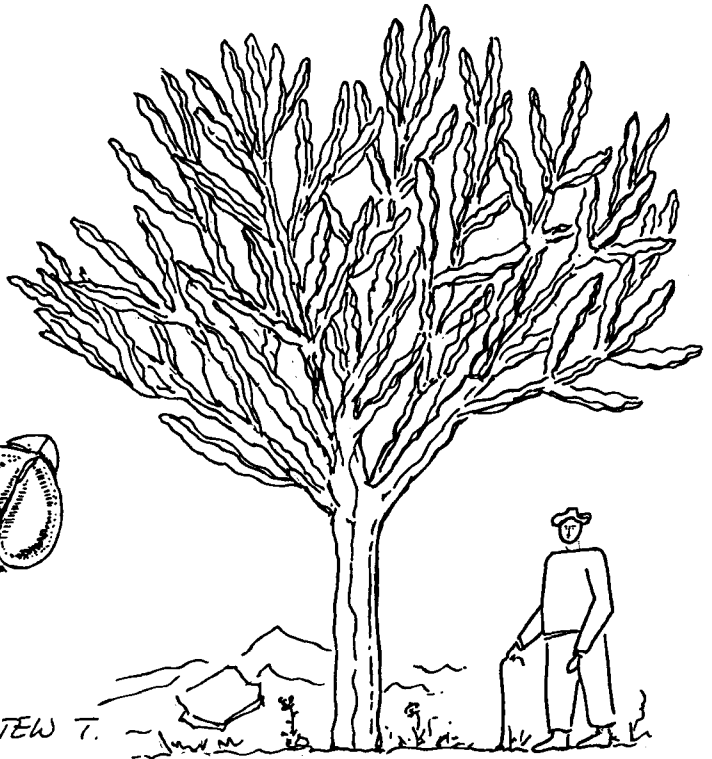
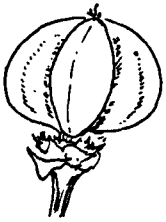
**Storage:**

**Management:**

**Remarks:** The soft yellow wood is perishable and very light but durable. It is suitable for roofing as well as matches, etc. There is considerable variation between northern and southern populations of *E. abyssinica*. This species closely resembles *E. candelabrum* but the latter normally grows below 1,700 m. The white latex can be used to kill ticks on cattle.



A.B.



DAMTEW T.

Indigenous

*Am:* Kulkual

*Or:* Adami

*Eng:* *Candelabra euphorbia*

**Ecology:** Grows in both dry deciduous and evergreen woodlands in Dry and Moist Kolla and Weyna Dega agroclimatic zones, 1,200–2,200 m.

**Uses:** Firewood, **timber** (roofing, tables, matches, boxes, saddles), fence (cut branches), live fence.

**Description:** A tree up to 15 m, the trunk thick, to 3 m, where the lower branches have fallen away. Erect branches have **3–5 spiny ribs** or wings and branches go on dividing to make a large round crown. The green-grey stems have many **narrow “waists”** and have taken over the leaf function to make food. **LEAVES:** No true leaves, just scales. **FLOWERS:** Small, **green-yellow and fleshy in groups of 4–6** next to the paired spines. **FRUIT:** Green-red pea-size capsules, seeds spotted with dirty white.

**Propagation:** Cuttings.

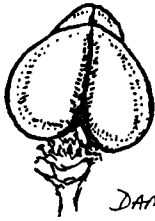
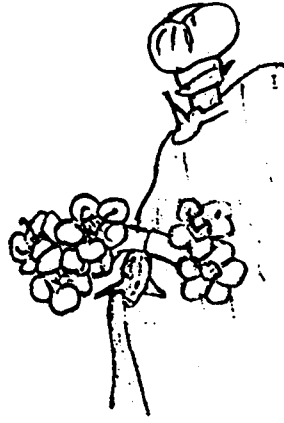
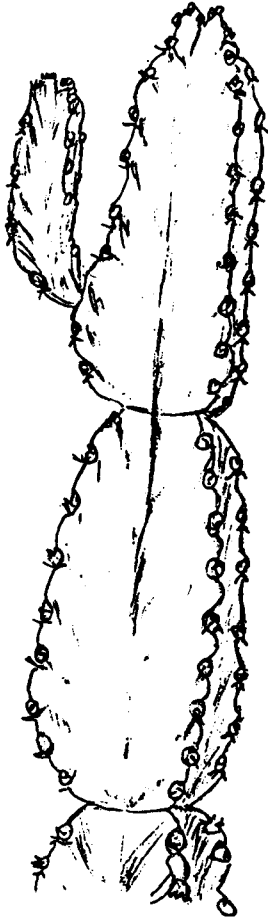
**Seed:**

**Pre-sowing treatment:**

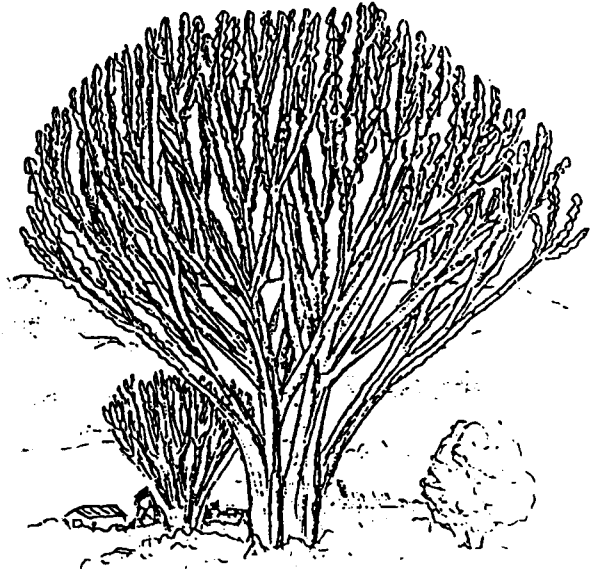
**Storage:**

**Management:**

**Remarks:** All parts of the plant produce copious milky latex which is poisonous; even one drop in the eye may cause blindness. When dry the light durable wood has many local uses and is good for roofing.



DAMTEW T.



A. Birnie

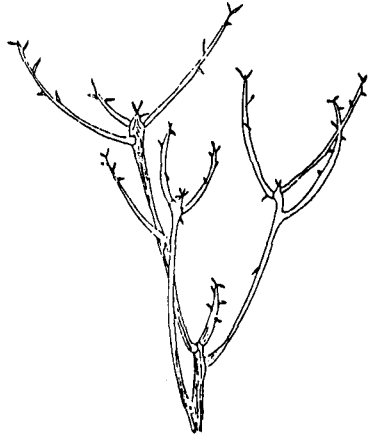
Indigenous

*Am:* Kinchib

*Br:* Anno

*Eng:* Finger euphorbia

- Ecology:** A succulent shrub frequently planted as a boma hedge in dry areas but also found as a tree. Indigenous in some areas of Sidamo and Gamo Gofa. It is now common in many areas of Welo, Tigray, Gojam, Shewa and Harerge regions in Dry and Moist Weyna Dega and Dega agroclimatic zones, 1,400–2,500 m.
- Uses:** Medicine (young branches), fish poison (latex), boundary marker, live fence.
- Description:** A dense straight-stemmed tree to 6 m or more, **the branchlets smooth green, cylindrical** in dense masses. **LEAVES:** Small, present on young stems, soon dropping. **FLOWERS:** Yellow-cream, small in dense clusters. **FRUIT:** **3-part capsules, hard, purple-green,** less than 1 cm across.
- Propagation:** Cuttings strike easily.
- Seed:**
- Treatment:**
- Storage:**
- Management:** Fast growing. Coppicing, trimming and top pruning to make a fence.
- Remarks:** Medicine from the plant must be used with extreme care due to its high toxicity. The latex is very poisonous and harmful to the eyes. Human milk has been reported as a remedy.





Indigenous

*Or: Dergi, Dero, Muke, Shapindi*

*Sd: Sighilu*

**Ecology:** It is common in the upper storey of the humid highland forests, usually with *Podocarpus* spp., in Dry, Moist and Wet Weyna Dega agroclimatic zones of Ilubabor, Wolega, Sidamo and Bale regions, 1,300–1,900 m.

**Uses:** Firewood, **timber** (flooring, furniture).

**Description:** A deciduous tree 7–25 m, nearly 2 m in diameter at base height in a good specimen, with a straight cylindrical bole. **BARK:** Light grey. When freshly cut, **bright orange with a white layer** deeper inside. This helps identification. **LEAVES:** Compound, on a stalk 13–40 cm, **leaflets shiny and oval, usually 7 (5–13)** each to 9 cm, the tip pointed. Lateral leaves are unequal sided. **FLOWERS:** **Yellow-white**, in heads 6–12 cm, flowering on the bare tree. **FRUIT:** Round, **red-black**, about 1 cm, roughly **dotted** with glands.

**Propagation:** Seedlings, wildings.

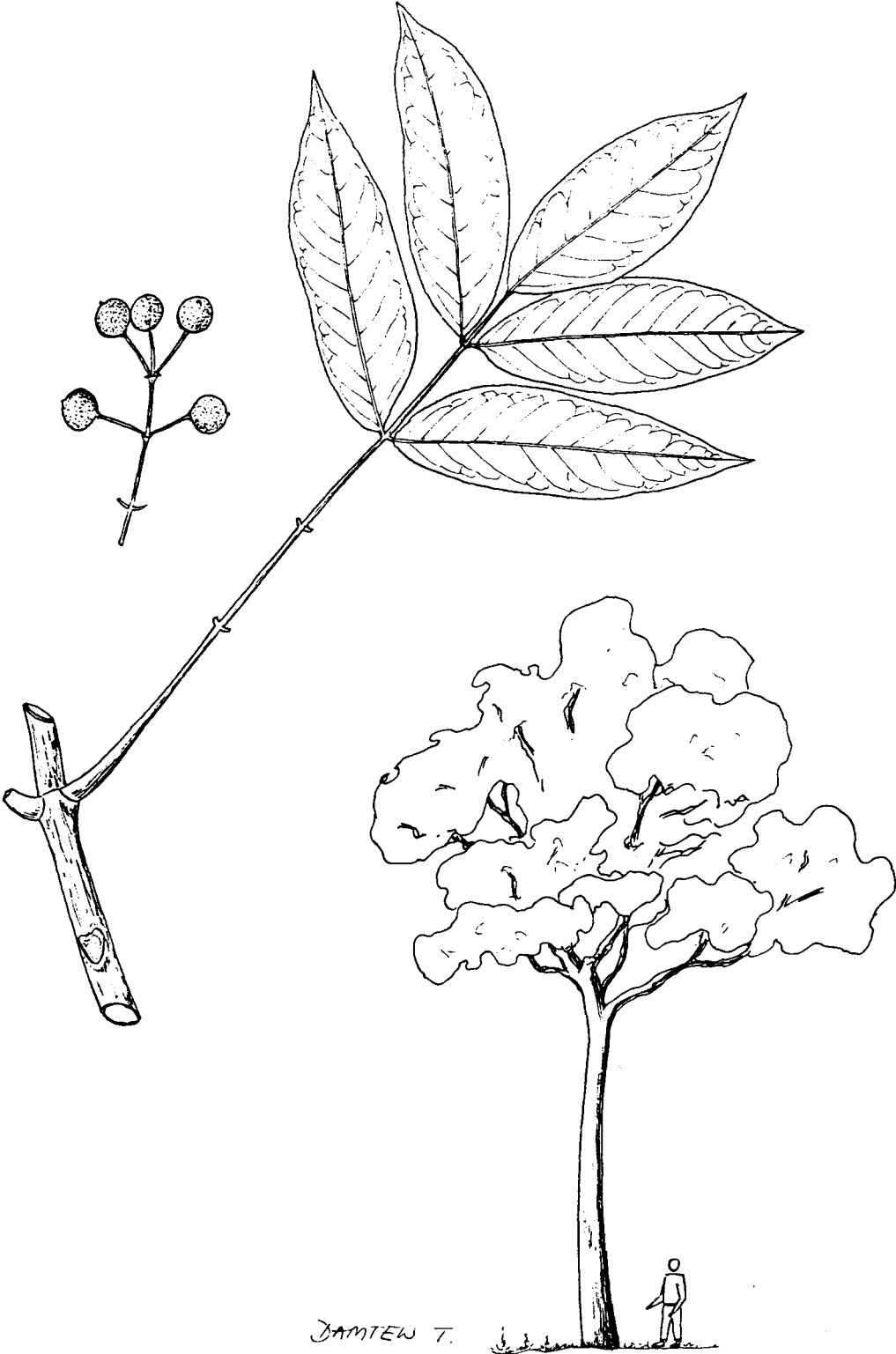
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** A moderately hard timber but not durable. It is easy to saw, finishes well and can make beautiful furniture and panelling.



N.W. Turkey, common eastern Mediterranean

**Am:** *Beles*

**Eng:** "Adriatic" or common fig, "Smyrna" fig

**Km:** *Odeko*

**Ecology:** A tree that grows in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones in Shewa and Harerge regions, 1,000–2,400 m. Though not very common, it has been cultivated in western Eritrea region.

**Uses:** Fruit (fresh, dried), medicine (sap).

**Description:** A markedly deciduous shrub or small tree 4–10 m. BARK: Brown. White latex in all parts irritates the skin. LEAVES: Simple but with 3–5 rounded lobes to 18 x 20 cm, heart-shaped at the base, leaf edges slightly toothed at lobe tips, 3–5 veins from the base, a leaf stalk to 10 cm. FRUIT: Figs from female flowers, green-brown and swollen, to 7 cm, wider at the tip. The pulp around the seeds has a high sugar content and is very tasty.

**Propagation:** Figs grow easily from cuttings.

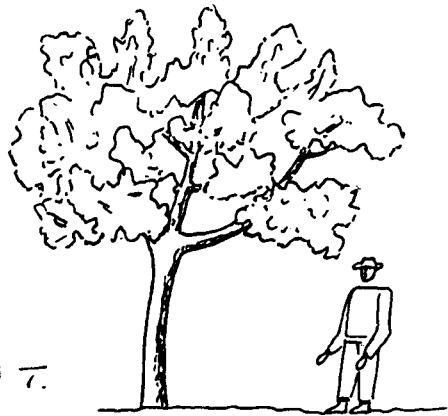
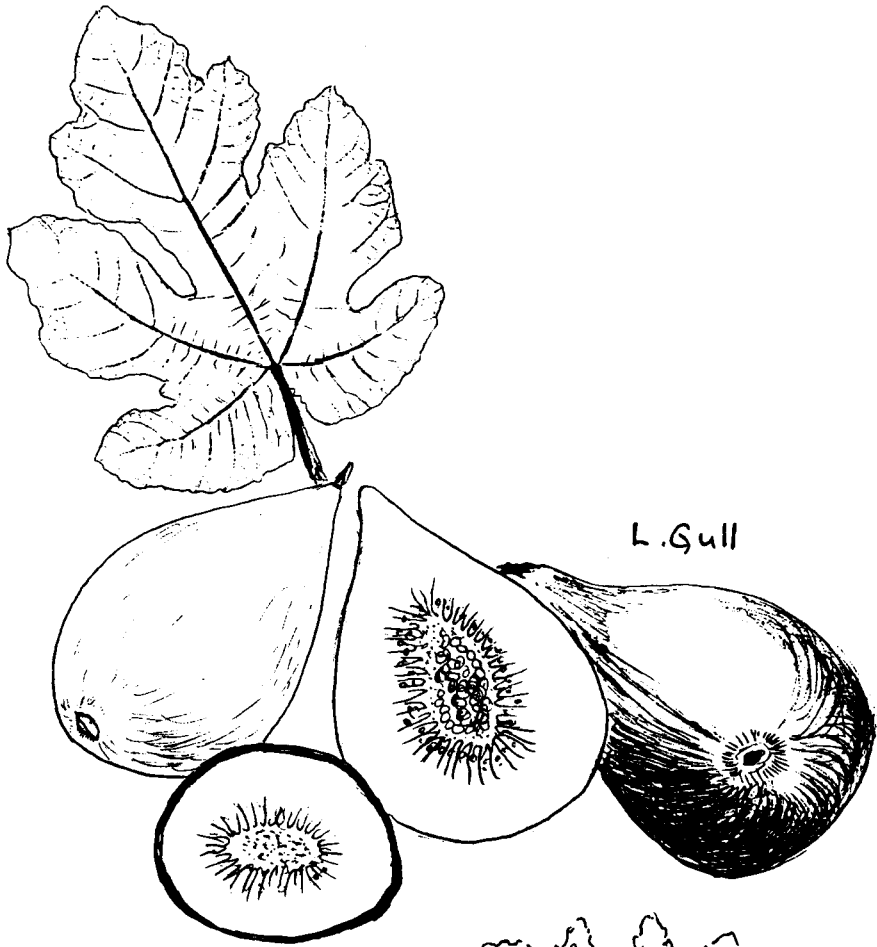
**Seed:**

**Treatment:**

**Storage:**

**Management:** If introducing figs into a new area, use "Adriatic" figs.

**Remarks:** The common "Adriatic" fig has seedless fruits that develop without pollination (parthenogenetically). "Smyrna" figs require pollination by the wild caprifig. Wild figs produce three different kinds of fig during the year and there is a complex relationship with the pollinating fig wasp. The edible female figs of the "Smyrna" type only ripen if they are pollinated by the wasp *Blastophaga psenes*. In orchards of "Smyrna" fig trees, wild or male "caprificus" are planted alongside to attract the wasps or wild flowering branches are hung in the branches of the "Smyrna" trees when the fig wasps are about to emerge. In Ethiopia the sap is used to encourage regrowth of hair in baldness due to *lash* (Am.), a skin disease.



DAMTEW T.

Malaysia, India

*Am:* Yegoma zaf

*Eng:* India rubber tree, Rubber plant

**Ecology:** This tree has been introduced to some places in Ethiopia. It prefers Moist and Wet Kolla, Weyna Dega and Dega agroclimatic zones, 800–2,700 m.

**Uses:** Ornamental, shade.

**Description:** A large spreading evergreen tree to 30 m in its native rain forests. It may grow many aerial roots from the trunk and branches. **LEAVES:** Large, oval and shiny, long, abruptly pointed with parallel side veins, rather leathery to 30 cm, on a yellow stalk to 6 cm. The leaf bud is covered with a pink-red membrane, usually 7 cm but as long as 30 cm on young plants. It falls away when the leaves unfold. **FRUIT:** Figs, not often seen, yellow oblong about 1 cm in pairs in the leaf axils.

**Propagation:** Cuttings.

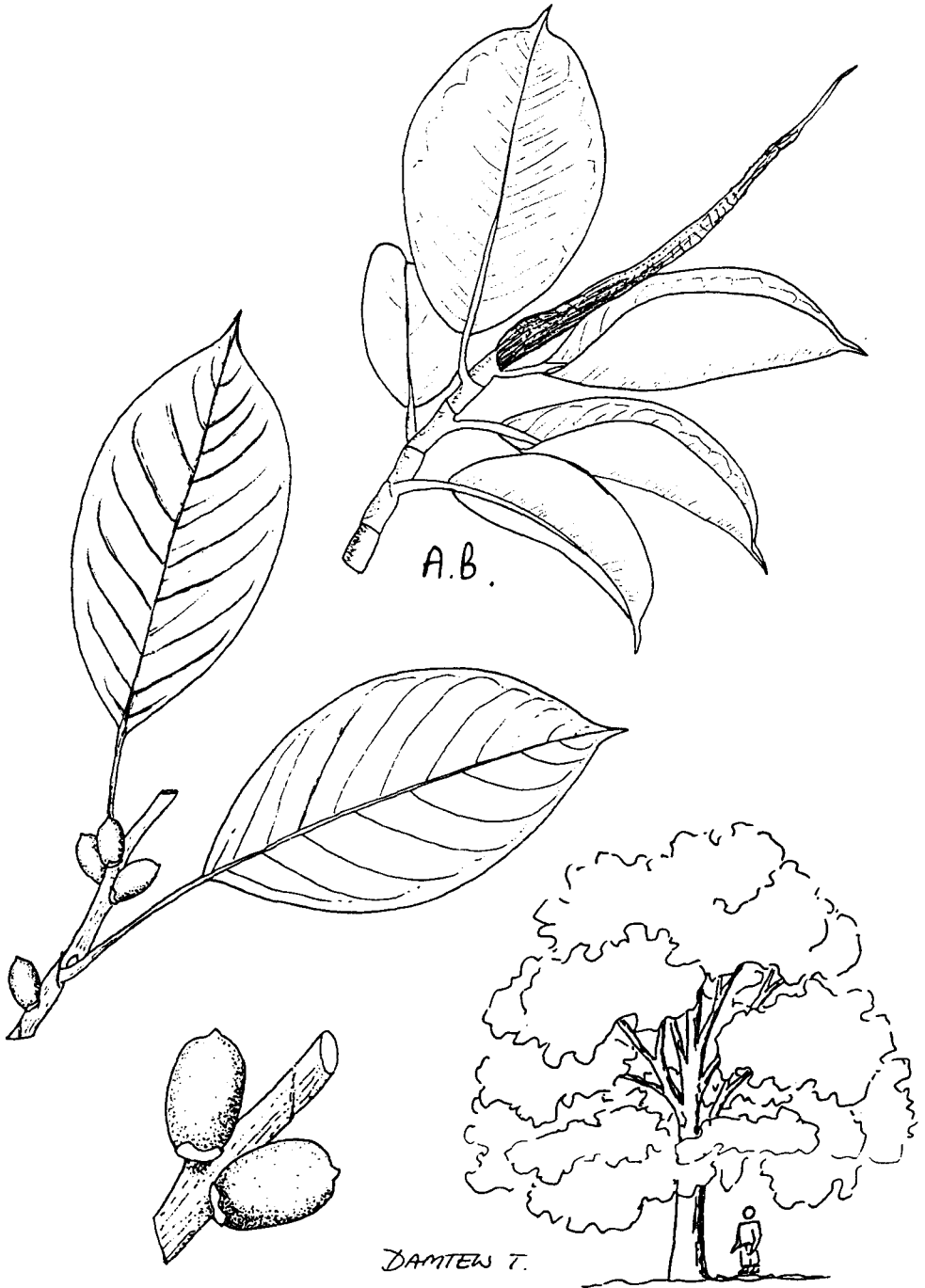
**Seed:**

**Treatment:**

**Storage:**

**Management:** Plant widely spaced.

**Remarks:** White latex, India rubber, was extracted from the trunk and prop roots but the rubber is inferior to that from *Hevea brasiliensis*. It contains too much resin and can only be tapped every three months.



Indigenous

*Am: Shola*

*Or: Habru, Harbu*

*Eng: Cape fig*

**Ecology:** Found along river banks, in upland rain forest, mountain grassland or secondary scrub in Moist and Wet Weyna Dega agroclimatic zones, 1,400–2,500 m.

**Uses:** **Timber** (local furniture, boxes), food (fruit), **shade**, ceremonial.

**Description:** A large tree often strongly buttressed to 20 m and up to 150 cm in diameter. **BARK:** Smooth, grey, darker grey-brown with age. **LEAVES:** Large, **broadly oval**, to 13 x 20 cm, usually smooth, **edge often widely toothed**, sometimes wavy, veins clear below, stalk grooved and flexible to 6 cm. **FRUIT:** Figs in **heavy clusters on branches** to 70 cm long **from trunk or older wood**, figs **round**, usually **2 cm** across but can be larger, on stalks, orange-red, often hairy, soft and edible, having many seeds and often insects too.

**Propagation:** Cuttings.

**Seed:**

**Treatment:**

**Storage:**

**Management** Lopping, pollarding.

**Remarks:** Farmers have now focused on this tree due to the unavailability of *Cordia* trees for making boxes, chairs and tables locally.



fruit



A. Birnie





## Indigenous

**Am:** *Bamba, Shola***Or:** *Harbu, Lugo, Oda***Br:** *Oda***Sm:** *Dare, Dure, Mokko, Mukoy***Eng:** *Sycamore fig***Tg:** *Sagla, Shegla***Hd:** *Odoo***Wt:** *Wola*

**Ecology:** Found along rivers and lake margins, in woodlands and wooded grasslands, evergreen bushlands, forest edges and forest clearings in Moist and Wet Weyna Dega agroclimatic zones in most regions of the country, 500–2,000 m.

**Uses:** Firewood, carvings, food (fruit), **medicine** (latex), mulch, soil conservation, **soil improvement**, ornamental, shade, bee hives.

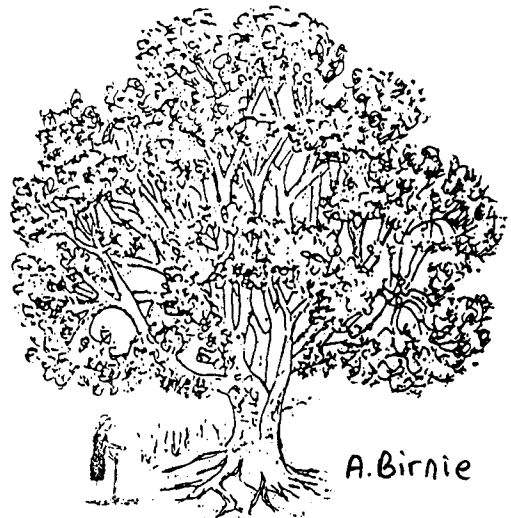
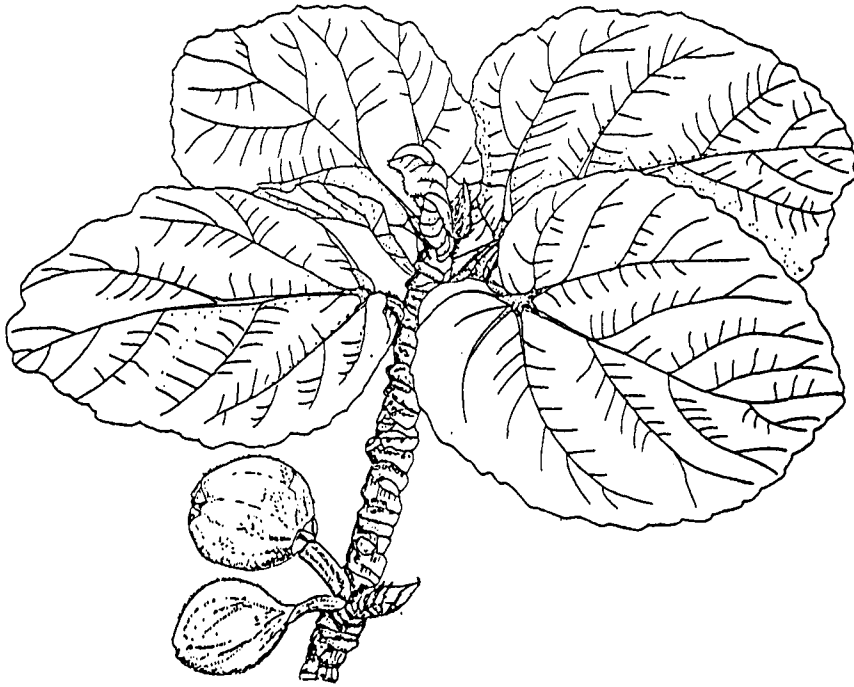
**Description:** A large semi-deciduous spreading tree to 25 m, sometimes with stem buttresses and the **base commonly spreading over the ground**. **BARK:** Distinctive **yellow to cream-brown, smooth**. **LEAVES:** Oval to **almost circular**, to 15 cm, upper surface rough to touch, margin wavy, roughly toothed, **base heart shaped**, a **hairy stalk to 3 cm**. **FRUIT:** In leaf axils or in dense clusters on main branches and trunk, **each rounded, usually to 2.5 cm long, wider at the tip, yellow-red when ripe, edible**.

**Propagation:** Cuttings strike readily.

**Seed:****Treatment:****Storage:**

**Management:** Fairly fast growing. Pruning, lopping to reduce shade.

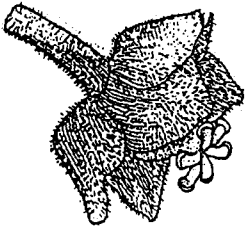
**Remarks:** A sacred tree for various communities. Figs are eaten by livestock, birds and wild animals. They can also be dried and have a good flavour and high food value. Can be planted with crops if shade is controlled. The wood is pale and easy to work.



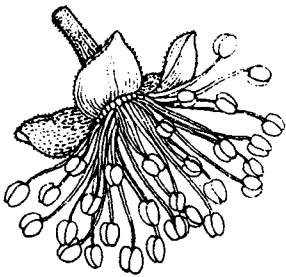
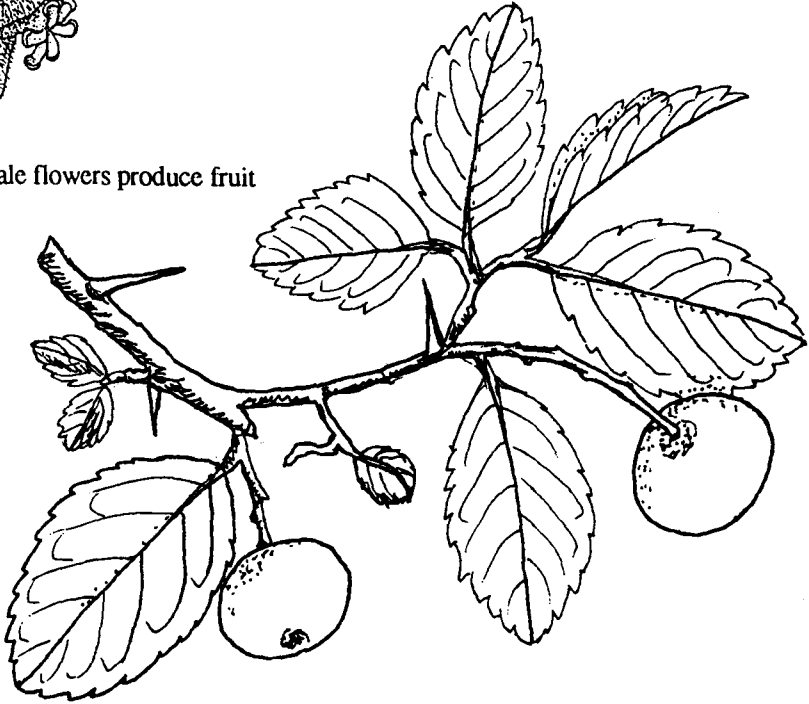
Indigenous

*Eng: Indian plum*

- Ecology:** A small tree that is widespread in tropical Africa, including Madagascar. In Ethiopia it grows from the coastal plains to the highlands in a variety of climates and soils but is never very common. It does well in Dry and Moist Kolla and Weyna Dega agroclimatic zones, 500–2,100 m. It prefers sandy soils, a high watertable and full sun.
- Uses:** **Firewood**, timber (tools), **farm tools**, fodder (leaves), food (fruit), medicine (leaves, bark, roots), live fence.
- Description:** A deciduous **spiny shrub** usually 3–5 m; spines on the trunk sometimes branched, up to 12 cm long. **BARK: Rough, pale yellow-grey**, branches may have a yellow powder at first. **LEAVES:** Variable in size, **oval**, to 12 cm, **edge toothed**, 4–7 pairs veins clear on both surfaces, stalk to 2 cm. **FLOWERS:** Small, cream, fragrant; male flowers with very **many yellow stamens**, female flowers with a divided spreading style. **FRUIT: Red-purple-black, round** and juicy but acid, **to 2.5 cm across**, persisting on the tree. They contain up to 10 small seeds, hard and flat.
- Propagation:** Seedlings (natural regeneration).
- Seed:**
- Treatment:** Cracking the hard seed coat may improve germination.
- Storage:**
- Management:** Coppicing.
- Remarks:** Sometimes cultivated for its edible fruit.



Female flowers produce fruit



Indigenous

*Am: Kechachilo*

*Eng: Snowberry tree*

**Ecology:** A shrub found mostly in open Acacia-Combretum woodlands or riverine forests on alluvial flats, on black-cotton soil and well drained rocky slopes. It is widespread in Bereha and Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 120–2,000 m.

**Uses:** **Firewood**, medicine (roots, bark), fish traps (branchlets), **food** (fruit).

**Description:** A deciduous much-branched shrub usually 1–2 m, occasionally a tree to 7 m. **BARK:** Red-brown, smooth, later rough. **Branchlets and leaf stalks purple-red.** **LEAVES:** Simple and **alternate**, very variable to 6 cm, **wider at the tip** which may be notched, **grey below.** **FLOWERS:** Male and female trees. Small, green-yellow, sweet-scented in leaf axils; male flowers in clusters but only one or two female flowers. **FRUIT:** **Small white berries**, only 5 m across but edible and sweet.

**Propagation:** Seedlings and cuttings.

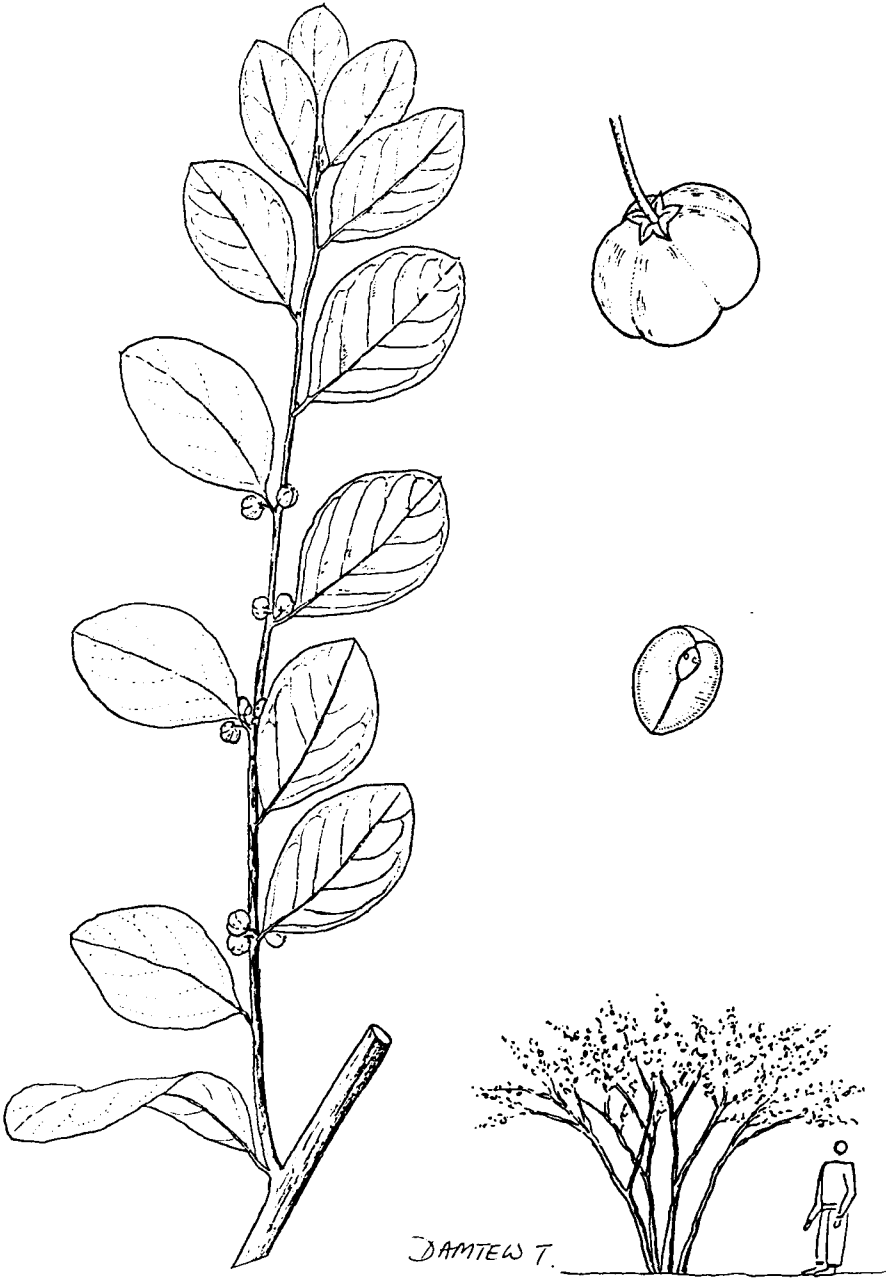
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** In Ethiopia, an infusion of the roots is taken with meat soup as a cure for malaria. The bark contains tannin and is used to treat diarrhoea and pneumonia. The slender branchlets are used to make fish traps.



Indigenous

*Am:* Solie, Yetota kula

*Or:* Adamo, Didu, Mito, Sarbandai

*Sd:* Daujicho, Seghede

**Ecology:** A very common small tree growing in a wide range of habitats in semi-humid and humid highland Galiniera, Celtis, Juniperus, Polyscias and Podocarpus forests as well as in mountain woodlands. It performs well in Moist and Wet Weyna Dega, Dega and Wurch agroclimatic zones, 1,600–3,000 m.

**Uses:** **Firewood, timber** (construction), mulch.

**Description:** A shrub or tree to 12 m, the crown thin but rounded. Branches grow out in whorls from the trunk. They are long and thin, **hanging down** with regular rows of large opposite leaves. Where leaves arise there are typical **triangular leafy growths 1 cm long—the stipules**. **LEAVES:** Shiny oval to 6 x 20 cm, the tip clearly pointed, on a hairy stalk about 2 cm long. **More than 10 pairs of veins curve** to the leaf edge and they are clearly hairy below. **FLOWERS:** Small, **white** and fragrant, like coffee flowers, on **branched hairy stalks** about 3 cm long in leaf axils. **FRUIT:** Bunches of green berries ripen to red, each 5–10 mm, containing 2–4 seeds.

**Propagation:** Seedlings, wildings.

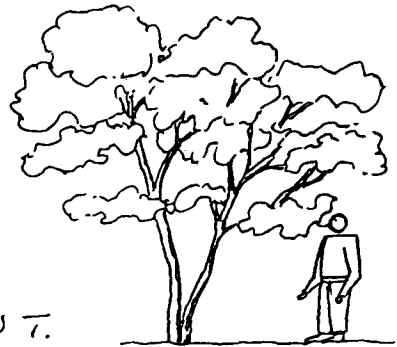
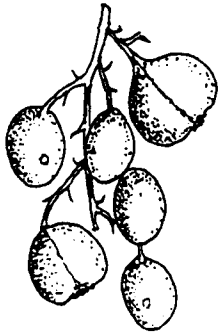
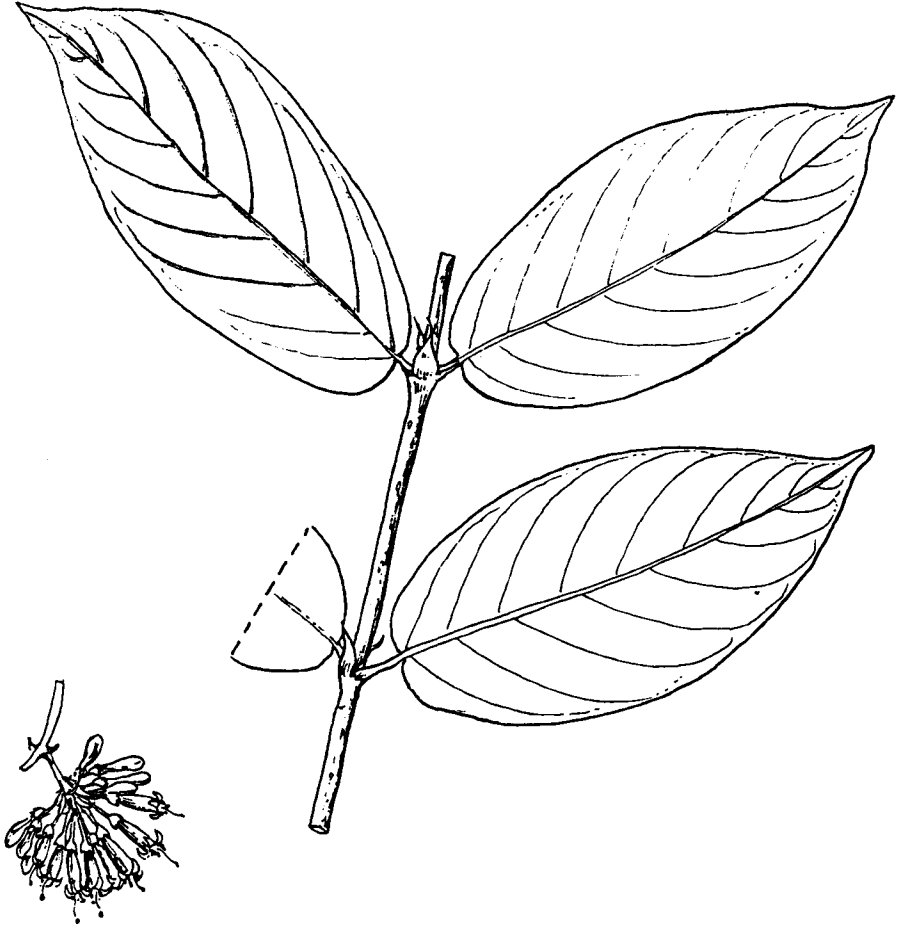
**Seed:**

**Treatment:**

**Storage:**

**Management:** Pruning, lopping.

**Remarks:**



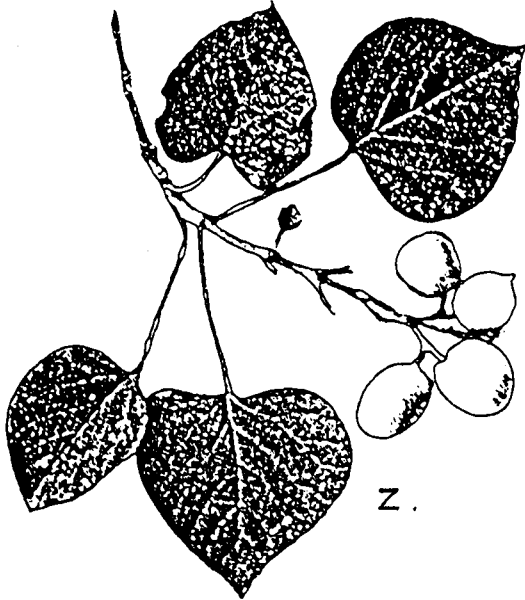
DAMTEW T.



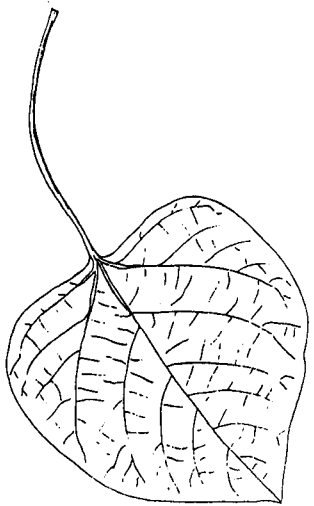
South Asia

*Eng: White teak*

- Ecology:** Grows in Moist and Wet Kolla agroclimatic zones especially in the western part of Ethiopia, 400–1,400 m. It prefers hot and humid climatic conditions.
- Uses:** Firewood, charcoal, **poles, timber** (furniture, tools), **fodder** (leaves, fruit), bee forage, **ornamental**, shade, **windbreak**.
- Description:** A deciduous tree which may reach 18 m, but usually smaller; the crown fairly open. **BARK:** **Pale cream** when young, **grey-yellow-brown** with age, corky and rough. **LEAVES:** Large, **heart-shaped to 20 cm, tip pointed**, shiny above, pale and hairy below, on a **stalk to 12 cm**. **FLOWERS:** In clusters to 30 cm long, **orange-yellow**, each flower bell-shaped. Abundant nectar attracts bees. **FRUIT:** **Orange-yellow, egg shaped to 2.5 cm**, containing a stone with 1–4 seeds inside.
- Propagation:** Seedlings, direct sowing, cuttings.
- Seed:** Germination 40–80 %. No. of seeds per kg: 2,500–3,000.
- Treatment:** Soak in cold water for 24 hours.
- Storage:** Seed can be stored for a year before losing viability.
- Management:** It is fast growing and moderately drought resistant once established. Protect young trees from livestock. Pruning, lopping, coppicing.
- Remarks:** Young trees do not compete well with weeds. Established trees compete with crops so should not be grown near cultivated land.



Z.

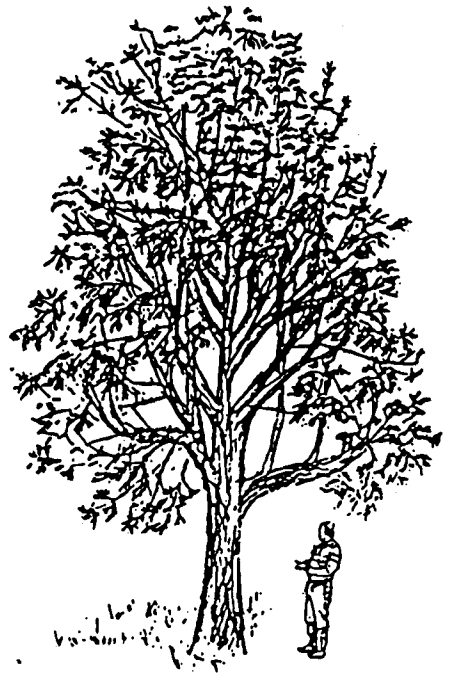
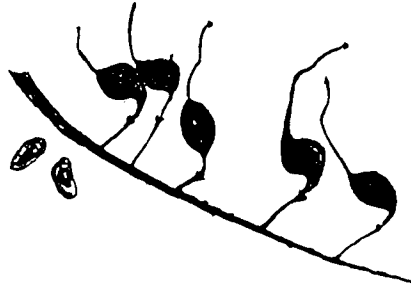
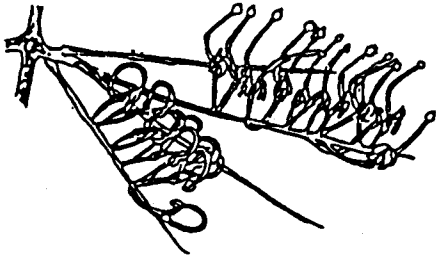


A.B.

Eastern Australia

*Eng: Silky oak*

- Ecology:** Widely planted and popular all over Africa, this tree grows on fairly well drained and neutral to acidic soils but does not tolerate waterlogging or heavy clays. Grows in Dry, Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,500–2,700 m.
- Uses:** **Firewood**, charcoal, poles, **timber** (furniture), fodder (leaves), bee forage, soil conservation, **ornamental**, **shade**, windbreak.
- Description:** A semi-deciduous tree to 20 m or more with a straight trunk and angular branches. An oval leafy crown. **BARK:** Dark grey, rough, vertically grooved. **LEAVES:** Compound, **fern-like**, **very divided**, leathery pale green above, **silver-grey below**. **FLOWERS:** Very many, in **one-sided golden-orange spikes**, much nectar which attracts bees and sunbirds. **FRUIT:** Dark brown capsule, about 1 cm, with a slender beak, splitting to set free 2 winged seeds.
- Propagation:** Wildings, seedlings.
- Seed:** The species is a prolific seeder. Seed is difficult to collect. Germination rate 30–90 %. No. of seeds per kg: 7,000–110,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored for up to three months, but this period can be extended if it is refrigerated.
- Management:** Moderate to fast growing. Pollarding, lopping, coppicing and pruning. Only young trees coppice well.
- Remarks:** It can be an important dry-season fodder. The tree grows well with food crops if managed to reduce shade, but leaves do not rot easily. The timber is hard and has an attractive grain — the red-brown colour and silky surface being like that of the true oak, *Quercus*. *Grevillea* is not recommended for woodlots.



Indigenous

**Am:** Sefa, Somaya, Teye  
**Or:** Haroresa

**Sm:** Kobesh, Komesh  
**Tg:** Aba, Dawa, Leshem

**Ecology:** A shrubby tree that occurs in nearly all regions in *Acacia* woodland, d grassland, along rivers and streams, on sandy soils and exposed rocky ground. Grows well in Most and Wet Kolla and Weyna Dega agroclimatic zones, 800–1,800 m.

**Uses:** Firewood, poles, timber (**tool handles**), food (fruit), medicine (roots, bark), **fodder** (leaves, fruit), bows, arrows, walking sticks.

**Description:** A low shrub or tree, 2–10 m, in dry deciduous woodland, produces branches from the base of the main trunk. **BARK:** Smooth when young, dotted with breathing pores; later dark, rough and scaly. **LEAVES:** Oval to oblong, pointed, 1–8 cm, **the edge finely toothed, shiny green above but pale grey-white below**, drooping in heat. **FLOWERS:** Golden yellow, sweet smelling, **small petals bent back over larger sepals**. **FRUIT:** 2-lobed or unlobed and rounded, soft, 5 mm, **orange then black, hairy at first**, edible, sweet but sharp on the tongue.

**Propagation:** Seedlings.

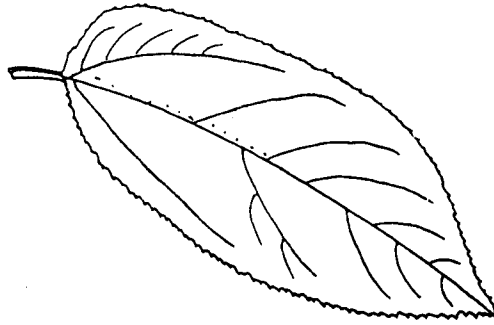
**Seed:** No. of seeds per kg: 9,000–15,000.

**Treatment:**

**Storage:**

**Management:**

**Remarks:** Slow growing. The wood is hard and strong and young branches are bendable, therefore suitable for making bows, etc.



**Indigenous****Af:** *Fo***Or:** *Bururi, Dokenu, Lensa***Am:** *Lenkoata***Sm:** *Lato***Ga:** *Gingino***Tg:** *Sankwah, Tsimkuya***Gm:** *Sakeho*

**Ecology:** A widespread shrub , found in semi-arid lowland woodland and in Dry and Moist Weyna Dega as well as Moist and Dry Kolla agroclimatic zones, 1,000–2,300 m.

**Uses:** **Firewood, timber** (local construction, farm tools), food (fruit), **fodder** (leaves), rope (bark).

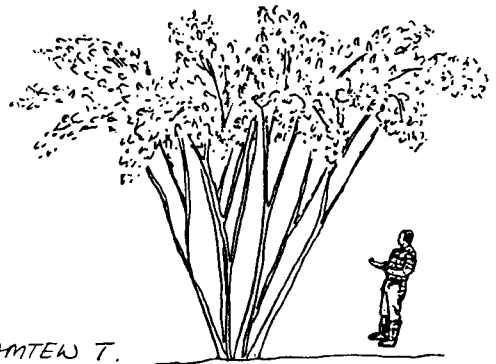
**Description:** A shrub or small tree to 7 m, young shoots, leaf and flower stalks covered with **red-brown hairs** (ferruginea = rusty). **LEAVES:** Long oval to 13 cm, the tip pointed or rounded, base often rounded to a short stalk, edge toothed, 3 veins from the base, vein network very clear below. **FLOWERS:** Yellow, purple or white, solitary or in **twos or fours, in a terminal head** about 5 cm long, the central flowers opening first, many stamens in the centre, **FRUIT:** In 4 parts, each rounded and fleshy about 5 mm across.

**Propagation:** Seedlings.

**Seed:****Treatment:****Storage:****Management:****Remarks:**



A.B.



JAMTEW T.



Indigenous

*Am: Lenquata*

*Or: Ogomdi*

**Ecology:** A shrub of the arid areas in Africa and India, often on river banks liable to flooding, or on stony ground, in the shade of larger trees. Performs well in Moist and Wet Kolla and Weyna Dega agroclimatic zones, 800–1,800 m.

**Uses:** Firewood, poles, tool handles, food (fruit), medicine (roots, bark), fodder (leaves), fibre (bark), walking sticks, bows, arrows.

**Description:** A deciduous shrub about 3 m with very distinctive leaves, young parts covered with pale silky hairs, branches purple-brown. LEAVES: Almost round to 12 cm across, on stalks to 4 cm; paler below and more hairy, 5 veins clearly seen. FLOWERS: Pink, turning yellow with age, in small clusters without stalks opposite leaves. FRUIT: Usually single, soft and hairy when ripe, red-brown, about 1 cm across, 1–2 hard seeds within each nut.

**Propagation:** Seedlings.

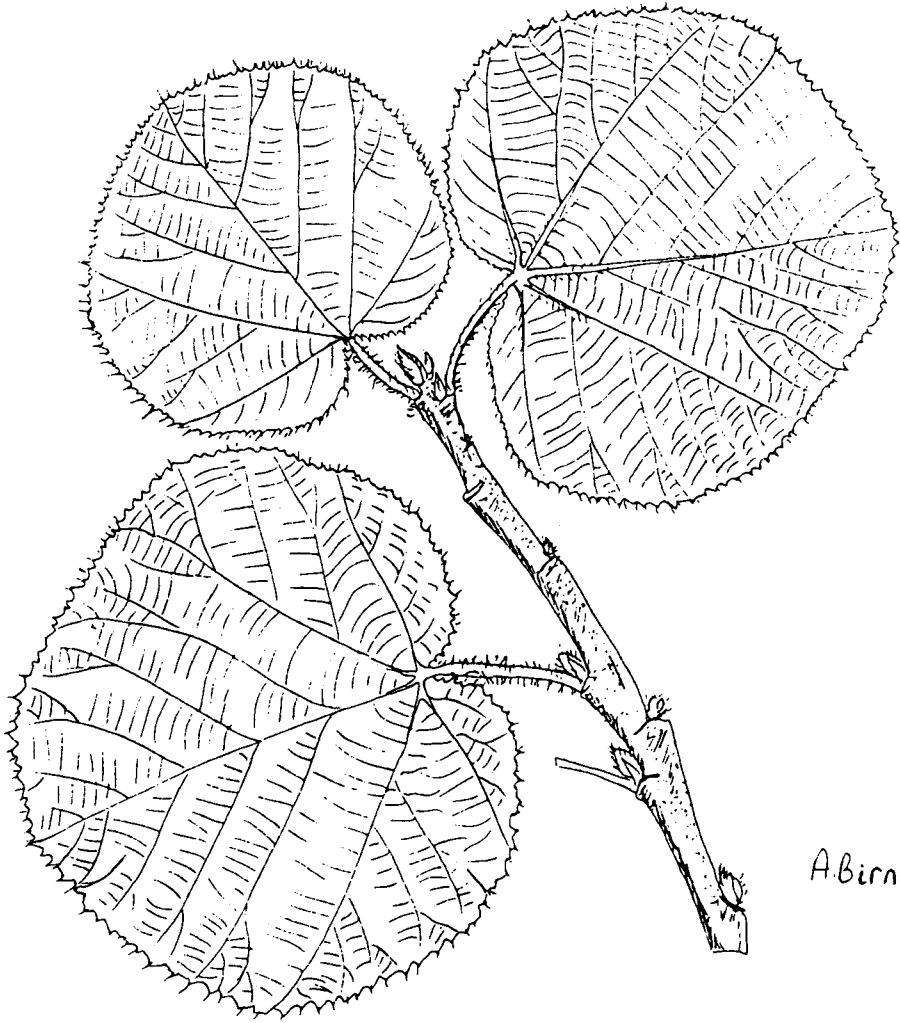
**Seed:** No. of seeds per kg: 16,000–17,000.

**Treatment:**

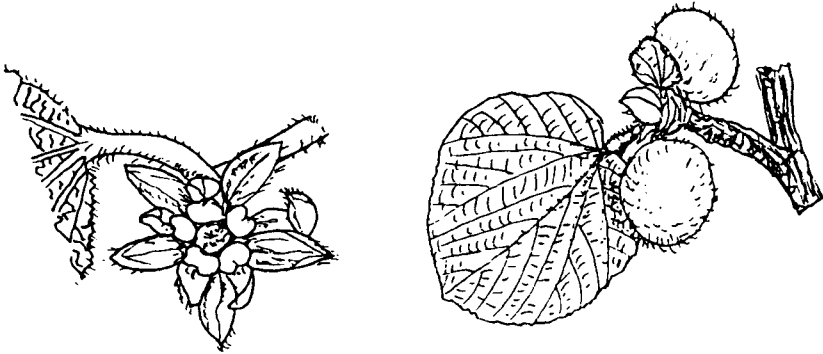
**Storage:**

**Management:** Slow growing.

**Remarks:** A much-liked sweet fruit.



A. Birnie

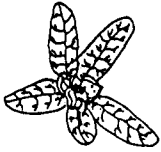


Indigenous

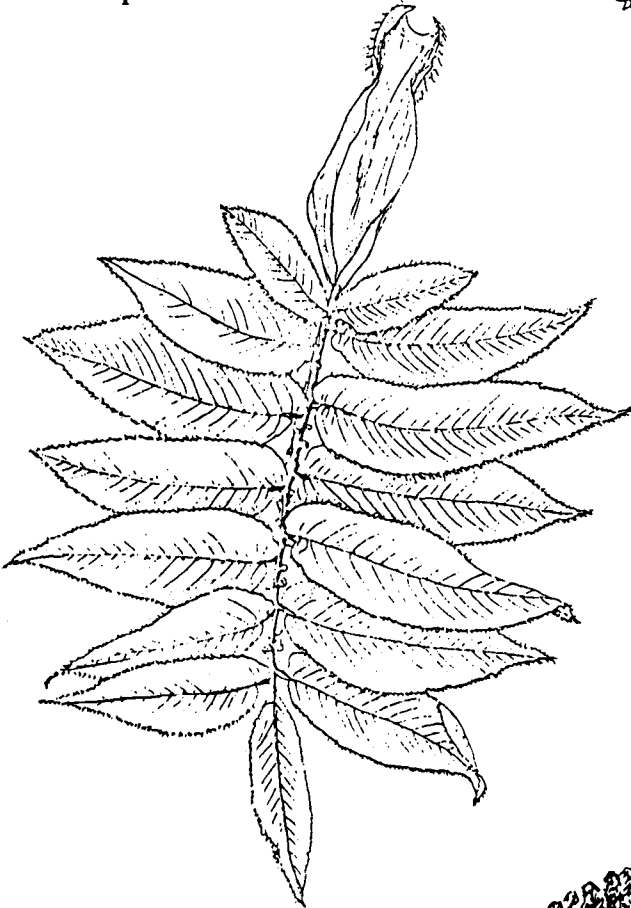
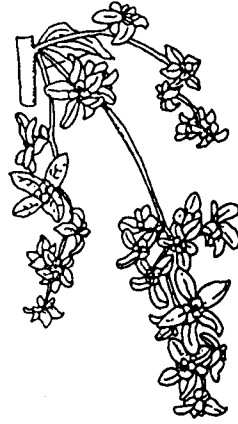
*Ag: Gora-gora*

*Am: Kosso*

- Ecology:** Formerly one of the commonest high-altitude rain forest trees in Ethiopia. Now only scattered trees remain in Moist and Wet Weyna Dega and Dega agroclimatic zones, 2,300–3,300 m.
- Uses:** Firewood, poles, **timber** (furniture, flooring, carving), **medicine** (bark, roots), mulch, green manure, soil conservation, ornamental, **firebreak**.
- Description:** A tree to 20 m with a short trunk and thick branches, the crown leafy and rounded. **BARK:** Red-brown, thick, flaking irregularly, branchlets covered in silky brown hairs and ringed with leaf scars. **LEAVES:** Compound to 40 cm in **large terminal tufts, 5–8 leaflets** on each side, leaflets bright green above, covered with **silvery hairs below**, red and sticky when young, **leaf edge toothed and fringed with hairs, stalk winged and hairy**. **FLOWERS:** In large **attractive masses to 60 cm**, female heads **pink-red**, male heads more feathery, orange-white. The sexes are on different trees. **FRUIT:** Small and dry.
- Propagation:** Seedlings, wildings.
- Seed:** Germination 40–60 % in 14–21 days. No. of seeds per kg: 400,000–500,000.
- Treatment:** None.
- Storage:** Seed stores for 6–12 months.
- Management:**
- Remarks:** The wood is dark red, hard and useful for furniture but attacked by borers. Used locally for its medicinal purposes, *kosso* from the female flowers is used as a dewormer. Not competitive with crops if managed to prevent shading. It is recommended for homestead planting for its good timber. It constantly sheds leaves forming a carpet of dried leaves below.



pink female flower



enlarged male flower

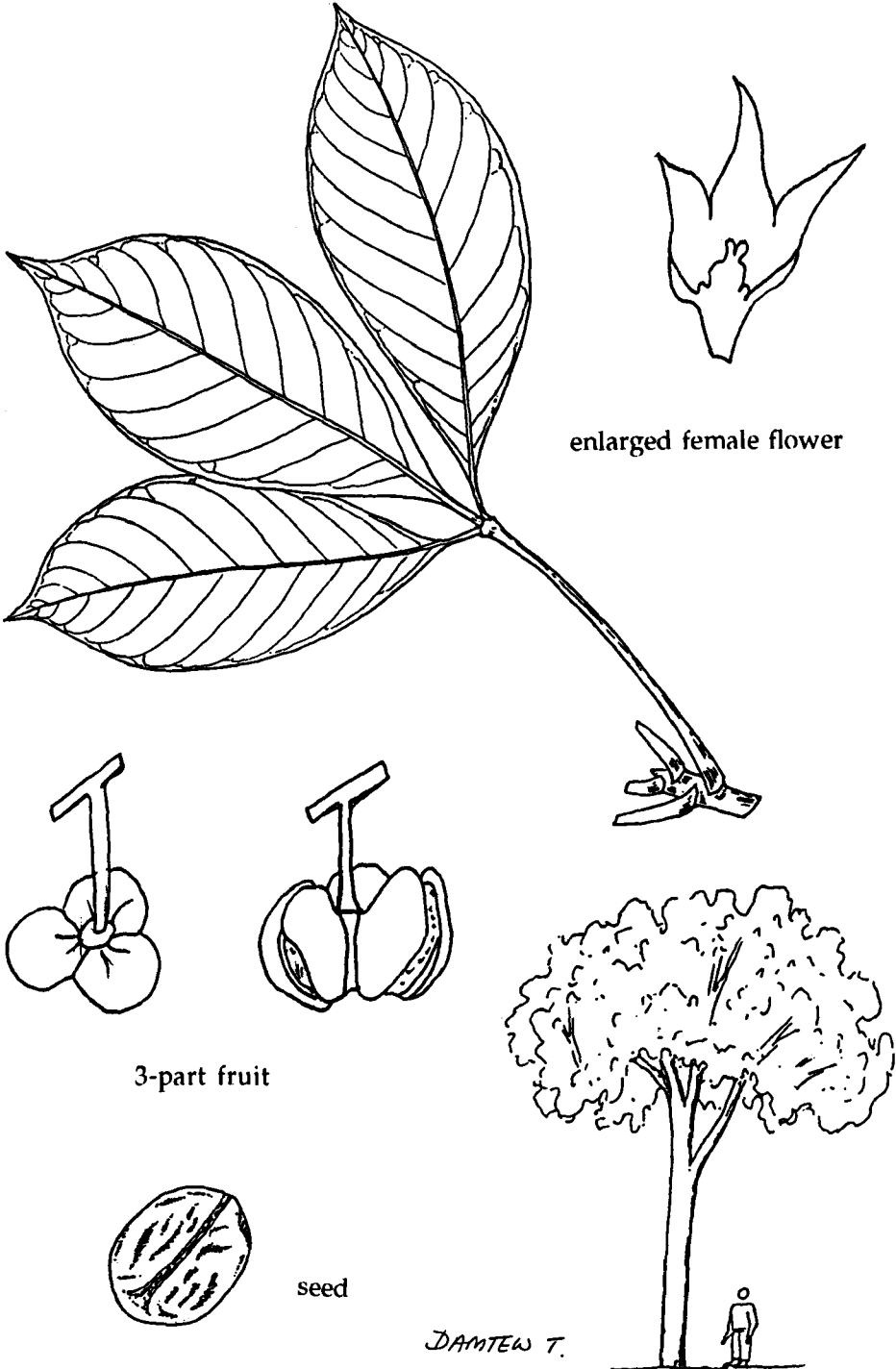


A.B.

Thailand

*Am:* *Yegoma zaf*

- Ecology:** A tree of moist and hot lowlands. In Ethiopia, it grows well in Wet Kolla agroclimatic zones.
- Uses:** Latex (white sap is tapped to obtain rubber).
- Description:** A large tree that grows up to 20 m, all parts producing white latex when cut. **BARK:** Smooth, light grey. **LEAVES:** Compound with three oval leaflets on a long stalk, each leaflet smooth and sharp tipped. **FLOWERS:** Small, in branched heads by leaves, female flowers at the tip, male at the base. **FRUIT:** Woody 3-part capsules, about 4 cm long. The dry capsule splits explosively to set free the seeds, each grey and patterned, to 3 cm long.
- Propagation:** Seedlings, cuttings.
- Seed:** No. of seeds per kg: 300.
- Treatment:** None.
- Storage:** Can be stored for 6–12 months.
- Management:** Grafting.
- Remarks:** Rubber trees need moist well-drained soil, high temperature and rainfall. The tapping is done every few days beginning when the tree is 5–7 years old and continues for many years.



enlarged female flower

3-part fruit

seed

DAMTEW T.

Indigenous

*Am: Amija*

**Ecology:** Endemic to Ethiopia, this species is found in semi-humid mountain savannah or shrub savannah in Moist, Wet and High Wurch agroclimatic zones, 3,400–4,000 m.

**Uses:** Firewood, charcoal, bee forage.

**Description:** A shrub or small tree, 3–4 m. LEAVES: Long, oval and simple, grey-green, to 7 cm long in opposite pairs, clasping the stem at the base, the tip pointed. Side veins are only seen towards the leaf base. FLOWERS: Bright yellow, rather few in terminal bunches, each to 6 cm across, with many central stamens around styles, all yellow. FRUIT: A dry brown capsule, breaking open to set free seed when ripe.

**Propagation:** Seedlings.

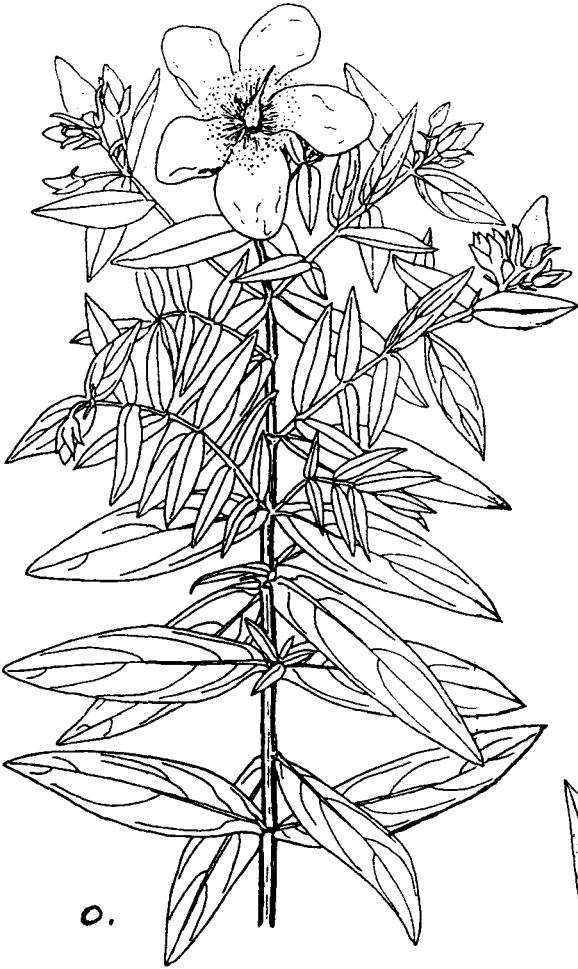
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:**





Indigenous

*Am:* Amija

*Or:* Edera, Garamba, Hendi

*Eng:* Curry bush

**Ecology:** A tall shrub of montane forest or high-altitude woodlands in Moist and Wet Dega and Wurch agroclimatic zones, 2,600–3,600 m.

**Uses:** Firewood, timber (local construction), bee forage, soil conservation.

**Description:** A shrub or tree which can reach 10 m, usually smaller. **BARK:** Red-brown and scaly. Young stems are 4-angled. **LEAVES:** Small and narrow to 4 cm long, in opposite pairs crowded along stems, green or blue-green, the tip pointed and base clasping the stem, the leaf edges sometimes rolled under ("revolutum"). **FLOWERS:** Single at stem tips, bright yellow to 5 cm across, 5 petals to 3 cm long around a central mass of stamens, sepals edged with black dots. **FRUIT:** A rounded 5-part capsule, red-brown, 1 cm across, 5 parts containing tiny seeds.

**Propagation:** Root suckers, cuttings.

**Seed:**

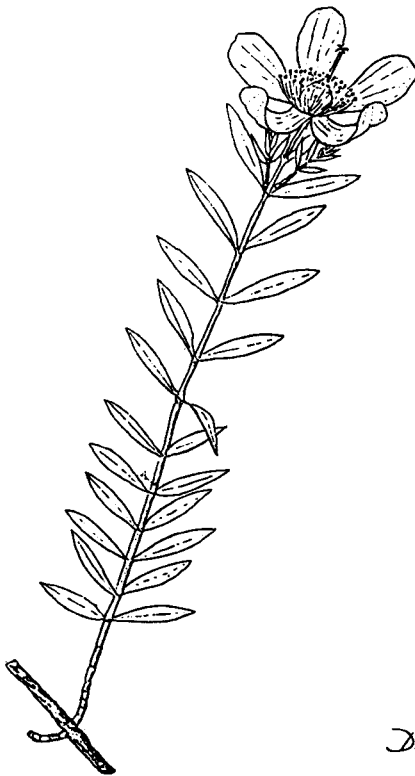
**Treatment:**

**Storage:**

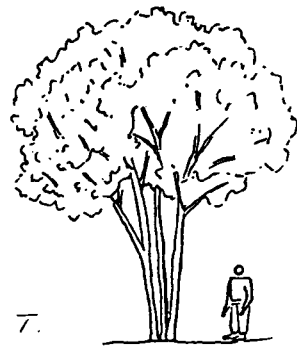
**Management:**

**Remarks:** Used in gardens elsewhere. The English name, curry bush, comes from its distinctive smell.

(*H. lanceolatum*)



DAMTEW T.



Indigenous

**Am:** Amija

**Eng:** Large-leaved St. John's wort

**Ecology:** Found in evergreen forest with bamboo or in high-altitude woodlands of Moist, Wet and High Wurch agroclimatic zones, 3,400–4,000 m.

**Uses:** Firewood, charcoal, bee forage.

**Description:** A thickly branched shrub or small tree to 3–5 m. LEAVES: Without stalks, long oval, in opposite pairs, **widely spaced along the stem, 2–8 cm long, dull green**, paler below, tip pointed. Midrib clear below, veins from the leaf base curve right to the tip. **Veins below divide leaving gland dots outlined**—seen against the sky. FLOWERS: **Bright orange-yellow** in stalked groups, **few to many**, beside leaves or terminal, each **5 cm across**. FRUIT: Dry capsules as in other *Hypericum* spp.

**Propagation:** Seedlings.

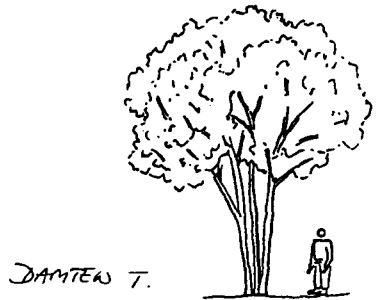
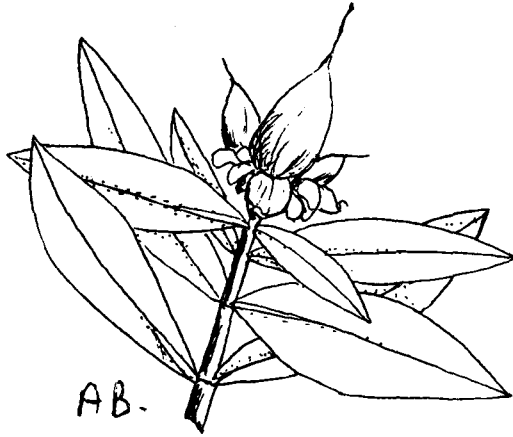
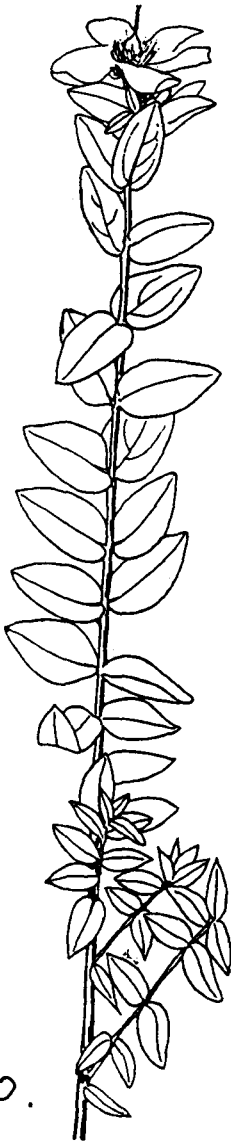
**Seed:**

**Treatment:**

**Storage:**

**Management:** Coppicing, lopping.

**Remarks:**



## Indigenous

*Am:* Zembaba            *Or:* Meti  
*Br:* Kone                *Sm:* Bar  
*Eng:* Doum palm,      *Tg:* Kambash  
                                 *Egyptian doum palm*

**Ecology:** A tree that is usually found on lowland plains and grows in Bereha and Dry and Moist Kolla agroclimatic zones, 0–1,300 m. It is often found near rivers, sometimes on rocky hills. It resists bush fires.

**Uses:** Timber, food (nuts), **baskets and mats** (leaves).

**Description:** A tree 10–15 m, easily recognized by the **regular branching** which may form up to 16 leafy heads. **LEAVES:** Fan-shaped, nearly 2 m x 1 m across on long spiny stalks. **FLOWERS:** Male and female trees. Male flowers in a leafy sheath over 1 m long. Female spike fatter, producing the fruit. **FRUIT:** Smooth, **shiny orange-brown** when ripe, like **rounded cubes** with 2 flat faces, 6–8 cm long. Edible pulp surrounds 1 white seed.

**Propagation:** Seedlings.

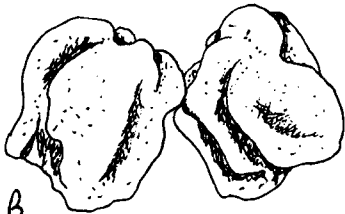
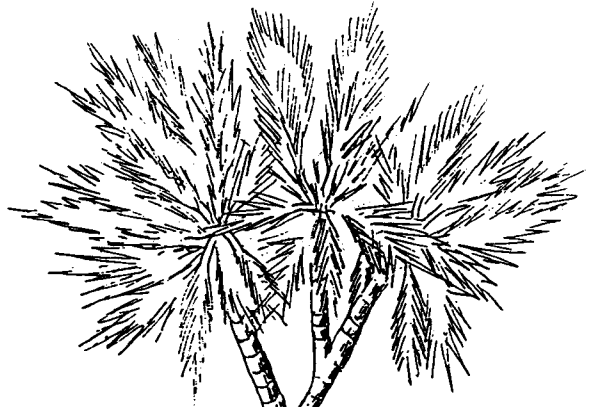
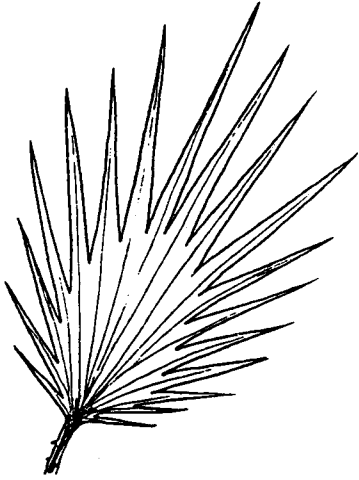
**Seed:**

**Treatment:**

**Storage:**

**Management:** Coppicing, lopping.

**Remarks:** This palm is widely used in Sudan and elsewhere and often indicates an area of good soil with shallow groundwater. A mature tree can produce 50 kg of fruit per year.



A. B.

DAMTEW T

Indigenous

**Am:** *Misir gemfo***Or:** *Hamsika, Miesa, Tilto, Wolkite***Eng:** *African holly***Sd:** *Mikichio***Kf:** *Kett***Wt:** *Misira shendira*

**Ecology:** A tree frequently occurring along river banks and stream beds, in moist evergreen forests, in semi-humid highland forests and woodlands of the central, western and eastern highlands. It is particularly associated with *Erica*, *Croton*, *Schefflera*, *Maesa*, *Podocarpus* and *Juniperus* species. It grows well in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,500–3,000 m.

**Uses:** Firewood, charcoal, timber (local construction), tool handles, farm tools, medicine (bark).

**Description:** An evergreen shrub or tree, 4–24 m, very variable. The trunk usually short but up to 1 m across. **BARK:** Pale grey-brown, smooth; branchlets with a purple colour. **LEAVES:** Dark green and shiny, long oval to 14 cm, tip pointed, narrowing to a short stalk. The middle deeply channelled into the thick leaf. The edge may have a few sharp spines. **FLOWERS:** Small, white and fragrant, on hairy stalks beside leaves. **FRUIT:** Small, berry-like, yellow-green ripening shiny red. Soft and edible with 4–6 seeds inside.

**Propagation:** Seedlings.

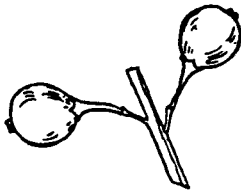
**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:** Pruning, lopping, pollarding.

**Remarks:** Used as timber, but the trunk is normally short.



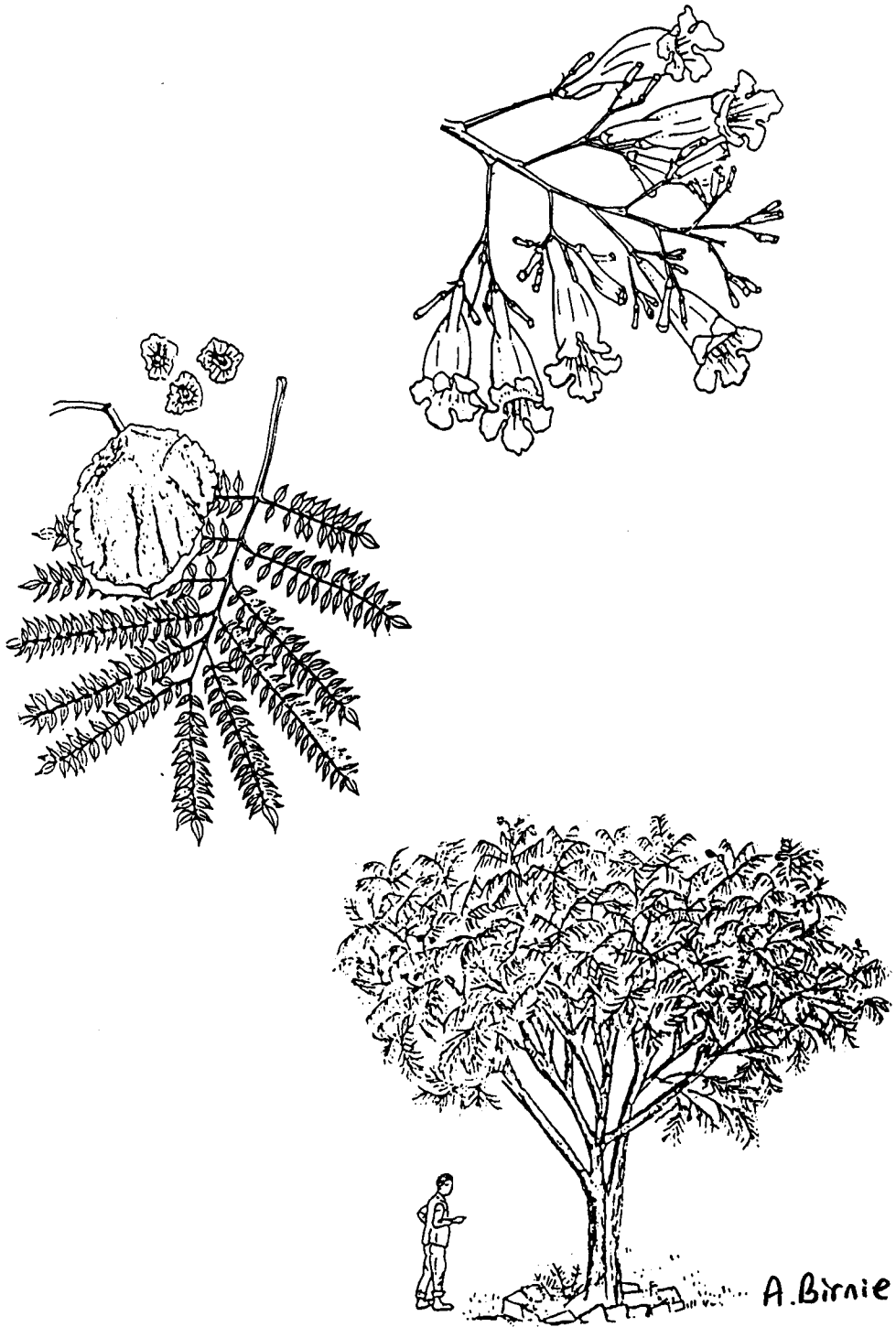
DAMTEW T.



Brazil

*Am: Yetebmenja zaf*

- Ecology:** A popular tree widely grown as an ornamental throughout the highland tropics. It grows in most soils except waterlogged ones, and is deep rooted. It prefers highland areas but can also grow in some drier ones. It grows well in Moist and Wet upper Kolla and Weyna Dega agroclimatic zones, 1,300–2,400 m.
- Uses:** Firewood, poles, timber (tool handles, carving), bee forage, **ornamental**, windbreak, **shade**.
- Description:** A deciduous tree up to 20 m with spreading branches making a light crown. **BARK:** Pale grey and smooth, rough and peeling with age. **LEAVES:** Compound and feathery on a stalk to 40 cm, up to 30 pairs of pinnae bearing the little pointed leaflets. **FLOWERS:** Striking blue-violet, in clusters, each flower bell shaped to 4 cm, usually on the bare tree before leaf growth. **FRUIT:** Rounded, woody capsules to 7 cm across with a wavy edge, brown-black when mature, splitting on the tree to set free many light winged seeds. Capsules may hang on the tree for 2 years.
- Propagation:** Seedlings, coppicing, wildings.
- Seed:** Seeds profusely. Germination rate 50–85 %. No. of seeds per kg: 63,000–80,000.
- Treatment:** Not necessary.
- Storage:** Seed does not store well. Sow fresh seed for best germination results.
- Management:** Very fast growing on good sites. Lopping, pollarding, coppicing, pruning (young trees).
- Remarks:** A greedy feeder so that few plants or crops can grow below.

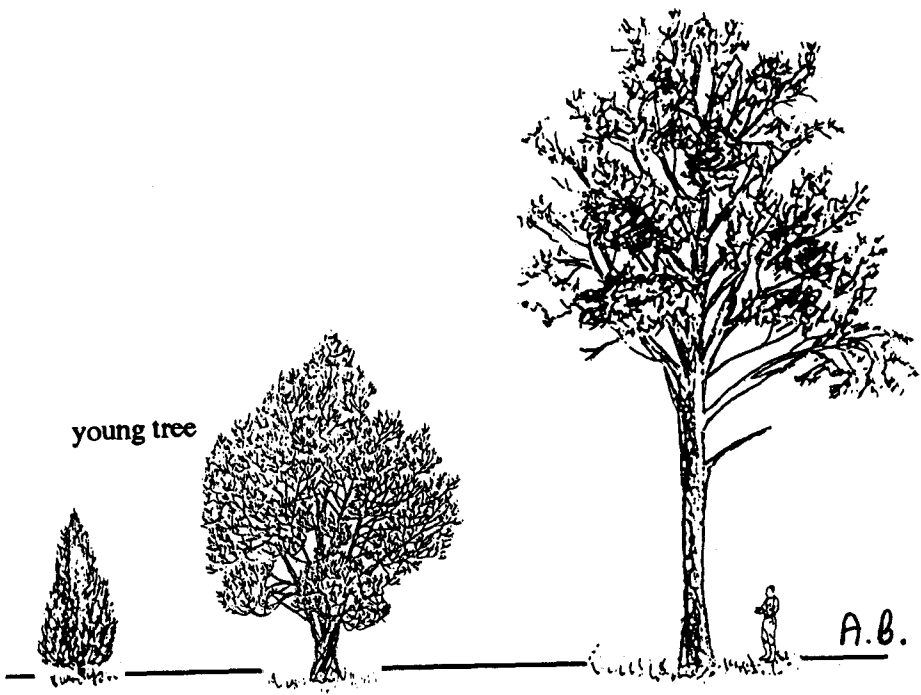
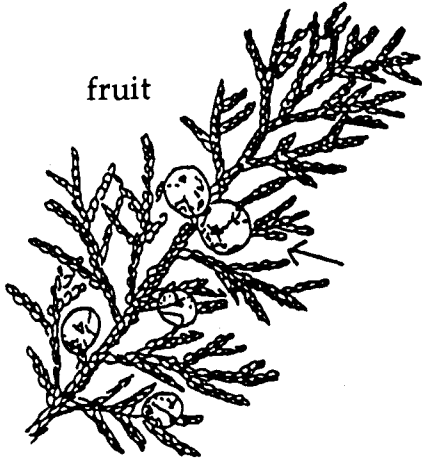


Indigenous

*Am: Tid*

*Eng: African pencil cedar*

- Ecology:** A valuable timber tree indigenous to Ethiopia and eastern Africa highland forests 1,500–3,000 m. It does best in high-rainfall areas but can survive quite dry conditions once established. It is the largest juniper in the world. It performs well in Moist and Wet Weyna Dega and Dega agroclimatic zones.
- Uses:** Firewood, poles, posts, timber (floors, roof shingles, pencils, joinery), medicine (bark, leaves, twigs, buds), ornamental, shade, windbreak.
- Description:** An evergreen tree about 40 m with a straight trunk, although often fluted. A pyramidal shape when young. The foliage is finer and more open than cypress. BARK: Thin grey-brown, grooved and peeling with age. LEAVES: Prickly, young leaves to 1 cm, soon replaced by scale-like mature leaves, blue-green, triangular and closely overlapping on the branchlets. FRUIT: Male cones small and yellow with pollen, female purple-blue fleshy "berries" about 8 mm, the pulp containing 1–4 hard seeds.
- Propagation:** Seedlings, wildings—often numerous.
- Seed:** Germination rate 20–30%. No. of seeds per kg: 40,000–50,000.
- Treatment:** Not necessary.
- Storage:** Up to a year if stored in a cool, dry place.
- Management:** Fairly fast growing in the open but otherwise slow. Prune and thin trees for timber and poles.
- Remarks:** Litter fall from this tree makes the soil acid so it should not be grown with crops. It regenerates well and deserves high priority in reafforestation. The wood is termite resistant. The tree is now rare due to over-exploitation. Although belonging to the cypress family, this subgroup has no dry cones like *Cupressus*.



(*Adhatoda schimperiana*)

Indigenous

**Ag:** *Lili*                      **Or:** *Dumuga, Tumuga*  
**Am:** *Sensel*                **Sd:** *Choke*  
**Gr:** *Sensel*                **Tg:** *Suda*  
**Km:** *Gilbana*

**Ecology:** A common shrub in dry evergreen woodlands in Dry and Moist Weyna Dega and Moist Dega agroclimatic zones, 1,500–2,800 m.

**Uses:** Firewood, live fence.

**Description:** A leafy shrub up to 4 m, the stem brittle and breaks easily. **LEAVES:** Simple and opposite, long oval to 13 x 4 cm, tip pointed, narrowed to a short stalk. **FLOWERS:** In conspicuous terminal heads on long stalks seen clearly above the leaves, each small flower lies inside a green-yellow leafy bract 1.5 cm long, its edge clear and membranous, flowers white or yellow-white, tubular to 3 cm long, 2-lipped with dark purple throat or lines on the lip. **FRUIT:** A capsule, narrowed at the base, containing 4 seeds, surface rough.

**Propagation:** Seedlings; but usually propagated by cuttings.

**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:** Lopping.

**Remarks:** It used to be known as *Adhatoda schimperiana*. The wood is commonly used for baking injera.

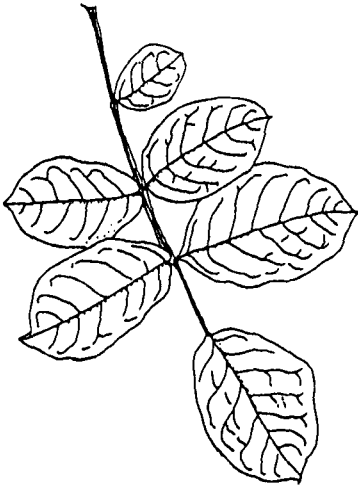
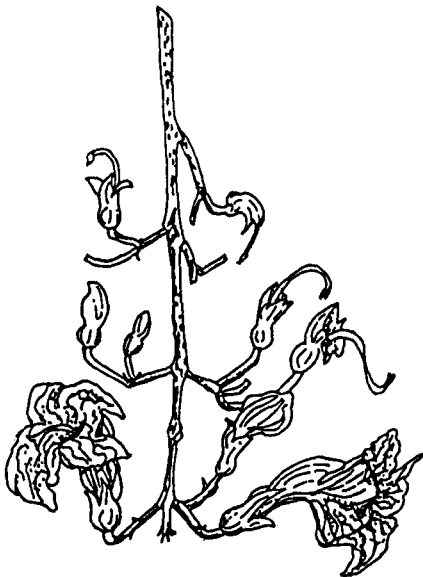


(*K. aethiopum*, *K. pinnata*)

Indigenous

*Eng: Sausage tree*

- Ecology:** Widespread in Africa, found in wet savannah and along rivers in arid areas of Moist and Wet Kolla and Bereha agroclimatic zones, 0–1,850 m.
- Uses:** Firewood, timber (dugout canoes, yokes), fodder (flowers), medicine (fruit, bark), dye (boiled fruit), local honey beer (fruit).
- Description:** A semi-deciduous tree with a rounded crown, to 9 m in open woodland but 18 m beside rivers. BARK: Grey-brown, smooth, flaking in round patches with age. LEAVES: Compound, growing in threes, at the end of branches, few leaflets, each broadly oval, very rough and hard, up to 10 cm, often with a sharp tip, edge wavy. FLOWERS: On long rope-like stalks 2–3 m. Horizontal, reddish branches, in threes, bear upturned trumpet flowers, petals folded and wavy, dark maroon with heavy yellow veins outside, an unpleasant smell. FRUIT: Large grey-green "sausages", 30–60 cm long. Hanging stalks remain on the tree. Several kilos of fibrous pulp contain the seeds—only released when fruit rots on the ground.
- Propagation:** Seedlings.
- Seed:** Not a prolific seeder. Poor germination rate and slow to germinate. No. of seeds per kg: 3,400–6,000.
- Treatment:** Not necessary.
- Storage:** Seed should not be stored.
- Management:** Slow growing.
- Remarks:** Unripe fruit are poisonous. The tree is not competitive to crops.





Indigenous

*Am: Hina*

*Eng: Henna*

**Ecology:** A shrub widely distributed in northern, western and central Africa. Grows mainly along river courses and in semi-arid parts.

**Uses:** Medicine, dye (leaves), perfumes, thatching, carriers for donkeys, ornamental, fodder (leaves).

**Description:** A shrub or small tree to 4 m, sometimes spiny. **LEAVES:** Small and oval, about 2–3 cm, opposite, often on short spine-tipped branchlets. **FLOWERS:** White, in long branching heads, sweet scented. **FRUIT:** Small brown capsules, splitting into 4 parts.

**Propagation:** Seedlings, cuttings.

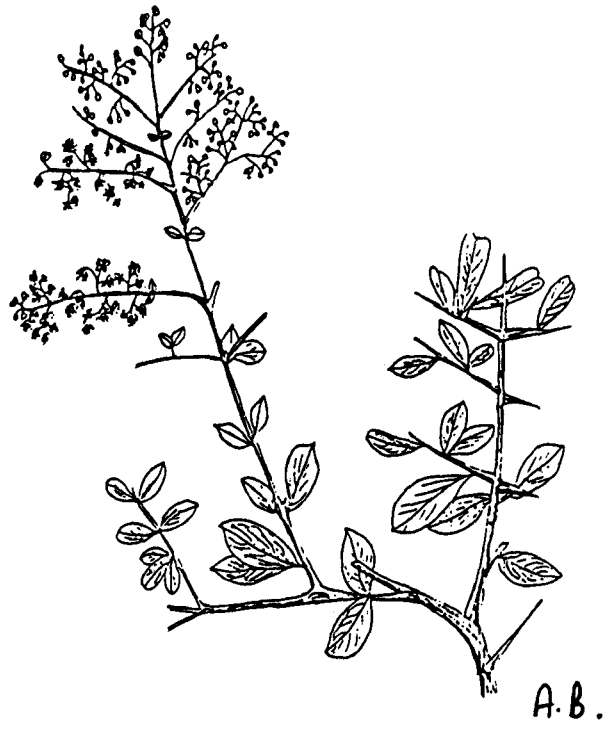
**Seed:**

**Treatment:**

**Storage:**

**Management:** Slow growing.

**Remarks:** The plant produces a volatile oil with a pleasant odour. An orange-red dye extracted from leaves and young shoots is used to dye clothes and leather, to decorate nails and skin of women, as well as to colour and condition hair (henna). The dye is released by using citric or tartaric acid, lemon juice or tea. The fruit and flowers attract birds, and antelope browse the leafy branches.

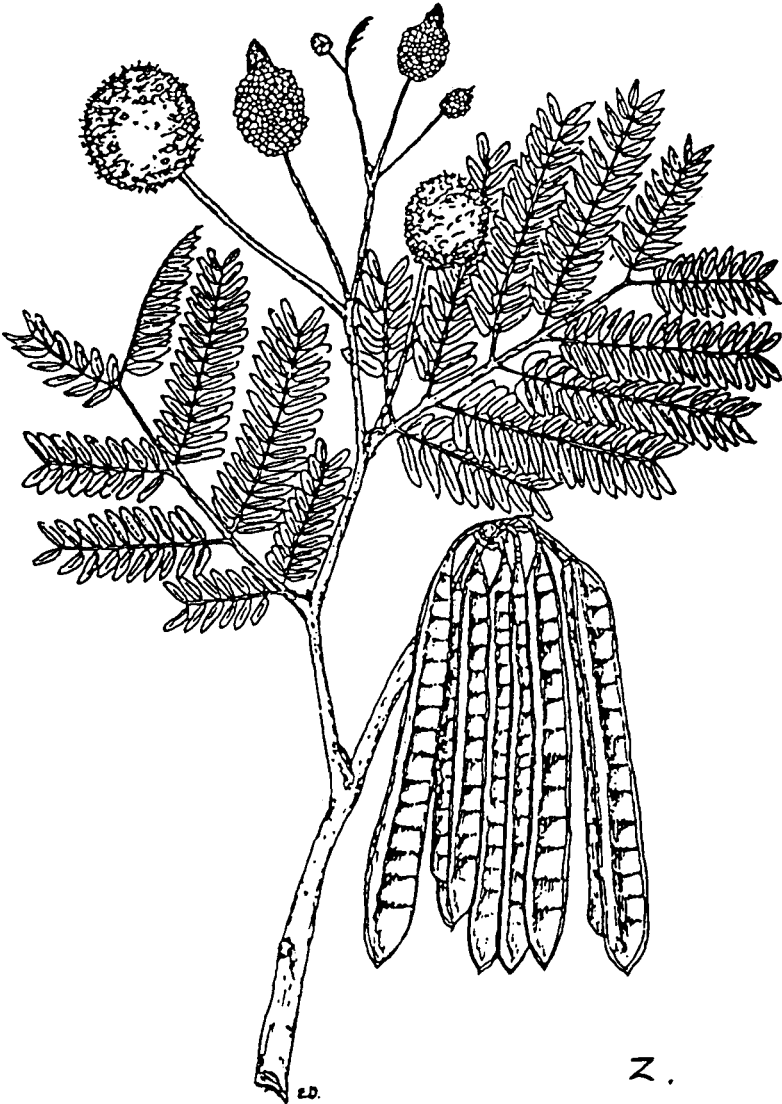


enlarged fruit

Central America

*Am: Lukina*

- Ecology:** Widely introduced in the tropics over the last 100 years, reaching Africa in 1950. Grows best in humid Bereha and Moist and Wet Kolla agroclimatic zones between 0 and 1,600 m altitude in full sunlight on well-drained neutral or calcareous soil. It does not tolerate acidic soils or very dry places.
- Uses:** **Firewood, charcoal, poles, timber** (from giant types), fodder (leaves, shoots), bee forage, green manure, soil conservation, **soil improvement, nitrogen fixation, ornamental, live fence.**
- Description:** An evergreen shrub or tree 5–20 m, depending on the variety, medium leafy canopy, develops a deep tap-root even as a seedling. **LEAVES:** Compound alternate with many **leaflets, each thin and pointed to 1.5 cm.** Leaves and leaflets fold up with heat, cold or lack of water. There is a conspicuous round mark on the leaf stalk just before the leaflets. **FLOWERS:** **White, round heads about 2 cm** across on a long stalk from the leaf axil. **FRUIT:** Numerous bunches of **thin, dry pods 10–15 cm,** persisting on the tree, releasing 12–25 hard, **shiny brown seeds.**
- Propagation:** Seedlings, direct sowing.
- Seed:** The species is a prolific seeder. Germination rate 50–85%. No. of seeds per kg: 13,000–34,000.
- Treatment:** Soak in hot water for two minutes.
- Storage:** Seed can be stored for long periods if kept dry and insect free.
- Management:** Very fast growing. Lopping. It coppices well.
- Remarks:** The many varieties have been classified into three types, and preferably the giant types (K8 and K28) should be used. The tree is a potential weed due to prolific seed production and aggressive root system, especially in hot, humid conditions. Mimosine in the leaves can cause hair loss and stomach problems in livestock. Total feed should not contain more than 20% of *Leucaena*. Root nodules are very active in fixing nitrogen under suitable conditions.



Indigenous

*Am:* Kelawa

*Or:* Abeyi

**Ecology:** Occurs on mountain slopes with *Acacia*, *Carissa*, and *Euclea*. It has been observed in Debre Marks and Yogof state forests at altitudes of 2,400–2,800 m. It grows well in Moist and Wet Weyna Dega and Dega agroclimatic zones.

**Uses:** Firewood, baking bread (leaves), **medicine** (fruit), **live fence**.

**Description:** A shrub or small tree about 5 m. **BARK:** Grey-brown, rough. Pale dots of breathing pores on branchlets. **LEAVES:** Simple, **wide oval**, usually up to 10 cm long, shiny green above, **pale below**, thick and leathery, the edge **well toothed**, **tip pointed**, a leaf stalk 2–3 cm, often yellow. **FLOWERS:** **Tiny cream-white**, in fragrant branched heads to 10 cm beside leaves; stalks and calyx hairy. **FRUIT:** Very small, round, **white and fleshy**, **topped by the flower remains**. Small black seeds inside.

**Propagation:** Seedlings.

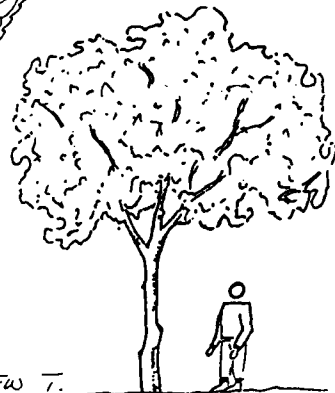
**Seed:** Prolific seeder.

**Treatment:** Not necessary.

**Storage:**

**Management:** Lopping, coppicing.

**Remarks:**



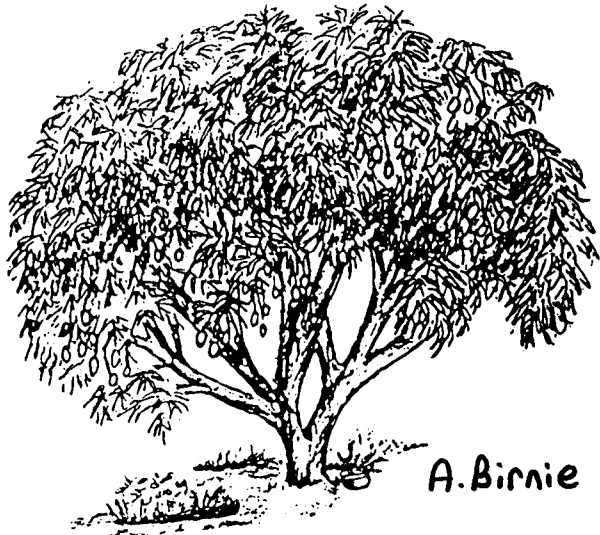
DAMTEW T.

Northern India, Burma

*Am:* Mango

*Eng:* Mango

- Ecology:** A tree widely cultivated in warmer areas of Dry, Moist and Wet Kolla agroclimatic zones, It does not tolerate flooding and prefers sandy-loamy soil which is well drained, but it can do quite well in dry areas. Roots penetrate deeply so rocky subsoil should be avoided. The extensive shallow roots collect water and nutrients in upper soil levels. Does well from 500 to 1,800 m.
- Uses:** Firewood, fodder (leaves), **food** (fruit), bee forage, ornamental, **shade**, windbreak, soil conservation, gum.
- Description:** A densely leafy evergreen tree with a trunk soon branching to a rounded crown, usually 10–15 m. **BARK:** Dark brown, cracking with age. **LEAVES:** Dark green, crowded at the ends of branches, to 30 cm long, smelling of turpentine when crushed. Young leaves soft, **copper-coloured** and **hanging limply**. **FLOWERS:** Numerous and small in **pink-brown pyramidal heads**. Pollination by flies and other insects. **FRUIT:** **Fleshy, 8–15 cm, the skin green-red-yellow**, the flattened "stone" is fibrous and woody around the large seed.
- Propagation:** Seedlings, direct sowing, grafting.
- Seed:** Germination rate 60–90 %. No. of seeds per kg:  $\pm 50$ .
- Treatment:** Not necessary, but nicking the hard seed coat helps germination.
- Storage:** Seed can be stored for only one month at room temperature. For best results, fresh seed should be used.
- Management:** Lopping, grafting. For quicker growth and early production of fruits, grafted material should be used.
- Remarks:** Good varieties have fruits with a good flavour and little fibre. Relatively few flowers are pollinated but even so up to 1,000 fruit develop on a mature tree. Each one has a large seed surrounded by golden juicy flesh, rich in vitamins A and C.





Indigenous

*Am: Butigi*

*Or: Butugi, Gajo*

**Ecology:** A tree that grows in lower forest with *Olea* spp. and in humid highland forest with *Aningeria* spp. in the top storey. Found in all Weyna Dega and lower altitude Dry, Moist and Wet Dega agroclimatic zones, 1,600–2,600 m.

**Uses:** Firewood, timber (local use, heavy construction), farm tools, tool handles, food (fruit).

**Description:** A tall forest tree to 50 m, the bole straight and slender, buttressed at the base, the crown dense and spreading. BARK: Rough, grey-brown, grooved. A cut shows bright red fibres and white latex slowly drips out, becoming sticky. LEAVES: At the end of branchlets, ovate, narrow or wide 7–20 cm long, leathery, dull above and grey below where the midrib alone stands out, tip rounded or notched, edge wavy, narrowed to a stalk 2–3 cm long. FLOWERS: White and fragrant, quite small, in groups beside leaves, calyx and stalks with white hairs. Petals and sepals appear numerous, in whorls of 3 (typical Manilkara). FRUIT: Round, yellow-brown berry to 2 cm across, 4–5 brown seeds inside, edible flesh.

**Propagation:** Seedlings.

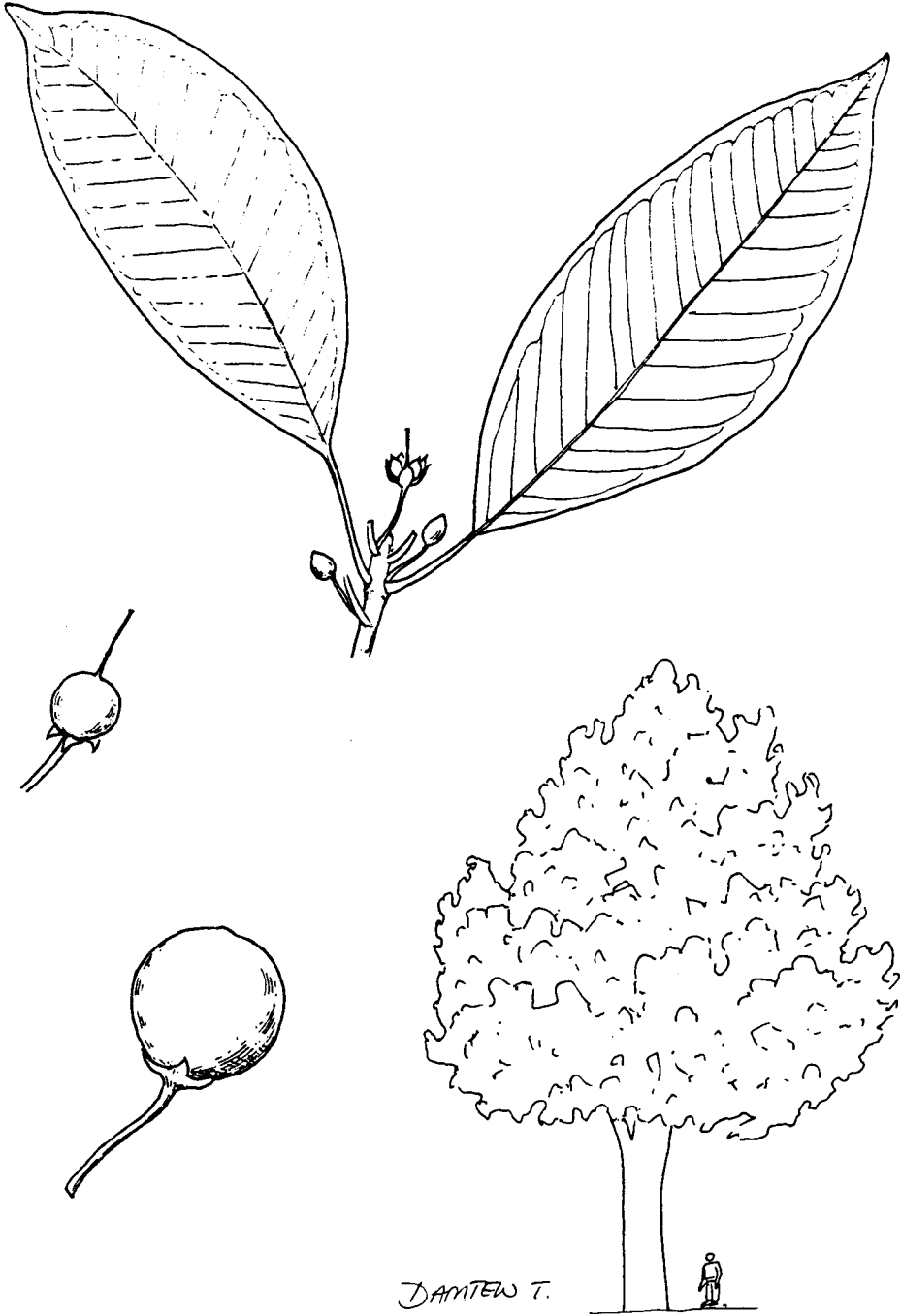
**Seed:** No. of seed per kg: 3,000–4,000.

**Treatment:** Soak in cold water for 12 hours.

**Storage:** Stores well.

**Management:** Pruning.

**Remarks:** The wood is very hard to saw and often has rot in the heartwood, tending to split with nailing, but very strong and durable. It has been used for flooring, spear shafts, building and electric poles. As it does not rot in water, it has also been used for boat and bridge construction.



**Indigenous**

**Am:** *Botoro*

**Or:** *Buturu*

**Ecology:** A tree which is common in high-rainfall areas, forest edges and in river valleys to 2,000 m. It will stand acid heavy clay soil but not waterlogging. It prefers red loam and has deep roots. It occurs in Moist and Wet Kolla and the lower Weyna Dega agroclimatic zone.

**Uses:** Firewood, charcoal, poles, posts, timber, tool handles, medicine (leaves), bee forage, **shade**, mulch, soil conservation, **ornamental**.

**Description:** An upright evergreen tree with a narrow irregular crown, usually 10–15 m. **BARK:** Light brown, finely cracked. **LEAVES:** Compound, often in bunches, thin and wavy, each leaflet to 10 cm, wider at the tip. Often round leafy outgrowths at the base. **FLOWERS:** **Bright yellow** clusters, each trumpet shaped, orange-red stripes in the throat, buds furry, splitting on one side. **FRUIT:** **Long thin capsules, to 75 cm**, hang in spiralling clusters, split on the tree to release many flat winged seeds. Mature seed is yellow-white, prematurely collected seed turns black.

**Propagation:** Seedlings, wildings.

**Seed:** The tree is a prolific seeder throughout the year. High seed germination rate. No. of seeds per kg:  $\pm 75,000$ .

**Treatment:** Not necessary.

**Storage:** Seed does not store well. Sow fresh seed.

**Management:** Fast growing.

**Remarks:** The wood is fairly termite resistant.



Indigenous

**Am:** *Atat***Or:** *Combolcha***Gr:** *Atat***Tg:** *Atat*

**Ecology:** A shrub that occurs in forests and on forest edges, grasslands and river banks. It is widespread in Ethiopia. It performs well in Dry, Moist and Wet Kolla, Dega and Weyna Dega agroclimatic zones, 1,200–3,000 m.

**Uses:** **Firewood, farm tools, fodder (leaves), live fence, fencing (thorny branches).**

**Description:** A shrub usually 1–3 m or a small tree to 12 m. **Sharp spines 4–7 cm long.** The grey to dark brown branches may be hairy and dotted with white breathing pores. **LEAVES:** Alternate, sometimes growing out of spines, quite variable, **hard or leathery**, oval to round, usually to 6 cm long, shortly stalked, **the edge with small rounded teeth.** **FLOWERS:** White, very small in heads on hairy stalks, 5 petals in each flower. **FRUIT:** A dry 3-part capsule, only 8 mm across, green-purple, but **red when mature**, opening to set free **1–4 seeds**, each **shiny orange-brown** with a **small aril** at the base, soft and folded, white-pink, **ripening purple.**

**Propagation:** Seedlings.

**Seed:** A prolific seeder.

**Treatment:** Not necessary.

**Storage:**

**Management:**

**Remarks:** Planted as a fence on farms.



DANTEW T.



seed with aril



fruit capsule enlarged

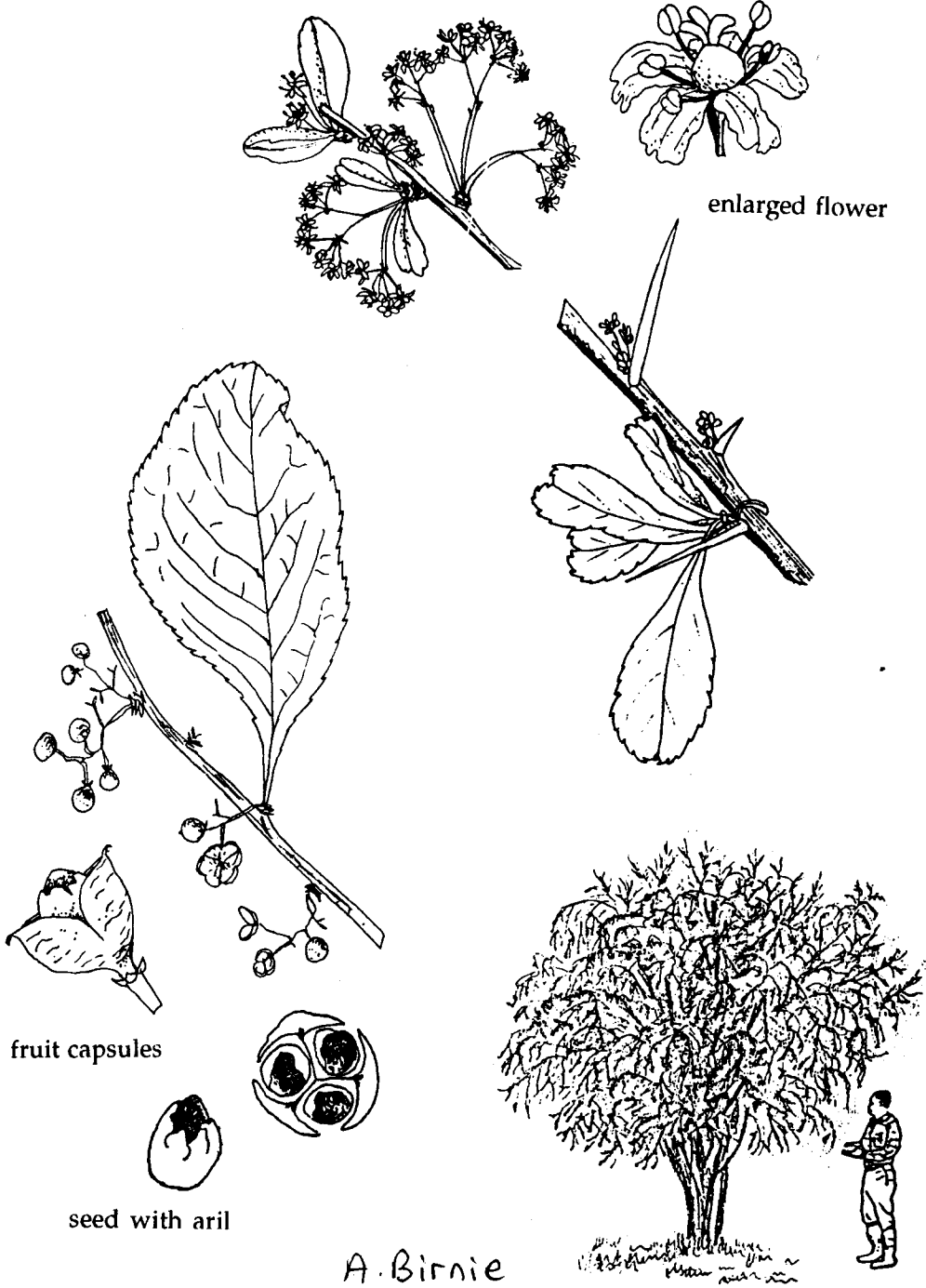
**Indigenous**

**Am:** *Gogoba, Gulo, Nech atat, Yedega atat*

**Or:** *Kombolcha*

**Tg:** *Argti, Argwidi, Tsililo*

- Ecology:** A shrub common in open woodlands and bushlands, usually in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 300–2,400 m.
- Uses:** Firewood, medicine (roots, leaves, bark), live fence, fence (spiny branches).
- Description:** Usually a shrub, but can be a tree to 8 m high, the trunk straight with drooping branches and many sucker shoots, either with or without spines. **BARK:** Trunk grey, rough and thick, vertical grooves; spines to 1–5 cm, often bunched together, on smooth red or grey-green branches which have no hairs or dots. **LEAVES:** Alternate or in clusters, smooth, often fleshy, variable in shape, oval, the tip often wider than the base, 3–12 cm long, the edge finely round toothed, the short stalk and midrib often pink. **FLOWERS:** White-cream-green in dense stalked clusters about 4 cm across, sweet scented, often covering the tree. **FRUIT:** A 2- or 3-part capsule, green then red, round, to 6 mm, 1–2 shiny red-brown seeds, more than half covered by a soft white aril.
- Propagation:** Seedlings.
- Seed:** Prolific seeder; seeds usually dispersed by birds.
- Treatment:** Not necessary.
- Storage:**
- Management:** Lopping, trimming tops and sides to produce a good live fence.
- Remarks:** This is a common shrub which has many uses as a local medicine. The wood is yellow-white, hard and durable.





**Indigenous****Am:** *Geram atat***Or:** *Chucho, Ilka, Kombolcha, Ilka***Sm:** *Degemut, Sarad, Tseligniya***Tg:** *Tselimo*

**Ecology:** A shrub that occurs in forests, forest margins, woodlands and stony areas of Eritrea, Tigray, Gonder, Gojam, Wolega, Shewa, Harerge, Arsi, Kefa, Gamo Gofa, and Sidamo regions. Performs well in Dry and Moist Kolla and Weyna Dega as well as Moist and Wet Dega agroclimatic zones, 300–3,100 m.

**Uses:** **Firewood**, timber (local construction), farm tools, medicine (roots), **live fence**, ornamental.

**Description:** Usually a **spineless shrub** 2–3 m, but may be a well-branched tree to 10 m. **BARK:** Grey-brown, smooth, later finely grooved. The branches have **no hairs or spines**. **LEAVES:** Thinly leathery and shiny, **oval to circular**, 3–13 cm long, the **edge toothed**, narrowing to a short stalk. **Alternate**, **rarely grouped together**. **FLOWERS:** Yellow-green in small heads of 2–10 flowers, only 1 cm long. **FRUIT:** Small red capsules, in 3 parts. Shiny orange-brown seeds **half covered by a thin aril, orange and soft**.

**Propagation:** Seedlings.

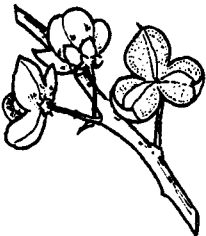
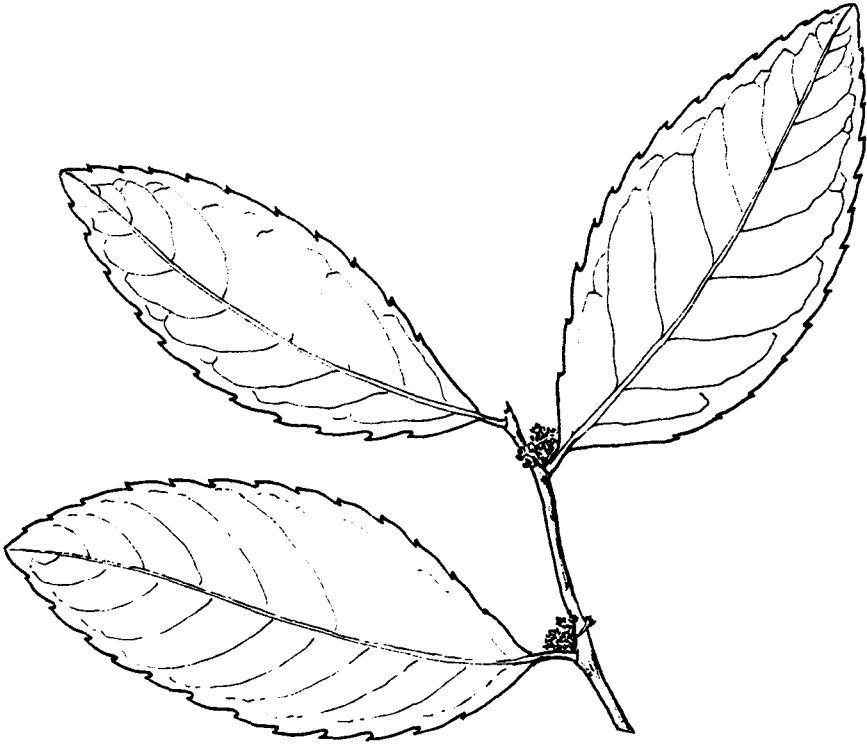
**Seed:**

**Treatment:** Not necessary.

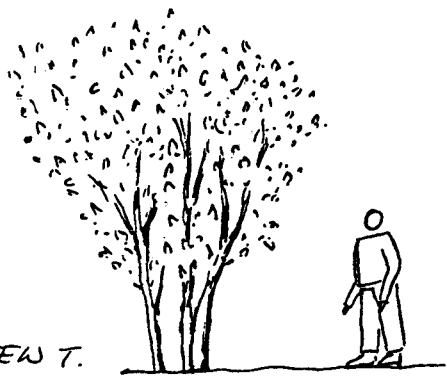
**Storage:**

**Management:**

**Remarks:** The wood is red and heavy. The trees grow easily from seed or cuttings and make a good evergreen hedge.



seed with aril

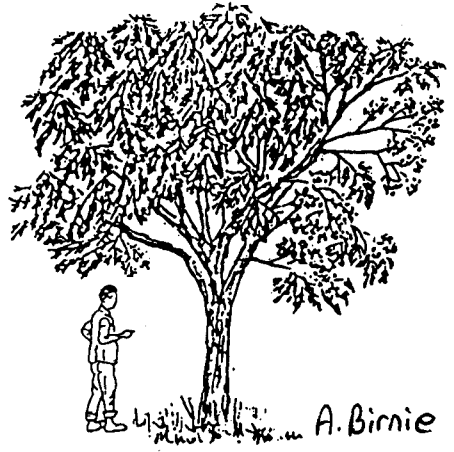


DAMTEW T.

Western Asia, Himalayas

*Eng: Persian lilac*

- Ecology:** Grows in most soils, both acidic and saline, in Bereha and Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 0–2,400 m. It grows in most soils, both acidic and saline, and is fairly drought resistant.
- Uses:** **Firewood, poles, posts, timber** (tool handles), medicine (bark), bee forage, **ornamental**, shade, windbreak.
- Description:** A small tree 5–6 m, but can reach 10 m, usually deciduous, with a thin trunk. **BARK:** Grey, smooth, later rough and brown, branchlets dotted with breathing pores. **LEAVES:** Compound, on branched stalks, **to 40 cm long**, up to 6 pairs of pinnae and **3–9 leaflets**, each one bright shiny green, narrow to 8 cm, the **edge irregularly toothed, the tip long and pointed**. **FLOWERS:** Fragrant in large **rounded clusters** to 25 cm, each flower with 5 pale purple-white petals and a **dark purple centre**. **FRUIT:** Fleshy yellow-orange, oval to 1.5 cm, persisting on the bare tree. Each fruit contains a **stone** with 4–6 dark brown seeds inside.
- Propagation:** Seedlings, wildings, direct sowing, coppicing.
- Seed:** A prolific seeder. High germination rate: several seedlings germinate from each stone. No. of seeds per kg: 500–3,000.
- Treatment:** Not necessary.
- Storage:** Seed can be kept for some time if stored in a cool place.
- Management:** Fairly fast growing. Pollarding, lopping, coppicing, pruning.
- Remarks:** The berries are extremely poisonous to human beings, livestock and poultry. Leaves are not browsed by livestock. The tree is moderately termite resistant and provides quick shade and building poles. In good conditions it grows so many suckers that it may become a weedy nuisance.



Indigenous

Kf: *Gonji*

**Ecology:** A deciduous tree of lowland forest with *Anningeria altissima* and sometimes left in fields or villages. It is a forest pioneer and coppices and regenerates well. It grows in Moist and Wet Kolla agroclimatic zones of Ilubabor and Kefa regions, 500–1,000 m.

**Uses:** Firewood, charcoal, timber (furniture), mulch, ornamental, shade.

**Description:** Old trees may have a straight trunk clear to 21 m and 2 m in diameter, reaching up to 50 m, the small umbrella crown growing from a few thick branches. BARK: Thick, pale grey then brown, with milky latex, as in all parts. LEAVES: Long, oval to 18 cm, rather thin to a well-pointed tip, 10–18 pairs of clear side veins, the base somewhat rounded, often unequal sided, stalk to 4 cm, leaf edge finely toothed and wavy. FLOWERS: Male and female trees, both with small flowers in green spikes, male flowers in drooping catkins to 15 cm, female shorter and thicker. FRUIT: Like a long green mulberry 6–7 cm, the loose fleshy pulp attracting birds and bats. Small hard seeds lie in the pulp. Fruits ferment rapidly on the ground.

**Propagation:** Seedlings, wildings, direct sowing.

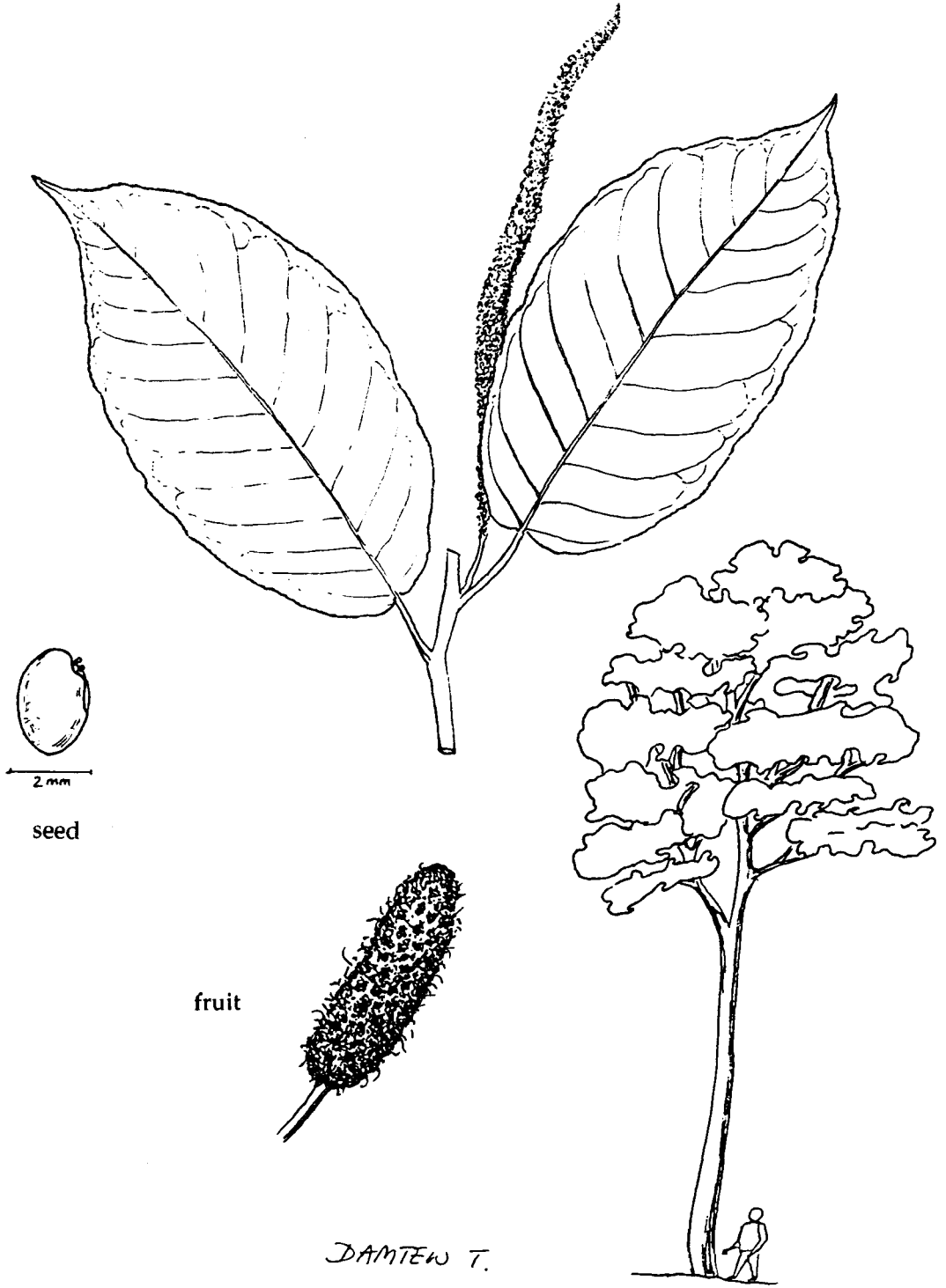
**Seed:** No. of seeds per kg: 250,000–1,000,000.

**Treatment:** Not necessary.

**Storage:**

**Management:** Pruning, coppicing.

**Remarks:** *Phytoma* spp. cause galls and shoot deformation to this tree. The wood is termite resistant. The valuable timber has been used for houses, flooring, boats, etc., but especially for quality furniture.



DAMTEW T.

**Indigenous****Am:** *Birbira***Or:** *Asra, Dedatu, Ingidicho, Sotellu***Gr:** *Birbira***Tg:** *Birbira*

**Ecology:** A tree confined to Ethiopia (endemic), found in upland forests, rain forests and forest remnants in Shewa, Tigray, Kefa, Sidamo, Ilubabor, Gojam, Wolega, Bale, Harerge and Gonder regions. It performs well in Moist and Wet Kolla as well as Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,000–2,500 m.

**Uses:** **Firewood, timber (local construction), tool handles, household utensils, shade, fish poison (ground-up seeds).**

**Description:** A large shady tree to 35 m. **LEAVES:** Compound, up to 13 pairs of leaflets plus one at the tip, each leaflet to 9 cm long, pointed, hairy below. **FLOWERS:** Large and violet, on stalks to 30 cm long, calyx with golden-brown to black hairs, the flower 2–3 cm long and the upright standard petal silky hairy outside. **FRUIT:** Large flat pods to 27 cm long and 3 cm, across curved with brown hairs when young, less hairy when mature. Pods break open when dry to set free 5–10 seeds.

**Propagation:** Seedlings.

**Seed:** A prolific seeder.

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:** Coppicing, pollarding.

**Remarks:** There are two subspecies, one confined to the north of the country and the other in Sidamo. Trees from central and western Ethiopia show a mixture of the characters of these two species. This is an important shade tree for peasant farmers growing coffee.





Indigenous

*Am:* *Ishe, Shiye*

*Sm:* *Anjel*

*Or:* *Bururi, Mito*

*Tg:* *Kummel*

**Ecology:** A tree occurring in drier montane forest and humid highland forest. Performs well in Moist and Wet Weyna Dega agroclimatic zones, mainly along river and forest fringes, 1,600–2,000 m.

**Uses:** Firewood, charcoal, **timber** (heavy construction), **tool handles**, local utensils, **food** (fruit), local construction.

**Description:** An evergreen tree which can reach 35 m and have a diameter of more than 1 m, the crown leafy and oval. **BARK:** Dark grey, rough and deeply grooved, **branchlets covered with red-brown hairs**. **LEAVES:** Oval to 10 cm, the tip blunt, the **midrib below hairy** and also the **leaf stalk to 2 cm**. **FLOWERS:** Fragrant, cream-white, 1–4 in leaf axils, on stalks to 4 cm. Flower parts in fours, rather flat star-shaped **stalks and outer calyx with brown hairs**, central ovary with silky pale hairs. **FRUIT:** A **hard berry to 2 cm**, pointed and orange-yellow, contains **one red-brown seed**.

**Propagation:** Seedlings, wildings.

**Seed:**

**Treatment:** Not necessary.

**Storage:** Stores well.

**Management:** Pruning.

**Remarks:** The wood is hard and heavy.



fruit



A. Binte

India, Arabia

*Am: Shiferaw*

*Eng: Ben-oil tree, Cabbage tree, Horse-radish tree*

**Ecology:** Introduced to Ethiopia long ago and now naturalized in many parts of Gamo Gofa and in the Rift Valley and tried elsewhere. Requires well-drained soils with a high water table, but is drought resistant. Occurs at low altitudes in Dry and Moist Kolla agroclimatic zones, 500–1,600 m.

**Uses:** **Food** (young leaves, young fruit), medicine, fodder (leaves, fruit), bee forage, **soil conservation**, shade, windbreak, live fence, boundary marker, fibres, spice (young roots), oil (seeds), water purification (seeds).

**Description:** A deciduous tree to 10 m, usually smaller, **pale feathery foliage**. **BARK:** Grey, thick and corky, peeling in patches. **LEAVES:** Pale green, **thrice compound**, the whole leaf 30–60 cm, leaflets **usually oval, tip rounded 1–2 cm long**. **FLOWERS:** **Cream**, fading yellow, in long sprays, each flower with 5 petals, one erect and 4 bent back, sweet-scented, attracting insects. **FRUIT:** Long capsules, to 45 cm, **bluntly triangular in section**, splitting when dry to release 9 **dark brown 3-winged seeds** from the pith.

**Propagation:** Direct sowing, cuttings, seedlings.

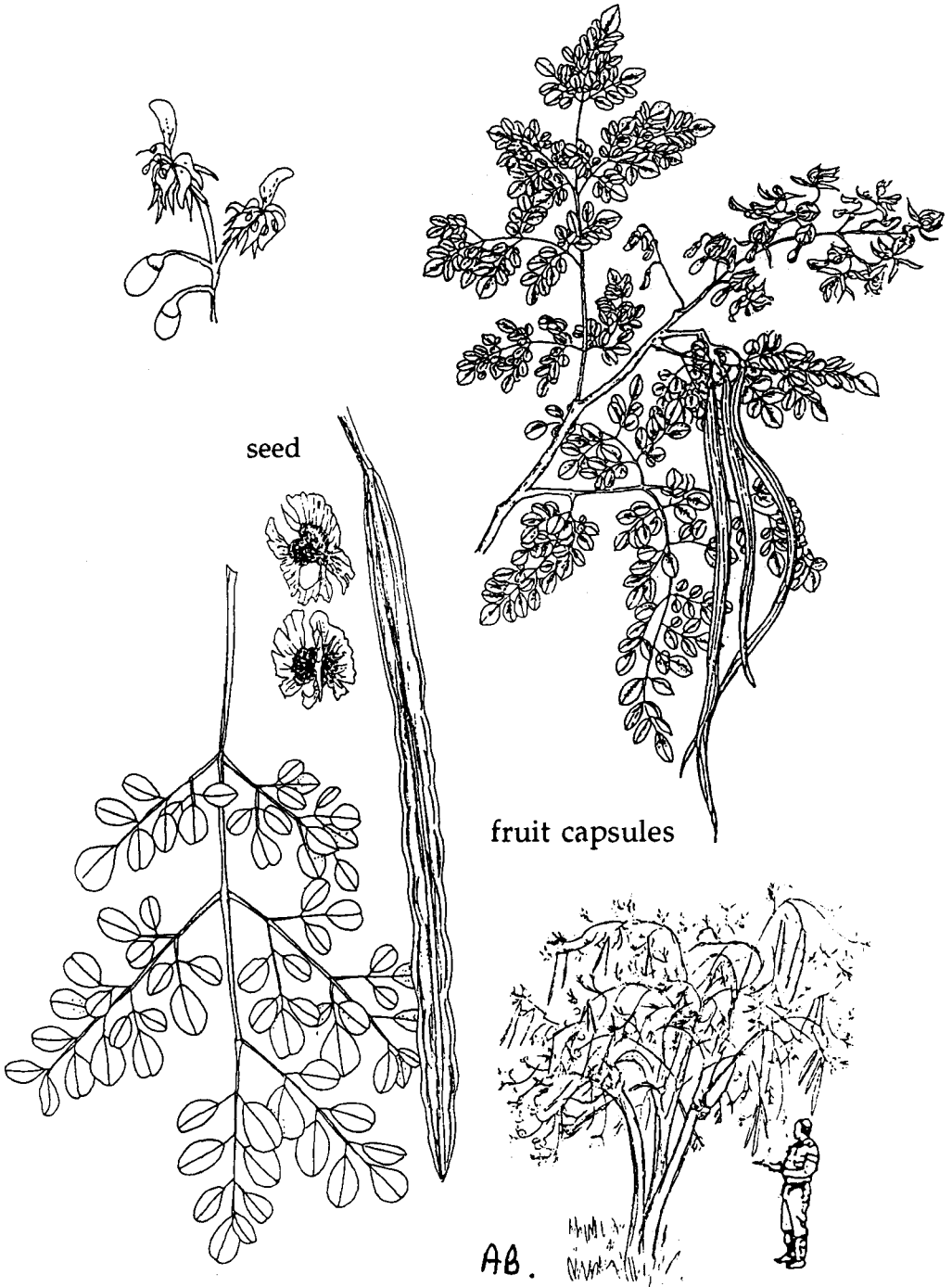
**Seed:** Germination rate 60–70%. No. of seeds per kg: 4,000–5,000.

**Treatment:**

**Storage:**

**Management:** Fast growing; pollarding, coppicing, lopping.

**Remarks:** A tree which is easily propagated and recommended for homesteads for its food value. The “Ben oil” from the seeds keeps its quality and so can lubricate precision machinery like watches. It is also used for salad oil, soap and cosmetics. The ground-up seeds have been used successfully in the Sudan, Burundi and Kenya to clear muddy water—a very valuable property.



China

*Am: Yeferenji injori*

*Eng: White mulberry*

- Ecology:** Usually a small deciduous tree. Tolerates drought and heat but prefers moist climates and can be grown in Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,500–2,300 m.
- Uses:** Firewood, food (fruit, leaves), fodder (leaves), bee forage, soil conservation, ornamental, shade, windbreak, live fence, silkworms (leaves).
- Description:** Usually small but can reach 25 m; loosely rounded in shape. LEAVES: Very variable in shape, even on one branch; oval to 3-lobed or heart shaped, 5–15 cm long, 3 veins from the base, edge roughly toothed, tip pointed, on stalks to 5 cm, **upper leaf smooth**, but some hairs on veins below at least. FLOWERS: Sexes separate, small and **greenish, in drooping spikes**. FRUIT: Compound, about 2 cm long, **white-pink or red**, sweet and juicy but rather tasteless.
- Propagation:** Seedlings, cuttings (for large-scale planting).
- Seed:** Poor germination. No. of seeds per kg: 325,000–700,000.
- Treatment:** Soak in cold water for 48 hours.
- Storage:** Can be stored a long time.
- Management:** Fast growing, especially when grown from cuttings. Lopping to encourage branching and keeping the height as required.
- Remarks:** Experiments on the rearing of silkworms in Nazareth have shown good results and could be expanded to the Jimm area where the tree is naturally abundant. It is a very useful species for stabilization of soil-conservation structures. Trees grown from cuttings will produce fruits after 3 years as opposed to trees grown from seed which take 5–8 years. *M. nigra*, black mulberry, although widely cultivated for its black fruit in the Middle East is rare in Ethiopia. Both morus species are found in Africa, often naturalized, and they do surprisingly well in arid conditions.



(*M. lactea*, *Celtis lactea*)

Indigenous

*Am: Injori*

**Ecology:** An indigenous shrub or tree of humid forests, with *Aningeria* and *Celtis* trees. It is found in Moist and Wet Kolla agroclimatic zones in Kefa, Ilubabor and Wolega, 500–1,500 m.

**Uses:** Firewood, **timber**, fodder, shade.

**Description:** A large shrub or deciduous tree to 30 m, with a straight trunk to a spreading crown, sometimes buttressed at the base. **BARK:** Grey-brown, smooth, later thick, dark and cracked, much **milky latex**, if cut. **LEAVES:** **Alternate**, oval, dark green 2.5–10.0 cm, longer in saplings, **3 main veins for most of the length**, to a **long pointed tip**, the base rounded to a short stalk, **edge toothed**, a few hairs above and in vein axils below. **FLOWERS:** Sexes on different trees. Males flower heads to 3 cm long. Female trees have **stalked heads of 3–8 tiny flowers**. **FRUIT:** **Rounded to 1.5 cm across**, several fruit joined together, greenish and fleshy at first, dry, brown later.

**Propagation:** Seedlings, cuttings.

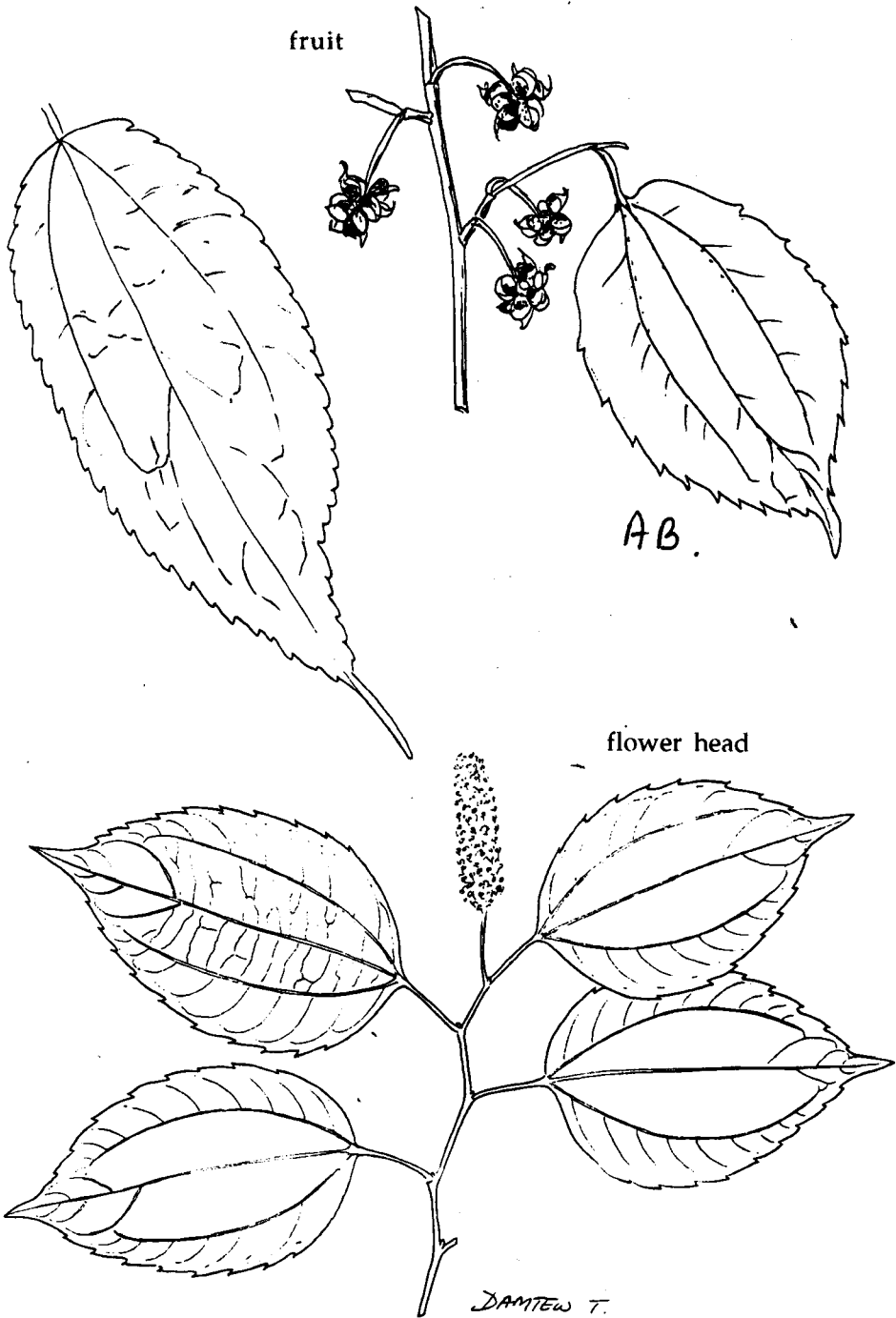
**Seed:**

**Treatment:** Soak in cold water for 12 hours.

**Storage:** Can be stored.

**Management:** Lopping

**Remarks:**





Indigenous

**Am:** *Shinet, Kalava*  
**Gu:** *Abeyi*

**Or:** *Abay, Kataba, Radji, Tona*  
**Tg:** *Nihibi*

**Ecology:** A shrub that grows in riparian forests and in *Mimusops* and *Ficus* forests in western Eritrea, Tigray, Gonder, Welo, Shewa, Arsi, Harerge and Sidamo regions. Performs well in Dry and Moist Weyna Dega and Dega agroclimatic zones, 1,600–3,300 m.

**Uses:** **Firewood**, timber (local carpentry), **medicine** (leaves).

**Description:** A deciduous shrub usually 3–10 m, but can be a tree to 20 m with a diameter up to 1 m, the trunk often branched from the base. **BARK:** Grey and smooth when young, later rough and dark. Young twigs glandular and hairy. **LEAVES:** Oval and stalked, 4–14 cm, **dotted with golden glands on both surfaces**, more below, giving a **spicy aromatic smell when crushed**, tip blunt, base somewhat rounded, 8–20 pairs of fine side veins, the edge wavy with a few well-spaced teeth. **FLOWERS:** Male and female separate. **Male flowers yellow on yellow stalks to 3.5 cm, fragrant and dotted with oil glands.** Female anthers shorter. **FRUIT:** On a **spike to 4 cm, each fruit round and very small, purple with white waxy dots all over.**

**Propagation:** Seedlings, wildings, cuttings.

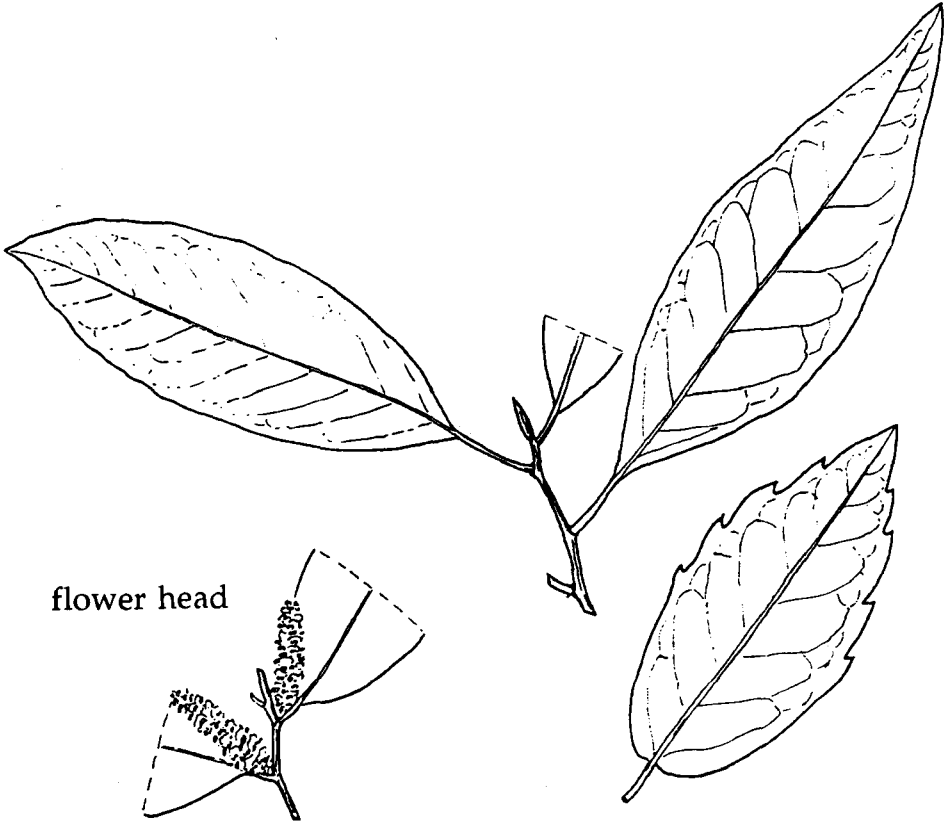
**Seed:**

**Treatment:** Soak the seeds in cold water for 24 hours.

**Storage:** Can be stored.

**Management:** Plant closely to encourage straight growth; pruning, coppicing.

**Remarks:** The dried powdered leaves are mixed with water and used as a local medicine against skin diseases. The wood is soft and light.

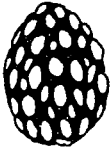


flower head

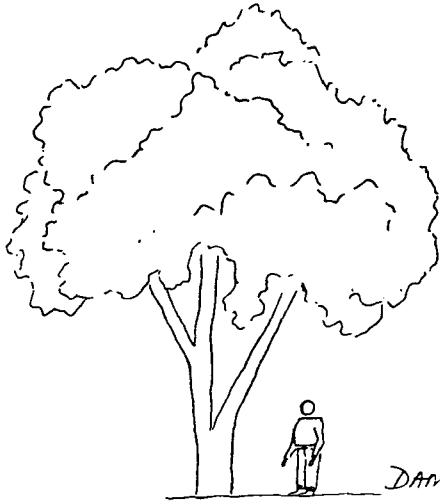


fruit

one  
fruit



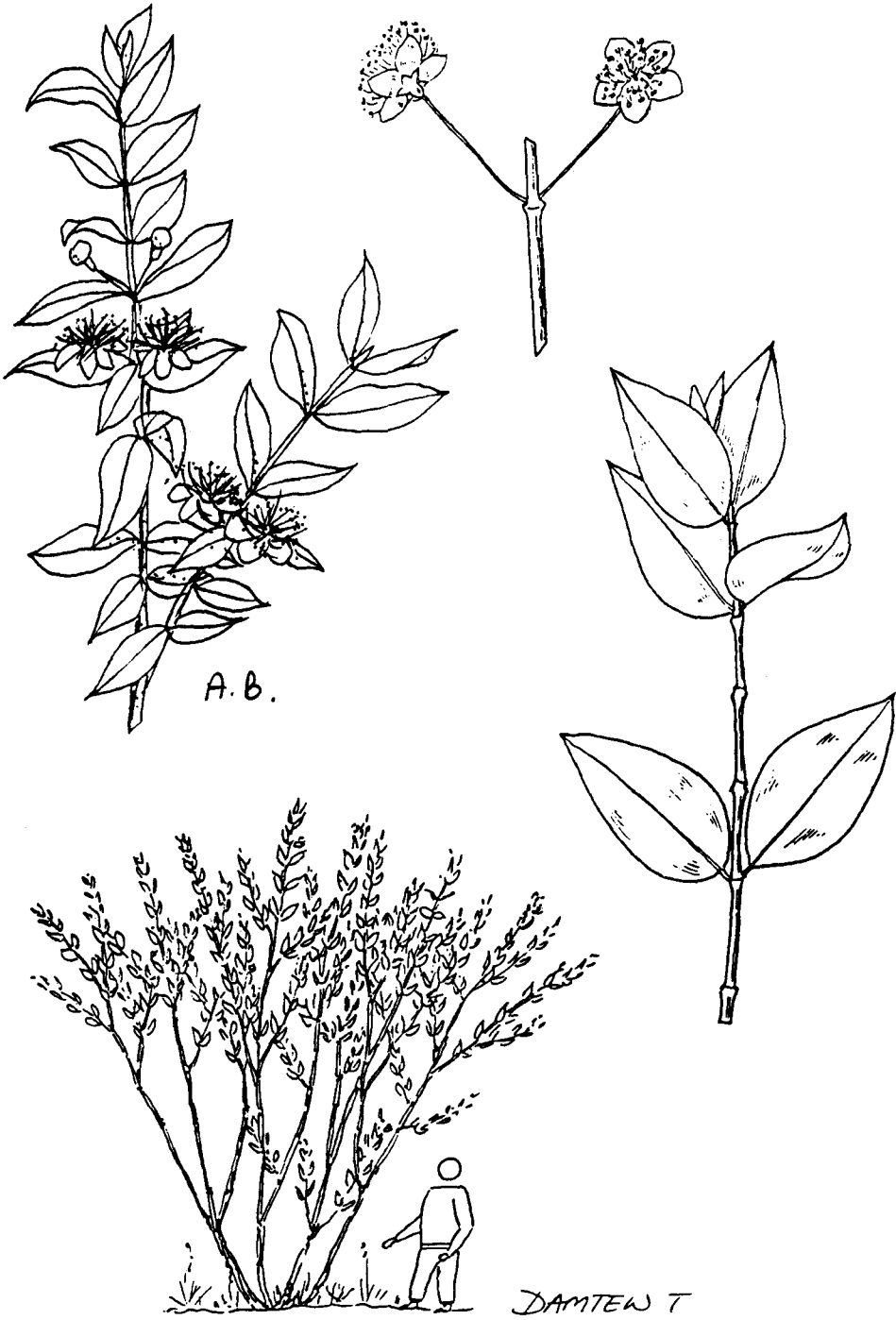
0.5 cm



DAMTEW T.

**Indigenous***Am: Ades**Eng: Common myrtle, Myrtle bush*

- Ecology:** A shrub that grows in Moist and Wet Kolla and Weyna Dega agroclimatic zones in Harerge, Welo and Shewa regions, 700–2,500 m.
- Uses:** Perfume, **flavouring**, smoking.
- Description:** A leafy evergreen shrub 3–5 m high. **LEAVES:** Simple and opposite, leathery and shiny, **oval and sharply tipped** to 5 cm long, the base rounded. When crushed **sweet-scented oil** is released from special cells. **FLOWERS:** Sweet scented, **white with 5 petals around many white stamens**, to 3 cm across. **FRUIT:** A rounded **blue-black berry**, 1 cm or less.
- Propagation:** Seedlings, cuttings.
- Seed:**
- Treatment:** Not necessary.
- Storage:**
- Management:** Coppicing to encourage branching and more leaf production.
- Remarks:** Widely cultivated since ancient times. In Ethiopia it is used for perfuming butter to be used in hair dressing, as an additive to local bread, and the smoke to scent rooms, especially during the traditional coffee ceremony.

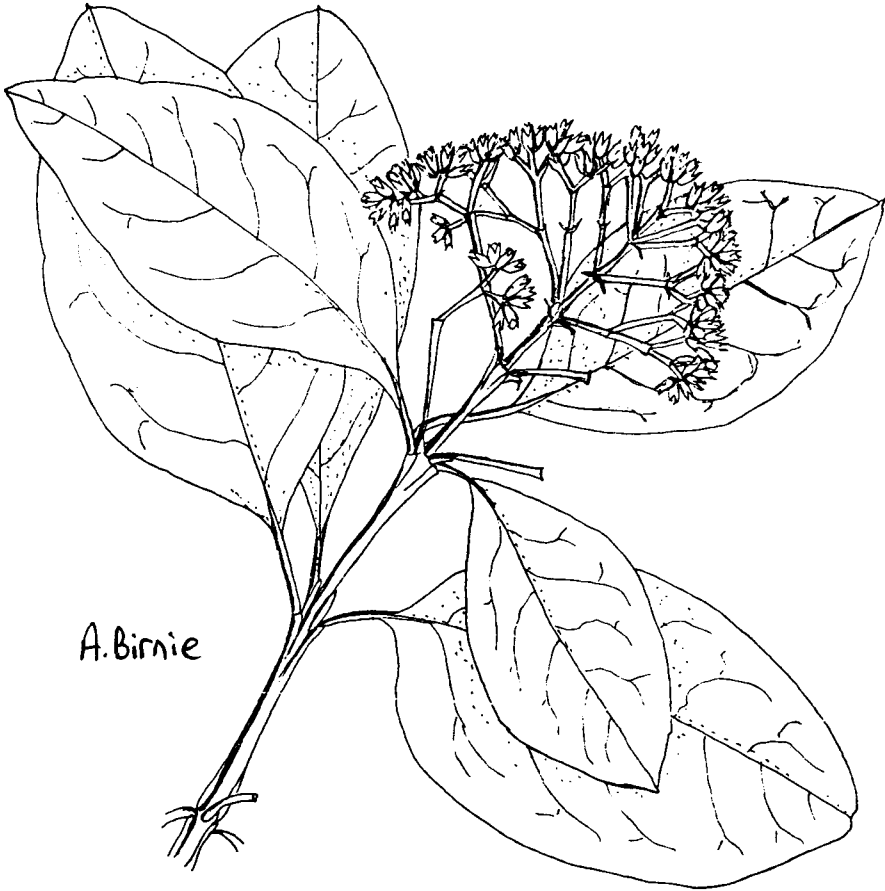


Indigenous

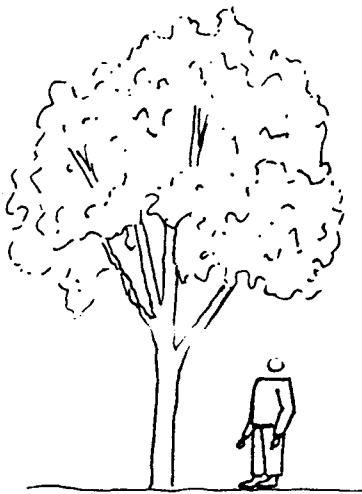
*Am: Chocho*

*Or: Anfare*

- Ecology:** A shrubby tree of the lower-storey vegetation, normally at forest edges and in drier evergreen highland forests, in Dry and Moist Weyna Dega and Dega agroclimatic zones, 1,800–3,100 m.
- Uses:** Firewood, charcoal, **medicine** (leaves), bee forage, live fence.
- Description:** A shrub or tree, usually 2–8 m, but can reach 20 m, quite variable. The bole is often short, twisted and the **low branches** droop down. **BARK:** Rough, brown-black, shedding long **fibrous strips** with age. Young **branchlets** clearly **3- or 6-sided** with thick nodes where the leaves grow out. **LEAVES:** Rather leathery, **dull green**, scaly, usually growing out **in threes**, crowded at the ends of branches, variable is size, shape and texture, hairy or not, oval to rounded, 1–8 cm, **tip rounded or notched**, edge occasionally toothed, a stalk to 2 cm, midrib clear. **FLOWERS:** Fragrant **white-mauve in dense crowded heads**, flat or round-topped at the ends of branches, the 4 petals hardly longer than the **bell-shaped calyx**, which is sticky. Flowers numerous, attracting bees. The dry flowers persist on the tree. **FRUIT:** The **calyx continues** to surround **small hairy capsules** which split to set free many seeds.
- Propagation:** Seedlings.
- Seed:**
- Treatment:** Not necessary.
- Storage:** Can be stored.
- Management:** Coppicing.
- Remarks:** The plant is believed to repel evil spirits. The leafy twigs are used as stoppers for small containers where strong-smelling foodstuff is kept. A good bee tree.



A. Birnie



DANTEW T.

Indigenous

*Kf:* *Najo*

*Or:* *Derersa, Gigicha*

*Sd:* *Soecho*

**Ecology:** A very common intermediate and upper-storey tree, especially in Sidamo region. Also found in humid and semi-humid highland evergreen forests in Moist and Wet Weyna Dega agroclimatic zones of Wolega, Sidamo, Ilubabor, Kefa and Bale regions, 1,800–2,600 m.

**Uses:** Firewood, **timber** (furniture, panelling, flooring), medicine (roots, bark).

**Description:** An evergreen **much-branched tree**, about 10 m, mature trees reaching 25–30 m, the bole straight and 80 cm wide at the base. **BARK:** Grey when young, then **dark red-brown and rough, flaking into large pieces**. **LEAVES:** Alternate, large oval or quite narrow, about 7–14 cm long, without hairs, **young leaves shiny red**, later leathery, shiny green, **edge strongly wavy**, tip blunt, narrowed at the base to a short, flexible stalk, **8–10 pairs** uneven side veins only clear when dried. **FLOWERS:** Male and female separate, a few small flowers on a hairy stalk, about 5 cm, beside leaves, green-white-yellow. **FRUIT:** Long oval, green, to 2 cm, containing 1 seed, **one-third of fruit inside a cup-like bract**, roughly hairy.

**Propagation:** Seedlings, root suckers.

**Seed:** The tree produces plenty of seed.

**Treatment:**

**Storage:**

**Management:** Fast growing.

**Remarks:** Bark, leaves and wood are fragrant and aromatic but unlike camphor. Although not termite resistant, the timber is of high quality—one of the best for furniture and carving. The tree can best propagated from root suckers. Suckers grow out low on the trunk. Birds eat the fruit.





Indigenous

*Am:* Damot weira

*Eng:* E.A. olive

*Sd:* Setemo

**Ecology:** A tree found in similar places to *O. europaea*, 1,600–2,400 m, but preferring higher rainfall in forests of Ethiopia, West and Central Africa. It does best in the Moist and Wet Weyna Dega agroclimatic zones.

**Uses:** Firewood, charcoal, **timber** (furniture, floor blocks), tool handles, medicine (stems, bark).

**Description:** A tall tree, 10–20 m, with a straight trunk, steeply ascending branches and a small dense crown. **BARK:** Smooth, grey-white. **LEAVES:** Stiff, in opposite pairs, to 10 cm long and 3 cm wide, **apex sharply tipped, margin wavy**, midrib pale and clear below. Underside not white (contrary to *O. europaea*), with scales, **stalk to 3 cm long**. **FLOWERS:** Small and white, mostly in heads about 7 cm long at the tip of branchlets. **FRUIT:** Oval, 1–2 cm long, usually green but may ripen purple, with a large hard seed inside.

**Propagation:** Seedlings, wildings.

**Seed:** Slow germination. No. of seeds per kg:  $\pm 3,000$ .

**Treatment:** Not necessary.

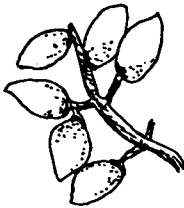
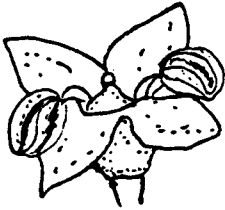
**Storage:** Seed can be stored.

**Management:** Slow growing. Lopping, pruning.

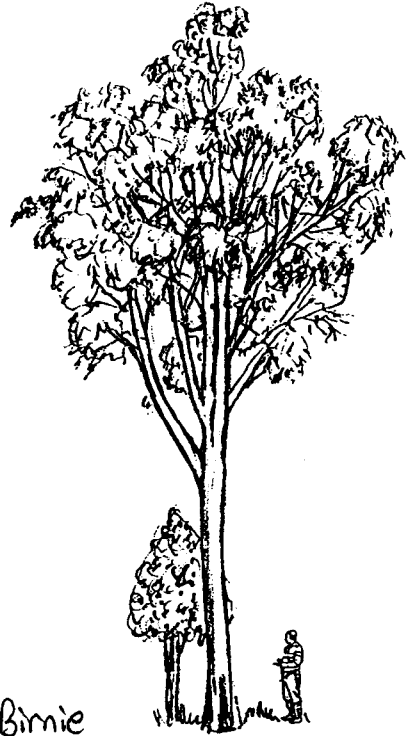
**Remarks:** Does best in good forest soil, but hardy and drought resistant once established even in poor soils. Fruits do not produce olive oil. The hard pale brown heartwood has an attractive grain and polishes well.



enlarged flower



fruit



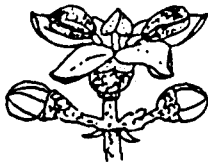
A. Birnie

Indigenous

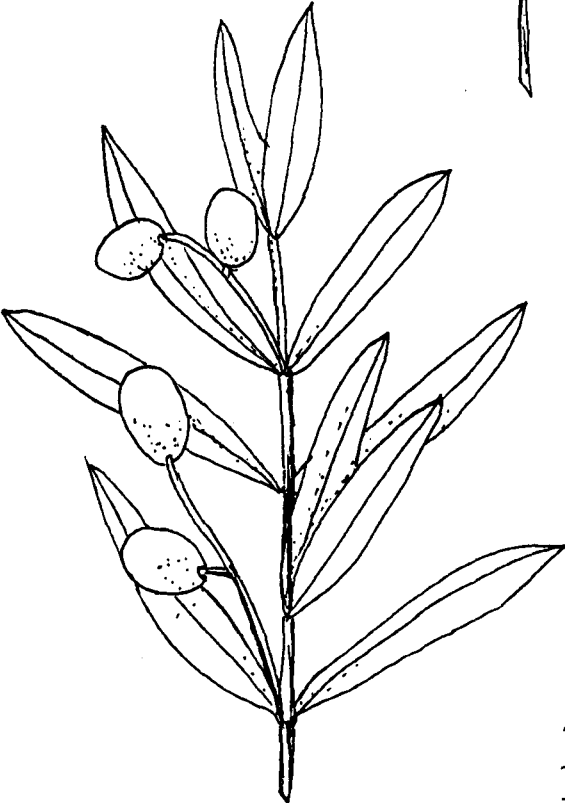
**Am:** Weira  
**Br:** Ejas

**Eng:** African wild olive  
**Gr:** Oira

- Ecology:** Widely distributed in dry forest and forest margins, often with *Juniperus procera*, in east Africa and Ethiopia. It reaches southern Africa, also India and China, ranging from tall trees to stunted shrubs. Does best in good forest soil, but hardy and drought resistant once established, even in poor soils. It does best in Moist and Wet Weyna Dega and lower Dega agroclimatic zones.
- Uses:** Firewood, charcoal, poles, posts, timber (furniture, carving, floors, panelling), medicine (stem, bark, leaves), bee forage, milk flavouring (smoking wood), toothbrushes (twigs), walking sticks.
- Description:** A handsome evergreen tree, 10–15 m, with a rounded crown and grey-green foliage, trunk often crooked and with characteristic pockets. BARK: Rough dark brown, white branchlets, dotted with breathing pores. LEAVES: Stiff, narrowly oval, sharply pointed in opposite pairs, underside pale to white, midrib prominent, to 8 cm, stalk very short. FLOWERS: Small, white, in branched heads to 5 cm. FRUIT: Oval, fleshy to 1 cm, purple and bitter-sweet when ripe but edible. Seed about 1 cm long.
- Propagation:** Wildings, seedlings (difficult to raise).
- Seed:** The species is a poor seeder. Low germination rate. No. of seeds per kg: ±3,000.
- Treatment:** Not necessary for fresh seed. Soak old seed in water for 48 hours.
- Storage:** Seed can be stored for about two months.
- Management:** Slow growing.
- Remarks:** The species used to be known by its synonym *Olea africana*. Fruits do not produce olive oil. The wood produces a fierce heat on burning. Olive poles are very durable in the ground.



enlarged flower

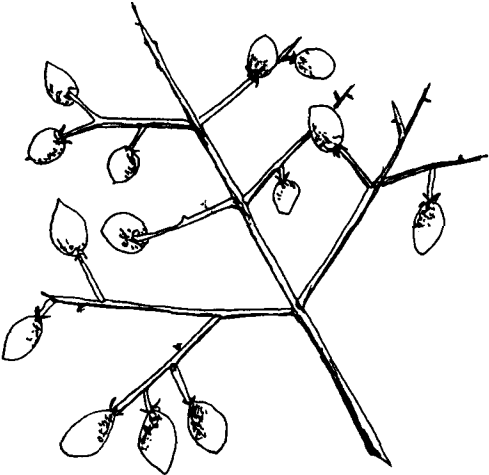


Indigenous

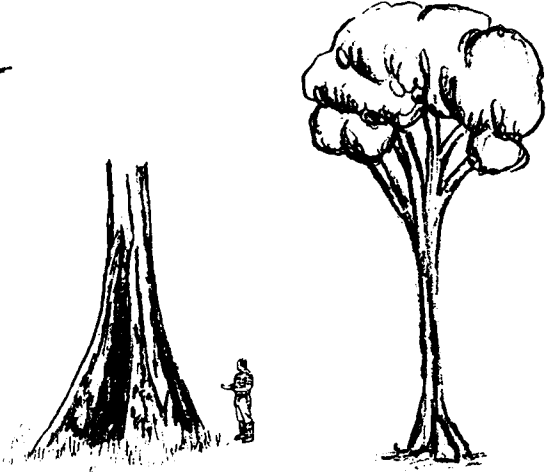
*Am: Sigida weira*

*Eng: Elgon olive, Elgon teak*

- Ecology:** A tree with attractive timber found from lowland rain forest to upland evergreen forest. It occurs in humid lower highlands in Dry, Moist and Wet Weyna Dega and Moist and Wet Dega agroclimatic zones of the central, eastern and western highlands, 1,600–2,400 m.
- Uses:** Firewood (branches), **timber** (furniture, veneer), medicine (bark).
- Description:** The tree can reach 25 m with a straight bole and small crown. **BARK:** Pale grey to white, grooved vertically. **LEAVES:** Opposite and oval, to 5 x 15 cm, on a stalk 2–3 cm, the tip drawn out and pointed. **FLOWERS:** Very many, small and white, in sprays to 8 cm long. **FRUIT:** Narrow, oval and small.
- Propagation:** Seedlings, wildings.
- Seed:** No. of seeds per kg:  $\pm 3,000$ .
- Treatment:** Soak seed in cold water.
- Storage:** Seed can be stored.
- Management:** Slow growing. Lopping, pollarding.
- Remarks:** A very valuable termite-resistant timber tree. The timber is pale golden brown with paler streaks and is used for high-class furniture.



A. Birnie



**Indigenous****Am:** *Beye, Tife***Or:** *Delacho, Guna, Kedida, Nolle*

**Ecology:** A tree commonly found in patches of evergreen forest and on riverine fringes, in montane *Juniperus*, *Podocarpus*, *Hagenia*, and *Nuxia* forest in Moist and Wet Weyna Dega and Dega agroclimatic zones of Welo, Wolega, Shewa, Arsi, Bale, Kefa, and Sidamo regions, 1,700–3,100 m.

**Uses:** **Firewood**, timber (local houses), farm tools, fences (cut branches), **walking sticks**.

**Description:** Usually a small shrub or tree 4–9 m, occasionally to 20 m. **BARK:** Grey–light brown, smooth or finely grooved, but old trunks with thin yellow flakes. The **branchlets clearly 4-angled**. **LEAVES:** **Opposite, bright red when young**, (edge toothed), long oval, to 7 cm long, wider at the tip, blunt or notched, edge rolled under, base narrowed into a **short grooved stalk**, often **pink, underside with fine net of veins**. **FLOWERS:** **White fading to pink** or cream, very small, in **dense rounded heads** to 5 cm across, **shorter than the leaves**. **FRUIT:** Thinly fleshy, pink then **red-brown** when ripe, less than 1 cm, in **heavy bunches**.

**Propagation:** Seedlings, wildings.

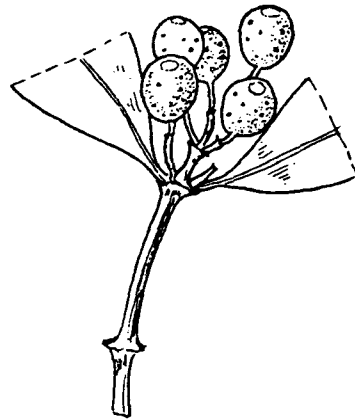
**Seed:** No. of seeds per kg: 8,000–10,000.

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:** Coppicing.

**Remarks:**



DAMTEW T.



Indigenous

*Am: Tunjit*

**Ecology:** A shrub of dry evergreen woodlands, on rocky slopes in montane bushland and deciduous woodlands of western Eritrea, Tigray, Gonder and northern Shewa regions, in moist Weyna Dega and Dega agroclimatic zones, 1,600–3,000 m.

**Uses:** Firewood, **medicine**.

**Description:** A straggling shrub to 4 m, the stem angled and older stems ash grey and flaking. **LEAVES:** Simple, ovate to 5 cm long, **aromatic**, the edge **double toothed or round toothed**. **FLOWERS:** Green-white, 2-lipped, the orange anthers held inside the upper petal.

**Propagation:** Seedlings.

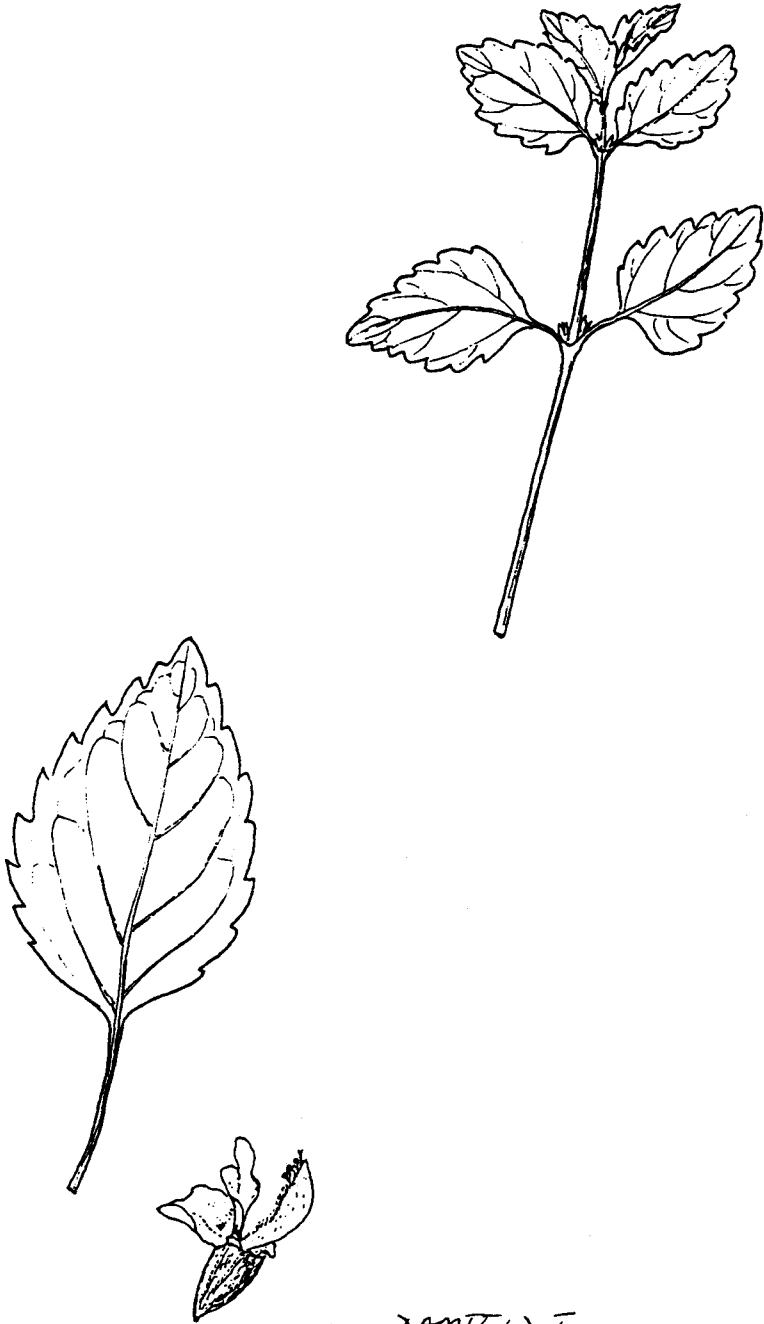
**Seed:**

**Treatment:**

**Storage:**

**Management:** Coppicing.

**Remarks:** Brewing jars are smoked out using wood of burning *tunjit*.



DAMTEW T.

Indigenous

*Ag: Shemel*

*Eng: Lowland bamboo*

*Am: Shmel*

**Ecology:** In continental Africa the lowland bamboo grows in Ethiopia, Uganda, Zimbabwe, Zambia and Tanzania. It is the most hardy of the three African bamboos, often found on very poor soils. In most places it is in demand for building purposes. In Ethiopia it is mainly confined to the western side of the central highlands in Moist and Wet Kolla agroclimatic zones, 500–1,600 m.

**Uses:** **Poles** (building), **fences**, **fodder** (leaves), walking sticks.

**Description:** A tall grass to 7 m or more, in dense clumps, arching over. Unusual in having **solid stems**, up to 10 cm in diameter at the base. **LEAVES:** Blue-green, **base rounded**, the **tip long and spiny**, usually 15 x 2.5 cm, but up to 30 x 5 cm. There are **irritating dark brown hairs** on the leaf sheath. **FLOWERS AND FRUIT:** Spikelets narrowed, pointed, 2.5 cm in dense **rounded clusters** 6 cm across. **Flowering takes place about every 7 years.** Then the clumps die down but shoot up one year later from the rhizomes.

**Propagation:** Suckers and rhizomes; rarely, seed.

**Seed:**

**Treatment:**

**Storage:**

**Management:** Needs to be controlled by cutting back.

**Remarks:** Like most bamboos, each plant flowers only once and then dies. Fences are susceptible to damage by termites and borers. The plant survives fire in its natural habitat. Small stems can be used for pipes and arrow shafts, larger ones for fences, building, furniture, beds and baskets.



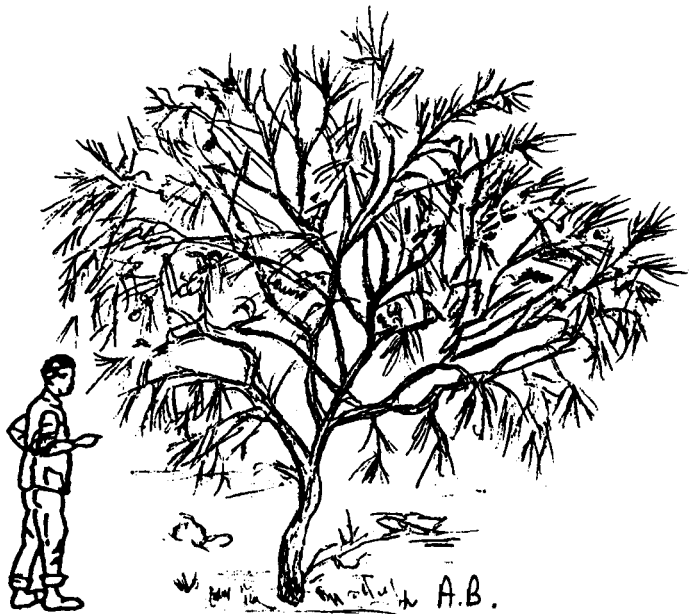
DANTEW T.

Tropical America

*Am:* *Filfile, Ye eyerusalem eshoh*

*Eng:* *Jerusalem thorn*

- Ecology:** Widely cultivated at medium altitudes, especially in Sidamo region. Tolerates strongly alkaline or saline soils and poor sandy eroded soil, but not flooding. Also does well in arid and semi-arid areas in Bereha, Dry and Moist Kolla and Weyna Dega agroclimatic zones, 300–1,700 m.
- Uses:** **Firewood, charcoal, fodder** (pods, young branches), bee forage, mulch, **soil conservation, ornamental, shade, windbreak, live fence.**
- Description:** A spiny shrub or small tree, usually 5–8 m, light, feathery foliage and a low crown, sometimes deciduous in the dry season. **LEAVES:** Groups of thin **winged leaf stalks to 30 cm with well-spaced tiny leaflets.** The long thin branchlets have sharp thorns beside the leaves, about 1 cm long. **FLOWERS:** Very fragrant, **bright yellow with orange stamens,** on spikes to 15 cm. **FRUIT:** Bunches of **woody pale brown pods, narrow, constricted between seeds, pointed tips.**
- Propagation:** Seedlings, direct sowing.
- Seed:** The species is a prolific seeder. Germination rate 30–70%. No. of seeds per kg: 11,000–15,000.
- Treatment:** Soak seed in hot water and allow to cool overnight.
- Storage:** Seed stores well for long periods in cool, dry, closed containers.
- Management:** Fast growing. Pollarding. Seedlings are susceptible to attack by termites and so young seedlings should be protected.
- Remarks:** Extensively used in Ethiopia. It is a good species for rehabilitating eroded land.



Indigenous

*Am: Yetota buna*

**Ecology:** A common shrub in heavily exploited podocarpus forests of the Moist and Wet Weyna Dega agroclimatic zones.

**Uses:** Firewood, mulch.

**Description:** A shrub, climber or small tree to 7 m with hairy branches. LEAVES: Pavetta have leaves with black dots (bacteria) and in this species the dots occur along the midrib. The leafy stipules at each node are joined and have a sharp tip with a hair. Long oval leaves are grey-green and hairy, especially below, 4–20 cm long, in opposite pairs. FLOWERS: Green-white, in dense terminal heads, longer than the leaves, about 7 cm across, growing out of leafy bracts at the base. Each flower about 2 cm, tubular, with 4 petals and stamens, the green style to 3 cm, hanging out, calyx hairy, the edge uneven, wavy and toothed. FRUIT: Round berries, dark green, ripening black, the calyx remaining at the tip, 2 seeds inside, 5–10 cm diameter.

**Propagation:** Seedlings.

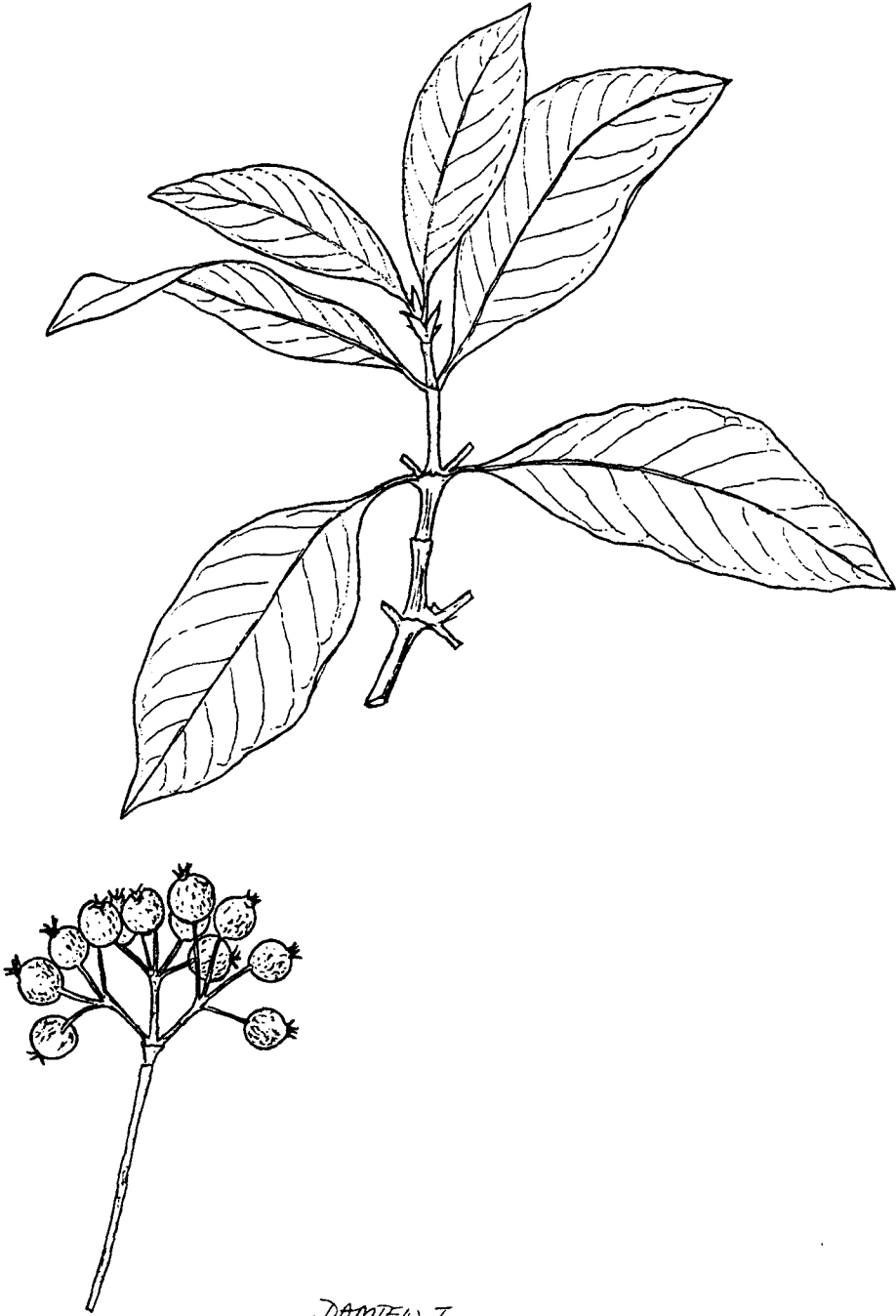
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:**



DAMTEW T.



Tropical America

**Am:** *Avocado*

**Eng:** *Avocado*

**Sd:** *Avocato*

- Ecology:** A well-known fruit tree indigenous to tropical America from montane forest to coastal lowlands. In Ethiopia it grows well in Moist and Wet Weyna Dega agroclimatic zones, 1,500-2,200 m.
- Uses:** Food (fruit), shade, cosmetics, oil (fruit).
- Description:** A densely leafy evergreen tree to 10 m or more with a straight trunk. BARK: Grey-brown. LEAVES: Large, oval and alternate, to 20 cm long, shiny dark green above, veins very clear, young leaves pink then bright green. FLOWERS: In large terminal heads, pale yellow, only 1 in 5,000 producing fruit. FRUIT: Large, round to pear shaped, to 25 cm long, hanging heavily on the tree, the central seed surrounded by a thick layer of yellow-green flesh. The outer skin varies from green to purple.
- Propagation:** Grafted materials (improved varieties), seedlings.
- Seed:**
- Treatment:** Not necessary. Seed sown fresh for best results.
- Storage:** Seed does not store well. Use fresh seed.
- Management:** Requires no management once established; can be side-pruned to obtain a desired shape.
- Remarks:** The fruit is very nutritious, rich in fat, protein and vitamins. Bark, leaves and seeds are toxic to browsing livestock. The dense surface root system competes with those of crops, though crops such as beans can be intercropped with young trees. Trees may require extra stimulation to encourage flowering and fruit. Cut roots in a trench or narrowly ring bark to encourage flowering in good conditions.



Persian Gulf, Mediterranean

*Am:* Yetemir zaf

*Eng:* Date palm

**Ecology:** A well-known and important food tree found in desert areas from Morocco to India, 0–1,500 m. It requires a well-drained fertile soil, high temperatures and low humidity during fruiting. The palm must have a high water table. It will stand alkaline soil but not waterlogging. Flowering occurs in January-February and August-September. It grows well in Bereha beside rivers, and in Moist and Wet Kolla agroclimatic zones.

**Uses:** Firewood, posts, utensils, food (fruit), fodder, medicine, ornamental, shade, windbreak, thatch.

**Description:** A palm with a slender trunk reaching 20–30 m, the **trunk covered with the remains of leaf bases**. Many suckers or offshoots are produced around the trunk. **LEAVES:** 30–50 crowded leaves, each to 3 m **grey-green, the leaflets sharply pointed**; lowest leaves are thorny and removed by cultivators. **FLOWERS:** Male and female trees, a ratio of 1 male to 40–50 female trees is required for fruiting, but the pollen may not always be ready at the best time for pollination. **FRUIT:** Large hanging bunches of dates, needing support. **Ripe dates 5 x 2 cm, yellow to golden-brown**, with one grooved seed, the "stone".

**Propagation:** Suckers (offshoots) are preferable as male or female plants can be chosen; seedlings.

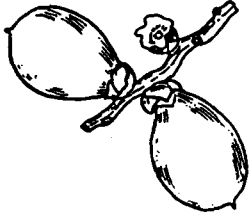
**Seed:**

**Treatment:** Not necessary.

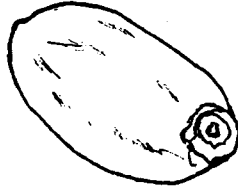
**Storage:** Seed stores well for long periods.

**Management:** Hand pollination is recommended for good date production, remove suckers.

**Remarks:** A potential food and cash crop for selected sites in dry areas. Needs irrigation until established. Economic yields can be obtained after 6–7 years ( $\pm 45$  kg/tree). Improved varieties exist and should be tested.



mature fruit

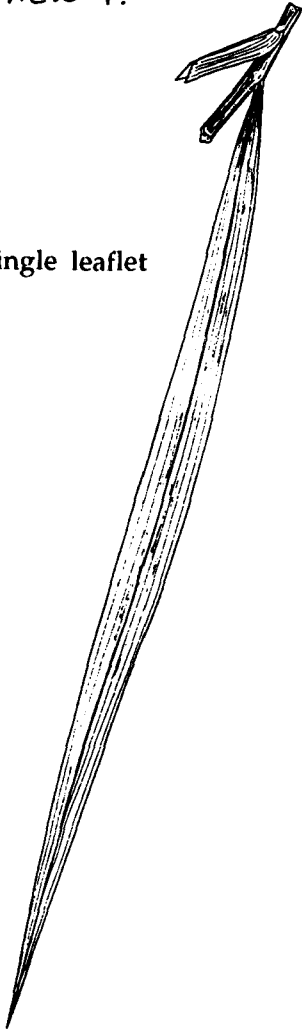


DAMTEW T.



seed - stone

single leaflet



**Indigenous****Am:** *Selen, Zembaba***Br:** *Meti***Eng:** *Wild date palm*

**Ecology:** A palm usually growing in dense clumps beside swamps and rivers. Found throughout tropical Africa, it grows in the humid lowland woodlands, highland forests and on open rocky hillsides in Dry and Moist Kolla and Weyna Dega agroclimatic zones, 700–2,600 m.

**Uses:** **Timber** (local doors, roofing, windows), food (fruit), **ornamental**, soil conservation, fibres (leaves, leaf bases), roofing (leaves), basketry, mats (leaves), dye.

**Description:** The mature palm trunk may reach 10 m, slender and **often bent over** ("reclinata"), about 25 cm in diameter, covered in very rough leaf scars. **LEAVES:** To 2.7 m long, growing out from a fibrous leaf sheath, the crown of about 25 leaves arching over, leaflets **narrow, folded, bright shiny green, to 30 cm**, stiff and pointed. **FLOWERS:** Male and female on different trees. **FRUIT:** **Yellow-brown, about 2 cm, edible.**

**Propagation:** Seedlings, suckers.

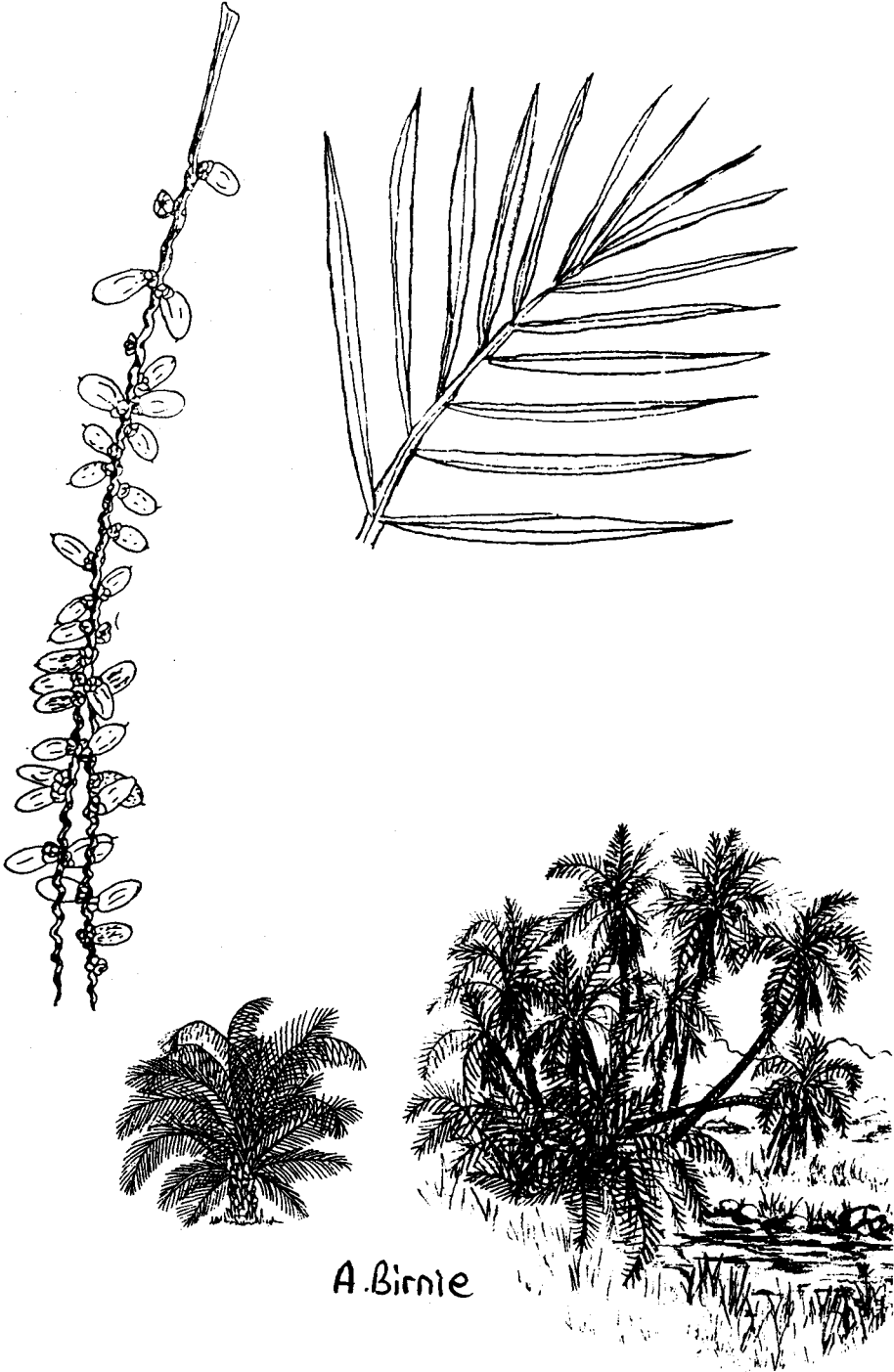
**Seed:** No. of seeds per kg: 900–5,000.

**Treatment:** Not necessary.

**Storage:** Seed stores well.

**Management:**

**Remarks:** Strong fibres from the leaves are used all over Africa for making baskets, mats, etc.



A. Birnie

Indigenous

*Am: Indod*

*Or: Handode, Indodi*

**Ecology:** A shrub commonly found in degraded riverine woodland and secondary forest areas of Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,600–2,400 m.

**Uses:** **Medicine** (roots, fruit, leaves, seed), soil conservation, **soap** (fruit).

**Description:** A climbing or scrambling shrub which can be a strong liane in riverine forest; long hanging branches to 9 m. **LEAVES:** Shiny oval to 25 cm, **tip blunt, stalk and midrib pink, rather thick and juicy.** **FLOWERS:** Strongly scented, **cream-green, on spikes to 40 cm,** often opposite leaves, each flower with **many stamens** on a fleshy disc, 5 sepals but no petals. **FRUIT:** Rounded **soft fruit to 7 mm across, orange-red** when ripe, a seed in each section.

**Propagation:** Seedlings, cuttings.

**Seed:**

**Treatment:** Not necessary.

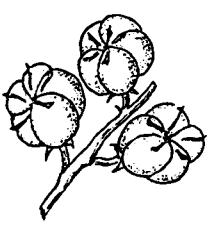
**Storage:** Can be stored.

**Management:** Trimming.

**Remarks:** This is a very poisonous plant, both to people and grazing animals. The leaves and roots are particularly poisonous. It should, therefore, be used with great care as an overdose of medicine can cause death. Sheep and cattle have died from eating the leaves during times of drought. Juice from the leaves or roots can cause abortion, and, suitably applied, can kill sperm. The commonest medicinal use is for killing intestinal worms. The juice can also be used to kill mosquito larvae in ponds, etc. and to kill snails and the young stages of the organism which causes bilharzia (schistosomiasis) in man. The fruits make bubbles with water and therefore are widely used for washing clothes.



fruit and seed



DAMTEW T



Indigenous

<b>Ag:</b> Frqa	<b>Gr:</b> Ambarda, Lilu,
<b>Am:</b> Yekolla wanza	<b>Or:</b> Kora
<b>Br:</b> Abairtubata	<b>Tg:</b> Amam-gemel
<b>Eng:</b> Camel's foot tree Monkey bread	<b>Wt:</b> Kalkalla, Kalkallo

**Ecology:** A tree that grows at medium to low altitudes, especially in the Gibe River valley and various areas of Ilubabor region. It performs particularly well in Moist and Wet Weyna Dega agroclimatic zones, 900–1,700 m.

**Uses:** Firewood, charcoal, poles, timber (houses), food (pods), drink (leaves, pods), fodder (pods, shoots), bee forage, medicine (leaves, bark, roots, pods), mulch, soil conservation, ornamental, nitrogen fixation, tannin, dye (pods, seeds, bark, roots), rope (bark, root fibres).

**Description:** A rounded deciduous tree, 3–5 m, branches twisted (occasionally climbing). **BARK:** Thick, dark and rough, fibrous within. Dark red if cut. **LEAVES:** Large and bilobed, a small bristle in the deep notch, often folded along midrib, leathery, pale green, to 12 cm long, lower surface brown hairy, in between many raised veins. **FLOWERS:** White, fragrant, in heads, 10–20 cm. **FRUIT:** Flat brown and woody pods, 15–20 cm long, persisting on the tree but finally decaying on the ground to free pea-sized seeds. Pulp surrounding the seed can be eaten.

**Propagation:** Seedlings.

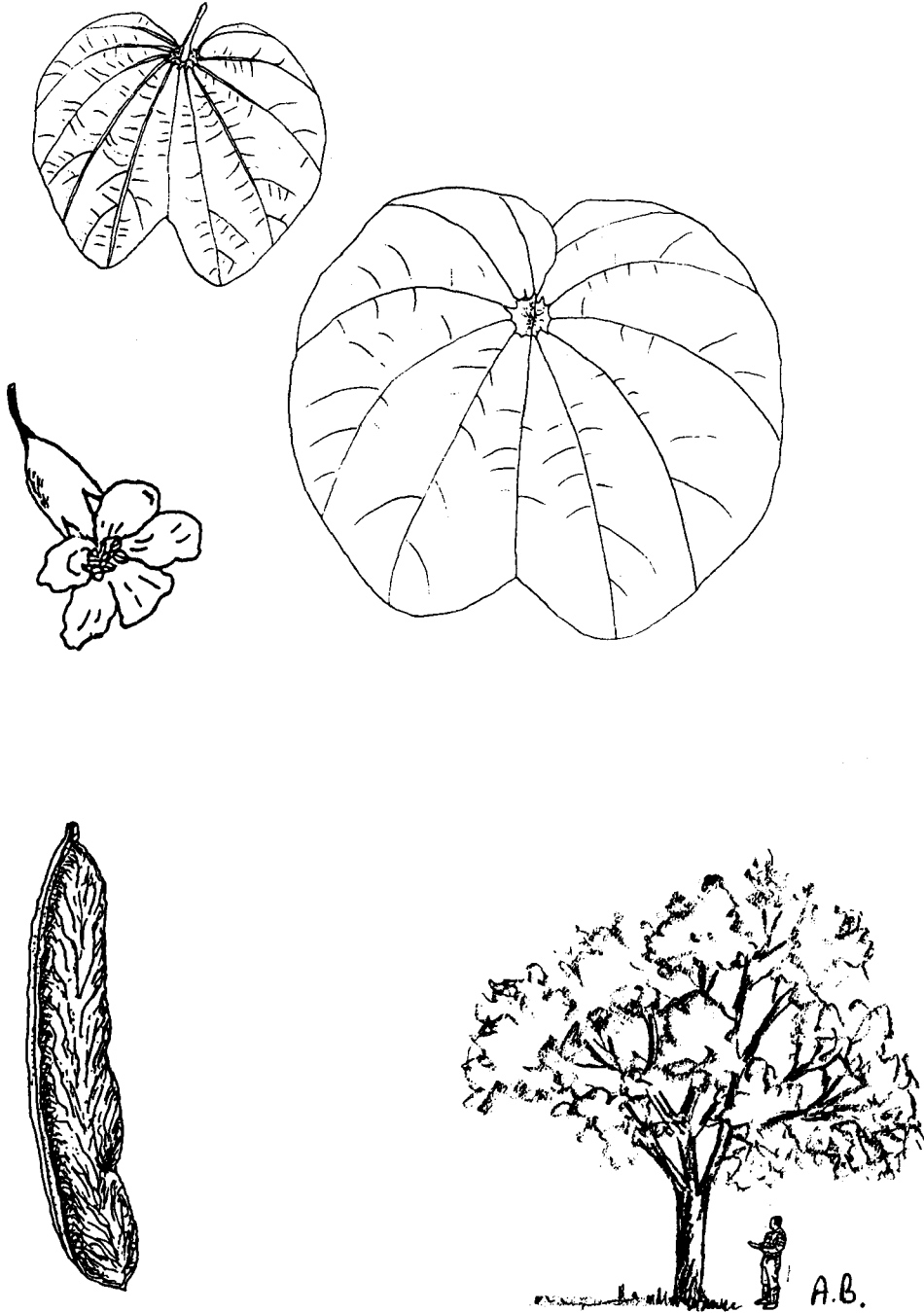
**Seed:** The tree produces many seeds with a good germination rate. No. of seeds per kg: ±7,300. Seeds difficult to extract.

**Treatment:** Soak in cold water for 24 hours.

**Storage:** Can be stored for several years if kept cool, dry and insect free.

**Management:** Fairly fast growing on good sites; coppicing.

**Remarks:** Frequently growing with *Annona senegalensis*. A good tree for intercropping. The pulp surrounding the seeds is edible and under famine conditions leaves, crushed green pods and seeds have been eaten. Pods and seeds give a blue dye and roasted seeds a black dye.

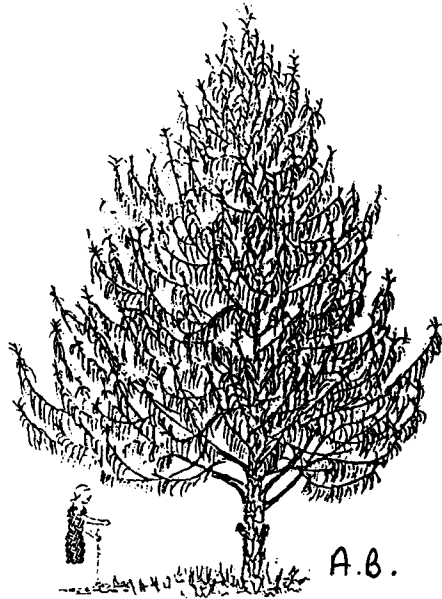
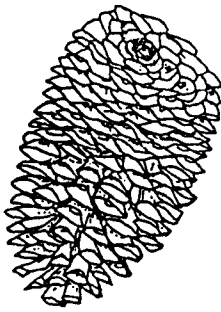
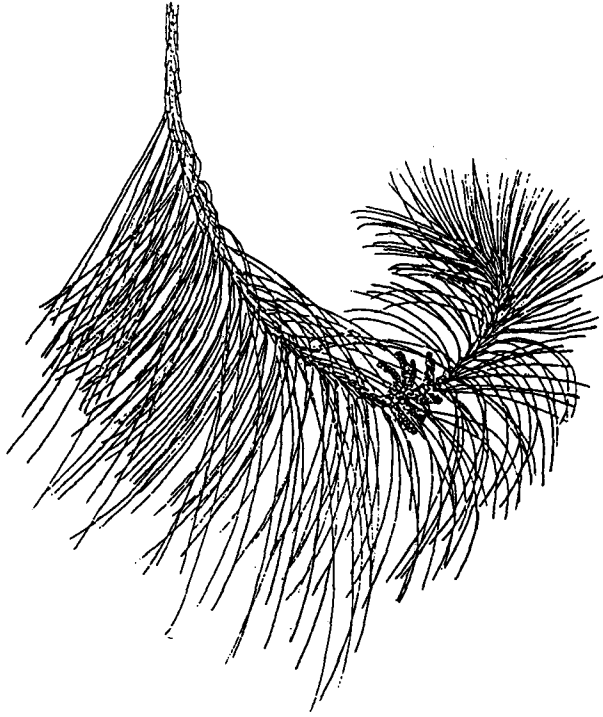


Mexico

*Am: Pachula*

*Eng: Mexican weeping pine*

- Ecology:** Probably the most widely planted pine in tropical Africa. It is tolerant of most soils and will grow in grassland. It grows best with good water supplies but can also survive adverse conditions. Does well in Moist and Wet Weyna Dega agroclimatic zones.
- Uses:** **Firewood, posts, timber.**
- Description:** An evergreen tree to 35 m with light green, **weeping foliage** and a long straight trunk; branches more or less horizontal, turning up at the tips. **BARK:** Grey to dark brown, fairly smooth, papery red-brown on young branches. **LEAVES:** Long slender "needles", **soft but hard tipped, 15–23 cm long, in bundles of 3.** **CONES:** Female: small hard red spheres mature in 2 years to shiny brown cones, **base oblique, to 10 cm long in clusters of 2–5 without stalks.** Male: on the same tree, **short terminal catkins, yellow-brown, producing clouds of dust-like pollen.** Seeds develop below the cone scales and are released over a long period.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 110,000–170,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored.
- Management:** Fast growing. Thinning for trees being grown for saw timber.
- Remarks:** A good tree for woodlots, but it should not be grown near crops due to its shallow root system. The wood is easily worked, fairly light and soft, and pale brown in colour.



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California, USA

**Am:** *Radiata*

**Eng:** *Monterey pine, Radiata pine*

- Ecology:** Now widely introduced in Ethiopia in Moist and Wet Weyna Dega and Dega agroclimatic zones of Shewa, Kefa, and Arsi regions. It does well on neutral to acid well-drained soils.
- Uses:** Firewood, **poles**, posts, **timber** (heavy and light construction), ornamental, windbreak, **long-fibre pulp**.
- Description:** An evergreen timber tree that grows to 50 m with a straight trunk and upcurved branches, developing an open, irregular crown as it matures. **BARK:** Thick, dark brown, deeply grooved with age. **LEAVES:** Bright blue-green needles, soft, sharply tipped, 10–15 cm long, in bundles of 3, forming dense tufts. **CONES:** Mature female cones very large, shiny grey up to 15 cm long, with an oblique base, in whorls of 3–6, remaining on the tree for many years.
- Propagation:** Seedlings.
- Seed:** No. of seeds per kg: 33,000–50,000; germination is rapid and uniform.
- Treatment:** Mycorrhiza are required.
- Storage:** Can be stored for several years if kept dry and cool and in an air-tight container.
- Management:** Can grow extremely fast. Thinning, pruning.
- Remarks:** Tolerates sand, wind, frost, and drought. Trees are attacked by woolly aphid and the fungus *Diplodea pinea*. Seedlings are also susceptible to damping-off fungus. The soft white wood is light and straight grained but it has a low resistance to decay and termite attack. This pine is planted worldwide for paper pulp.



A. Birnie

S. America

*Am:* Tamar

*Eng:* Madras thorn, Manilla tamarind

**Ecology:** Originally from South America, this tree has so far been cultivated in Eritrea, Harerge and Ilubabor regions. It tolerates arid and semi-arid conditions and performs well in Dry and Moist Kolla agroclimatic zones, 500–1,600 m.

**Uses:** **Firewood**, poles, timber (general construction), **food and drink** (fruit pulp), **fodder** (leaves, pods, seeds), bee forage, soil conservation, ornamental, **shade**, windbreak, live fence, tannin and oil (seeds), dune fixation.

**Description:** A thin shapeless shrub or tree 4–15 m. **BARK:** Pale and smooth with horizontal marks, bole short, young branches thorny, drooping. **LEAVES:** Thin stalks bear **2 pairs of leaflets, each to 5 cm**, asymmetric oval, the tip rounded or notched, short spines at the base of each leaf pair. **FLOWERS:** Small, cream-yellow on a short stalk, bunches of green-white stamens 1 cm across. **FRUIT:** **Heavy pods, about 12 cm, spirally twisted**, narrowed between seeds, red when mature, splitting to release glossy black seeds almost covered with the fleshy red and white edible aril. A sweet pulp surrounds the seeds.

**Propagation:** Seedlings, direct sowing, cuttings.

**Seed:** No. of seeds per kg: 7,000–26,000.

**Treatment:** Not necessary.

**Storage:**

**Management:** Fairly fast growing. Coppicing, trimming (for live fence).

**Remarks:** The species has the potential for becoming a weed in moist climates if not well managed. It is popular as a spiny hedge to keep out livestock. The timber of a large tree is strong and flexible, heavy and red brown. It is difficult to cut but can be used in making local ploughs. The flowers are a good source of nectar and pollen for honey bees.



A.B.



seed in aril



N.



Indigenous

*Am:* Ahot, Kefeta, Weyel

*Or:* Amshika, Bocho, Talao

*Gr:* Ambilbey

*Tg:* Chequente

**Ecology:** Grows in upland rain forest, riverine forest and evergreen bushland and gorges such as Wof Washa State Forest Project in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,400–3,000 m.

**Uses:** Firewood, **timber** (local construction), **farm tools**.

**Description:** An evergreen shrub or tree to 15 m, the mature bole may be 40 cm at the base. **BARK:** Smooth, dark grey, rough with age. **LEAVES:** Mostly at the end of branches (very variable), oval or wider to the sharp tip, 4–15 cm long, **base narrowed to a grooved stalk**, the midrib very clear below, **6–10 side veins**, bright green in the sunlight. **FLOWERS:** On a **branched head to 8 cm long and across**, each flower stalked, about 1 cm with **5 green-white petals**, the **calyx cup-like below**. **FRUIT:** **Small brown-black capsules to 8 mm dry and break into 2 parts**, the halves roll back to show a yellow ridged inside surface and **4–8 bright red seeds**. Both are shiny with a resin but this fades as they dry out.

**Propagation:** Seedlings.

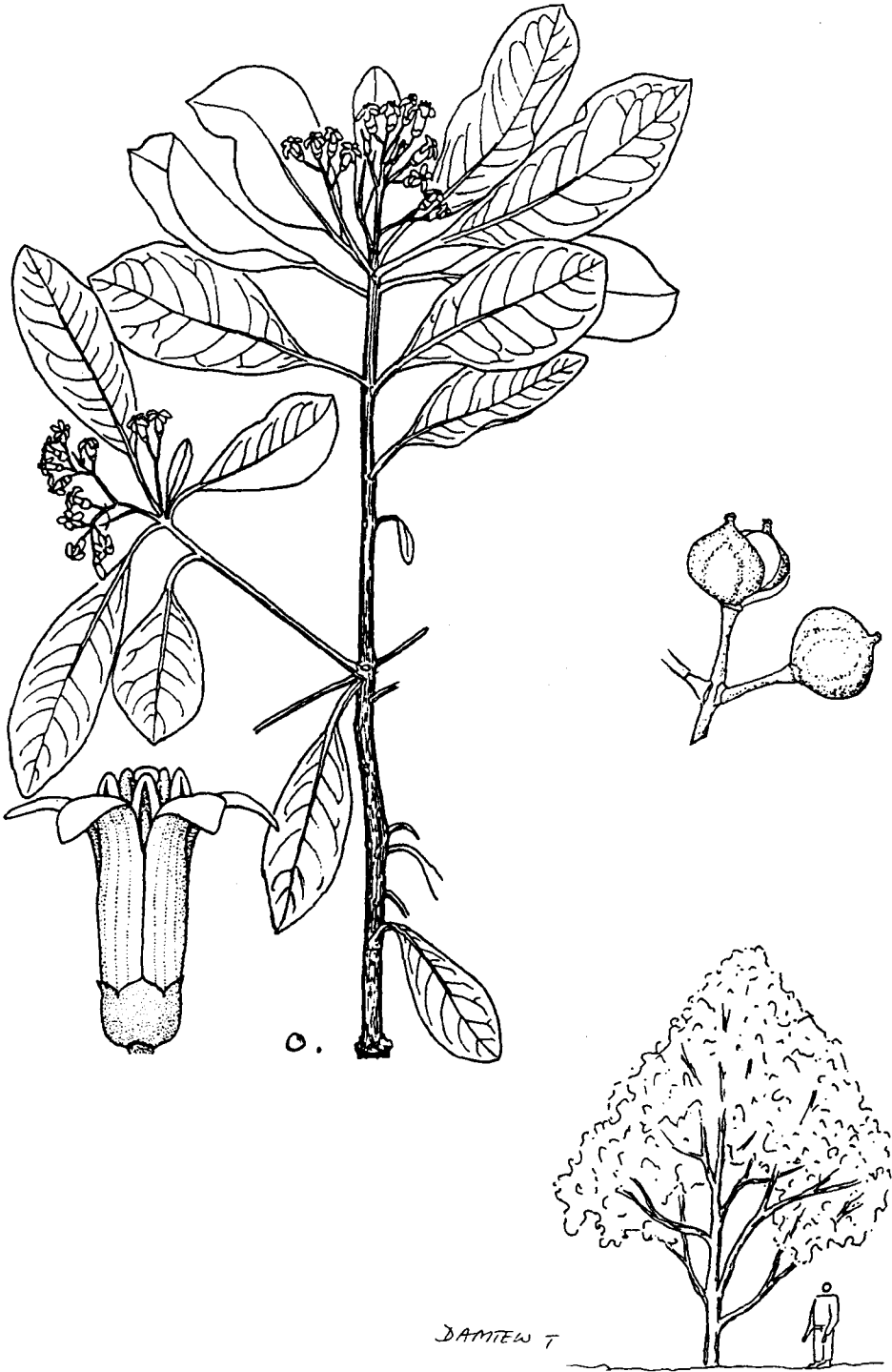
**Seed:**

**Treatment:** Not necessary.

**Storage:**

**Management:** Pollarding, lopping, pruning.

**Remarks:**



Indigenous

*Am:* Zigba      *Gr:*      Zigba  
*Eng:* Podo      *Or:*      Birbirsa

**Ecology:** Podocarpus trees are mainly found in the southern hemisphere. These conifers which have no cones are related to junipers and are also known as yellow-woods. *P. falcatus* is a large tree of the semi-humid lower highland forests of the central and eastern highlands in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,600–2,500 m.

**Uses:** Firewood, **poles, timber** (furniture, boxes, plywood, panels), medicine (bark), **ornamental, shade**.

**Description:** An evergreen tree with a straight bole, to 25 m or more. **BARK:** Grey to dark brown, **cracking and scaling into irregular rectangles**. **LEAVES:** Narrow, shiny dark green, 2–5 cm, **gradually tapering**. Young leaves larger and brighter giving a **green flush**. **CONES:** 1–3 male catkins, **yellow-brown, about 2 cm**, female cones hard, rounded to 2 cm, very slow to develop, **green with dull purple bloom**, outer shell thin but inner flesh eaten by monkeys and birds.

**Propagation:** Seedlings, wildings.

**Seed:** No. of seeds per kg: 2,100–2,600.

**Treatment:** Crack the hard woody seed coat before sowing.

**Storage:** Seed can be stored for up to 2 years.

**Management:** Slow growing. Hardy once established.

**Remarks:** The species is now rare due to over-exploitation. The wood needs preservatives and careful seasoning to prevent warping.



Indigenous

*Am:* Kariu, Yezinjero wonber

*Or:* Tala, Karasho. Kuda

*Sd:* Kervoni, Tallaha

**Ecology:** A tree that grows in woodland, and semi-humid and humid highland forests with *Syzygium*, *Cordia*, *Olea*, *Apodytes* and *Aningeria* in Shewa, Ilubabor, Kefa, Arsi and Sidamo regions. It is common in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,700–2,500 m.

**Uses:** Firewood, **timber** (boxes, crates), **mulch**.

**Description:** A deciduous tree up to 25 m with a clean **straight bole** to about 9 m, the base to 80 cm across, the crown **flat-topped from distinctive forked branches**. **BARK:** Grey, smooth, with horizontal scars. **LEAVES:** Compound, very long to 1 m, with 9–13 pairs of leaflets plus 1 at the tip, each leaflet oval and leathery, 9–20 cm, the tip sharp, the base rounded, smooth above but covered with **cream-yellow hairs below**. **FLOWERS:** **Green-yellow**, honey-scented, very small in loose heads to 60 cm long, branching regularly, the **main stalks with red-brown hairs**. **FRUIT:** Very small, often ribbed, **in clusters on side branches**, 2 seeds inside.

**Propagation:** Seedlings, wildings.

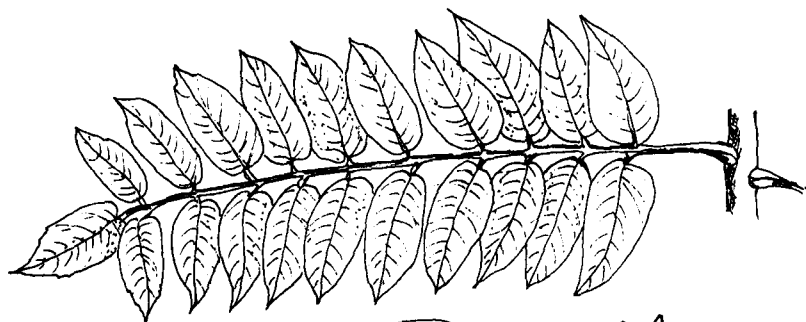
**Seed:**

**Treatment:**

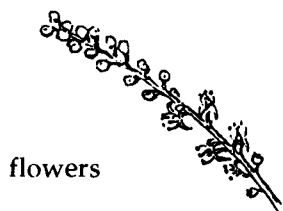
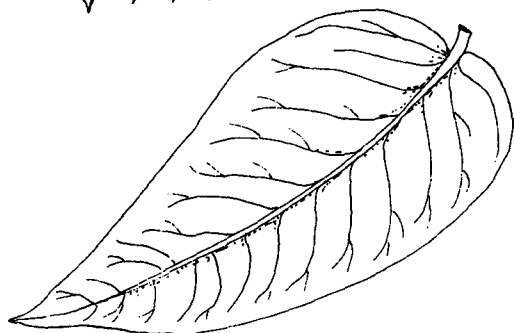
**Storage:**

**Management:** Grows fast in good conditions.

**Remarks:** The very light soft pale-coloured wood is tough and strong and good for food containers as it has no smell. The leaf fall makes good mulch.



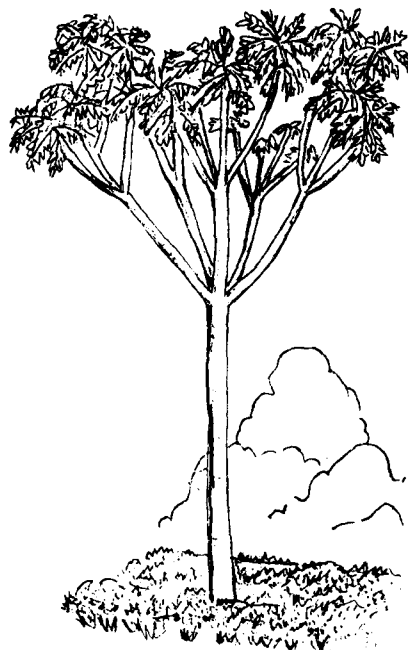
A.B.



flowers



fruit



DAMTEW T.

**Indigenous****Am:** Chocho**Gm:** Taitos**Kf:** Tumo**Or:** Hadad, Hurgessa, Urgessa**Sd:** Tulanji

**Ecology:** Occurs in dry bushland with *Acacia*, *Carissa*, *Euclea*, *Myrica*, *Maytenus* and *Otostegia* and at margins of *Podocarpus* forests. It also grows in degraded and secondary forests in Tigray, Gonder, Gojam, Wolega, Shewa, Arsi, Sidamo, and Kefa regions and does well in Dry and Moist Weyna Dega agroclimatic zones, 1,300–2,300 m.

**Uses:** Firewood, charcoal, medicine (leaves), fence (cut branches).

**Description:** A small spreading tree to 5–6 m. Young branchlets densely hairy. **LEAVES:** Opposite, simple, the edge toothed, broadly ovate, yellow-green above, pale beneath, aromatic, up to 14 x 12 cm, hairy, especially beneath, stalk to 3 cm long, densely hairy. **FLOWERS:** Green-white, very small but numerous, on a branched head to 8 cm long, each flower tubular, **swollen at the base**. **FRUIT:** Round, green and ripening black, thinly fleshy and held in the calyx cup, to 8 mm diameter, the stone containing 4 seeds.

**Propagation:** Seedlings.

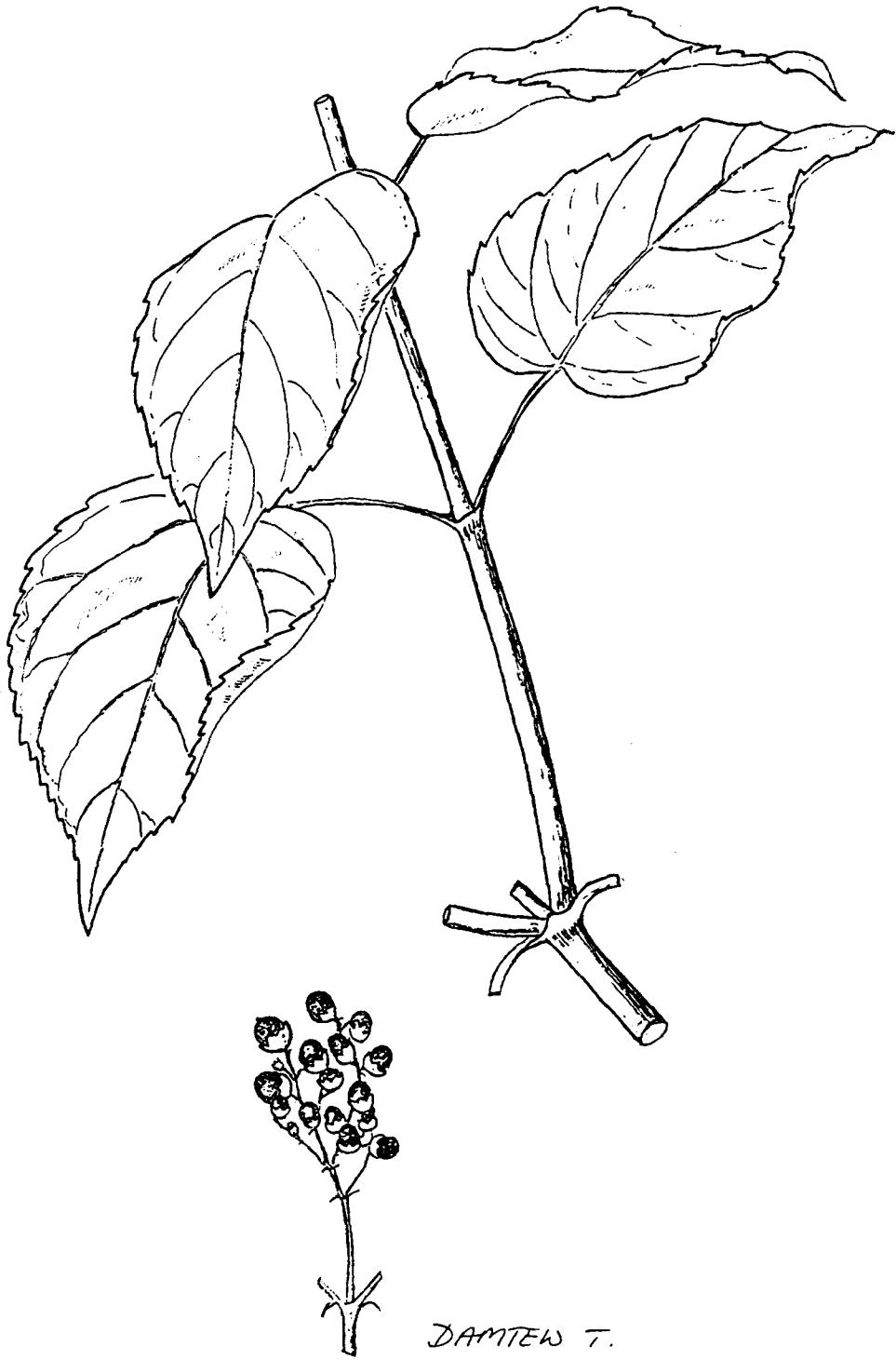
**Seed:**

**Treatment:** Not necessary.

**Storage:** Can be stored.

**Management:** Coppicing.

**Remarks:** Cut branches are used as fencing around homesteads.





Central America, Mexico

*Eng: Algarroba, Mesquite*

- Ecology:** A thorny shrub or tree cultivated all over the tropics. It grows well in arid regions, producing deep roots and tolerating sandy, rocky or poor and saline soils. It is a useful tree in Bereha and Dry and Moist Kolla agroclimatic zones, 400–1,600 m.
- Uses:** **Firewood, charcoal, posts, timber, carving, food (fruit, leaves), fodder (leaves, pods), bee forage, medicine, soil conservation, nitrogen fixation, shade, windbreak, live fence.**
- Description:** Often a shrub, but can become a shapely tree to 15 m, though usually 3–5 m. The bole short, young branches smooth green. **BARK:** Thick, **rough green-grey**, scaly with age. Some with **pairs of thorns to 5 cm**. **LEAVES:** Compound with 2–3 pairs of pinnae, stalks to 6 cm, **leaflets oblong narrow**, 1.5 cm long, no terminal leaflet. **FLOWERS:** Gold-yellow, densely crowded in **spikes 5–10 cm, fragrant**. **FRUIT:** **Yellow pod, 10–20 cm (more brittle than *P. chilensis*)**, sweeter, darker; 10–20 hard seeds inside, difficult to extract.
- Propagation:** Seedlings, direct sowing, coppicing.
- Seed:** Germination 40–80 %. No. of seeds per kg: 30,000–35,000. Seeds can be extracted by exposing pods to termites or soaking in water.
- Treatment:** Not necessary.
- Storage:** Seed stores well both in pods and when extracted as it is not attacked by insects.
- Management:** Fairly fast growing; capable of becoming a weed on wetter sites. Lopping, pollarding and coppicing.
- Remarks:** Sets seed after 3–4 years. A thorny shrub or tree with a great many variants and closely related species causing some confusion in identification. Unlike *P. chilensis*, young shoots are brown and the tree is better shaped. It also grows faster and competes with crops. The sweet pods contain both glucose and protein so are valuable as fodder. The hard, dense wood burns with great heat.



**Indigenous**

**Am:** Tikur inchet

**Eng:** Red stinkwood, Ironweed

**Gm:** Beru

**Hd:** Arara

**Or:** Bouraio, Buraya, Homi, Mukoraja

**Sd:** Mrchiko

**Wt:** Garba, Onsa

**Ecology:** A useful timber tree widespread in montane and riverine forests of Harerge (especially Dindin Forest), Ilubabor, Kefa, Arsi, Wolega, Sidamo, Gonder, Gojam and Shewa regions. Usually it occurs in high-rainfall areas in Moist and Wet Weyna Dega agroclimatic zones, 1,500–2,300 m.

**Uses:** **Firewood**, charcoal, **poles**, **timber** (construction), utensils (mortars), medicine (leaves, bark), bee forage, mulch, **shade**, windbreak.

**Description:** An evergreen tree to 40 m. In forests, the high foliage is open, the branches often pendulous, but in grassland the tree is more rounded and compact. **BARK:** Rough, dark, scaling irregularly, branches corky, **branchlets dotted with breathing pores**. **LEAVES:** Leathery, glossy dark green above, oval to 10 cm, **margin with shallow rounded teeth**, leaf stalk typically pink, to 2 cm. Crushed leaves have a bitter almond smell. **FLOWERS:** Sprays on stalks about 8 cm long, very small, fragrant, green-white. **FRUIT:** Rounded about 1 cm, dark red, often bilobed, containing one seed.

**Propagation:** Seedlings, wildings.

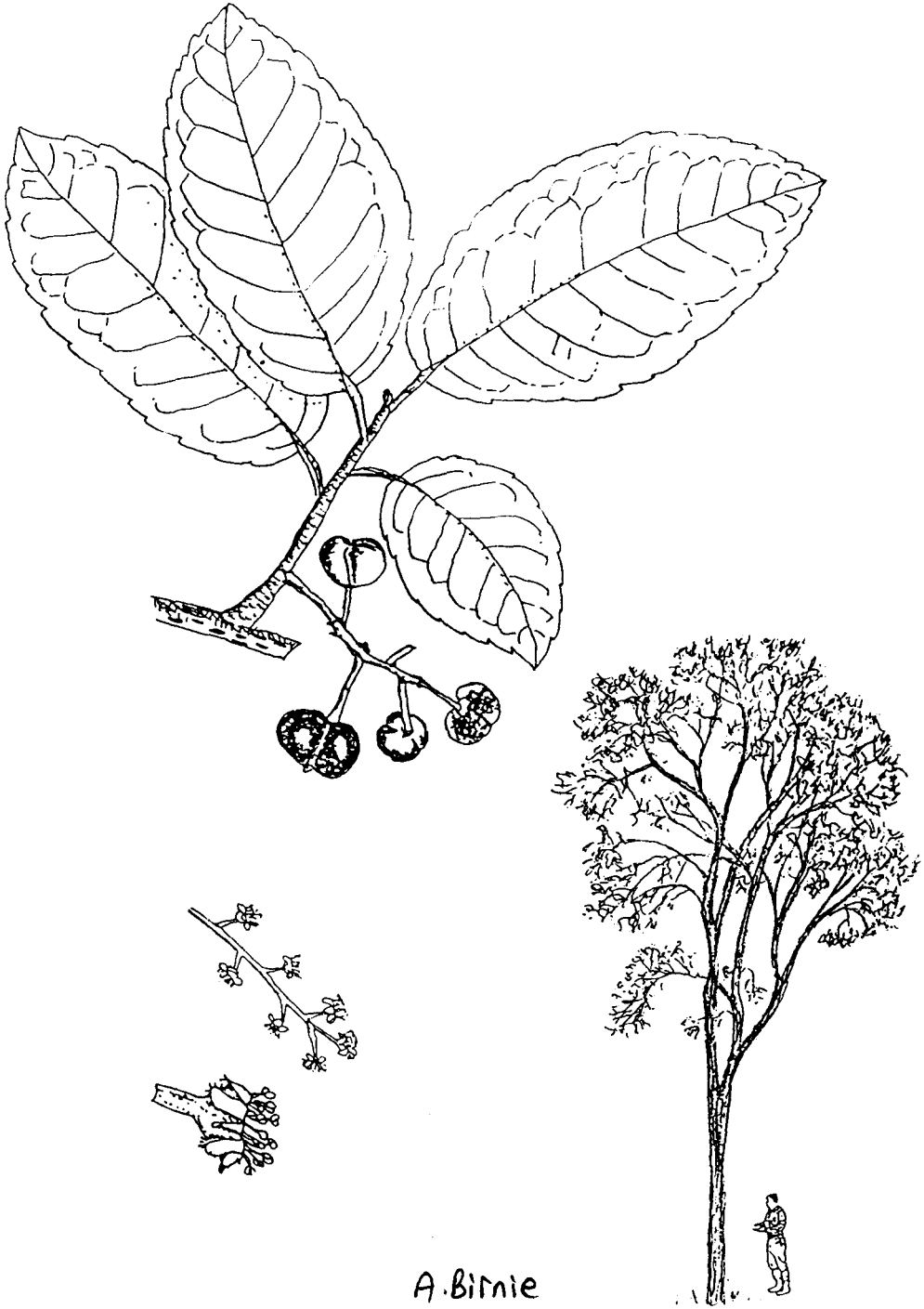
**Seed:** No. of seeds per kg: 3,400–6,000.

**Treatment:** Not necessary. The fleshy parts should be removed from the fruit.

**Storage:** Seed does not store well therefore fresh seed should be used.

**Management:** Fairly slow growing.

**Remarks:** The heartwood darkens to a dense red. The stem bark provides a popular medicine against urinary disorders.



A. Birnie

South-West Asia, China

*Am:* Kock      *Sd:*      *Kocki*  
*Eng:* Peach    *Tg:*      *Kock*  
*Gr:* Kock

**Ecology:** A small fruit tree of temperate climates, widely planted in the highlands and in home gardens in Moist and Wet Weyna Dega agroclimatic zones, 1,700–2,400 m. It will grow in quite dry soils.

**Uses:** Firewood, food (fruit).

**Description:** A deciduous spreading tree to 6 m, but normally pruned in cultivation. **BARK:** Grey-brown, splitting; young twigs angular, smooth and red. **LEAVES:** Narrowly oval, 5–15 cm long, the edge finely toothed, dull green, paler below with a raised midrib, shortly stalked. **FLOWERS:** Blossom on the bare tree, flowers deep pink to 4 cm across, usually single, 5 petals around the central stamens. Flowers grow on small side branches which later take the weight of the tree's fruit. **FRUIT:** Round and fleshy to 8 cm across, usually smaller, yellow-red and carved with short hairs which rub off. Inside a hard pitted stone contains the single seed.

**Propagation:** Seedlings. Grafting to maintain tree variety and quality.

**Seed:**

**Treatment:**

**Storage:**

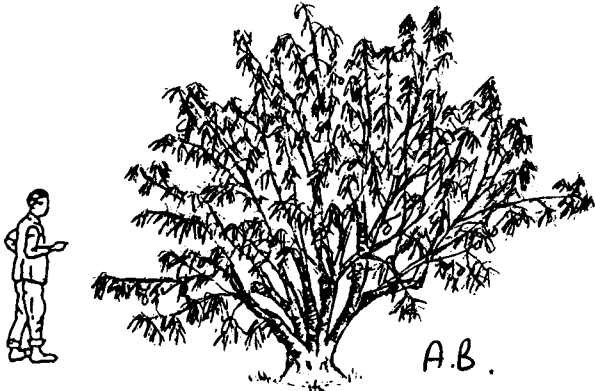
**Management:** Pollarding to encourage branching. Pruning before the rains promotes good fruiting. Shoots of one year bear fruit the following year, so pruning has to be done accordingly.

**Remarks:** It is severely affected by peach leaf curl. It produces large quantities of small, rather hard fruits which are eaten raw and are very popular.



fruit section

seed - stone



Tropical America

*Am: Zeituna*

*Eng: Guava*

- Ecology:** A fruit tree planted in Moist and Wet Weyna Dega and Kolla agroclimatic zones, 1,200–2,000 m. It is drought hardy, grows well with irrigation, but will not grow in waterlogged soils.
- Uses:** Firewood, tool handles, **food** (fruit).
- Description:** A small evergreen tree to 8 m, branching irregularly. **BARK:** Smooth, pale brown, later peeling and flaking; **young shoots 4-sided.** **LEAVES:** Large, dull and oval to 15 cm long, side veins prominently hairy below, in opposite pairs. **FLOWERS:** White, about 2.5 cm across, 1–3 together beside leaves, many stamens. **FRUIT:** Rounded to 6 cm long, **tipped by remains of calyx, pink, white, or yellow,** depending on the variety. The sweet flesh surrounds many hard angular seeds.
- Propagation:** Seedlings, root suckers, direct sowing, wildings.
- Seed:**
- Treatment:** No. of seed per kg:  $\pm 500,000$ .
- Storage:** Can be stored.
- Management:** Fast growing; pollarding, lopping, pruning, coppicing. Prune branches and roots if near crops.
- Remarks:** The fruit is often attacked by fruit fly. It is rich in vitamin C. The leaves do not decompose easily to add organic matter to the soil. The fruit is a useful source of cash for farmers. Trees bear fruit in 3–4 years and continue to fruit for up to 30 years. The wood is termite resistant.



A. Birnie



(*Canthium schimperianum*)

Indigenous

*Am:* *Seged*

*Or:* *Galo*

*Tg:* *Tselimo, Zahak*

**Ecology:** A small tree that grows in Acacia or Terminalia-Combretum woodland. It is more common at the edges of semi-humid and humid lower highland forests with trees such as Olea–Juniperus or Cordia–Podocarpus–Polyscias. Found in Moist and Wet Kolla, Weyna Dega and Dega agroclimatic zones in Eritrea, Tigray, Gonder, Shewa, Arsi, Bale, Sidamo, Gamo Gofa and Harerge regions, 900–2,600 m.

**Uses:** Firewood, farm tools, tool handles.

**Description:** A tall evergreen shrub or tree to 6 m. BARK: Dark green, rough and granular. LEAVES: **Opposite pairs** of ovate leaves, shiny above, dull below, up to 8 cm long and 4 cm across, narrowed to a blunt tip, base narrower, rounded to a short stalk, **edge wavy, veins looped. Stipules triangular, between youngest leaves.** FLOWERS: Green-white in dense **fragrant clusters, 20–30, buds rounded, 4–5 petals, often bent back.** Thin **flower stalks about 1 cm often remain when flowers fall.** FRUIT: Small, **rounded, about 1 cm across in 2 sections, fleshy, becoming woody.**

**Propagation:** Seedlings.

**Seed:**

**Treatment:**

**Storage:**

**Management:** Coppicing.

**Remarks:**



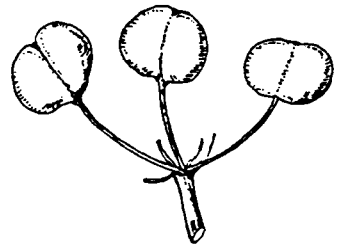
enlarged flower



A.B.



DAMTEW T.



Indigenous

**Ag:** *Gebho*  
**Am:** *Gesho*  
**Gr:** *Gishe*

**Or:** *Gesho*  
**Tg:** *Gesho*

**Ecology:** Widespread and locally cultivated from medium to high altitudes, in grasslands, in rain forests and margins of evergreen forests in Moist and Wet Kolla and Weyna Dega and Moist Dega agroclimatic zones, 1,000–3,200 m.

**Uses:** Firewood, medicine (roots), **flavouring, local beer** (leaves).

**Description:** An evergreen shrub or small tree to 7 m which may climb over other bushes. It has slender stems and drooping branches. **BARK:** Grey-brown, dark with age, smooth but **clearly dotted with breathing pores**. **LEAVES:** Alternate, long oval to 10 cm, **shiny dark green above with raised vein network, tip sharply pointed**, edge finely toothed, base narrowed to a stalk. **FLOWERS:** Small, yellow-green with **5 sepals**, single or 2–10 in a group on thin stalks. **FRUIT:** Rounded, **3-part berries** on a 2 cm drooping stalk, about 8 mm, **shiny red**, turning **purple-black**, 3 seeds inside.

**Propagation:** Seedlings.

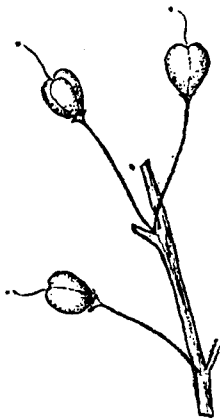
**Seed:** Germinates readily.

**Treatment:** Not necessary.

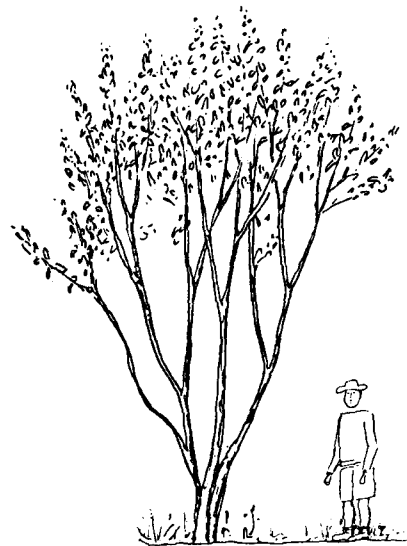
**Storage:** Stores well.

**Management:** Coppicing, cultivation, weeding and irrigation.

**Remarks:** It is widely planted in gardens. The roots are used to purify the blood. The leaves are used to add flavour to the local drinks *tella* and *tej* brewed from fermented barley, sorghum or finger millet.



DANTEW T.



**Indigenous**

**Am:** Tedo, Tsedo                      **Sm:** Jajale  
**Or:** Qadida                              **Tg:** Tsedo  
**Sh:** Kistani-schahala, Quloum

**Ecology:** Occurs in rocky and valley areas of semi-humid and humid lowland and medium highland woodlands of Eritrea, Tigray, Gonder, Shewa, Arsi, Kefa, Gamo Gofa, Sidamo, Bale, and Harerge regions. It does well in Moist and Wet Dega and Weyna Dega agroclimatic zones, 1,400–2,900 m.

**Uses:** Firewood, **flavouring** (leaves).

**Description:** A small bushy rigidly branched shrub or small tree growing to 5 m. **BARK:** Grey-brown, smooth. **LEAVES:** **Small**, narrow and oblong, to 5.5 cm long, **clustered** on short side branches which may be spine tipped. **Leaf tip is pointed, rounded** or notched, the edge with small rounded teeth. **FLOWERS:** Small green-yellow, only 2–4 together, **4 petals**, almond scented. **FRUIT:** **Red to purple berries**, only **5 mm** across.

**Propagation:** Seedlings.

**Seed:**

**Treatment:** Not necessary.

**Storage:** Stores well.

**Management:** Coppicing.

**Remarks:** The species tolerates repeated coppicing. It is used in the same way as *R. prinoides*, but less commonly and only for *tej*.



Indigenous

*Or:* Daga chebsa

*Sm:* Armo saged, Hyab

**Ecology:** A perennial shrub, often a climber, which occurs in Acacia and Combretum-Terminalia woodland, wooded grassland, and riverine forests. It is found in Ilubabor, Welo, Shewa, Wolega, Kefa, Gamo Gofa, Sidamo, Bale and Harerge regions in Dry, Moist and Wet Weyna Dega agroclimatic zones, 700–1,900 m.

**Uses:** Firewood, **food additive** (stem and juice).

**Description:** A shrub or woody climber to 5 m with tendrils opposite the leaves. **BARK:** Only young branchlets grey-yellow and hairy, scaly when older. **LEAVES:** 3 leaflets, variable in size, the central leaflet **long oval, 3–9 cm**, lateral leaflets narrow, sickle-shaped, **veins looping before the edge**, usually **without teeth**, shiny deep green above, paler below but **not hairy**, a stalk to 3 cm. **FLOWERS:** Tiny in dense heads opposite the leaves, stalks and calyx with woolly yellow hairs, brown-purple petals in star-like flowers. **FRUIT:** A bunch of fleshy **black berries, bilobed, about 1 cm across, surface rough**, 1–3 seeds in each berry.

**Propagation:**

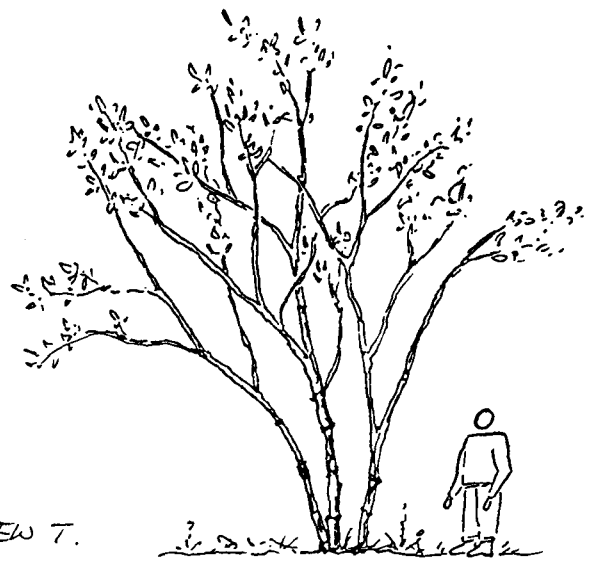
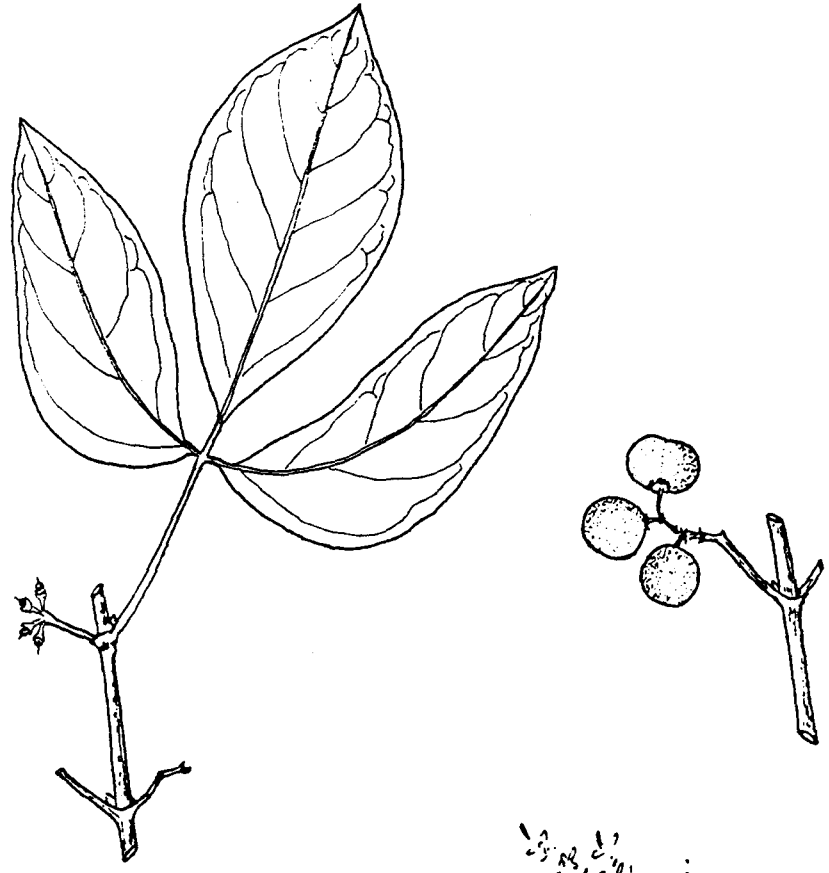
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** Acid juices from the stem are added to palm wine.



DAMTEW T.



Indigenous

*Am:* *Aba woldu, Wodel asfes*

*Sm:* *Hayab*

*Eng:* *Bitter grape*

*Tg:* *Karshiro*

*Or:* *Dangogo siyaka, Gale lala, Hida refe*

**Ecology:** A woody climber growing on rocky hillsides, in open grassy woodlands and at the margins of evergreen forests in Moist and Wet Weyna Dega agroclimatic zones, 1,200–2,400 m.

**Uses:** Food (fruit), **medicine** (roots).

**Description:** A woody climber with tendrils, 4–10 m, or a small shrub. All parts with yellow hairs. **BARK:** Pale brown, smooth, powdery, branchlets often red, softly hairy, clear breathing pores (lenticels). **LEAVES:** **3 leathery leaflets**, central leaflet oval to rounded, laterals narrower, often rounded at base, **main veins run straight to the widely toothed leaf edge**, always yellow-brown hairy below, stalk 4–7 cm long; simple tendrils opposite leaves. **FLOWERS:** Tiny, in **dense flower heads about 3 cm across**, on a long stalk opposite a leaf, buds dark purple, **5 purple-green petals spread like a star**, with stamens bending over the dark centre, petals soon fall. **FRUIT:** Bunches of **shiny berries** about 1 cm across, **red then black**, 1–4 seeds edible flesh.

**Propagation:** Seedlings.

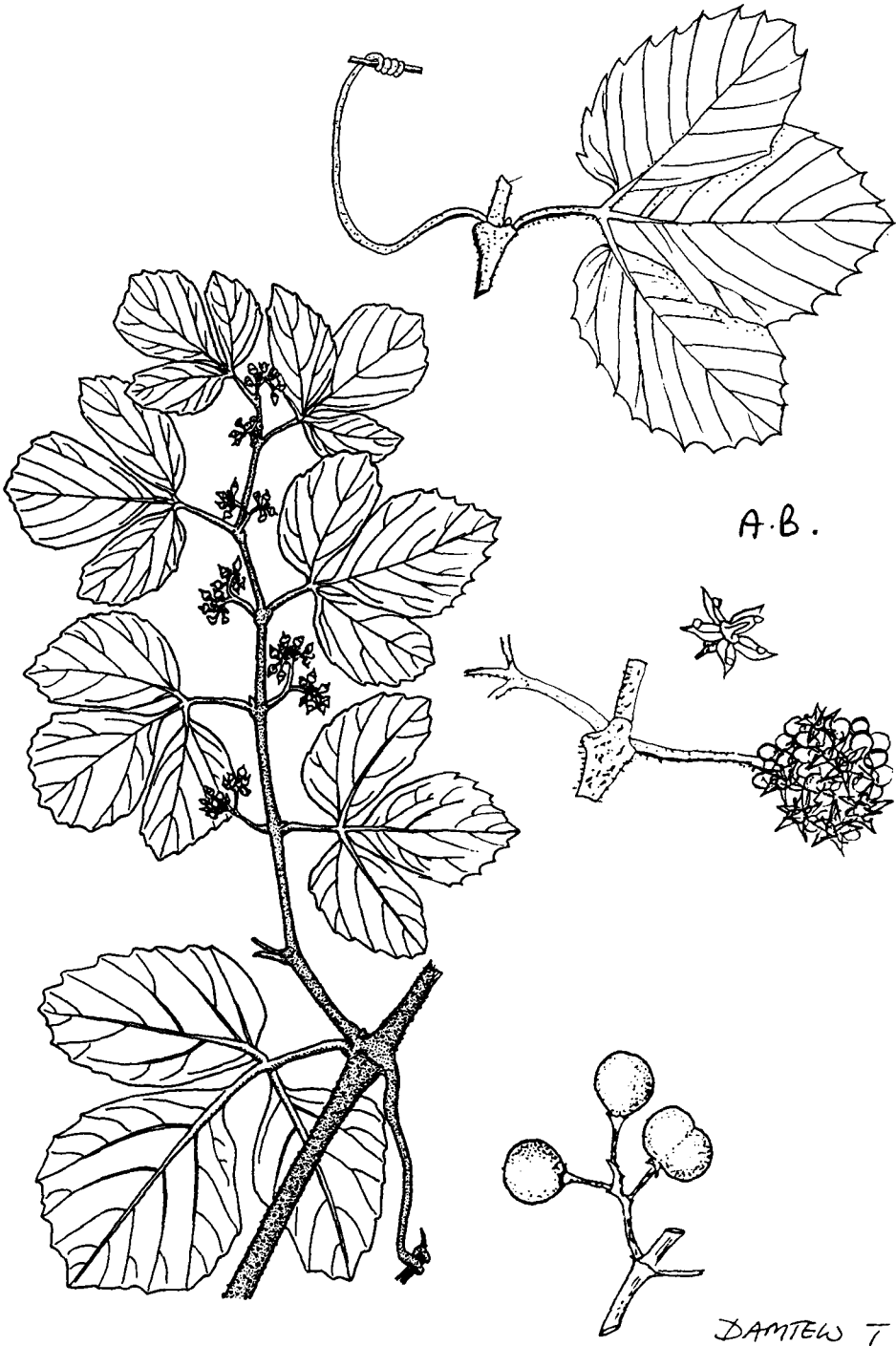
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** Bees visit the flowers.



Indigenous

**Am:** *Embus*

**Or:** *Akessa, Tatessa*

**Tg:** *Shemut*

**Ecology:** A shrub or tree found in semi-arid conditions in lowland and highland woodlands of Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,500–3,300m.

**Uses:** **Firewood, farm tools, tool handles.**

**Description:** A spreading or upright shrub or tree 3–10 m. The trunk may reach 25 cm diameter. This species is named for the **new shoots** which exude a **shiny, sticky liquid** (glutinous). **BARK:** Red-brown becoming dark grey. **LEAVES:** The three leaflets are all long, narrow, **wider towards the pointed tip, all about the same length, 8–23 cm**, midrib clear below, narrowed to a **long leaf stalk. Leaves dry brown** with pale veins. **FLOWERS:** Very small, male and female, in **dense rounded heads**, on **hairy branched stalks** as long or longer than leaves. **FRUIT:** Cream to **pale brown** and shiny, about 5 mm across, rounded to **bean shaped**, slightly flattened and soon falling.

**Propagation:** Seedlings.

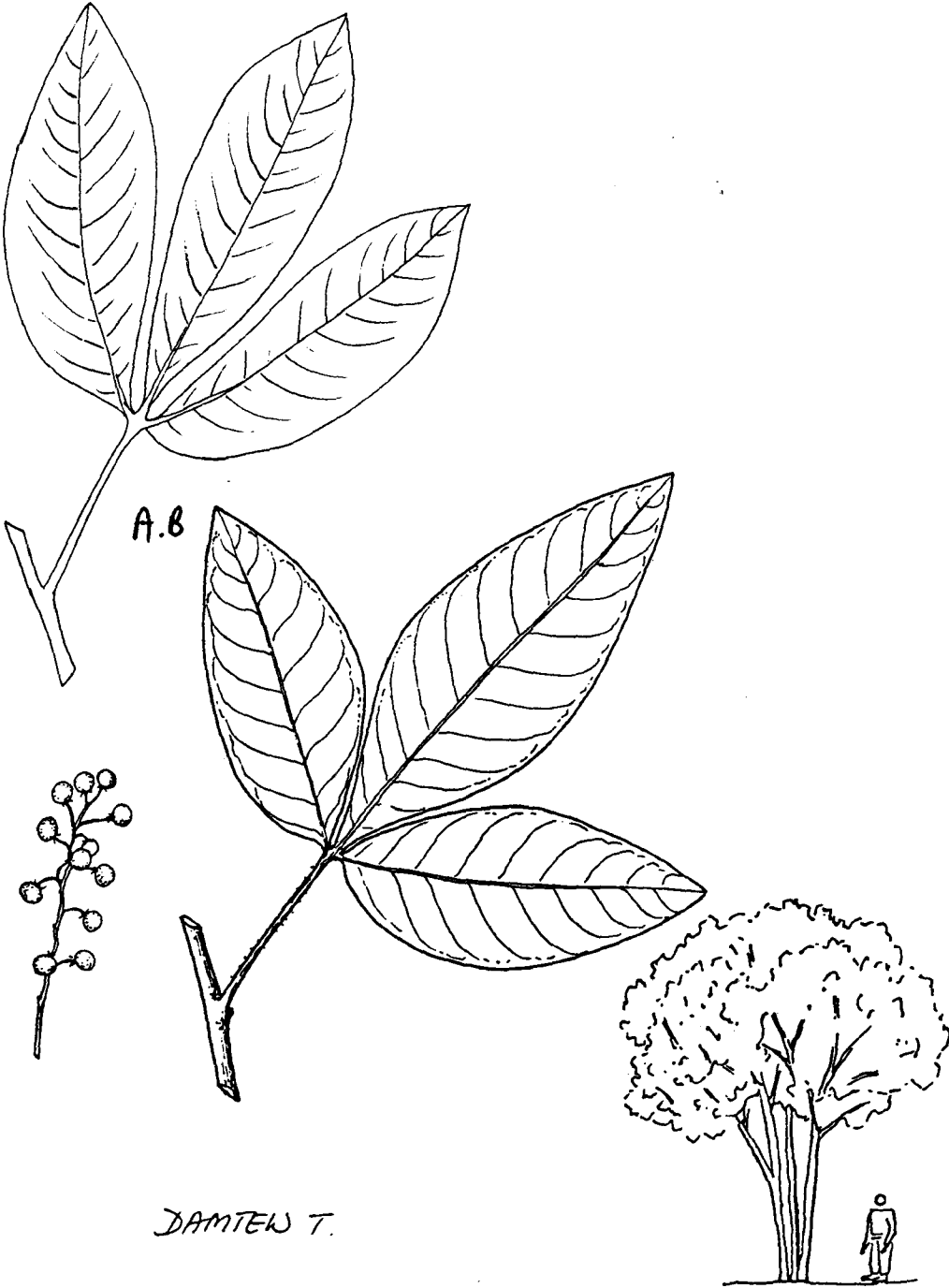
**Seed:**

**Treatment:** Not necessary.

**Storage:** Stores well.

**Management:** Coppicing.

**Remarks:** There are 3 subspecies in Ethiopia.



Indigenous

**Am:** *Chakema, Takuma*

**Or:** *Debobosso*

**Tg:** *Tetale, Thathalo*

**Ecology:** A bush widespread in Africa. In Ethiopia it usually grows in wooded savannah, on forest edges and in lowland woodlands in Moist Weyna Dega agroclimatic zones, 1,600–2,400 m.

**Uses:** Firewood, charcoal, tools, farm tools, food (fruit), medicine (leaves), toothbrushes (stems).

**Description:** A many-branched shrub or tree, sometimes tending to scramble, up to 8 m in height. BARK: Grey, often almost white, branchlets pale and dotted with breathing pores, **branches angular**. LEAVES: 3-foliolate, the central leaflet largest to 9 cm, **usually dark green**, rather **leathery**, hairless, sometimes toothed, very variable, **wider towards the tip**, narrowed to the base, on a stalk 2–4 cm. FLOWERS: Green-yellow in loose heads to 15 cm. FRUIT: Oblong to bean-shaped, smooth, **red with thin flesh** and a waxy covering, about 5 mm, edible. The dry papery fruit soon fall.

**Propagation:** Seedlings.

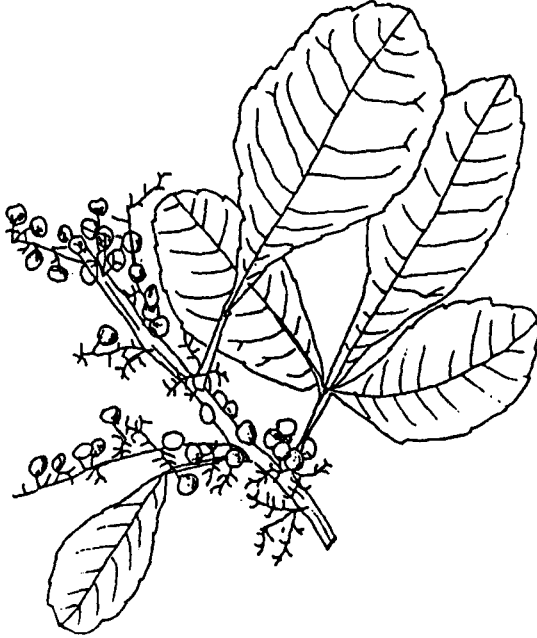
**Seed:**

**Treatment:** Not necessary.

**Storage:** Stores well.

**Management:** Coppicing.

**Remarks:**



Indigenous

*Am:* Tilem  
*Or:* Tadessa

*Sm:* Sisai  
*Tg:* Tekalo, Vralo

**Ecology:** A shrub which occurs in evergreen bushland on dry and rocky slopes in western Eritrea, Tigray, Welo, Shewa, and Harerge regions. It could perform well in Moist Weyna Dega agroclimatic zones in Ethiopia, 1,600–2,000 m.

**Uses:** Firewood, farm tools, walking sticks, local beds (leaves).

**Description:** A thin shrub or small tree 2–6 m, the slender red-brown twigs hanging down. **Young shoots shiny.** LEAVES: Long, thin and pointed, over 4 times longer than broad, to 20 cm, widest below the centre, edge finely curly, shiny green above, paler below, oily and sticking together if pressed, usually **remaining green as they dry.** FLOWERS: Small, male and female, in loose branched heads, **stalks harmless.** FRUIT: Round or bean-shaped, less than 5 mm, shiny pale brown, slightly pink, soon falling.

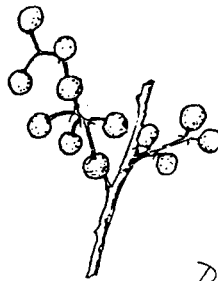
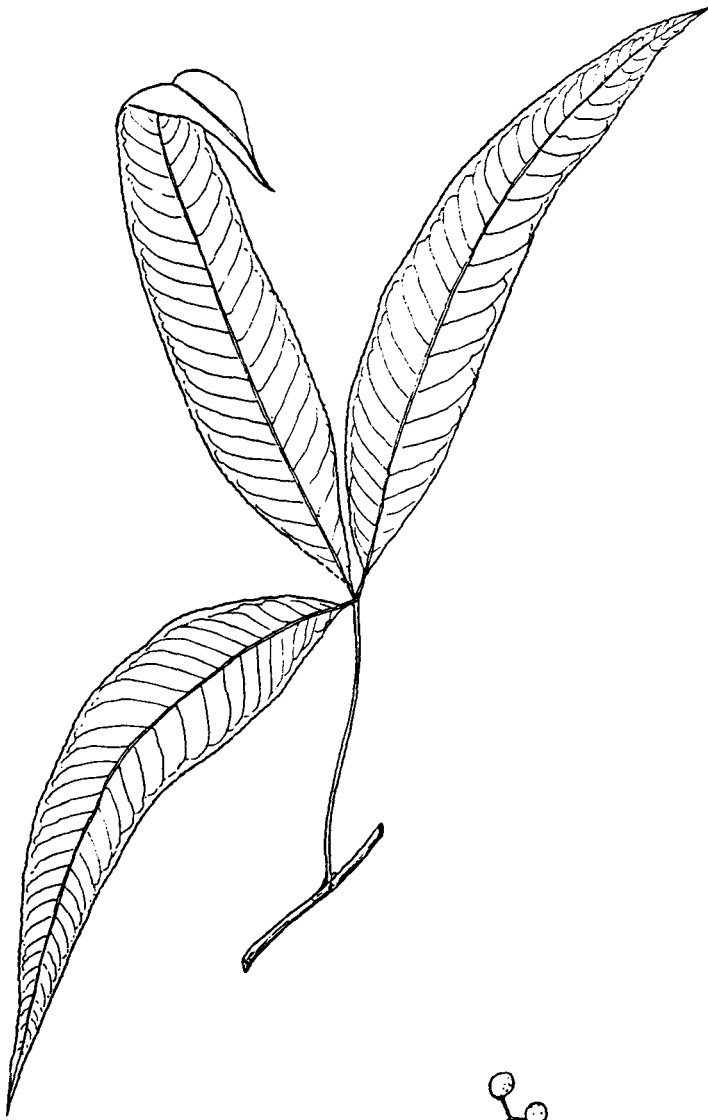
**Propagation:** Seedlings.

**Treatment:**

**Storage:** Stores well.

**Management:**

**Remarks:** The leaves stick together if they are piled on top of each other and pressed down.



DAMTEW T.



Indigenous

*Am:* Qmmo, Yeregna kolo

*Or:* Tatess

**Ecology:** A very common shrub at forest edges and in woodlands in the Moist Weyna Dega agroclimatic zone, 1,700–2,200 m.

**Uses:** Firewood, farm tools, food (fruit).

**Description:** A shrub or small tree that occasionally reaches 6 m. Branchlets brown, hairy. LEAVES: 3 leaflets, dull green, **slightly hairy, especially below, oval to rounded, usually 5 cm** long, the tip either rounded, notched or sharp, the upper edges sometimes with large rounded teeth; leaf stalk to 4 cm, **very variable**. FLOWERS: Small bunches on hairy branched sprays, to 15 cm, yellow-green, with bright yellow stamens. FRUIT: Thin, yellow-red, flat and round, **only 3–5 mm across**, edible.

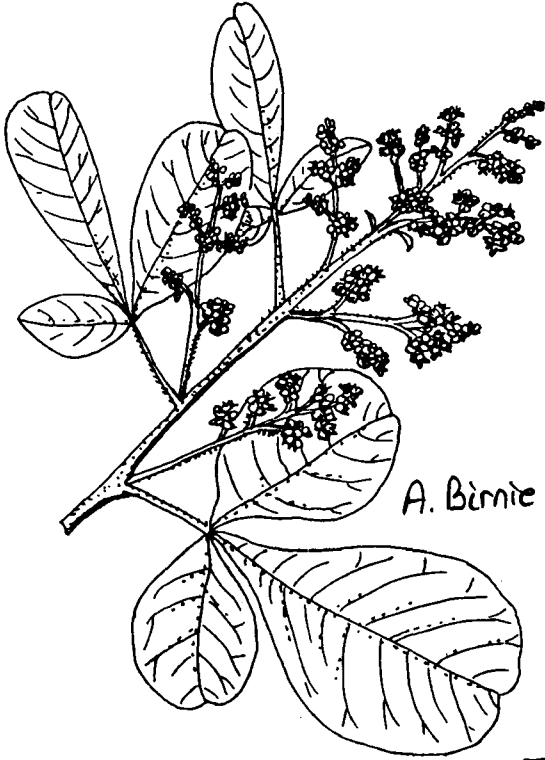
**Propagation:** Seedlings.

**Treatment:**

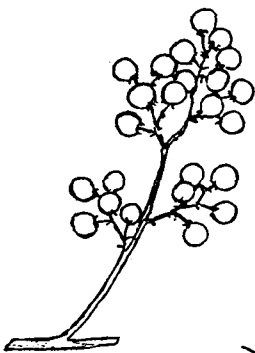
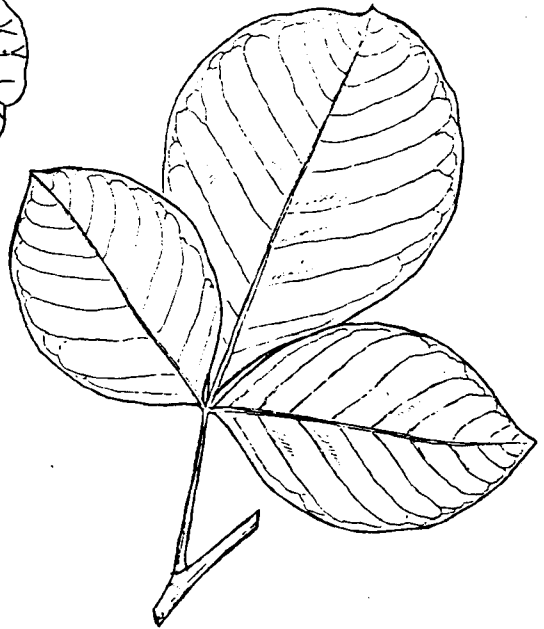
**Storage:** Stores well.

**Management:**

**Remarks:** The fruit are better to eat if they are heated.



A. Birnie



DAMTEW T.

Indigenous to Africa

*Am:* Gulo

*Eng:* Castor oil plant

*Gr:* Kobo, Kuwobo

**Ecology:** A shrubby tree growing over a wide range of altitudes and preferring humus-rich and disturbed ground. It is found in Moist and Wet Kolla, Weyna Dega and Dega agroclimatic zones, 1,000–2,700 m,

**Uses:** **Medicine** (castor oil), oil (seeds).

**Description:** An evergreen shrub or tree to 5 m (many different varieties). **Stems often red**, hollow with age, well-marked leaf nodes and leaf scars. **LEAVES:** Large compound **palmate leaves to 50 cm across with 5–11 lobes, the edge toothed**, on a long hollow leaf stalk. Young leaves soft, shiny, dark red-green above. **FLOWERS:** Crowded on upright spikes to 60 cm, male flowers with **creamy-yellow stamens** at the base; female flowers with soft green spines and 3 bright red divided stigmas at the top. **FRUIT:** Round, **green-brown capsules**, spiny, to 2.5 cm across, split to set free **3 seeds**, grey-purple-brown, shiny and spotted with a small white structure (caruncle) at one end.

**Propagation:** Seedlings.

**Seed:**

**Treatment:** Not necessary.

**Storage:** Stores well for 2–3 years.

**Management:**

**Remarks:** The plant is drought and termite resistant. The seed coat and leaves are poisonous to animals and to poultry, and even the oil residue can only be used as stock feed if specially treated. It can, however, be used as a fertilizer.

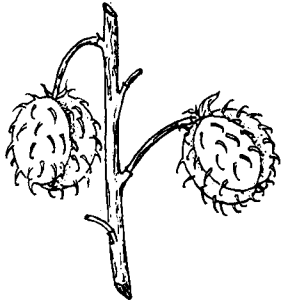
The seeds yield up to 50% oil, an oil that has many industrial uses. For medicinal purposes, the oil extract is heated to neutralize the strong poison, ricin. Even a few seeds can kill if they are chewed—so take care with children. The oil is best used as a body lotion but it was commonly used as a purgative in the Western world until better products replaced it.



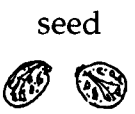
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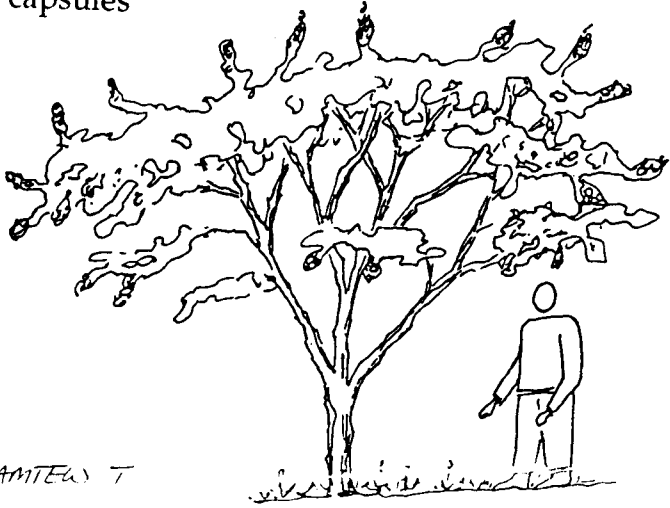
flowers



fruit capsules



seed



DAMTEW T

Indigenous

<b>Ag:</b> <i>Mawordi</i>	<b>Hd:</b> <i>Enqoto, Gora</i>
<b>Am:</b> <i>Kega</i>	<b>Or:</b> <i>Enqoto, Goro</i>
<b>Eng:</b> <i>Abyssinian rose</i>	<b>Sm:</b> <i>Dayero</i>
<b>Gr:</b> <i>Engocha</i>	<b>Wt:</b> <i>Tsege-reda-chisha</i>

**Ecology:** Common in upland dry evergreen forests and margins or clearings of forests, in bushland and dry grasslands. It is also found near houses and on river banks in Moist Weyna Dega and Dega agroclimatic zones, 1,700–3,300m.

**Uses:** Firewood, **food** (fruit), **medicine** (fruit), live fence.

**Description:** A prickly evergreen shrub, creeper or climber, or a small tree to 7 m. Few prickles on the stem, slightly curved from a wide base and **all similar**. Variable in many features. LEAVES: Compound, leathery, 3 pairs leaflets plus one at the tip, each narrowly ovate 1–6 cm, tip sharp, edge toothed, on a short stalk which is winged by the leafy stipules. FLOWERS: **Fragrant white-pale yellow**, usually 3–20 in dense heads, each stalked, the **sepals long, narrow and hairy, soon fall**, 5 petals about 2 cm long, **tip rounded to square**, many stamens. FRUIT: Green at first, ripen to **orange-red**, about 2 cm long, fleshy and edible, seeds within.

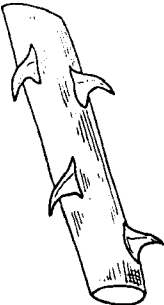
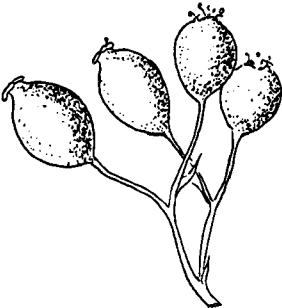
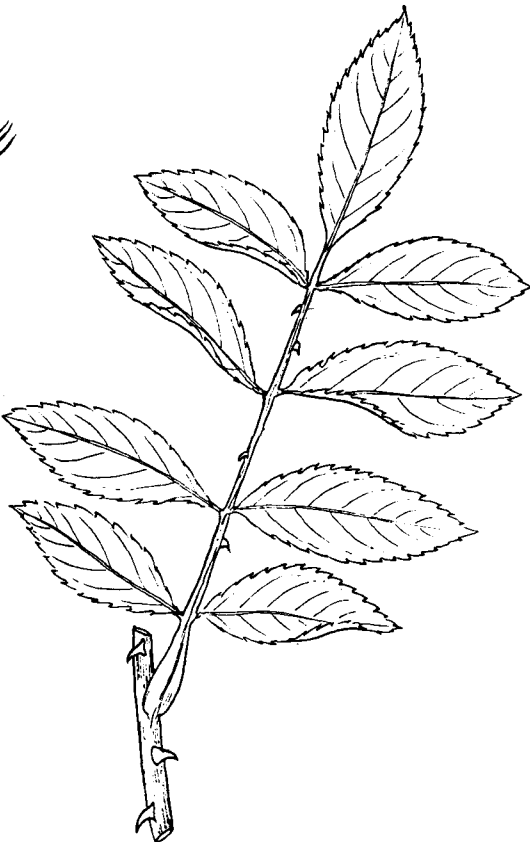
**Propagation:** Seedlings, cuttings.

**Treatment:**

**Storage:** Stores well.

**Management:**

**Remarks:** The edible fruits are collected and eaten by children.



DAMIEN T.

**Indigenous**

<b>Am:</b> Ahaya, Wonz admik	<b>Or:</b> Alatu, Barodo
<b>Gm:</b> Eleselesek	<b>Tg:</b> Kwaa
<b>Eng:</b> Wild willow	<b>Sm:</b> Buro

**Ecology:** A small tree occurring along river and stream banks. It grows in woodlands as well as in lower and upper highland forests with Schefflera. It is found in Moist and Wet Kolla, Weyna Dega, and Dega agroclimatic zones, 1,250–2,850 m.

**Uses:** Firewood, toothbrushes.

**Description:** An evergreen shrubby tree 2–10 m, its shape often distorted by floods. **BARK:** Young twigs hairy, then smooth, reddish. Bark grey-brown, grooved. **LEAVES:** Variable, olive green, shiny above, pale silver-grey below, to 16 x 3 cm, edge finely toothed, on a short stalk. **FLOWERS:** Terminal or on short side shoots, in short spikes, no petals or sepals. Male catkins dense to 5 cm, yellow due to stamens. Female spikes shorter, greenish flowers. **FRUIT:** In upright heads, about 3 cm long, with small capsules which split to set free tiny woolly seeds, wind dispersed.

**Propagation:**

**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** This tree is distributed from Egypt to South Africa and occurs along waterways that are flooded during some part of the year. This is the only indigenous *Salix* sp.

female flowers - enlarged





Indigenous

*Af:* Dadaho  
*Ag:* Shwelsha

*Am:* Aday, Yeharer-mefaqya

*Eng:* Toothbrush tree

*Sm:* Aday, Aras, Rumei

*Tg:* Hadai

**Ecology:** Widespread all over arid Africa and the driest parts of India. Occurs in thorn scrub, on desert flood plains and in grassy savannah, even on alkaline soils in Bereha and Dry and Moist Kolla agroclimatic zones, 0–1,350 m. It is very drought resistant. An important indicator of saline soils, even though it prefers sandy-clay soils in water courses.

**Uses:** Firewood, **food** (fruit), **medicine** (roots), **fodder** (fruit, leaves), soil conservation, shade, toothbrushes.

**Description:** An evergreen trailing shrub or small tree, 3–7 m, young **flexible branches, pendulous**, older wood twisted. **BARK:** Smooth and pale, later brown and corky. **LEAVES:** **Yellow-green, dull, rather fleshy** but hard with rough gland dots and raised veins, **oblong to rounded to 5 cm**. **FLOWERS:** In loose heads, to 10 cm, small, white. **FRUIT:** **White, then pink to purple, 1 cm**, one seeded, juicy and strongly flavoured, sweet but peppery.

**Propagation:** Seedlings, sow seed in pots.

**Seed:** No. of seeds per kg: 31,000–37,000.

**Treatment:** Not necessary.

**Storage:** Seed can be stored for about a month.

**Management:** Slow growing.

**Remarks:** A very important fodder species for dry areas when nothing else is available as the shoots can be browsed all year by cattle, sheep, goats and camels—but milk may be flavoured. A kitchen salt can be produced from the ash of wood and leaves. The fruit are attractive to monkeys and birds. The bark contains an antibiotic which keeps the mouth clean and helps to prevent tooth decay.

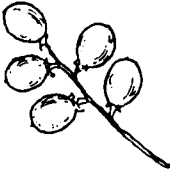


flowers

DAMTEW T.



A.B.



fruit



A.B.

**Indigenous**

**Gm:** *Bal*                      **Sd:** *Gancho*  
**Kf:** *Shedo*                    **Tg:** *Berberi-islamay*  
**Or:** *Bosoka*

**Ecology:** A tree which grows in the humid lower parts of the western highlands in Cordia and Olea forests of Moist and Wet Weyna Dega agroclimatic zones, 1,600–2,200 m. Common at the edges of evergreen forest and in wooded ravines.

**Uses:** Firewood, farm tools, **tool handles.**

**Description:** A small- to medium-sized deciduous tree to 12 m, occasionally reaching 20 m. **BARK:** Light brown to almost black, rough, **branches tending to droop.** White latex only seen when young parts are cut. **LEAVES:** Long, oval, dark above, paler below, turning dark red before falling, to 14 cm long, tip pointed, **edge irregularly toothed,** midrib and veins raised below, about 10 pairs side veins; base narrow or rounded to a 1–2 cm stalk. **FLOWERS:** No petals or sepals. Flowers **catkin-like in spikes** 5–10 cm long, the upper part with tiny male flowers each with yellow stamens; 2–5 rounded female flowers at the base, larger, on longer stalks. **FRUIT:** **2-part red capsules about 1 cm** across, topped with remains of style. The capsule finally opens to set free seeds. Seeds often eaten by insect larvae.

**Propagation:** Seedlings, wildings.

**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:**



**Indigenous**

**Am:** *Gitem, Kokora*  
**Kf:** *Kambelo*  
**Sd:** *Oromi*

**Tg:** *Getem*  
**Wt:** *Kokora*

**Ecology:** This tree of upland rain forests is found south to Zaire and west to Cameroon. It grows in secondary forest and woodlands in the humid upper highlands of the central, eastern and western highlands with *Celtis*, *Polyscias*, *Podocarpus*, *Syzygium*, *Olea*, *Mimusops*, *Albizia*, and *Apodytes*. It occurs in Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,500–2,500 m.

**Uses:** **Timber** (furniture, boxes), farm tools, **bee forage**, **live fence**.

**Description:** A tree to 30 m with large leaves, rather palm-like appearance. The trunk broad but twisted, the crown large and spreading. **BARK:** Grey-black and corky. **LEAVES:** The large, compound **digitate** leaves are clustered at the ends of branches on stalks to 30 cm. The **5–8 leaflets** have stalks 2–6 cm long. Leaflets are stiff or leathery, ovate, about 10–20 cm long, to 10 cm wide, the tip pointed, the **edge normally round-toothed**, base **heart-shaped to rounded**, few side veins, **curved towards tip**. **FLOWERS:** **Compound flower heads** with branchlets (racemes) 10–40 cm long are clustered below the leaves. Each small flower **shortly stalked**, and **groups on a stalk about 2 cm** long. The fleshy and fragrant cream-yellow flowers attract bees. **FRUIT:** Rounded and ribbed, about 5 mm, clustered along flower branches, red when mature.

**Propagation:** Seedlings, cuttings.

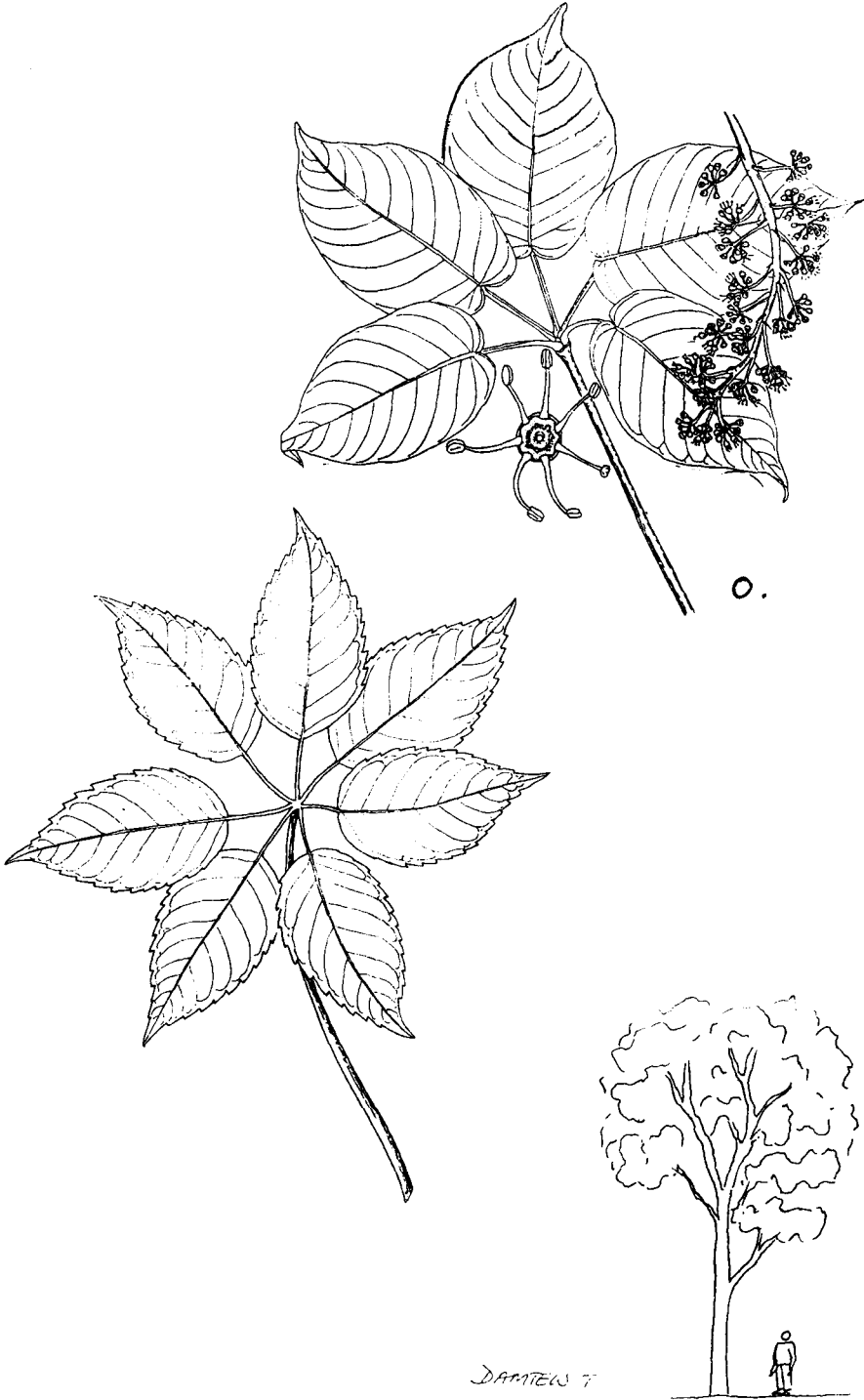
**Seed:**

**Treatment:**

**Storage:**

**Management:** Cuttings should be planted at the end of the heavy rainy season.

**Remarks:** Wood soft and easy to work but little use as firewood.

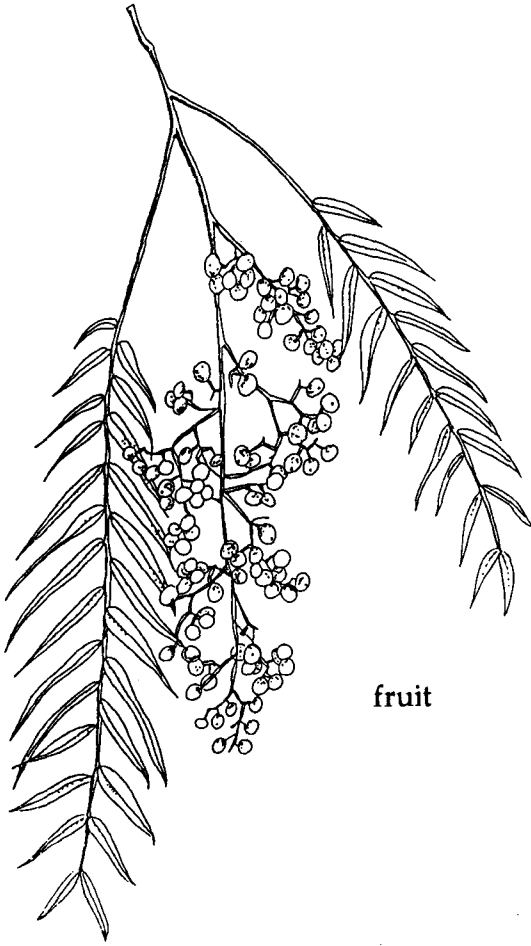


Peru, Andes

*Am:* *Qundo berbere*

*Eng:* *Pepper tree*

- Ecology:** An evergreen tree commonly planted in dry warm climates throughout the world. It will grow in almost any soil but prefers well-drained sites. It is extremely drought resistant once established and reaches maturity in less than 20 years. It grows in Bereha, and Dry, Moist and Wet Kolla, Weyna Dega and Dega agroclimatic zones from near sea level to 2,400 m.
- Uses:** **Firewood**, charcoal, bee forage, soil conservation, **ornamental**, shade, **windbreak**, spice (fruit), insect repellent (leaves).
- Description:** A tree with attractive light **weeping foliage** to 15 m, the trunk short, the crown spreading. **BARK:** Dark brown, peeling, **very sticky latex** forms if the bark is damaged. **LEAVES:** Compound to 30 cm, many **narrow leaflets to 7 cm**, with a peppery smell if crushed. **FLOWERS:** Very small, green-yellow. **FRUIT:** Hanging on female trees, small **round berries green to red then black**, edible.
- Propagation:** Seedlings, coppicing.
- Seed:** Germination rate 40–80%. No. of seeds per kg: 31,000–44,000.
- Treatment:** Not necessary.
- Storage:** Seed can be stored.
- Management:** A fast-growing tree. Pollarding, lopping and coppicing.
- Remarks:** The tree should not be planted too close to buildings because branches tend to fall as the tree ages. Planted in Ethiopia as an avenue tree and is also recommended around homesteads.



fruit



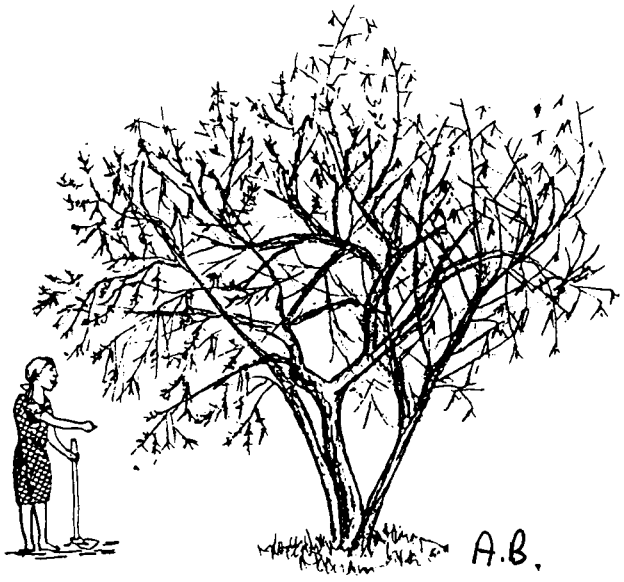


**(*S. aegyptiaca*)**

Indigenous

**Am:** *Girangire***Eng:** *River bean, Egyptian rattle pod*

- Ecology:** One of many useful African *Sesbania* spp. which survive waterlogging and fix nitrogen. It is found at the margin of fresh-water lakes and seasonal ponds. Some types tolerate acid and saline soils. Easy to establish even in waterlogged soil and dry eroded soil. It performs well in Moist and Wet Kolla and Weyna Dega agroclimatic zones.
- Uses:** Firewood, **poles**, fodder (leaves), mulch, **soil improvement**, **soil conservation**, **nitrogen fixation**, shade (young coffee), fibres (young stems), soap (leaves).
- Description:** A deciduous, short-lived shrub or tree to 8 m. **BARK:** Red-brown, young shoots hairy. **LEAVES:** Compound to 12 cm long, 10–25 pairs leaflets, each leaflet to **2 cm oblong, tip notched, narrow**. **FLOWERS:** Pale yellow, **speckled maroon**, in few-flowered sprays to **15 cm long**. **FRUIT:** Abundant bunches of thin **pale brown pods to 20 cm**, with separated sections so **seeds rattle within**.
- Propagation:** Wildings, direct sowing, coppicing.
- Seed:** The species is a prolific seeder with a high germination rate. No. of seeds per kg:  $\pm 110,000$ .
- Treatment:** Not necessary.
- Storage:** Seed can be stored for long periods if kept in a cool and dry place.
- Management:** Very fast growing. Pruning, short rotation; coppice when young.
- Remarks:** The species may harbour root-knot nematodes. The genetic diversity of *Sesbania* types allows for selection (e.g. for different uses, management, soil types). The leaf mulch and nitrogen-fixation features make this a tree of great potential for intercropping on small farms.



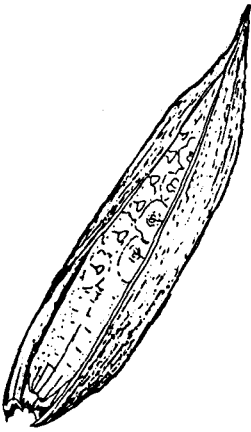
East, Central and West Africa

*Eng: African tulip tree, Flame of the forest, Nandi flame*

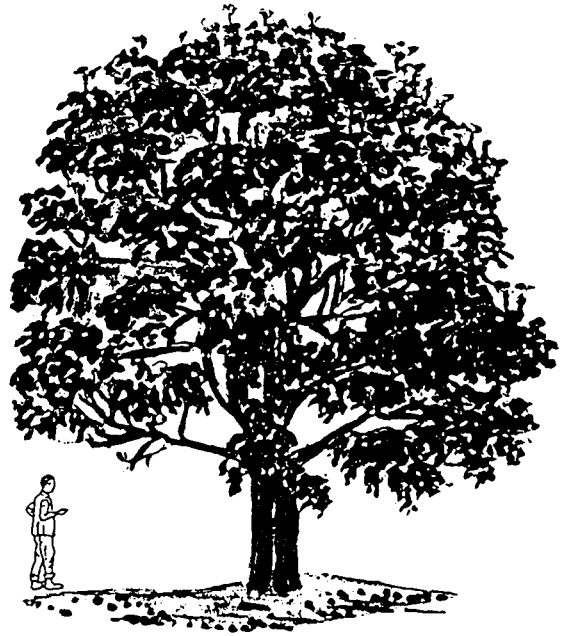
- Ecology:** A decorative tree of forest fringe and a pioneer species, common from Uganda to West Africa, and widely planted throughout the tropics from 2,000 m down to sea level. Once established it is drought resistant. It does well in Bereha and Moist and Wet Kolla and Weyna Dega agroclimatic zones.
- Uses:** Firewood, charcoal, **timber** (carving), medicine (bark), **ornamental, shade**, mulch, windbreak.
- Description:** A deciduous tree but bare many months, crown rounded, usually 10–15 m. **BARK:** Pale grey-brown and smooth, rough with age. **LEAVES:** **Compound to 40 cm long, 6 pairs of leaflets**, each wavy, tip pointed plus a central leaflet. **Yellow-brown hairs** on shoots, buds, branchlets and underside of leaves. **FLOWERS:** **Fiery orange-red clusters** stand out all over the tree, a yellow edge on the frilly petals; a yellow-flowering variety exists. Furry buds contain watery liquid. **FRUIT:** Brown **woody capsules** to 25 cm split on the ground releasing many flat **winged seeds**.
- Propagation:** Seedlings, wildings.
- Seed:** Good seed germination rate. No. of seeds per kg:  $\pm 150,000$ .
- Treatment:** Not necessary.
- Storage:** Seed does not store well; it should be sown fresh.
- Management:** Fairly fast growing.
- Remarks:** Not browsed by domestic animals. A popular decorative tree for avenues.



dry fruit



seed



A. Birnie

Indigenous

*Am:* Shenkore  
*Eng:* Carrot tree  
*Or:* Jirma-jalesa

*Sm:* Endur-bakhila  
*Tg:* Antrokohela

**Ecology:** A small savannah tree occurring over a wide range of altitude, especially in low-altitude woodland or on rocky outcrops. It occurs in Dry and Moist Kolla agroclimatic zones, 400–1,600 m.

**Uses:** Firewood, farm tools, medicine (roots).

**Description:** A small deciduous shrub or tree, 2–7 m. **BARK:** Yellow-grey-green, rather waxy, peeling in papery strips or rectangles, later grey-brown, thick and corky, horizontally grooved. **LEAVES:** Crowded towards the ends of the few branches, compound, 2–3 pairs leaflets plus one, spaced on a stalk to 10 cm, the base expanded around the stem. Each leaflet ovate, to 5 cm, sometimes stalked, the edge clearly toothed, each tooth bearing a fine hairy point. **FLOWERS:** Small, green-white, in rounded compound clusters at the end of stout twigs, quite showy as they appear before the leaves; 3–7 long stalks arise together and each bears a crown of small heads (umbels) about 8 cm across. Individual flowers on stalks 5 mm long may be male only, the stamens longer than the 5 petals. **FRUIT:** In large untidy clusters, cream-brown and papery, each fruit flat and heart-shaped to 12 mm, winged each side with 3 ribs. Fruit dry on the tree splitting to release seed.

**Propagation:**

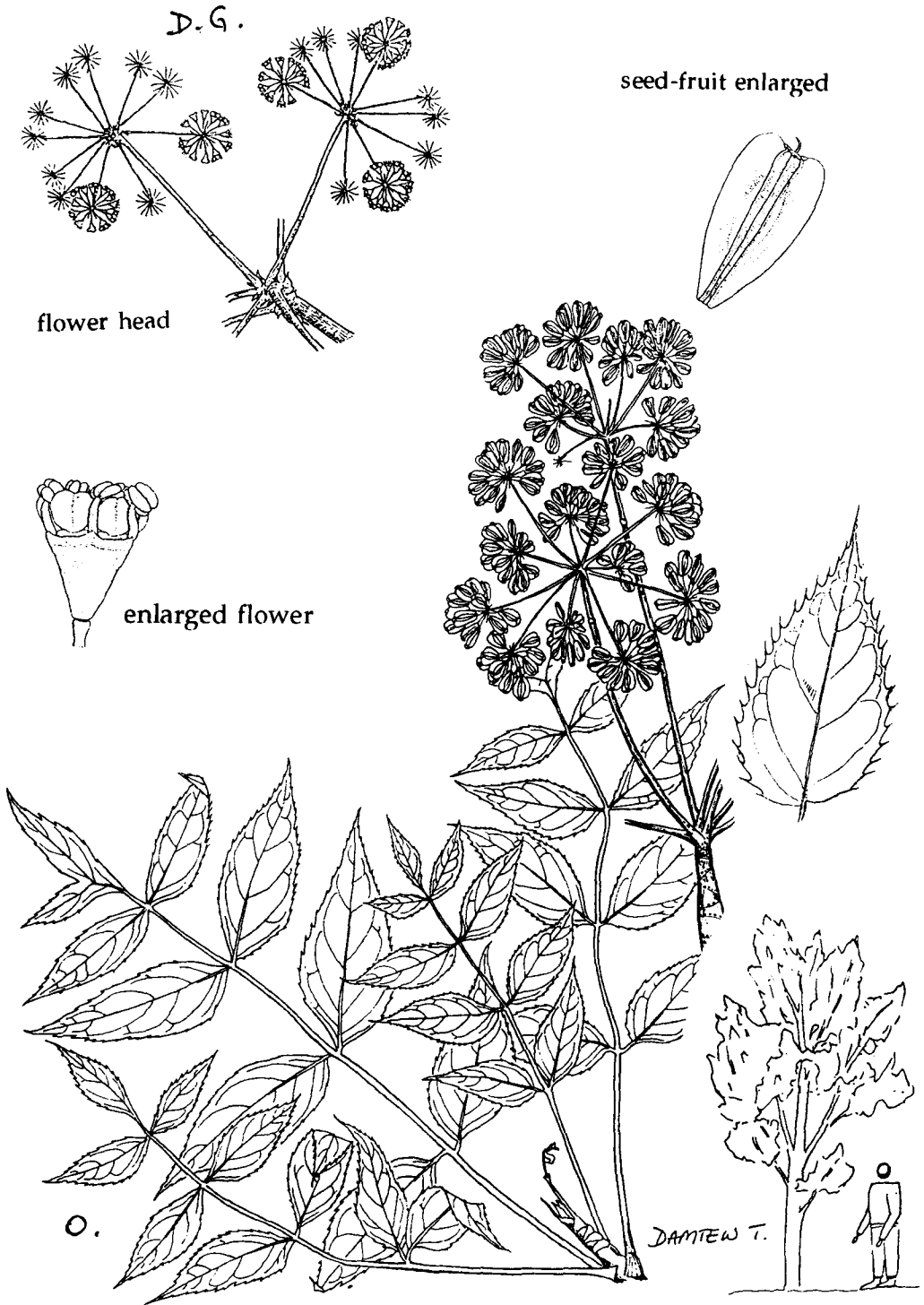
**Seed:**

**Treatment:**

**Storage:**

**Management:**

**Remarks:** The wood is soft and brittle. Stems are hollow.



Indigenous

*Ag:* Arezana

*Or:* Botoro, Buturu, Utro

*Am:* Washta, Zana

*Tg:* Adi-zana, Gunki

**Ecology:** A small tree occurring at medium to low altitudes, frequently on rocky outcrops and hillsides. It also occurs in open woodlands and at margins of evergreen forests. Does well in Moist and Wet Kolla and Weyna Dega agroclimatic zones, 1,000–2,400 m.

**Uses:** Firewood, medicine (bark, fruit), ornamental.

**Description:** A deciduous tree, 5–13 m, the trunk waved or spiral, rarely straight, crown rounded. BARK: Grey and flaking in round patches to show paler under bark (like a gum tree). LEAVES: Compound, with 4 pairs leaflets plus one on a stalk to 7 cm, each leaflet oval-oblong, pointed to 8 cm, young leaves sometimes toothed and hairy. FLOWERS: Fragrant in large drooping heads on the bare tree, pink-lilac-dark pink, the bell-shaped tube to 3 cm opening to 5-petal lobes, 4 cm across, lobes marked with red lines inside, 2 long, 2 short stamens inside. FRUIT: Very long thin cylindrical capsules, twisted, red-brown to 45 cm but only 1 cm across. They split to release many winged seeds 2–3 cm long and then remain many months on the tree.

**Propagation:** Seedlings, suckers.

**Seed:**

**Treatment:** Seeds often germinate badly.

**Storage**

**Management:**

**Remarks:** The fruit capsules, chewed with salt, are used as a cough remedy. The wood is white-yellow.



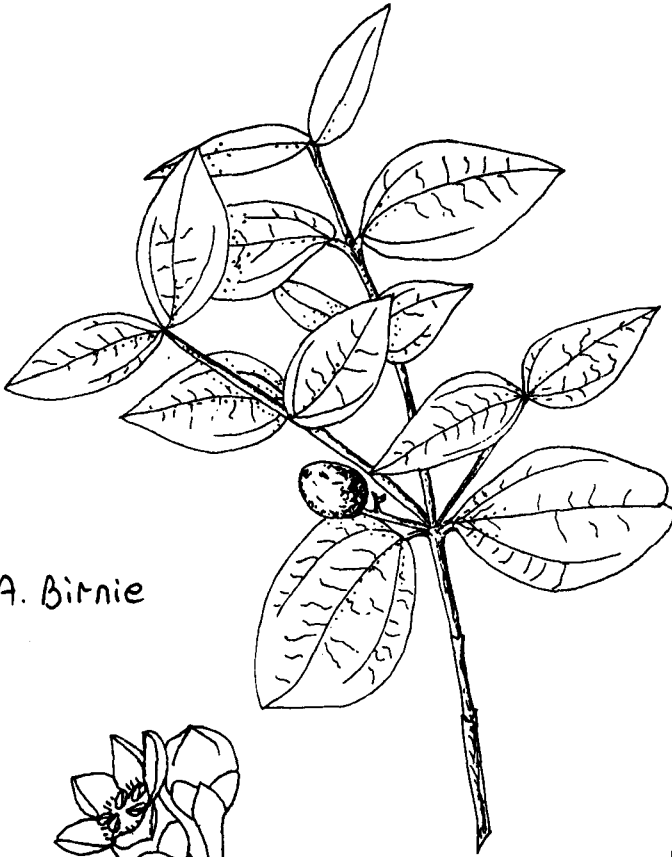


Indigenous

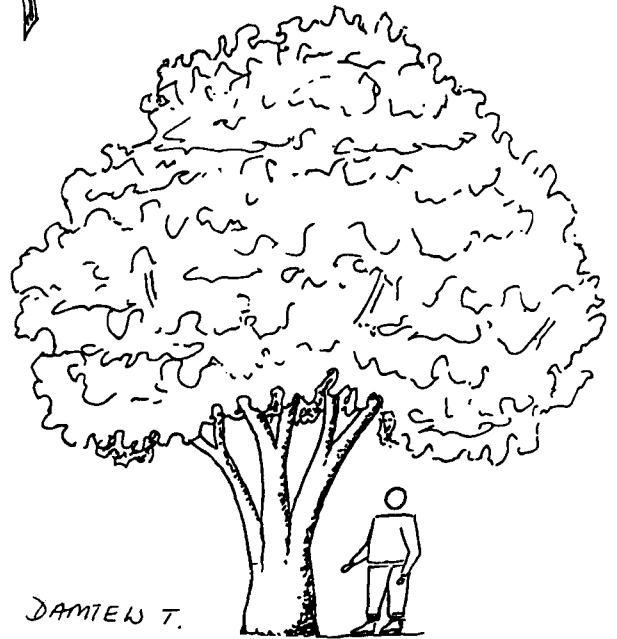
*Eng: Coffee-bean strychnos*

*Sm: Hadesa*

- Ecology:** A small shrubby tree of the dry areas 500–1,850 m, along river banks, in dry scrub as well as wetter evergreen coastal forests in Dry and Moist Weyna Dega agroclimatic zones.
- Uses:** Firewood, posts, tool handles, medicine (roots, fruit, bark), live fence.
- Description:** A very variable tree, usually dense and rounded to 5 m, occasionally to 20 m. BARK: Pale grey-brown then darker. LEAVES: **Leathery, shiny above**, quite sticky, broadly oval to 6 cm, 3 strong veins from the base and net veins clear also, tip usually sharp. Each pair of leaves **at right angles to the next pair along the stem**. FLOWERS: Small, **cream-yellow, in dense heads**. FRUIT: Round, **fleshy orange then purple** about 1 cm, the thin pulp containing 1–2 seeds, each grooved like a coffee bean.
- Propagation:** Seedlings, root suckers, coppicing.
- Seed:**
- Treatment:** Not necessary, but pulp should be removed from the seeds before sowing.
- Storage:** Can be stored.
- Management:** Coppicing.
- Remarks:** Heavy, termite resistant and durable heartwood which makes it good for fence posts. Bark and fruit contain bitter alkaloids.



A. Bitnie



DAMTEW T.

Indigenous

*Am:* *Inguachia*, *Merenz*

*Sm:* *Mungule*

*Tg:* *Unguaka*, *Unguak-hebay*

**Ecology:** A shrubby tree which occurs in open woodland and on rocky hills. It performs well in Moist and Wet Weyna Dega agroclimatic zones.

**Uses:** Firewood, local tools, flavour additive to local beer.

**Description:** A shrub or small straight-stemmed tree, usually 3–6 m, **without spines**. Branches are often twisted and branchlets hang down. **BARK:** Pale grey, smooth. Branchlets powdery grey-green to yellow-brown. **LEAVES:** In opposite pairs, widely spaced apart, tough, **dull blue-green**, with **3–5 main veins and clear net veining, both sides similar**, oblong but **wider at the rounded tip**, 4–10 cm long. **FLOWERS:** 8 mm long, green-cream, **2–4 in stalked clusters beside leaves, calyx shorter than petals, a ring of white hairs in the throat**. **FRUIT:** Round, with a thick **woody shell**, about **5–7 cm** across, blue-green ripening **yellow-orange**, containing **many seeds** in pulp.

**Propagation:** Seedlings.

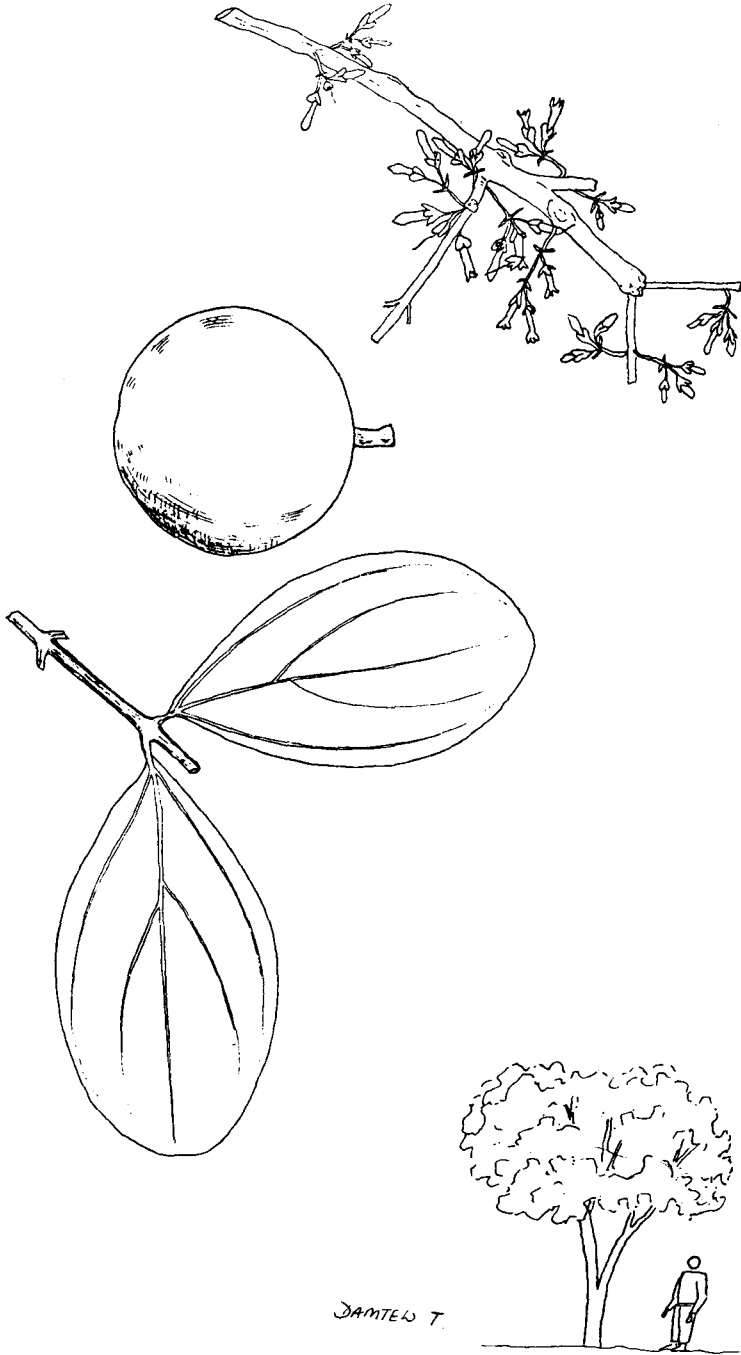
**Seed:**

**Treatment:**

**Storage**

**Management:** Stem reduction, pruning.

**Remarks:** It makes excellent firewood that burns even when fresh (not dry).



Indigenous

*Eng:* Natal orange, Spiny monkey orange

*Tg:* Gura, Lokua

*Sm:* Delebdoi, Deleddor

**Ecology:** A semi-evergreen shrub found all over tropical Africa. It grows in a wide variety of dry woodland and savanna forests, frequently on sandy soils of river banks, to 1,500 m. It occurs in Dry, Moist and Wet Kolla agroclimatic zones.

**Uses:** Firewood, charcoal, timber (furniture, boxes), fodder (leaves), food (fruit), **medicine** (fruit, leaves, bark, roots), musical instruments (dry fruit shell).

**Description:** A semi-deciduous thorny tree, often multistemmed, 2–5 m, up to 9 m, crown rounded. **BARK:** Grey-brown, rough, with **black-tipped thorns, short and hooked, in pairs**, along the branches. **LEAVES:** **Opposite, oval to round, to 10 cm**, shiny green and leathery, edge wavy, 3–5 veins from the base. **FLOWERS:** Small, cream-green-white, in bunches at the end of branches. **FRUIT:** **Round and woody**, green then **yellow-brown** when ripe, to **12 cm across**, conspicuous and hanging many months on the tree, 10–100 flat seeds lie in **juicy, rather acid but edible flesh**.

**Propagation:** Seedlings, root suckers, coppicing.

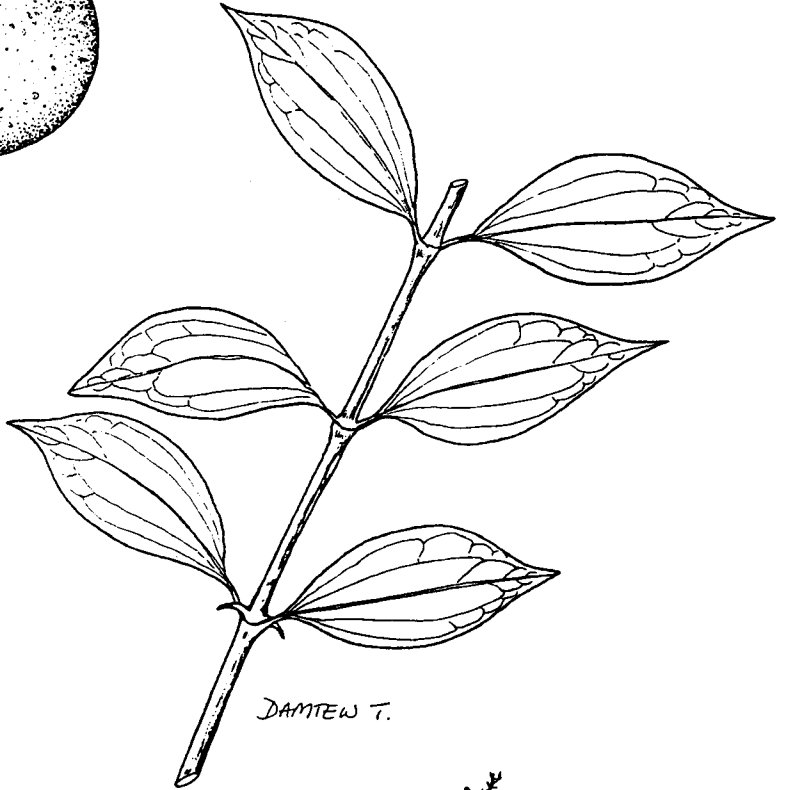
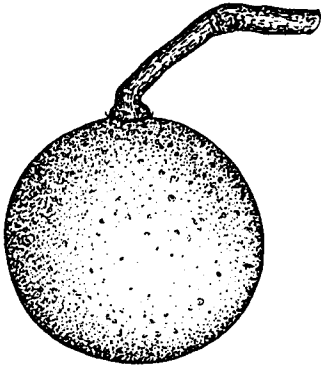
**Seed:** Seed has a hard coat.

**Treatment:** Hot-water or light burning.

**Storage:** Can be stored.

**Management:** Root suckers can be encouraged by exposing roots.

**Remarks:** Although the fruit is edible, seeds are toxic and unripe fruit may be also. The fruit are often eaten by wild animals. The wood is straight grained and planes well.



DANTEW T.

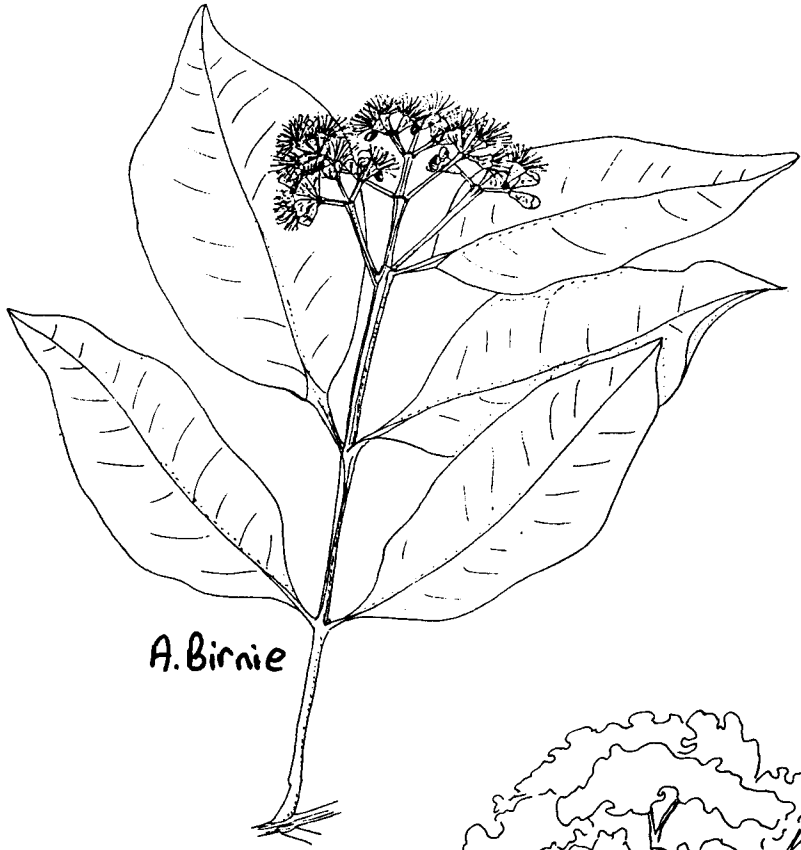


A.B.

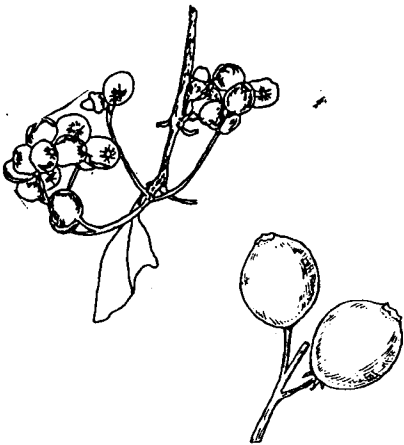
**Indigenous**

**Am:** *Dokma*                      **Gr:** *Dokima*  
**Eng:** *Waterberry*                **Or:** *Bedessa*

- Ecology:** A large tree widely distributed in Africa. There are several subspecies occurring from sea level to 2,100 m. It prefers moist soils with a high water table beside rivers, but will also grow in open woodland. Does very well in Moist and Wet Kolla and Weyna Dega agroclimatic zones.
- Uses:** **Firewood, charcoal, poles, timber** (furniture, general construction, tool handles, carving), **food** (fruit), bee forage, medicine (bark, roots, leaves), dyes, tannin (bark).
- Description:** A densely leafy forest tree, usually 10–15 m but up to 25 m, the trunk broad and fluted and the crown rounded and heavy, the branchlets drooping, the stems thick and angular. **BARK:** Smooth when young, black and rough with age, flaking, producing a red watery sap if cut. **LEAVES:** Young leaves purple-red, but mature leaves dark green, **in opposite pairs, shiny and smooth on both surfaces, the tip long but rounded, on a short grooved stalk.** The leaves are variable in shape. **FLOWERS:** White, showy stamens, in dense branched heads 10 cm across, the **honey-sweet smell** attracting many insects; **stalks angular, square.** **FRUIT:** Oval to 3 cm, purple-black and shiny, one-seeded, in big bunches of 20–30.
- Propagation:** Seedlings, wildings, direct sowing.
- Seed:** Good germination. No. of seeds per kg: 2,400–3,700.
- Treatment:** Not necessary.
- Storage:** Must be sown immediately the fruit is picked. Seeds may be spoilt in less than 24 hours.
- Management:** Pollarding, coppicing.
- Remarks:** The wood is brown, hard and strong. It is easily worked but liable to split.



A. Birnie



DAMIEN T.



**Indigenous****Am:** *Humer, Roka***Or:** *Roka***Eng:** *Tamarind***Tg:** *Humer***Ecology:**

A well-known tree indigenous to tropical Africa. A very adaptable species, drought-hardy, preferring semi-arid areas and wooded grasslands. It grows in most soils but does best in well-drained deep alluvial soil; often riverine in very dry areas. It occurs in Bereha and Dry and Moist Kolla agroclimatic zones, 0–1,500 m.

**Uses:**

Firewood, **charcoal**, poles, **timber** (furniture, boats, general purposes), **food** (pulp for drink, fruit, spice), fodder (leaves, fruit), medicine (bark, leaves, roots, fruit), mulch, **nitrogen fixation**, ornamental, **shade**, windbreak, tannin (bark).

**Description:**

A large tree to 30 m, with an **extensive dense crown**. The short bole can be 1 m in diameter. Evergreen or deciduous in dry areas. **BARK:** Rough, grey-brown, flaking. **LEAVES:** Compound, on hairy stalks to 15 cm, 10–18 pairs of leaflets, **dull green to 3 cm, oblong**, round at the tip and base, veins raised. **FLOWERS:** Small, in few-flowered heads, buds red, petals gold with red veins. **FRUIT:** Pale brown, **sausage-like**, hairy pods, cracking when mature to show **sticky brown pulp around 1-10 dark brown angular seeds**.

**Propagation:**

Seedlings, wildings, direct sowing.

**Seed:**

No. of seeds per kg:  $\pm 1,400$ .

**Treatment:**

Germination rate  $\pm 90\%$ . Soak seed in hot water or nick the seed.

**Storage:**

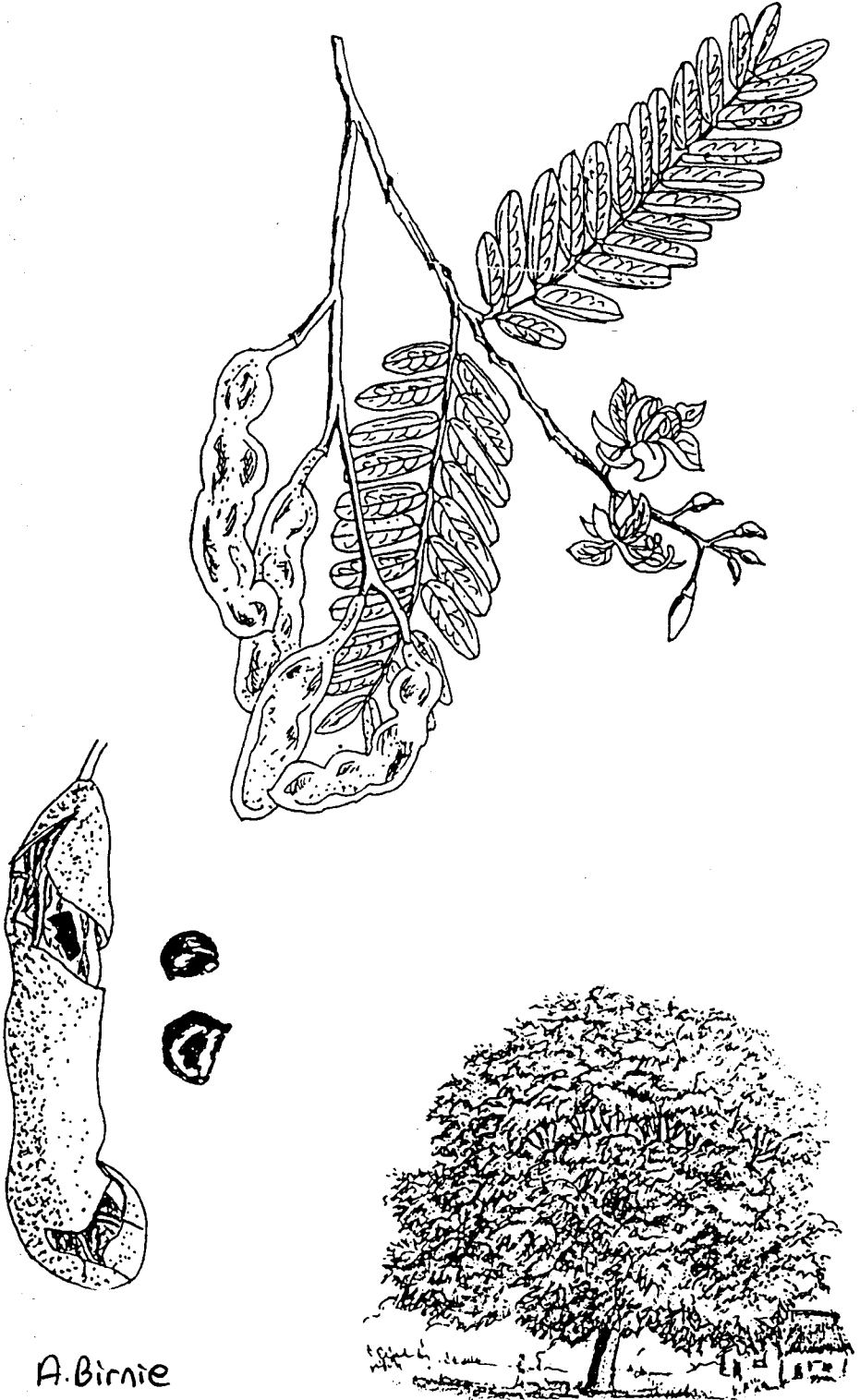
Seed can be stored for more than two years if kept in a dry, cool and insect-free place.

**Management:**

Slow growing but long lived. Pollarding, coppicing.

**Remarks:**

The dark brown heartwood is hard and heavy, well grained and easy to polish. The pulp is rich in vitamin C. It is recommended for homestead plantation and along stream banks and could be inserted into a live fence.



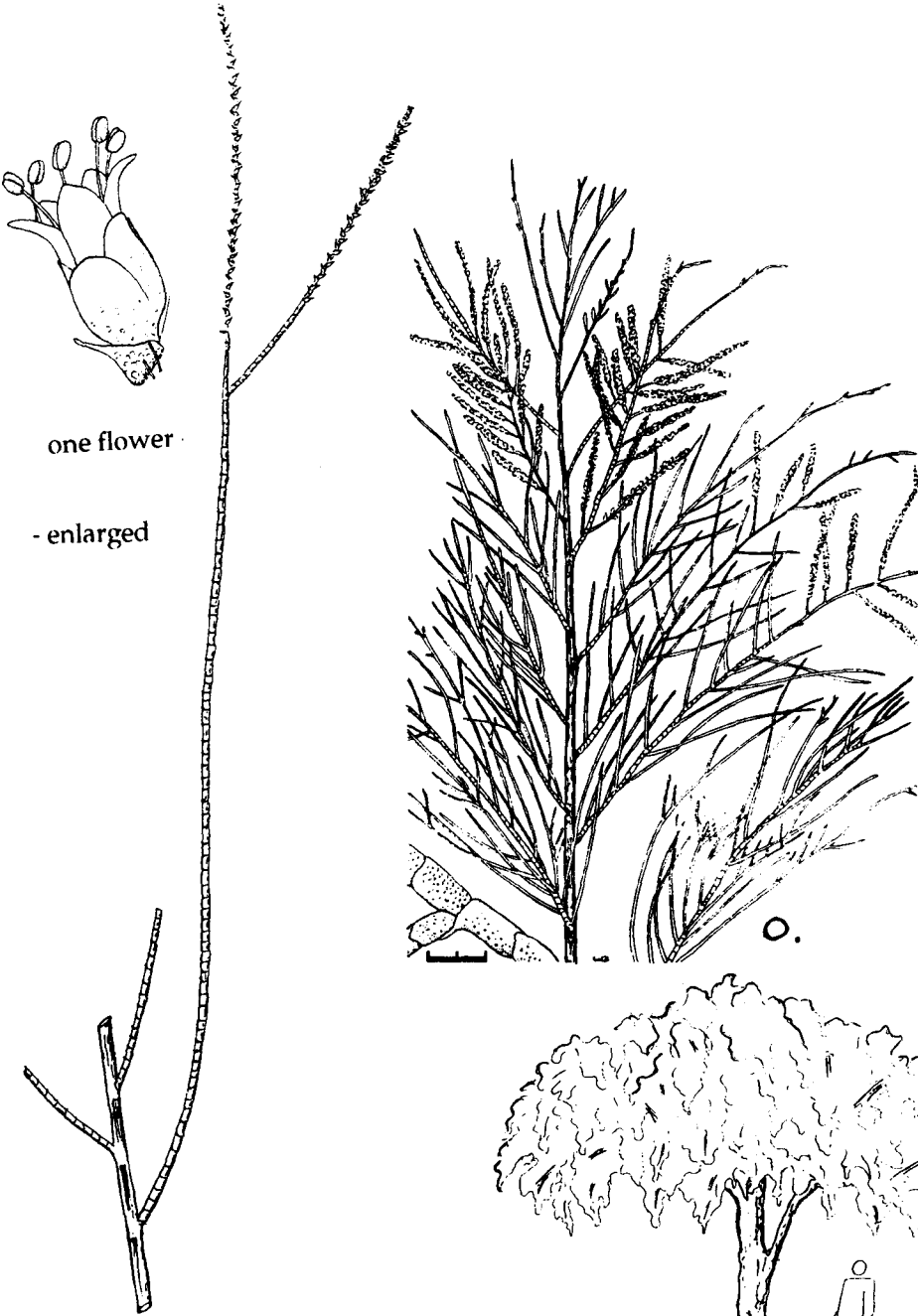
A. Birnie

**Indigenous****Af:** *Segentu***Eng:** *Athel tree, Leafless tamarisk*  
*Salt cedar, Tamarisk***Sm:** *Dokon, Dur***Tg:** *Obel, Ubul***Ecology:** A tree of humid lowland savannah and woodlands, as well as open floodplains and along rivers. Usually found with *Acacia albida* and *Balanites* and *Tamarindus* in Bereha and Dry Kolla agroclimatic zones, 0–800 m.**Uses:** **Firewood, charcoal, timber** (general purposes), **fodder** (leafy branchlets), mulch, soil conservation, soil improvement, dune fixation, windbreak, firebreak.**Description:** A well-branched evergreen shrub or tree to 9 m. The **irregular grey-green crown** is rather like that of a conifer. **BARK:** Light grey to red-brown, becoming **thick and rough, deeply ridged**. Branches smooth purple-brown. **LEAVES:** Sprays of **slender green-grey branchlets** or twigs, very drought hardy, have the function of usual green leaves. Leaves remain as 2 mm scales, encircling the branchlets, each with a sharp tip and appearing as one section along the **jointed twig**. **FLOWERS:** At the tips of **branchlets, about 15 cm long, each one less than 3 mm, pink-white, with 5 floral parts**. **FRUIT:** Many narrow pointed **capsules, 5 mm, splitting into 3 to release tiny brown seeds each with a tuft of white hairs**.**Propagation:** From cuttings of the previous year's growth.**Seed:****Treatment:****Storage:**

Seeds lose viability within a few days so trees are normally established by cuttings.

**Management:** Coppicing.**Remarks:**

Like other tamarisk, it excretes "salt" which drips from glands in the leaves at night so soil below may be covered with salt. This salty drip kills any plants below the tree and the fallen leaves are too salty to burn—hence use of this tree as a firebreak. Crops should not be planted close to tamarisk as the tree roots collect all nearby water and plant nutrients.



one flower  
- enlarged

o.

DANIEL T

Indigenous

**Am:** *Atesa*

**Or:** *Adessa, Begama, Chae*

**Eng:** *Small-fruited teclea*

**Tg:** *Tsihila*

**Ecology:** One of the largest trees in this genus, widely distributed in wet highland forests, often with *Podocarpus* and *Juniperus*. It grows well in Moist and Wet Kolla, Weyna Dega and Dega agroclimatic zones, 900–2,600 m.

**Uses:** **Firewood, charcoal, poles, timber** (tool handles, clubs, walking sticks), medicine (leaves, roots).

**Description:** An evergreen shrub or tree 2–12 m or taller in rain forest with a crooked trunk and dark, spreading crown. **BARK:** Smooth, grey, with ring marks. **LEAVES:** Compound, **3 leaflets** on stalks to 6 cm, leaflets **dark shiny green**, 5–15 cm long, **tapering to the tip, edge wavy**, midrib stands out below, leaf stalks and branchlets **without hairs**. **FLOWERS:** Very small, **cream-yellow, fragrant**, in loose sprays to 12 cm. **FRUIT:** **Orange-red and smooth** becoming wrinkled, very many on a branched stalk to 20 cm, each ovoid, pointed, 5–6 mm, containing one seed.

**Propagation:** Seedlings.

**Seed:** Not a prolific seeder. Low germination rate. No. of seeds per kg:  $\pm 20,000$ .

**Treatment:**

**Storage:**

**Management:** Moderate to slow growing.

**Remarks:** The wood is tough and pale.

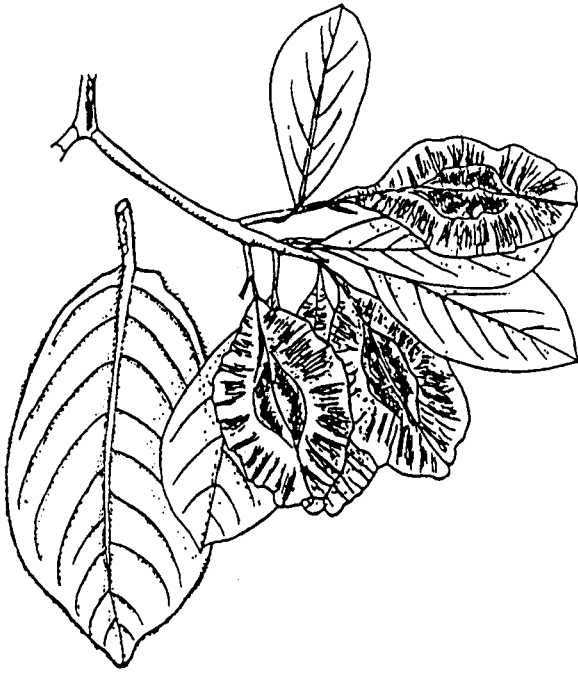


DAMTEW T.

Indigenous

*Am:* Abalo

- Ecology:** Probably the commonest and most widespread *Terminalia* in Ethiopia. One of a very useful group of trees growing in semi-arid areas. It does best in well-drained soils. Found in woodland, bushed grassland and riverine forest, 700–2,000 m. Does well in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones.
- Uses:** **Firewood, charcoal,** timber (tool handles, mortars, pestles), poles, posts, medicine (leaves and bark), fodder (leafy branches), mulch, soil improvement, shade, dye.
- Description:** A semi-deciduous tree, 7–13 m, densely shady, **somewhat layered,** foliage drooping. **BARK:** Grey, fissured, young shoots hairy. **LEAVES:** Oval, 7–10 cm, wider at the tip, pointed or notched, edge wavy, side veins clear, **leaf stalk and underleaf hairy,** leaves turn red before falling. **FLOWERS:** **Whitish, unpleasant smell, in spikes to 12 cm.** **FRUIT:** A winged oval seed, **red to purple, 5 cm, tip rounded or notched,** narrowed to base.
- Propagation:** Seedlings, wildings.
- Seed:** Prolific seeder, but a low germination rate. Tree seeds more or less continuously. No. of seeds per kg:  $\pm 3,000$ .
- Treatment:** Remove wings.
- Storage:** Seed can be stored for very long periods if insect free.
- Management:** Fairly fast growing on good sites. Lopping, pollarding, coppicing.
- Remarks:** *Terminalia* timber is yellow–brown, medium hard, light and termite resistant and thus highly valued for house construction, poles, utensils and for building grain stores. In spite of its dense canopy, crops do well underneath.



A. Birnie



Indigenous

**Am:** Bonga  
**Gm:** Desh

**Kf:** Luiya  
**Or:** Konu, Luya, Shego

**Ecology:**

This species occurs in mid-altitude rain forest in West Africa, and from Uganda to South Africa. A large tree occurring in evergreen forest of the Moist and Wet Weyna Dega agroclimatic zones of the western and southern highlands, 1,400–2,200 m.

**Uses:**

**Firewood, timber** (construction, furniture), shade.

**Description:**

A very large evergreen tree to 30 m, with a straight trunk dividing into large branches and a rounded crown. **BARK:** Fairly thin and **smooth brown** with clear breathing pores (lenticels); when **cut the bark edges are red and white**. **LEAVES:** Compound with 4–6 pairs leaflets plus one on a stalk, to 10 cm, each leaflet about 12 cm long, **always wider towards the pointed tip**, often rounded at the base. The 7–12 **pairs veins below are widely spaced** with a few hairs. Leaves **dry dark brown**. **FLOWERS:** Few in branched sprays to 6 cm, each large flower with 5 cream-white **hairy petals** over 2 cm long, the 10 **hairy stamens joined in a ring** around the central style. **FRUIT:** A rounded capsule to 3 cm across, pink to dull yellow-brown and hairy, **without a neck to the fruit stalk**, splitting into sections when dry to set free **large black seeds** which are **almost covered by a soft red aril**.

**Propagation:**

Seedlings, wildings.

**Seed:**

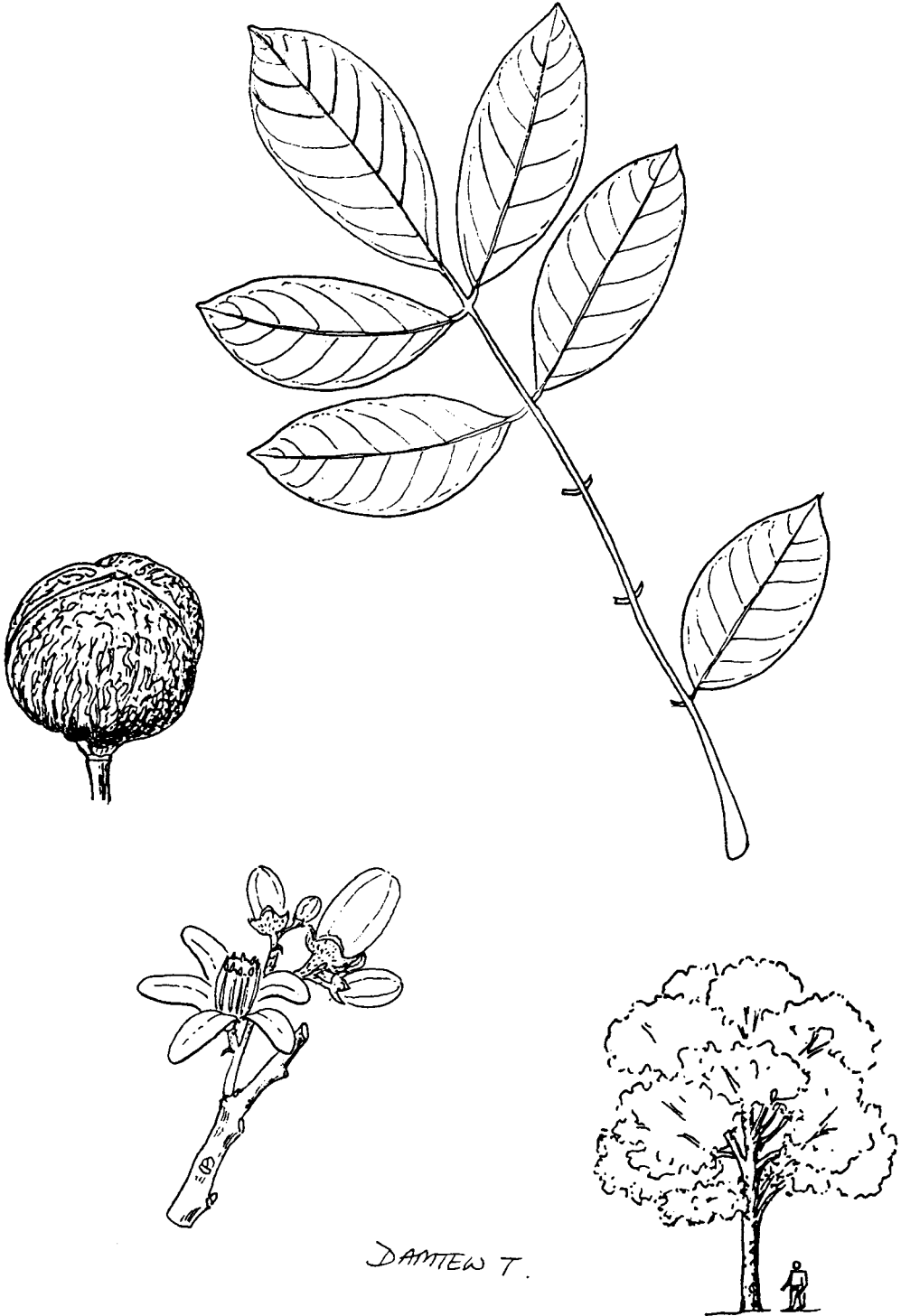
**Treatment:**

**Storage**

**Management:**

**Remarks:**

The timber is susceptible to borer attack, but the pink wood is easily worked and polishes well. It has been used for carving.



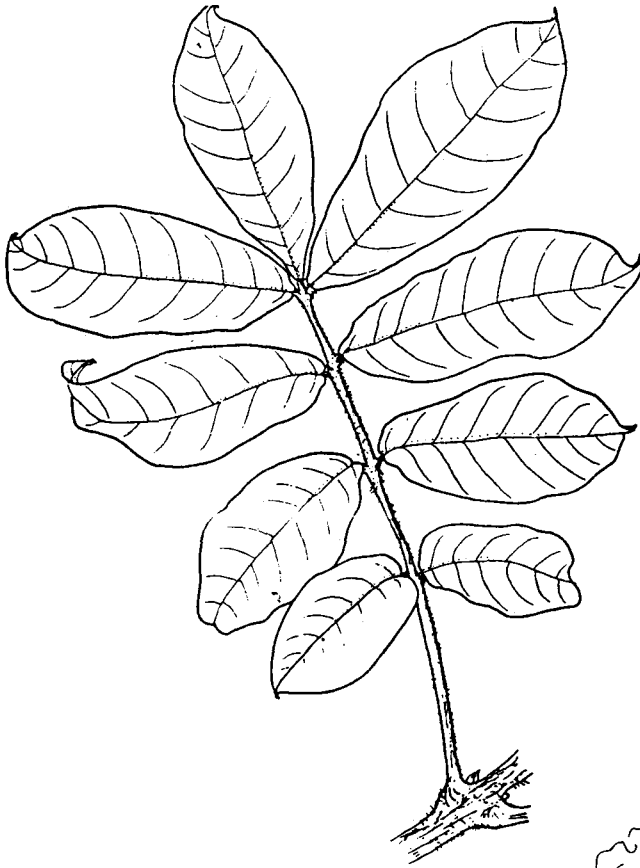
Indigenous

*Am: Mahogani*

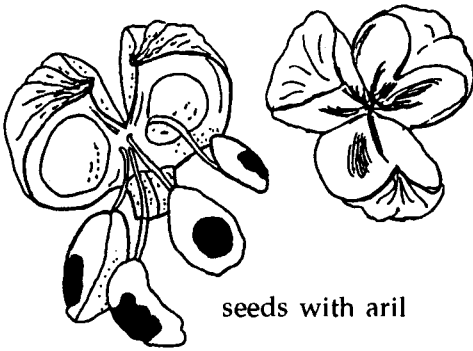
*Br: Anona*

*Eng: Cape mahogany*

- Ecology:** An important tree throughout tropical Africa. It is found in savannah and prefers well-drained rich soil. In Ethiopia it is most frequently found in Dry and Moist Kolla agroclimatic zones, 450–1,350 m.
- Uses:** Firewood, **poles, timber** (furniture, tool handles, boats), medicine (leaves, bark, roots, oil), ornamental, **shade**, windbreak, oil/soap (seed).
- Description:** An evergreen tree, 15–30 m, with **dark hanging foliage**, pyramid-shaped when young, later the **crown is rounded and heavy**, the trunk rather smooth. **BARK:** Grey-red-brown, finely grooved, later rough, scaling to show green underbark. **LEAVES:** Compound, **stalks and shoots softly hairy**, 4–5 pairs leaflets, thick and shiny, leaflets **increasing in size up to the largest central leaflet** which may be up to 16 cm long, **the midrib below continues into an unusual hairy tip**. Leaves dry green to pale brown, 11–18 pairs veins below are close together. **FLOWERS:** Inconspicuous, fragrant clusters, cream-green, 5 thick petals around a hairy centre of stamens. **FRUIT:** Round, red-brown hairy capsules to 3 cm across dry and split into 3–4 parts. **A clear neck to 1 cm long** (unlike *T. dregeana*) connects the capsule to the fruit stalk. Up to 6 shiny black seeds hang out of the open capsules, each one almost covered by a soft orange-red aril.
- Propagation:** Seedlings, direct sowing.
- Seed:** Sow fresh seed for best results.
- Treatment:** Not necessary.
- Storage:** Seeds lose viability quickly.
- Management:** Fairly fast growing.
- Remarks:** Seeds are extremely poisonous if eaten but they contain a useful oil. Leaves are said to have some soapy properties and could be exploited in soap manufacturing. The pink-grey-brown timber is very susceptible to insect attack.



open fruit capsule



seeds with aril

A.B.



DAMTEW T.

(*Bosquiea phoberos*)

Indigenous

*Am:* Chai

*Or:* Yuga

*Eng:* False fig

**Ecology:** A tall forest tree dominating the upper canopy of rain forests or an understorey tree in the humid lower highland forests of Moist and Wet Weyna Dega agroclimatic zones, 1,600–2,200 m.

**Uses:** **Firewood, timber** (light construction, furniture, floors, veneer, boxes), dye (sap).

**Description:** An evergreen tree, usually 20–30 m high, diameter usually 50–100 cm, with straight clean bole to a small rounded crown with drooping branches. **BARK:** Grey and smooth, when cut white latex drips out; outer part of the cut bark pink-red. The latex soon becomes violet and the whole area turns brown. **LEAVES:** Simple, alternate, tough and leathery, dark shiny green above to 12 cm on a stalk about 1 cm. The edge is rolled under and the **looping veins join up below the edge**. The **narrow tip** is drawn out about 1 cm. **FLOWERS:** Both male and female flowers develop inside the **bell-shaped receptacle**, about 1.5 cm long. Receptacle has a wide opening and **stamens like a cream-mauve brush hang out, about 1 cm** across. The female parts are hidden inside. **FRUIT:** When ripe the fleshy oval **receptacle, about 2 cm** long, turns **purple-black** (false fig) contains a single seed in a hard nut.

**Propagation:** Seedlings, wildings, cuttings.

**Seed:**

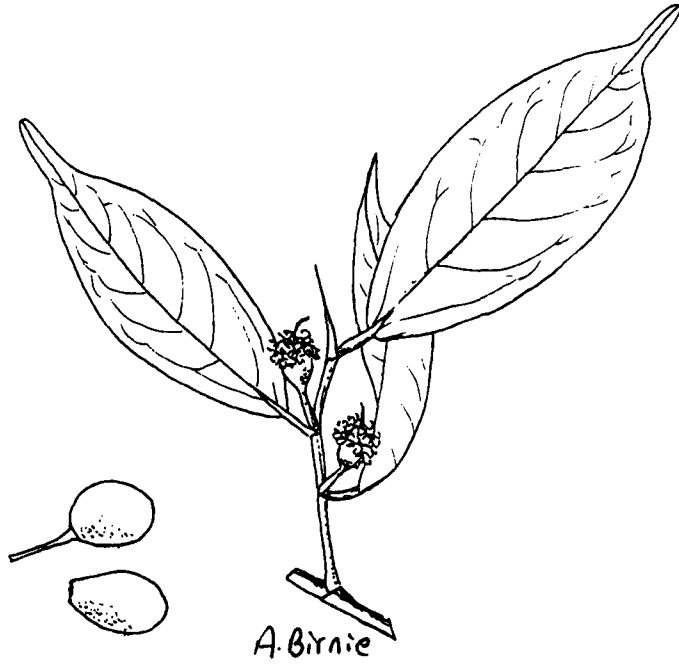
**Treatment:**

**Storage:**

**Management:** Pruning, lopping, coppicing.

**Remarks:** The wood is perishable in the ground. Timber pink-red, more or less straight grained and moderately strong. It works easily and can be planed, glued and nailed.

(*Bosquiea phoberos*)



Indigenous

*Or.* Addessa, Kulasa, Meddessa

**Ecology:** One of four *Vepris* spp. in Ethiopia, this species is an understorey tree, often found with *Podocarpus* or *Aningeria adolfi-friedericii* in the montane forest. It extends into lowland Celtis-*Aningeria altissima* forest in Dry, Moist and Wet Weyna Dega agroclimatic zones of Gojam, Wolega, Ilubabor, Kefa, Sidamo, Bale and Shewa regions, 1,050–2,000 m.

**Uses** **Firewood, timber** (local furniture, farm tools).

**Description:** An evergreen shrub or small tree, 2–15 m high. **BARK:** Smooth and grey. **LEAVES:** Nearly always opposite along stem, on stalks to 12 cm, compound with 3 similar leaflets, each one leathery, long and narrow, 14–33 cm, the tip pointed, the base narrowed to a short stalk. **FLOWERS:** Tiny male and female flowers are found in large conical heads to 25 cm long at the tips of the branches. Petals are pink-white and female flowers have a stigma within the 4 petals. **FRUIT:** Bilobed soft fruit on branched stalks about 2 cm across, with glands.

**Propagation:**

**Seed:**

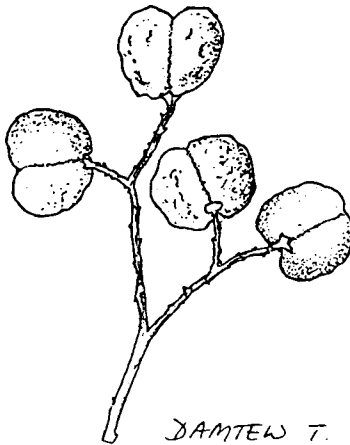
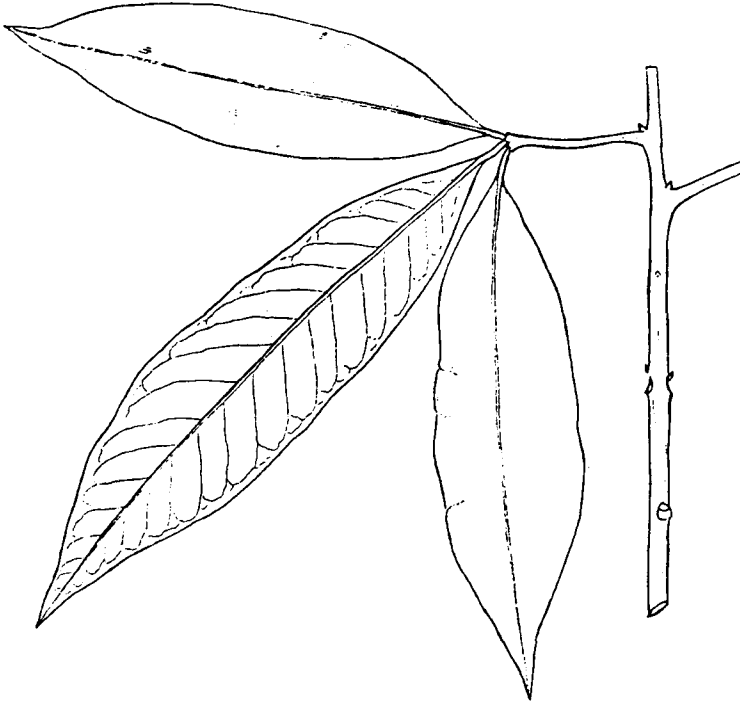
**Treatment:**

**Storage**

**Management:**

**Remarks:**

*Vepris* is very closely related to *Teclea* and both have very tough wood suitable for farm tools. This species is not found outside Ethiopia.



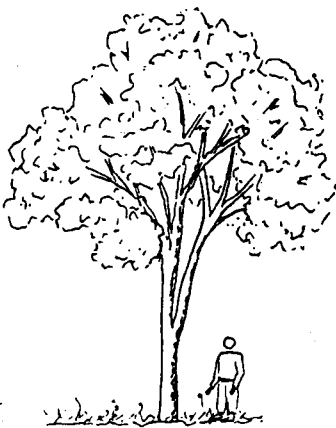
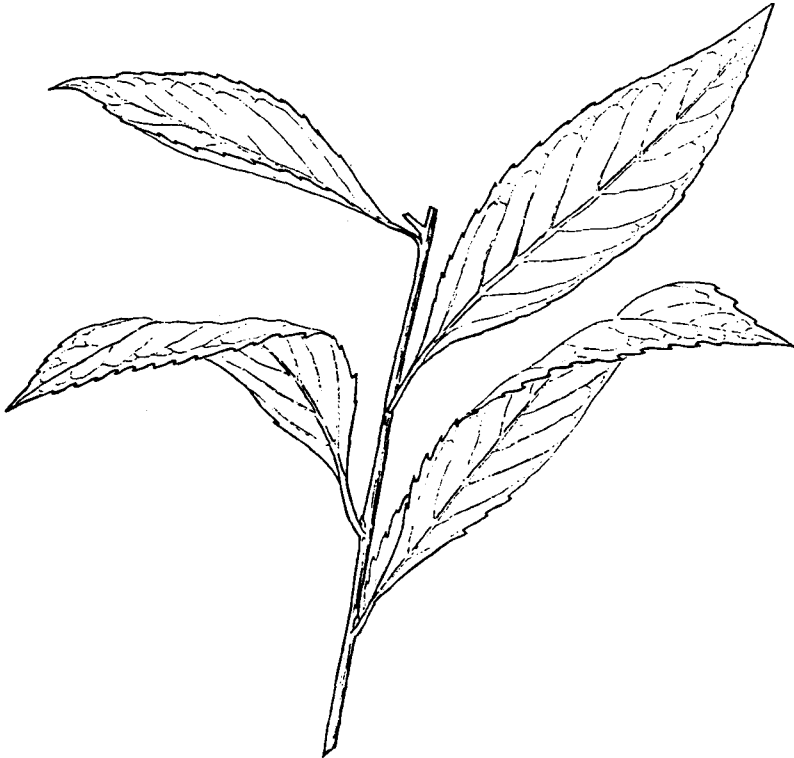


Indigenous

*Am:* *Grawa*

*Eng:* *Bitter leaf, Tree vernonia*

- Ecology:** A woody shrub of both East and West Africa, growing in sub-humid wooded savannah or wetter highlands in Dry Moist and Wet Weyna Dega and Dega agroclimatic zones, 1,000–2,700 m. It is found on light shallow soils, often left in pasture land.
- Uses:** **Firewood**, charcoal, food (leaves), fodder, **medicine** (roots, bark, leaves), mulch, soil improvement, ornamental, **live fence**, toothbrushes (stems), stakes.
- Description:** A single-stemmed shrub to 3 m, sometimes a tree to 10 m with a wide bole. **BARK:** Pale grey, rather rough, flaking later, branches brittle. **LEAVES:** Ovate, up to 20 x 5 cm, **tapering at both ends**, dark green above, **soft pale hairs below**, edge may be widely toothed. **FLOWERS:** White-green, each only 6 mm across, in dense branching **flattened heads to 30 cm across**, sweet scented in the evening. **FRUIT:** Tiny seeds with stiff white hairs.
- Propagation:** Cuttings.
- Seed:**
- Treatment:**
- Storage:**
- Management:** Medium to fast growing, coppicing.
- Remarks:** The wood resists termite attack making the branches useful for fences, support for earth works and stakes. The dried stems are light but strong.



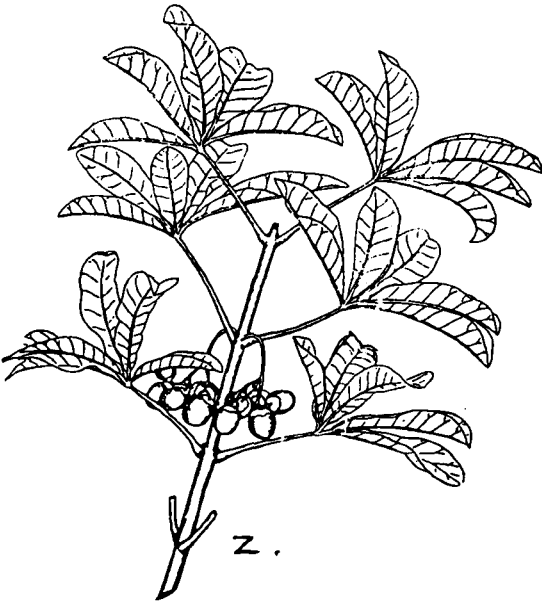
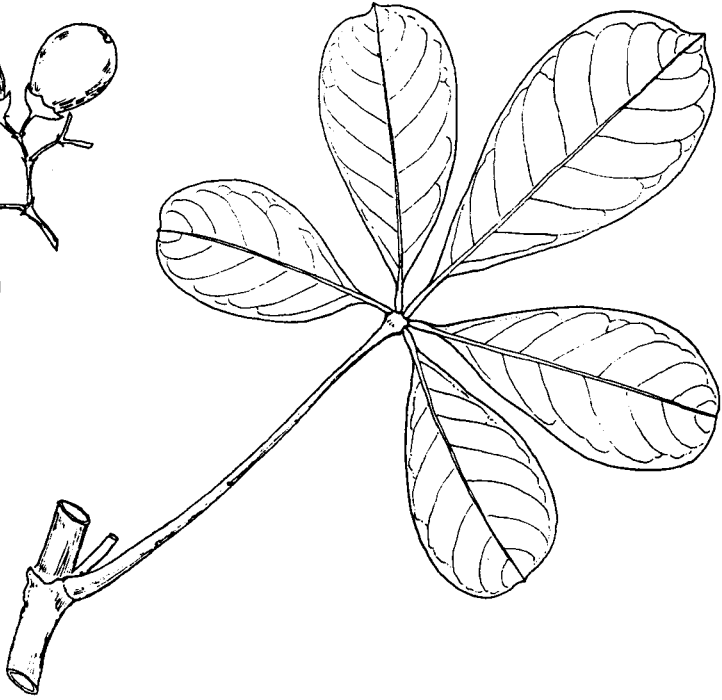
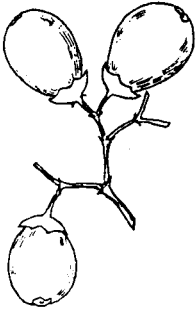
DAMTEW T.

Indigenous

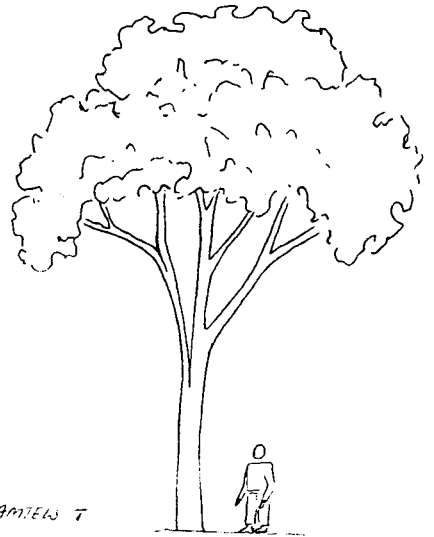
*Am:* Plem

*Eng:* Black plum

- Ecology:** A tree found in coastal woodlands and savannah, at low altitude in wetter areas and in upland grassland, and is also riverine. It is found in coastal Bereha and Dry, Moist and Wet Kolla agroclimatic zones, 0–1,800 m.
- Uses:** Firewood, charcoal, **poles, timber** (construction, furniture), **food** (fruit), fodder (leaves, fruit), medicine (bark, leaves, roots, fruit), bee forage, shade, dye (bark).
- Description:** A semi-deciduous tree 8–18 m, with a **heavy rounded crown**, a straight clear bole and thick twisting branches. **BARK:** Smooth and pale at first, finely grooved, becoming darker and scaly. **LEAVES:** **Opposite and compound**, the **5 finger-like leaflets** held up on a **stalk to 15 cm**. The 2 lowest leaflets smaller, each one wide and **oblong to 14 cm**, shortly stalked, tip rounded or notched, leathery and shiny. **FLOWERS:** Fragrant, in dense bunches to 12 cm across on a long stalk, each flower **bell-shaped**, hairy inside, **4 cream petals and one large petal blue-violet**, hairy. **FRUIT:** **Oblong to 3 cm**, green marked with white, **ripening red-black**; thin edible flesh around a very hard nut which contains 1–4 seeds. The calyx remains around the fruit and curves back.
- Propagation:** Seedlings, direct sowing, wildings.
- Seed:** No. of seeds per kg: 1,000–1,100.
- Treatment:** Remove fleshy part of the fruit. Seeds need a very long time to germinate.
- Storage:** Sow fresh for best germination results.
- Management:** Growth rate medium. Coppicing, lopping.
- Remarks:** The species regenerates naturally by seed and root suckers. Monkeys may disperse the seeds. Forest fires may help break the seed coat before germination. The tree produces a teak-like, termite resistant timber and edible fruits which can be sold.



DAMIELS T



Indigenous

*Am:* Zogdom

*Eng:* East African greenheart

**Ecology:** A tree that is widely distributed in lower rain forest and drier highland forest areas in Moist and Wet Kolla and Weyna Dega agroclimatic zones, 1,300–2,200 m.

**Uses:** **Firewood, timber** (furniture, tools), **food** (seasoning), **medicine** (bark, roots, young twigs), **fodder** (leaves, fruit), mulch, **ornamental**, shade, resin.

**Description:** An evergreen tree to 25 m with a dense leafy canopy. **BARK:** **Rough brown-black**, crack into rectangular scales. **LEAVES:** **Shiny dark green** above, midrib very clear below, **edge wavy**, to 10 cm long. **FLOWERS:** Inconspicuous, green-cream. **FRUIT:** **Round to egg shaped, to 5 cm long** on short stalks, **green to purple with a waxy white surface**, several seeds inside.

**Propagation:** Cuttings, seedlings, direct sowing, wildings, coppicing.

**Seed:** Germination rate over 80%. No. of seeds per kg:  $\pm 10,500$ .

**Treatment:** Wash the fruit and sow seeds fresh for best results.

**Storage:** Seed should not be stored.

**Management:** Fairly slow growing. Coppicing.

**Remarks:** After seasoning, the heartwood develops a slight greenish colour, which fades with exposure to light. The wood, though hard and heavy is not durable in the ground and not termite resistant. It has a high oil content. The leaves, bark, young shoots and fruit can be used in curries and roots are used for soup.



Indigenous

Or: *Marmarte*

**Ecology:** A shrub which usually grows along river banks, in dry Juniperus or Combretum-Terminalia-Croton woodlands on light grey loamy soil. It is also found on rocky hillsides and limestone slopes and is widespread in Gonder, Gojam, Kefa, Sidamo, Bale and Harerge regions in Moist and Wet Kolla, and Dry, Moist and Wet Weyna Dega agroclimatic zones, 1,200–2,000 m.

**Uses:** **Firewood, farm tools, food (fruit).**

**Description:** A much-branched shrub to 3 m high. **BARK:** Smooth grey with white scales distributed on it. **LEAVES:** Opposite pairs, long oval about 7 cm, the tip long and pointed, the base rounded, veins well marked below run to a vein parallel to the edge, dark green above, scattered black glands on paler leaf below. Leaves turn red. **FLOWERS:** Few-flowered in heads beside leaves, calyx tubular bearing 6 small orange-red petals, 12 orange-red anthers and red style push through. **FRUIT:** A small green capsule with a little white edible flesh surrounding 3–4 tiny seeds.

**Propagation:** Seeds, cuttings.

**Seed:** No. of seeds per kg:  $\pm 500$ . Germinate well in 15 days.

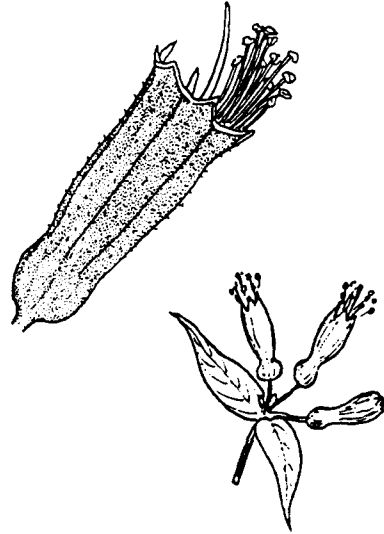
**Treatment:**

**Storage:** Can be stored for at least 6 months.

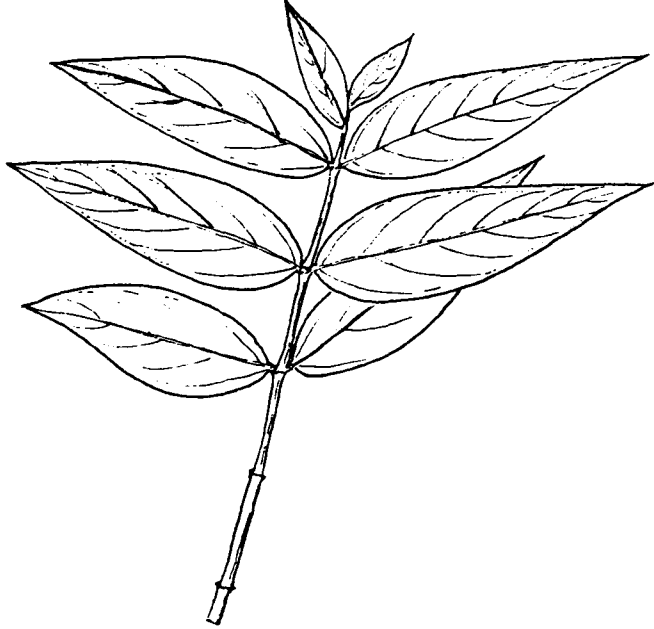
**Remarks:** It has very tasty fruit.



enlarged flower



fruit capsule



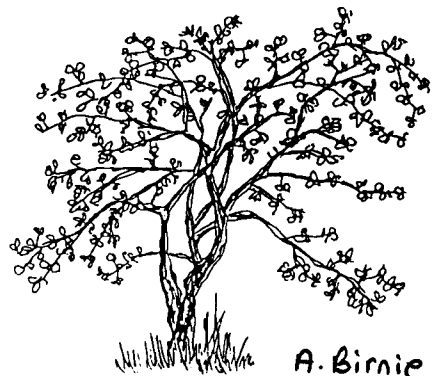
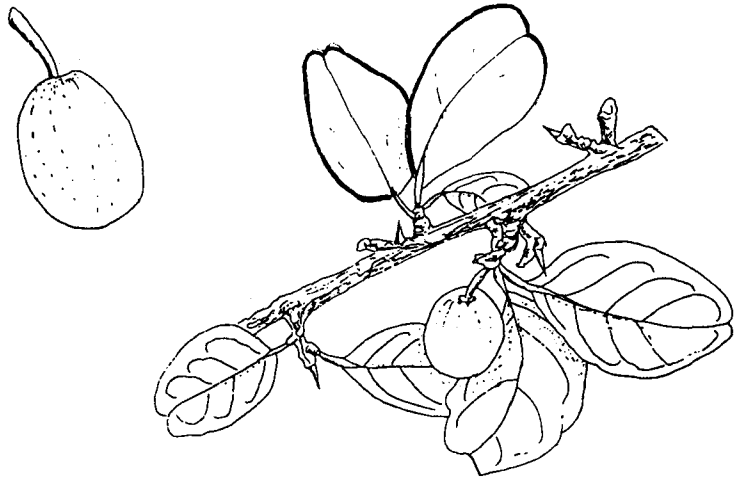
SAMTEW T.



**Indigenous****Ag:** *Tutuqa***Or:** *Awre-mudube, Hudi***Am:** *Inkoy, Kol***Sm:** *Hudaye, Mandarut, Morhod***Eng:** *Hog plum, Wild plum***Tg:** *Mlehtha***Ga:** *Hazte***Wt:** *Astie***Ecology:** Occurs in almost all regions in Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 500–2,100 m. Rarely it may be found in places up to 2,450 m.**Uses:** **Firewood**, charcoal, timber (**utensils**), **food** (fruit), medicine (roots, bark, leaves), fodder, **live fence**.**Description:** Usually a spiny shrub or small tree, 4–8 m. **BARK:** Brown-black; twigs bear small scales, spines, 1 cm, **thin and straight**. **LEAVES:** Alternate, **simple or tufts**, oblong, up to 7 x 3 cm, blue-grey-green, **folding upwards** along midrib, **tip round or notched**. **FLOWERS:** Very fragrant, small green-white (white hairs in throat) in small branched clusters. **FRUIT:** Oval to 2.5 cm, **thin skin red, yellow to orange pulp**, sour but refreshing, around 1 large seed containing oil.**Propagation:** Seedlings, wildings.**Seed:** No. of seeds per kg: ±660.**Treatment:****Stoage:**

Seed cannot be stored for long periods. Sow fresh seed for good germination.

**Management:** Protect natural regeneration.**Remarks:** A useful tree for arid and semi-arid areas as it is drought resistant. The wood is heavy, hard and very durable. The seed contains a non-drying oil suitable for soap and lubrication. It has also been used as body and hair oil and for softening leather.



A. Birnie

Indigenous in some areas of Ethiopia

*Am:* Kurkura            *Or:* Kurkura  
*Br:* Kurkurrah        *Sm:* Gob  
*Eng:* Jujube            *Tg:* Geva

**Ecology:** A tree widespread in tropical Africa, often naturalized. It is common in Ilubabor, Gamo Gofa, Bale, Sidamo and Harerge regions, in Dry and Moist Kolla agroclimatic zones, 400–1,600 m. It has a strongly developed root system and does best in areas with a high water table.

**Uses:** **Firewood, charcoal, timber** (utensils), fodder (leaves, fruit), **food** (fruit), bee forage, soil conservation, **live fence**, fence (dead branches).

**Description:** A much-branched **spiny shrub or tree**, to 10 m, drooping angular branches, crown rounded. **BARK:** Grey-black, pairs of dark brown thorns, both straight and recurved ("thumb-pointer") or small, single and **recurved**. **LEAVES:** Markedly alternate along the stem, small and oval, to 8 cm, leaf bases **rounded and equal**, shiny yellow-green above, **hairy white below**, 3 veins from the base, young stems hairy. **FLOWERS:** Small yellow-green, in clusters by leaves, on hairy stalks, a sharp sweet smell. **FRUIT: Rounded 1–2 cm, shiny yellow then red-brown**, pulp edible, 2 seeds in a large stone.

**Propagation:** Seedlings, direct sowing, root suckers, cuttings.

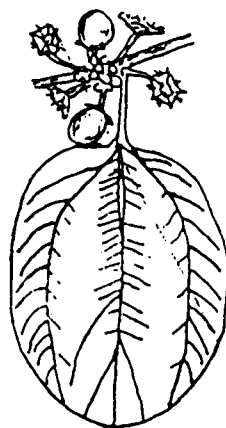
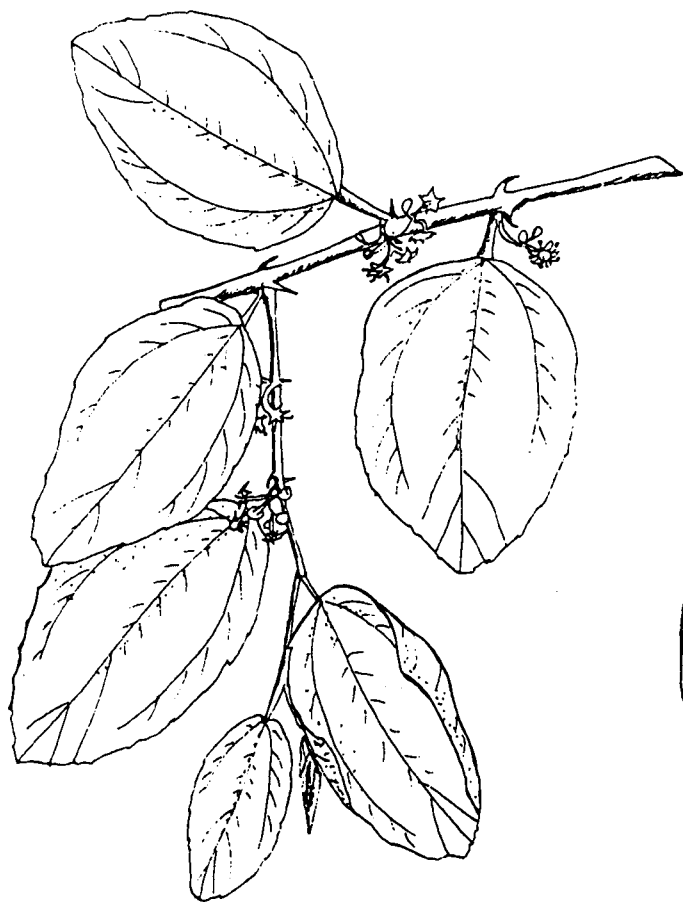
**Seed:** Germination rates often low. No. of seeds per kg: 430–2,000.

**Treatment:** Soak in cold water, crack hard seed cover.

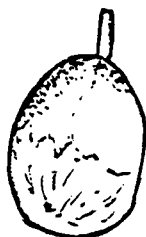
**Storage:** Seed can be stored up to a year.

**Management:** Fast growing in dry areas; lopping, pollarding, pruning.

**Remarks:** A very important tree for dry areas because of its many uses. Many parasites attack the leaves and fruits.



X 1



*Ziziphus mauritiana*  
A. Birnie

A. Birnie

**Indigenous****Ag:** *Geba***Sm:** *Eddi-shebel, Harkey***Am:** *Ado kurkura, Foch***Tg:** *Gaba-harmaz***Eng:** *Buffalo thorn***Wt:** *Gammo-gadie***Or:** *Ado-kurkura***Ecology:**

A thorny shrub which grows in *Acacia-Terminalia*, *Acacia-Balanites* and *Boswellia* woodlands and bushlands, on alluvial soils, and in dry riverine forests in all regions. It does well in Bereha and Dry, Moist and Wet Kolla and Weyna Dega agroclimatic zones, 100–2,100 m. The tree is widespread in dry tropical Africa and is adaptable to a variety of soils.

**Uses:**

**Firewood, charcoal, timber** (farm tools, local construction), **food** (fruit), **medicine** (roots, fruit), **shade, live fence, fence** (dead branches).

**Description:**

A semi-deciduous shrub or tree to 15 m, sometimes scrambling over other plants, usually armed with **strong spines**, paired with one straight, one recurved spine ("thumb pointer"). **BARK:** Dark grey-brown, only smooth when young. **LEAVES:** **Hairless and shiny, a similar green both sides**, 3–6 cm long, the edge with **regular rounded teeth** to a pointed tip, the **base rounded, often very unequal**, 3 main veins clear below, vein network raised above. **FLOWERS:** Very small, yellow-green, crowded in heads by leaves. **FRUIT:** **Rounded to 2 cm across, the skin dark red-brown** when ripe, in stalked bunches, **very acid pulp** around the stone, hardly edible, conspicuous on the bare tree.

**Propagation:**

Seedlings, cuttings.

**Seed:**

A prolific seeder; seed matures from September to October.

**Treatment:**

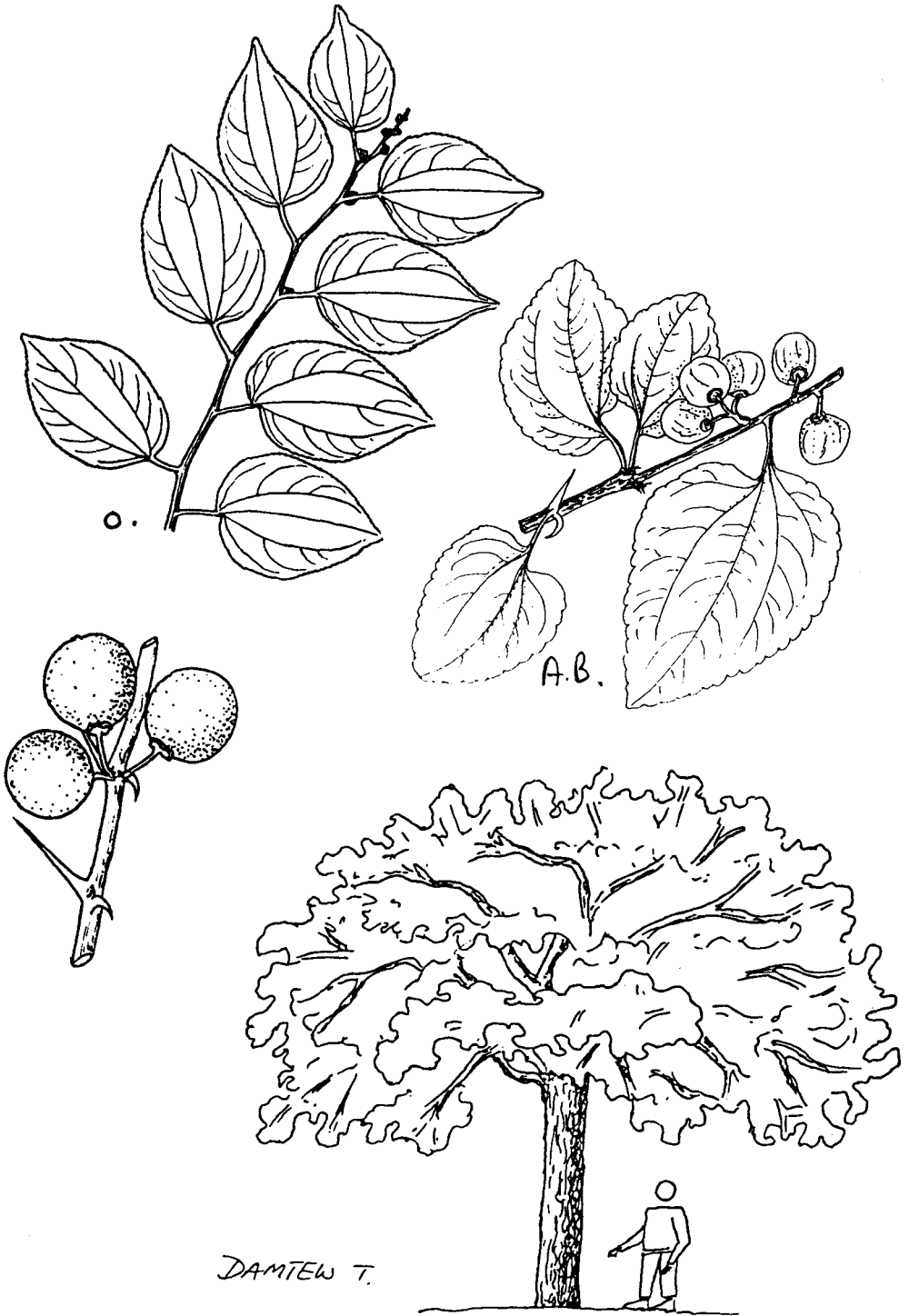
Not necessary.

**Storage****Management:**

Pollarding, lopping, coppicing.

**Remarks:**

The yellow-pink wood is tough and bends well (bows) and although it is termite resistant it is not very durable in the ground. Livestock and wild animals eat the fruit.

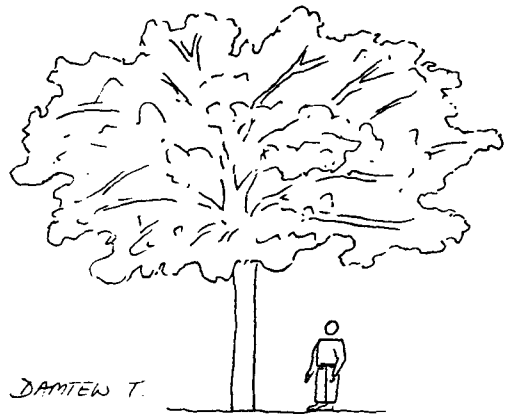
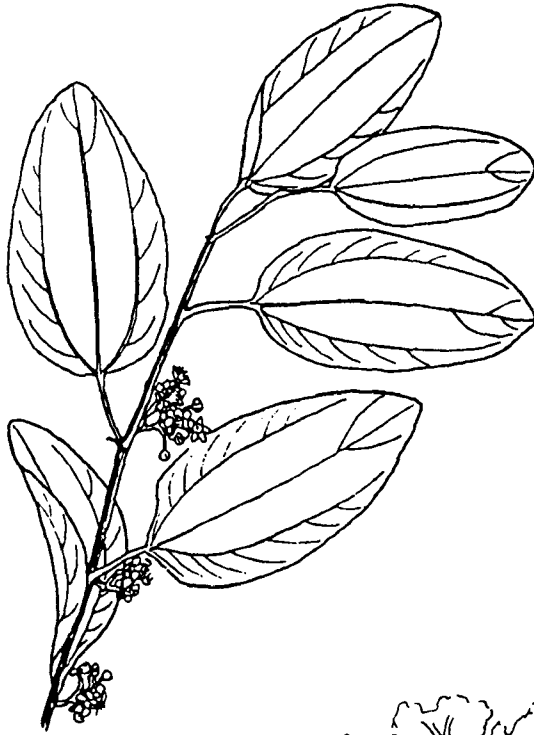
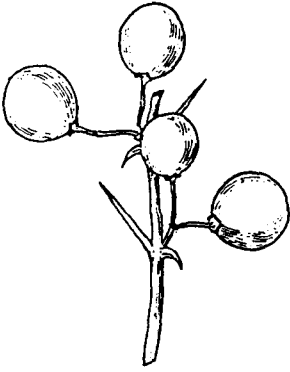


Indigenous in some areas of Ethiopia

*Am:* Kurkura

*Tg:* Geba

- Ecology:** A spiny shrub which grows in Bereha and Dry and Moist Kolla agroclimatic zones and is common in wooded grasslands, on flooded river banks, and edges of cultivation. It prefers alluvial plains with deep soils, 0–1,900 m.
- Uses:** **Firewood, charcoal, timber** (spear shafts, roof beams, furniture, utensils), **food** (fruit), **fodder** (fruit, leaves), **shade**, **live fence, fence** (cut branches).
- Description:** A **thorny shrub becoming a tree to 10 m**, evergreen on wet sites but losing all its leaves in a long dry season. The tree lives a long time. **BARK:** Grey-brown, when cut the edge is reddish, mature bark grooved and cracking. The paired spines are “thumb pointer”, the straight thorns long and thin. **Branchlets yellow-white**, somewhat zigzag. **LEAVES:** Rather small, **narrowly ovate**, variable in length, **1–8 cm**, shortly stalked, usually narrowed to the base where **each side is similar**, 3 clear veins from the base, the edge lightly toothed. **FLOWERS:** Small, 10–25 in heads beside leaves, **yellow-green, stalks and calyx hairy white**. **FRUIT:** Round, 1–2 cm, woolly at first, ripening yellow to red, with edible flesh and 2–3 seeds.
- Propagation:** Seedlings, cuttings.
- Seed:**
- Treatment:** The hard woody shells should be cracked with a hammer and the seeds soaked in warm water overnight.
- Storage:** Stores well.
- Management:** Coppicing, lopping, pollarding.
- Remarks:** It develops an extremely deep taproot system. It can make an impenetrable thicket. The wood makes excellent firewood and charcoal. It coppices very well.





## PART IV. SUMMARY TABLE OF SPECIES AND THEIR USES

	Wood						Food					Fod-der		Environmental						Other Uses												
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes	
<i>Acacia abyssinica</i>	x	x		x			x					x	x	x	x			x	x											x		
<i>Acacia albida</i>	x	x	x	x			x	x	x			x	x		x		x	x	x	x	x				x		x	x				
<i>Acacia asak</i>	x	x	x											x																		
<i>Acacia brevispica</i>	x											x	x																x			
<i>Acacia bussei</i>	x	x																							x							
<i>Acacia decurrens</i>	x	x		x										x	x	x	x		x	x		x			x			x				
<i>Acacia lahai</i>	x	x	x	x												x			x						x							
<i>Acacia mearnsii</i>	x	x		x			x					x		x		x		x	x		x	x			x							
<i>Acacia melanoxylon</i>	x	x	x	x												x	x					x		x								
<i>Acacia nilotica</i>	x	x		x			x	x				x	x	x					x	x				x	x			x		x		
<i>Acacia oerfota</i>	x			x								x	x										x									
<i>Acacia polyacantha</i>	x	x	x	x			x					x	x			x		x		x									x			
<i>Acacia saligna</i>	x			x							x			x		x	x		x	x	x	x							x			
<i>Acacia senegal</i>	x	x		x				x				x	x							x	x				x	x						
<i>Acacia seyal</i>	x	x		x								x	x	x	x				x	x		x			x	x						

	Wood							Food				Fodder	Environmental						Other Uses													
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes	
<i>Acacia sieberiana</i>	x	x	x				x						x												x				x			
<i>Acacia tortilis</i>	x	x	x	x									x	x	x			x	x			x							x			
<i>Acokanthera schimperi</i>							x					x			x	x										x						
<i>Adansonia digitata</i>								x	x	x		x	x		x	x	x					x			x							
<i>Albizia grandibracteata</i>	x						x					x		x		x	x	x										x				
<i>Albizia gummifera</i>	x		x					x				x	x	x																		
<i>Albizia lebbeck</i>	x	x	x	x								x	x	x	x	x	x	x	x		x			x		x						
<i>Albizia lophantha</i>	x												x	x	x	x		x	x	x												
<i>Albizia schimperiana</i>	x	x	x				x					x		x	x			x	x													
<i>Allophylus abyssinicus</i>	x						x						x																x			
<i>Aningeria adolfi-friedericii</i>			x				x																									
<i>Aningeria altissima</i>			x				x																									
<i>Annona muricata</i>								x	x	x		x														x						
<i>Annona senegalensis</i>	x		x	x			x	x				x	x								x	x		x								
<i>Apodytes dimidiata</i>	x		x				x										x															
<i>Arundinaria alpina</i>			x	x			x															x	x						x			

	Wood								Food				Fodder	Environmental							Other Uses															
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes					
<i>Arundo donax</i>			x			x							x									x	x						x							
<i>Azadirachta indica</i>	x	x	x	x								x	x	x	x	x			x		x						x	x								
<i>Balanites aegyptiaca</i>	x	x	x	x			x	x	x		x	x	x			x	x					x		x				x	x							
<i>Berberis holstii</i>	x																												x							
<i>Berchemia discolor</i>			x	x				x		x		x	x	x	x	x						x		x	x											
<i>Bersama abyssinica</i>	x																												x							
<i>Blighia unijugata</i>			x													x																				
<i>Borassus aethiopum</i>			x	x		x		x		x	x	x	x	x								x	x													
<i>Boswellia papyrifera</i>																								x					x							
<i>Boswellia rivae</i>																				x				x												
<i>Bridelia micrantha</i>	x	x	x	x		x		x				x	x		x		x																			
<i>Buddleia polystachya</i>	x	x	x											x																x						
<i>Caesalpinia decapetala</i>												x	x	x		x	x	x												x						
<i>Cajanus cajan</i>	x							x						x	x		x	x	x	x	x	x	x													
<i>Calotropis procera</i>	x											x											x													
<i>Capparis tomentosa</i>	x											x																		x						

	Wood							Food					Fod-der	Environmental							Other Uses												
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum		Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes	
<i>Carissa edulis</i>	x							x				x				x														x			
<i>Cassia alexandrina</i>							x					x							x														
<i>Cassia didymobotrya</i>	x											x					x		x														
<i>Cassia siamea</i>	x	x	x	x								x	x	x	x	x	x		x		x												
<i>Casuarina cunninghamiana</i>	x	x	x	x										x		x	x	x	x														
<i>Casuarina equisetifolia</i>	x	x	x	x										x		x	x	x	x	x	x					x							
<i>Catha edulis</i>	x											x																					
<i>Ceiba pentandra</i>												x	x			x							x										
<i>Celtis africana</i>	x		x				x							x		x																	
<i>Chamaecytisus palmensis</i>	x													x	x		x	x	x	x	x									x			
<i>Citrus aurantifolia</i>								x				x																					
<i>Citrus medica</i>								x				x																					
<i>Citrus reticulata</i>								x																									
<i>Citrus sinensis</i>								x		x																							
<i>Combretum aculeatum</i>	x													x																	x		
<i>Combretum collinum</i>	x											x																			x	x	

	Wood								Food				Fod-der		Environmental							Other Uses													
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes				
<i>Combretum molle</i>	x	x	x	x			x					x		x			x																		
<i>Commiphora africana</i>	x						x	x		x		x		x										x					x						
<i>Commiphora erythraea</i>							x																	x		x									
<i>Commiphora habessinica</i>	x																							x					x						
<i>Cordeauxia edulis</i>	x							x						x	x		x	x	x					x				x							
<i>Cordia africana</i>	x		x				x	x				x		x	x	x	x	x	x																
<i>Croton macrostachyus</i>	x	x	x	x			x					x		x	x		x		x																
<i>Cupressus lusitanica</i>	x		x	x												x	x					x								x					
<i>Cyathea manniana</i>			x																																
<i>Dalbergia melanoxylon</i>	x		x				x					x		x	x				x																
<i>Dalbergia sissoo</i>	x	x	x	x			x	x						x	x	x	x	x	x	x	x				x										
<i>Delonix regia</i>															x	x	x																		
<i>Dicrostachys cinerea</i>	x	x		x			x					x		x	x				x	x			x								x				
<i>Diospyros abyssinica</i>	x	x	x				x									x																			
<i>Diospyros mespiliformis</i>	x		x				x	x		x		x		x		x																			
<i>Discopodium penninervum</i>	x						x																											x	

	Wood							Food					Fod-der		Environmental							Other Uses									
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes
<i>Dobera glabra</i>	x		x					x					x		x									x							x
<i>Dodonaea angustifolia</i>	x	x		x			x					x		x					x		x								x		
<i>Dombeya torrida</i>	x		x	x			x							x			x			x		x									
<i>Dovyalis abyssinica</i>								x				x		x															x		
<i>Dracaena steudneri</i>																x															
<i>Ehretia cymosa</i>	x		x				x							x			x														
<i>Ekebergia capensis</i>	x		x	x			x					x	x	x	x	x			x		x										
<i>Embelia schimperii</i>	x											x																			
<i>Ensete ventricosum</i>								x									x					x	x								
<i>Entada abyssinica</i>	x											x			x			x											x		
<i>Erica arborea</i>	x	x											x	x															x		
<i>Eriobotrya japonica</i>	x			x			x	x						x	x	x	x					x									
<i>Erythrina abyssinica</i>	x						x					x		x		x	x	x	x										x	x	
<i>Erythrina brucei</i>	x						x					x	x	x		x	x	x	x										x	x	
<i>Eucalyptus camaldulensis</i>	x	x	x	x										x		x						x									
<i>Eucalyptus citriodora</i>	x	x	x	x								x		x								x									

	Wood							Food				Fodder		Environmental							Other Uses													
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Beef forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes			
<i>Eucalyptus globulus</i>	x	x	x	x		x						x		x								x												
<i>Eucalyptus grandis</i>	x	x	x	x		x								x	x	x						x												
<i>Eucalyptus saligna</i>	x	x	x			x						x		x	x							x												
<i>Eucalyptus viminalis</i>	x		x	x		x								x		x						x												
<i>Euclea schimperi</i>	x						x	x								x													x					
<i>Euphorbia abyssinica</i>	x		x																				x											
<i>Euphorbia candelabrum</i>	x		x																				x						x					
<i>Euphorbia tirucalli</i>												x														x		x						
<i>Fagaropsis angolensis</i>	x		x																															
<i>Ficus carica</i>								x				x																						
<i>Ficus elastica</i>															x	x																		
<i>Ficus sur</i>			x					x							x																x			
<i>Ficus sycomorus</i>	x						x	x				x			x	x	x		x	x														
<i>Flacourtia indica</i>	x					x		x				x	x																x					
<i>Flueggea virosa</i>	x							x				x																						
<i>Galiniera saxifraga</i>	x		x														x																	

	Wood							Food				Fodder	Environmental						Other Uses														
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes		
<i>Gmelina arborea</i>	x	x	x	x			x						x	x	x	x						x											
<i>Grevillea robusta</i>	x	x	x	x									x	x	x	x				x		x											
<i>Grewia bicolor</i>	x			x			x	x				x	x																				
<i>Grewia ferruginea</i>	x		x				x	x					x									x											
<i>Grewia villosa</i>	x						x	x				x	x									x											
<i>Hagenia abyssinica</i>	x		x	x			x					x				x	x		x														
<i>Hevea brasiliensis</i>																								x									
<i>Hypericum quartinianum</i>	x	x												x																			
<i>Hypericum revolutum</i>	x		x											x					x														
<i>Hypericum roeperianum</i>	x	x												x																			
<i>Hyphaene thebaica</i>			x					x														x											
<i>Ilex mitis</i>	x	x	x				x					x																					
<i>Jacaranda mimosifolia</i>	x		x	x			x							x		x	x					x											
<i>Juniperus procera</i>	x		x	x	x							x										x		x									
<i>Justicia schimperiana</i>	x																														x		
<i>Kigelia africana</i>	x		x					x				x	x												x								



	Wood							Food				Fodder	Environmental						Other Uses																
	Firewood	Charcoal	Timber / Furniture	Poles / Posts	Flooring	Veneer / Plywood	Tools / Handles	Carvings / Utensils	Fruit / Food	Seasoning / Flavouring	Drink / Soup	Edible oil / gum	Medicine / Stimulant	Fodder / Forage	Bee forage	Shade	Ornamental	Mulch	Nitrogen fixation	Soil conservation	Soil improvement	Windbreak	Fibre / Weaving	Thatch / Roofing	Resin / Gum / Latex	Tannin / Dye	Toxin / Insecticide	Cosmetic / Soap	Live fence / Dry fencing	Traditional uses	Tooth brushes				
<i>Lawsonia inermis</i>												x	x			x							x		x		x								
<i>Leucaena leucocephala</i>	x	x		x									x	x		x		x	x	x									x						
<i>Maesa lanceolata</i>	x											x																	x						
<i>Mangifera indica</i>	x							x					x	x		x			x			x													
<i>Manilkara butugi</i>	x		x		x	x		x																											
<i>Markhamia lutea</i>	x	x	x	x		x						x		x		x		x																	
<i>Maytenus arbutifolia</i>	x					x							x																x						
<i>Maytenus senegalensis</i>	x											x																		x					
<i>Maytenus undata</i>	x		x			x						x					x												x						
<i>Melia azedarach</i>	x		x	x		x						x		x		x						x													
<i>Milicia excelsa</i>	x	x	x													x	x	x																	
<i>Millettia ferruginea</i>	x		x			x	x									x										x									
<i>Mimusoops kummel</i>	x	x	x			x	x	x																											
<i>Moringa oleifera</i>								x	x		x	x	x	x		x			x		x	x						x	x						
<i>Morus alba</i>	x							x						x	x	x	x		x		x								x						
<i>Morus mesozygia</i>	x		x		x									x		x																			

	Wood							Food					Fodder		Environmental							Other Uses										
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<i>Myrica salicifolia</i>	x		x									x																				
<i>Myrtus communis</i>									x																			x		x		
<i>Nuxia congesta</i>	x	x										x		x															x			
<i>Ocotea kenyensis</i>	x		x		x							x																				
<i>Olea capensis</i>	x	x	x		x		x					x																				
<i>Olea europaea</i>	x	x	x	x	x				x			x		x																		x
<i>Olea welwitschii</i>	x		x			x						x																				
<i>Olinia rochetiana</i>	x		x				x																						x			
<i>Otostegia fruticosa</i>	x								x			x																				
<i>Oxytenanthera abyssinica</i>				x										x															x			
<i>Parkinsonia aculeata</i>	x	x												x	x	x	x		x		x							x				
<i>Pavetta oliveriana</i>	x																x															
<i>Persea americana</i>								x								x											x					
<i>Phoenix dactylifera</i>	x			x			x	x				x	x			x					x		x									
<i>Phoenix reclinata</i>			x					x									x		x			x	x		x							
<i>Phytolacca dodecandra</i>												x														x	x					

	Wood							Food					Fod- der	Environmental							Other Uses										
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<i>Piliostigma thonningii</i>	x	x	x	x				x		x		x	x	x		x	x	x	x			x			x						
<i>Pinus patula</i>	x		x	x																											
<i>Pinus radiata</i>	x		x	x												x					x	x									
<i>Pithecellobium dulce</i>	x		x	x				x		x			x	x	x	x			x		x				x			x			
<i>Pittosporum viridiflorum</i>	x		x				x																								
<i>Podocarpus falcatus</i>	x		x	x		x						x				x	x														
<i>Polyscias fulva</i>	x		x															x													
<i>Premna schimperii</i>	x	x										x																	x		
<i>Prosopis juliflora</i>	x	x	x	x			x	x				x	x	x	x				x	x		x							x		
<i>Prunus africanus</i>	x	x	x	x			x					x		x	x			x				x									
<i>Prunus persica</i>	x							x																							
<i>Psidium guajava</i>	x						x	x																							
<i>Psydrax schimperiana</i>	x						x																								
<i>Rhamnus prinoides</i>	x								x			x																			
<i>Rhamnus staddo</i>	x								x																						
<i>Rhoicissus revoulii</i>	x								x																						

	Wood						Food			Fod- der	Environmental						Other Uses														
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<i>Rhoicissus tridentata</i>								x				x																			
<i>Rhus glutinosa</i>	x					x																									
<i>Rhus natalensis</i>	x	x				x		x				x																			x
<i>Rhus retinorrhoea</i>	x					x																									
<i>Rhus vulgaris</i>	x					x		x																							
<i>Ricinus communis</i>												x															x				
<i>Rosa abyssinica</i>	x							x				x																x			
<i>Salix subserrata</i>	x																														x
<i>Salvadora persica</i>	x							x				x	x		x				x												x
<i>Sapium ellipticum</i>	x					x																									
<i>Schefflera abyssinica</i>			x			x								x														x			
<i>Schinus molle</i>	x	x							x					x	x	x				x		x									
<i>Sesbania sesban</i>	x			x									x		x		x	x	x	x	x		x				x				
<i>Spathodea campanulata</i>	x	x					x					x			x	x	x					x									
<i>Steganotaenia araliacea</i>	x					x						x																			
<i>Stereospermum kunthianum</i>	x											x				x															

	Wood							Food				Fod- der	Environmental							Other Uses																
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<i>Strychnos henningsii</i>	x			x			x			x		x																			x					
<i>Strychnos innocua</i>	x						x																													
<i>Strychnos spinosa</i>	x	x	x					x				x	x																							
<i>Syzygium guineense</i>	x	x	x	x			x	x				x		x																						
<i>Tamarindus indica</i>	x	x	x	x				x	x	x		x	x		x	x	x	x								x										
<i>Tamarix aphylla</i>	x	x	x											x			x		x	x	x															
<i>Teclea nobilis</i>	x	x	x	x			x					x																								
<i>Terminalia brownii</i>	x	x	x	x			x					x	x		x		x									x										
<i>Trichilia dregeana</i>	x		x													x																				
<i>Trichilia emetica</i>	x		x	x			x					x				x												x								
<i>Trilepisium madagascariense</i>	x		x				x																			x										
<i>Vepris dainellii</i>	x		x				x																													
<i>Vernonia amygdalina</i>	x	x						x				x	x				x	x			x									x			x			
<i>Vitex doniana</i>	x	x	x	x				x				x	x	x		x										x										
<i>Warburgia ugandensis</i>	x		x				x		x	x		x	x			x	x	x											x							
<i>Woodfordia uniflora</i>	x						x																													

	Wood								Food			Fod-der	Environmental						Other Uses												
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<i>Ximения americana</i>	x	x	x					x	x				x	x														x	x		
<i>Zizyphus mauritiana</i>	x	x	x					x	x					x	x					x									x		
<i>Zizyphus mucronata</i>	x	x	x				x		x				x			x													x		
<i>Zizyphus spina-christi</i>	x	x	x					x	x					x		x													x		

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The Swedish International Development Authority, SIDA, has supported rural development programmes in countries in Eastern Africa since the 1960's. Many of these programmes have over the years developed a clear environmental profile. It has been recognized that conservation of soil, water and vegetation must form the basis for sustainable utilization of land. Hence the importance of integrating conservation in smallholder farming systems.

In 1982 SIDA established the Regional Soil Conservation Unit, RSCU, based in Nairobi, in order to facilitate exchange of regional experience. RSCU's mandate is to promote soil conservation, broadly defined as environmentally sound techniques for agricultural production incorporating crop and animal husbandry as well as agroforestry.

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