

Didier Fontanel

Unsaponifiable Matter in Plant Seed Oils



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Preface

Determinations of levels of unsaponifiable matter in oils began in the late nineteenth century. They have been published in scientific journals throughout the twentieth century and are still published today.

The first book in which a large number of unsaponifiable matter contents were referenced was written by Paul-Henri Mensier and published in 1957. Entitled *Dictionnaire des Huiles Vegetales (Dictionary of Vegetable Oils)*, it mentioned about 520 unsaponifiable matter contents of oilseeds species. No other document has so far reached this number.

In 1996, under the authority of Alain Karleskind, the *Oil and Fats Manual* quotes 29 unsaponifiable matter contents and features 27 tables containing the contents of unsaponifiable fractions in the most exploited seed oils. It was first published in French (*Manuel des Corps Gras*) in 1992.

The *Nouveau Dictionnaire des Huiles Vegetales (New Dictionary of Vegetable Oils)* was published in 1995. Its author, Eugene Ucciani, cites 203 unsaponifiable matter contents of the oils determined during works on fatty acids from vegetable oils. However, the chemical families constituting the unsaponifiables are not mentioned.

The contribution of a new book devoted to unsaponifiable matter content is based on the following arguments:

- Almost half of the 686 references on the subject contained therein have been published since 1994.
- This collection presents the contents of the chemical families found in the unsaponifiable matter (sterols, 4-methylsterols, triterpene alcohols, tocopherols, tocotrienols, carotenoids, fatty alcohols, hydrocarbons etc.) of each published work.
- Neither P-H. Mensier, A. Karleskind nor E. Ucciani reported in their works the methods used for each determination of unsaponifiable matter content mentioned and/or the chemical families that compose them. In this area, a result reported without specifying the method used remains incomplete.

- Several families of constituents of unsaponifiable matter (tocopherols and tocotrienols, sterols, carotenoids, hydrocarbons etc.) are still the subject of much research and have many applications (areas of health, food technology, cosmetics).

I must add that I am not an engineer or researcher specializing in oleochemicals. However, close collaboration initiated in 2000 with Expanscience Laboratories (France) allowed me to conduct extensive bibliographic searches on some oilseed species and examine their particular unsaponifiable matters. In addition to these surveys, some personal unpublished works on the subject are mentioned.

I end this introduction by thanking Agnes Bergers and Claudie Gestin (ITERG, Industrial Technical Centre on Fats, Pessac, France) who allowed me access to journals of this institute, and Xavier Pagès (ITERG) for three unpublished results.

I also thank Anthony Piccirilli, (Valagro Renewable Carbon Poitou-Charentes, Poitiers, France) who has verified that the book does not contain serious flaws, and the R & D Lipochemistry Department of Expanscience Laboratories (Epernon, France) that authorized me to disclose the results of joint works.

Saint Rémy la Varenne, France

Didier Fontanel

Abbreviations

AFNOR	Association Française de Normalisation
AOAC	Association of Official Analytical Chemists
AOCS	American Oil Chemists' Society
BP	British Pharmacopoeia
BS	British Standard
COVENIN	Comité Venezolanas de las Normas
DGF	Deutsche Gesellschaft für Fettwissenschaft
EC	European Community
Eng.	English
Spa.	Spanish
extr.	Extraction
Fr.	French
GC	Gas chromatography
HPLC	High-performance liquid chromatography
ISO	International Organization for Standardization
ITERG	Industrial Technical Centre on Fats (Pessac, France)
IUPAC	International Union of Pure and Applied Chemistry
LC-GC	High-performance liquid chromatography coupled with gas chromatography
OCLC	Open column liquid chromatography
NGD	Norme Grassi e Derivati
Ph. Eur.	European Pharmacopoeia
Ph. Fr.	Pharmacopée Française
Ph. India	Indian Pharmacopoeia
Spectro	Spectrophotometry (visible light)
ssp.	Subspecies
spp.	<i>Species pluralis</i>
TLC	Thin layer chromatography
var.	Variety

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Chapter 1

Introduction

1.1 Plant Material, Botanical Criteria

The works referenced are mainly those that were conducted with identified plant species and mature organs (seed, kernel, fruit, tubercle, aril). Other works carried out on plant oils supplied by firms are also listed. However, to reflect a lack of certainty about the plant used and its transformation, the work done on oils from companies are specified in a section “origins of samples”. With few exceptions, the analyses (oil contents, unsaponifiable matter contents etc.) were performed on dried organs.

For each plant, the country of origin of organ sample is specified if reported by the authors.

Due to changes in botanical nomenclature, the book includes an index of correspondence between the synonyms used by authors of publications and Latin names valid in 2011. Sometimes, a trivial plant name in a paper was too ambiguous to allow the data to be included.

1.2 Fat Contents

Only oilseeds with lipid contents above 10 % (based on dry weight) are mentioned in the book.

Lipid contents are mainly from studies dealing with the unsaponifiable matter. These lipid contents are thus only partially representative. Unless otherwise noted, they were determined by solvent extraction (using *n*-hexane, petroleum ether or ethoxyethane; rarely chloroform or dichloromethane) using Soxhlet apparatus. The levels are usually expressed relative to the dried raw material.

1.3 Unsaponifiable Matter

Definition. Unsaponifiable matter of fats means all the products contained in this fatty substance that, after saponification of the fat with an alkali hydroxide, solvent extraction and specified removal of the saponified matter, are not volatile in operating conditions described by the various official methods.

This book first describes unsaponifiable matter content and, second, the levels of chemical families of compounds constituting the unsaponifiable matter.

1.3.1 Unsaponifiable Matter Content

The contents of the listed unsaponifiable materials were determined, unless otherwise stated, from unrefined vegetable oils obtained by extraction with an organic solvent. The levels are represented with a decimal point.

Determining unsaponifiable matter is a multi-step operation that ends with a conventionally gravimetric measurement. The operating conditions may vary:

- Saponification at reflux with a solution of ethanolic or methanolic potassium hydroxide (0.5–3 N) for 10–120 min
- Alcohol concentration after dilution: 33–50%
- Extractive hydrophobic solvent after saponification with ethoxyethane, *n*-hexane, petroleum ethers, 2-isopropoxypropane, 2-methoxy-2-methylpropane, 1,2-dichloroethane etc.
- Washing of hydrophobic phases with ethanol 50% v/v and water or an aqueous solution of 0.5 N potassium hydroxide
- The number of extractions and washing methods vary.
- Corrections in the event of any soaps or residual free fatty acids.

Under the same operating conditions, the results may differ for the same sample, especially depending on the extractive solvent used (Ramadan 1976; Bianchini et al. 1982). Therefore, it seemed important to specify the methods used in each published work. These are listed in parentheses after each result, together with the extractive solvent. However, many authors only cited the name of the organization as the source of the method used, or the reference method was too briefly listed. Consequently, the extractive solvent could not be cited in a number of cases.

1.3.1.1 Official Organizations Cited by Referenced Papers for the Determination of Unsaponifiable Matter in Oils

AFNOR (Association Française de Normalisation)

Recueil de Normes Françaises des corps gras; Graines oléagineuses produits dérivés, Paris

AOAC (Association of Official Analytical Chemists) (before 1970: Association of Official Agricultural Chemists)

Official Methods Board (OMB) of the AOAC International, Gaithersburg, Maryland (previously, Washington DC)

AOCS (American Oil Chemists' Society)

Official methods and recommended practices of the AOCS, Champaign, Illinois (before 1990: Official and tentative methods of AOCS, Chicago, Illinois).

BP (British Pharmacopoeia)

London

BS (British Standard)

Methods of analysis of oils and fats. London.

EC (European Community)

Determination of the composition and content of sterols by capillary-column gas chromatography. Regulation EEC 2568/91, Annex V. *Official Journal of the European Communities*, L248:15–22 (1991).

COVENIN

Aceites y grasas vegetales. Fondonorma éd., Caracas.

DGF (Deutsche Gesellschaft für Fettwissenschaft e.V.)

Deutsche Einheitsmethoden zur untersuchung von fetten, fettprodukten, tensiden und verwandten stoffen, Frankfurt am Main (previously, Stuttgart).

IOOC (International Olive Oil Council)

Madrid

ISO (International Organisation for Standardization)

Animal fats and vegetable - determination of unsaponifiable matter, Geneva

IUPAC (International Union of Pure and Applied Chemistry)

Standard methods for the analysis of fats, oils and derivatives, IUPAC, Pergamon Press, London; also Blackwell, Oxford.

NGD (Norme Grassi e Derivati)

Norme Italiana per Il NGD SSI de gli oli e dei grassi, Milano. Previously: *Metodi Ufficiali di Analisi gli oli e grassi*, Roma.

Ph. Eur. (European Pharmacopoeia)

Strasbourg.

Ph. Fr. (Pharmacopée Française)

Strasbourg.

Ph. India (Pharmacopoeia of India)

Delhi

1.3.1.2 Official Organizations and Reference Methods to Which Most Authors of Works on the Unsaponifiable Matter Contents Have Referred

Organization	Reference of the method and years of publication, cited by the authors of reported work	Extractive solvent (after saponification)
AFNOR	NFT 60-205-1/1993 (ISO 3596-1: 1988)	Ethoxyethane
	NFT 60-205-2/1993 (ISO 3596-2: 1988)	<i>n</i> -Hexane
	NFT 60-205/1988, 1984, 1981, 1976	<i>n</i> -Hexane; (annex A: ethoxyethane)
AOAC	933.08/2000, 1999, 1998, 1995, 1990	Ethoxyethane
	28.092/1984	
	28.081/1980	
	28.068/1975	
	28.063/1970	
	28.071/1965	
AOCS	Previous years: 1935, 1940, 1945, 1955, 1960	Petroleum ether Ethoxyethane
	Ca 6a-40 (recommended for plant oils)	
	Ca 6b-53 (recommended especially for marine oils or others difficult to saponify)	
	Years cited: 2006, 2000, 1998, 1997, 1996, 1993, 1990, 1989, 1987, 1981, 1980, 1975, 1974, 1973, 1972, 1971, 1969, 1964, 1963, 1957, 1946	
BP	1988 (A130) – methods I and II 1963	Ethoxyethane
BS	BS 684 2.7 (1)/1978, 1977, 1976	Ethoxyethane
	BS 684 2.7 (2)/1978, 1977, 1976	Petroleum ether
	BS 684/1958	Ethoxyethane
CE	1991	Ethoxyethane
COVENIN	Regulation 326/1984	<i>n</i> -Hexane
DGF	DGF C-III 1a/1953	Ethoxyethane
	DGF C-III 1b/1953	Petroleum ether

(continued)

Organization	Reference of the method and years of publication, cited by the authors of reported work	Extractive solvent (after saponification)
IOOC	From determination of sterols, T.20/Doc. no.10, rev.1/2001	Ethoxyethane
ISO	ISO 3596-1/2000 (reference method) ISO-3596-2/2000 (rapid method) ISO 18609/2000	Ethoxyethane <i>n</i> -Hexane <i>n</i> -Hexane
IUPAC	2.401 (1–5)/1987, 1979 2.401 (6)/1987, 1979 II.D.5.3/1973, 1966, 1964 1954 method a/ 1954 method b/	Ethoxyethane Petroleum ether Ethoxyethane Petroleum ether Ethoxyethane
NGD	C-12 (A)/1976, 1967 C-12 (B)/1976, 1967	Petroleum ether 40–60 °C Ethoxyethane
Ph. Eur.	2.5.7/2009 (6th edn., supplement 7)	Ethoxyethane
Ph. Fr. X	V.3.4.7/1983 (10th edn.)	Ethoxyethane
Ph. India	2nd edn., 1966/1970	Ethoxyethane

1.3.1.3 Other Methods Used by the Authors of Reported Works for the Determination of Unsaponifiable Matter in Oils

There are four ways in which methods for the determination of unsaponifiable matter in oils have been described by the authors of reported works:

- The method used is described in the reported work. The extractive solvent after saponification step is specified in this book.
- The method used is not described in the reported work but in a reference book or other publication. The most cited are listed below, summarized with the extractive solvent:

Maxwell RJ, Schwartz DP (1979) A rapid, quantitative procedure for measuring the unsaponifiable matter from animal, marine, and plant oils. *J Am Oil Chem Soc* 56(6):634–636

Alternative and rapid method with small test sample. A mixed oil is saponified using potassium hydroxide pellets with a short heating period. The resulting blend is then mixed with calcined silica, transferred to a glass column and the unsaponifiable matter eluted with small amounts of dichloromethane.

Schwartz DP (1988) Improved method for quantitating and obtaining the unsaponifiable matter of fats and oils. *J Am Oil Chem Soc* 65(2):246–251

Alternative method based on the same principle as that of Maxwell and Schwartz (1979), but a small amount of dichloromethane is used.

Wolff JP (1968) Manuel d'analyse des corps gras. Azoulay, Paris, pp 164–168
 Method A: Extraction with hexane (recommended in the case of unsaponifiable matter rich in wax). Method B: Extraction with ethoxyethane (recommended for unsaponifiable matter rich in sterols and resins).

Cocks LV, Van Rede C (1966) Laboratory handbook for oil and fat analysts. Academic, London, New York. Extractive solvent after saponification: ethoxyethane.

Cocks LV (1933) Report of the sub-committee on determination of unsaponifiable matter in oils and fats and of unsaponified fat in soaps to the standing committee on uniformity of analytical methods. Report No. 1: Determination of unsaponifiable matter in oils and fats. Analyst 58 (685):203–211. Extractive solvent after saponification: ethoxyethane.

- In the used method, a quantitative measurement with gas chromatography or high performance liquid chromatography replaces the gravimetric measurement.
- The method is not indicated.

1.3.2 Main Chemical Fractions of Constituents in Unsaponifiable Matter

Unsaponifiable matter of seed oil contains usually the following chemical families:

Terpenic compounds:

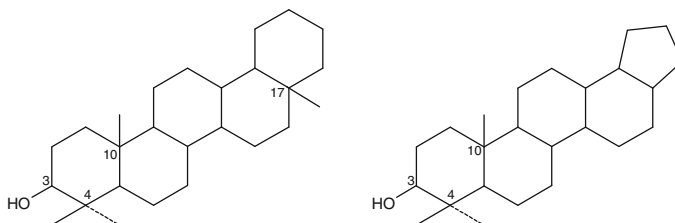
- Sterols (also called desmethylsterols)
- 4-Methylsterols
- Triterpene alcohols, tetra- and penta-cyclic (also called 4,4'-dimethylsterols)
- Carotenoids
- Alkyl- or alkenyl-aryl-dihydropyran (tocopherols, tocotrienols, plastocholesterol-8)

Aliphatic compounds:

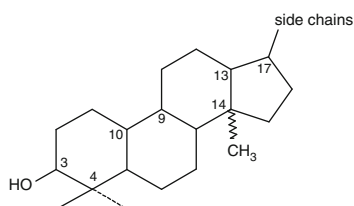
- Saturated hydrocarbons, acyclic, cyclic
- Unsaturated hydrocarbons (mainly squalene, an intermediate between aliphatic and terpene)
- Fatty alcohols

Comments:

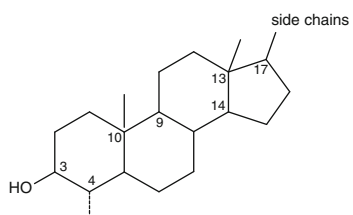
- The hydroxylated terpenes in seed oil are partially as fatty acid esters.
- The fatty alcohols are present primarily in natural oils as esters called “wax”.
- The levels of total hydrocarbons reported in some articles may sometimes be excessive because of the questionable quality of a solvent extraction (petroleum ether, *n*-hexane).

1.3.2.1 Skeletons of the Chemical Families

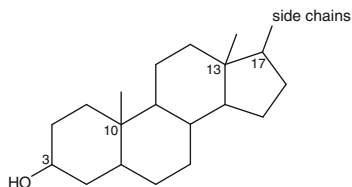
Skeleton common to the pentacyclic triterpene alcohols



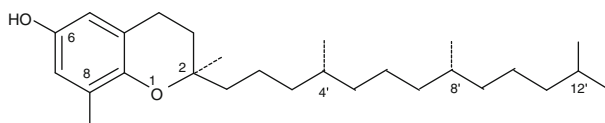
Skeleton common to the tetracyclic triterpene alcohols



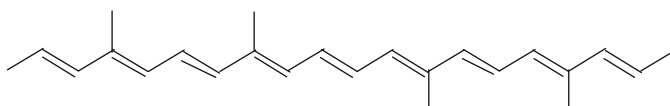
Skeleton common to the 4-methylsterols



Skeleton common to the sterols



Skeleton common to the tocopherols and tocotrienols



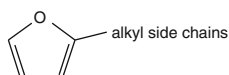
Skeleton common to the carotenoids

The skeleton common to the hydrocarbons comprises at least 11 carbon atoms and the fatty alcohols at least 18 carbon atoms and one hydroxyl functional group at C₁.

1.3.3 Other Chemical Fractions of Constituents in Unsaponifiable Matter

Other chemical families found in the unsaponifiable matter are much more exceptional:

- Alkylfurans of *Persea americana* Mill. pulp oil

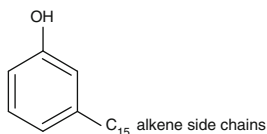


- Alkylphenols and alkenylphenols

Only phenol derivatives having a pronounced hydrophobic character (e.g. with long alkyl chain) can be found in unsaponifiable matter after saponification and

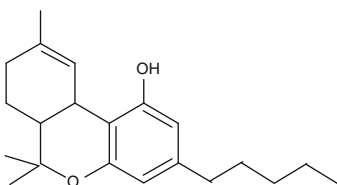
solvent extraction. More hydrophilic derivatives (such as tyrosol, gossypol etc.) are not recovered after saponification in the unsaponifiable fraction. In the case of ubiquinones, their instability in alkaline solutions does not allow their recovery in the unsaponifiable matter.

- 3-Alkenylphenols of *Anacardium occidentale* L. or *Pistacia vera* L. kernel oils



Basic skeleton of 3-alkenylphenols

- Alkylphenols of *Cannabis sativa* L. seed oil

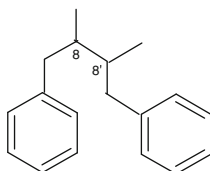


Basic skeleton of cannabinoids

- Diterpenes of *Coffea* seed oil

Example: cafestol (see Chap. 9)

- Feruloyl-sterols and feruloyl-triterpenes (“ γ -oryzanols”) in *Oryza sativa* L. bran oil
- Lignans

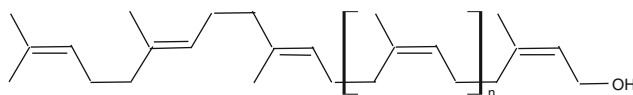


Basic skeleton of lignans

- Limonoids (tetranortriterpenoids)

Skeletons are highly variable, derived from a tetracyclic 17-furanyl-triterpene

– Polyprenols



Basic skeleton of polyprenols

1.3.4 *Current Analysis Techniques Used to Determine the Contents of Chemical Fractions of Unsaponifiable Matter*

For each of the contents of the unsaponifiable fraction mentioned in the book, the technique (chromatographic, spectrophotometric or other) used for determination is given in parentheses in its abbreviated form, as listed below:

TLC	Preparative thin layer chromatography followed by weighing of the fraction of compounds recovered
GC	Gas chromatography (usually preceded by a derivation of compounds to analyze)
HPLC	High-performance liquid chromatography
OCLC	Open column liquid chromatography
LC-GC	HPLC coupled with GC
Spectro	Determination by spectrophotometry (visible light)

Exceptionally, selected studies have implemented a precipitation technique for estimating the yield of a chemical family.

When one of the constituents in unsaponifiable fraction reaches or exceeds 40–50%, it is mentioned in a table in parentheses after the chemical fraction, followed by the phrase “is dominant”. Example: Sterols (β -sitosterol is dominant). It should be noted that the methods used for determining the content levels of these compounds are not mentioned in the present book.

The structures of the molecules mentioned in the various tables of the book are presented in Chap. 9.

1.3.5 *Special Cases Where Compound Contents Are Indexed*

The levels of some constituents encountered in unsaponifiable matter are presented in the book for various reasons.

- Squalene: This hydrocarbon with six double bonds is present in the human sebum and its physiological effects are notorious. Moreover, it is abundant (almost 1%) in some plant seed oils.

- Plastochromanol-8: This molecule is related to tocopherols and tocotrienols. Its presence is reported in various seed oils (0–70 mg/100 g).
- β -Carotene: The content of this component is mentioned for some oils if the content in carotenoids was not specified. Similarly, levels are given for some other constituents rarely encountered but sometimes abundant: azadirachtin (limonoids), karanjin (furano-flavonols), pongamol (benzofurans), sanguinarine, dihydrosanguinarine (alkaloids) etc.

The structures of these compounds, cited in some tables, are presented in Chap. 9.

References

- Bianchini JP, Ralaimanarivo A, Gaydou EM, Waegell B (1982) Hydrocarbons, sterols and tocopherols in the seeds of six *Adansonia* species. *Phytochemistry* 21(8):1981–1987
- Ramadan AAS (1976) Characteristics of prickly lettuce seed oil in relation to methods of extraction. *Nahrung* 20(6):579–583

Chapter 2

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species A to B

Abelmoschus esculentus (L.) Moench—*Malvaceae*

✓ Synonym	<i>Hibiscus esculentus</i> L.
✓ Common names	Okra, gumbo (Eng.); gombo (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Pakistan, Republic of the Congo, Senegal, Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Crossley and Hilditch (1951)
	0.5 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	0.6–0.7 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Anwar et al. (2011)
Oil in the dried seed	1.6 (method not indicated)	Bouanga-Kalou et al. (2011)
	15.5	Crossley and Hilditch (1951)
	17.7	Miralles and Pares (1980)
	11.7–13.4	Anwar et al. (2011)
	23.4–24.9	Bouanga-Kalou et al. (2011)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Anwar et al. (2011)
Tocopherols (α -tocopherol is dominant)	66–70 (HPLC)

Abelmoschus ficulneus (L.) Wight & Arn.—*Malvaceae*

✓ Synonym	<i>Hibiscus ficulneus</i> L.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method AOCS, 1973)	Rao et al. (1983)
Oil in the dried seed	14.4	Rao et al. (1983)

Abelmoschus moschatus Medik. ssp. *moschatus*—*Malvaceae*

✓ Synonym	<i>Hibiscus abelmoschus</i> L.
✓ Common names	Musk mallow (Eng.); ambrette (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOAC, 1970; extr. ethoxyethane)	Sahoo et al. (2003)
	1.5 (method AOAC, 1970; extr. ethoxyethane)	Rao et al. (2005)
Oil in the dried seed	≈ 16	Sahoo et al. (2003)
	14–15	Rao et al. (2005)

Abies alba Mill.—*Pinaceae*

✓ Common names	European silver fir, silver fir (Eng.); sapin blanc, sapin argenté (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.8 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	33.3 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Abutilon pannosum (G.Forst.) Schltdl.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	India, Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method AOCS, 1969)	Kittur et al. (1982)
	1.8 (method not indicated)	Mariod and Matthäus (2008)
Oil in the dried seed	13.4	Kittur et al. (1982)
	7.1	Mariod and Matthäus (2008)

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Mariod and Matthäus (2008)
Tocopherols (α -tocopherol is dominant)	164 (HPLC)

Abutilon ramosum (Cav.) Guill. & Perr.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method AOCS, 1971)	Farooqi (1986)
Oil in the dried seed	15.8	Farooqi (1986)

Abutilon theophrasti Medik.—*Malvaceae*

✓ Common names	Velvetleaf (Eng.); abutilon d'Avicenne (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0–1.5 (method not indicated)	Carmody et al. (1945)
Oil in the dried seed	15–18	Carmody et al. (1945)

Acacia auriculiformis Benth.—*Fabaceae*

✓ Common name	Northern black wattle (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil ^a	1.0 (method AOCS, 1973)	Mandal et al. (1984)
Oil in the dried seed	26	Mandal et al. (1984)
	6.8	Chowdhury et al. (1983)

^aRefined oil according to the method of AOAC, 1973

Acacia cyclops G.Don—*Fabaceae*

✓ Common name	Coastal wattle (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	South africa

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated in the abstract)	Black et al. (1949)
Oil in the dried seed	10.0	Black et al. (1949)

Acacia mangium Willd.—*Fabaceae*

✓ Synonym	<i>Acacia holosericea</i> A. Cunn.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AOCS, 1973)	Prasad and Azeemoddin (1996)
Oil in the dried seed	14.3	Prasad and Azeemoddin (1996)

Acer circinatum Pursh—*Aceraceae*

✓ Common names	Vine maple (Eng.); érable à feuille de vigne (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.4 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	14.9 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	20 (OCLC-TLC)

Acer pseudoplatanus L.—*Aceraceae*

✓ Common names	Sycamore maple (Eng.); érable sycomore (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.4 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	12.8 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	10 (OCLC-TLC)

Acer rubrum L.—*Aceraceae*

✓ Common names	Red maple (Eng.); érable rouge (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	28.8 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	7 (OCLC-TLC)

Acer tataricum L. ssp. *ginnala* (Maxim.) Wesm.—*Aceraceae*

✓ Synonym	<i>Acer ginnala</i> Maxim.
✓ Common names	Amur maple (Eng.); érable du fleuve Amour (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	36.6 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	68 (OCLC-TLC)

Acrocomia aculeata (Jacq.) Lodd. ex Mart.—*Arecaceae*

✓ Synonym	<i>Acrocomia lasiospatha</i> Wall.; <i>Acrocomia sclerocarpa</i> Mart.
✓ Common names	Coyoli palm (Eng.); acrocome, coyol (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	French Guiana, Trinidad

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated)	Collin (1933)
Unsaponifiable matter in the kernel* oil (*frozen kernel)	0.7 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau et al. (2003)
Oil in the dried kernel	44.4	Collin (1933)
Oil in the frozen kernel	17.0	Bureau et al. (2003)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bureau et al. (2003)
Sterols (β -sitosterol is dominant)	338–372 (GC)
Tocopherols and tocotrienols (α -tocotrienol is dominant)	3–4 (HPLC)

Actinidia deliciosa (A.Chev.) C.F.Liang & A.R.Ferguson—*Actinidiaceae*

✓ Synonym	<i>Actinidia chinensis</i> Planc. var. <i>deliciosa</i> A. Chev.
✓ Common names	Kiwifruit (Eng.); kiwi (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (imprecise method)	Vital Food Processors Limited (2008)
Oil in the dried seed	30.0	Piombo et al. (2006)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)	
	Piombo et al. (2006)	Van Hoed et al. (2009) ^a
Sterols (β -sitosterol is dominant)	269 (GC)	422 (GC)
Tocopherols (γ -tocopherol is dominant)	31 (HPLC)	1 (HPLC)
Tocotrienols		2 (HPLC)
Squalene		826 (GC)

^aOil obtained by pressure*Adansonia digitata* L.—*Malvaceae*

✓ Common names	Baobab (Eng., Fr.); baobab africain (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Madagascar, Nigeria, Sierra Leone

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.7 (method described in another paper; extr. ethoxyethane)	Derbesy and Busson (1968)
	0.5–1.1 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	0.8–1.5 (method described in another paper; extr. ethoxyethane)	Bianchini et al. (1982)
	0.8 (method AOCS, 1975)	Essien et al. (1989)
Unsaponifiable matter in the kernel oil	2.2 (method of Wolff, 1968; extr. ethoxyethane)	Gaydou et al. (1979)
Oil in the dried seed	13.0	Derbesy and Busson (1968)
	8.4–13.2	Bianchini et al. (1982)
Oil in the dried kernel	31.4	Gaydou et al. (1979)

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β -carotene	<0.1 (OCLC-Spectro)

Adansonia grandidieri Baill.—*Malvaceae*

✓ Common name	Baobab de Grandidier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	0.7–0.9 (method described in another paper; extr. ethoxyethane)	Bianchini et al. (1982)
Oil in the dried seed	36.4–38.7	Bianchini et al. (1982)

Contents of unsaponifiable fractions in seed oil

	Contents (average) (mg/100 g of oil)
Unsaponifiable fractions	Bianchini et al. (1982)
Sterols (β -sitosterol is dominant)	190 (TLC)
4-Methylsterols	75 (TLC)
Triterpene alcohols	106 (TLC)
Tocopherols (γ -tocopherol is dominant)	297 (TLC)
Hydrocarbons (squalene is dominant)	124 (TLC)
Unidentified fractions	8 (TLC)

Adansonia madagascariensis Baill.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	1.1 (method described in another paper; extr. ethoxyethane)	Bianchini et al. (1982)
Oil in the dried seed	13.8	Bianchini et al. (1982)

Adansonia fony var. rubrostipa (Jum. & H.Perrier) H.Perrier—*Malvaceae*

✓ Synonym	<i>Adansonia fony</i> Baill.
✓ Organ analyzed	Seed
✓ Origin of the sample	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	1.3 (method described in another paper; extr. ethoxyethane)	Bianchini et al. (1982)
Oil in the dried seed	10.5	Bianchini et al. (1982)

Adansonia suarezensis H.Perrier—*Malvaceae*

✓ Common name	Baobab de Suarez (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	0.6 (method described in another paper; extr. ethoxyethane)	Bianchini et al. 1982
Oil in the dried seed	46.2	Bianchini et al. 1982

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bianchini et al. (1982)
Sterol (β -sitosterol is dominant)	253 (TLC)
4-Methylsterols	60 (TLC)
Triterpene alcohols	91 (TLC)
Tocopherols (γ -tocopherol is dominant)	61 (TLC)
Hydrocarbons (<i>n</i> -alkanes are dominant)	100 (TLC)
Unidentified fractions	35 (TLC)

Adansonia za Baill.—*Malvaceae*

✓ Common name	Baobab za (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method described in another paper; extr. <i>n</i> -hexane)	Bianchini et al. (1982)
	1.0 (method described in another paper; extr. ethoxyethane)	Bianchini et al. (1982)
Oil in the dried seed	10.9	Bianchini et al. (1982)

Adenanthera pavonina L.—*Fabaceae*

✓ Common names	Red beadtrees (Eng.); bois de condori, arbre à corail (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Democratic Republic of Congo, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described in another paper; extr. ethoxyethane)	Derbesy and Busson (1968)
	0.6 (method not indicated)	Kabele Ngiefu et al. (1975)
	0.8 (method AOCS, 1975)	Essien et al. (1989)
Oil in the dried seed	23.0	Derbesy and Busson (1968)
	14.0	Kabele Ngiefu et al. (1975)

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Insaponifiable compound	Essien et al. (1989)
β-Carotene	0.1 (OCLC-Spectro)

Aesculus assamica Griff.—*Hippocastanaceae*

✓ Organ analyzed	Seed
✓ Origin of sample	Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method DGF/C-III, 1953; extr. solvent not indicated)	Franzke et al. (1971)
Oil in the dried seed	39.8	Franzke et al. (1971)

Albizia lebbeck (L.) Benth.—*Fabaceae*

✓ Common name	Lebbeck (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Senegal, Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.5 (method described in another paper; extr. 2-isopropoxypropane)	Miralles (1982)
	1.4 (method not indicated)	Mariod and Matthäus (2008)
Oil in the dried seed	6.2	Miralles (1982)
	12.8	Mariod and Matthäus (2008)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)	
	Miralles (1982)	Mariod and Matthäus (2008)
Sterols (β -sitosterol is dominant)	1,330 (TLC)	
4-Methylsterols	105 (TLC)	
Triterpene alcohols (cycloartenol is dominant)	630 (TLC)	
Tocopherols (α -tocopherol is dominant)	770 (TLC)	83 (HPLC)
Tocotrienols		– (HPLC)
Hydrocarbons and carotenoids	665 (TLC)	

Aleurites moluccana (L.) Willd.—*Eupobiaceae*

✓ Common names	Candlenut, kukuinut tree (Eng.); bancoulier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method DGF/C-III, 1953; extr. solvent not indicated)	Franzke et al. (1971)
	0.3 (method Schwartz, 1988)	Schwartz (1988)
Oil in the dried seed	57.3	Franzke et al. (1971)

Allanblackia floribunda Oliv.—*Clusiaceae*

✓ Organ analyzed	Kernel
✓ Origins of the samples	Democratic Republic of Congo, Ghana, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≤ 0.1 (method not indicated)	European Commission 2008
	0.5 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Wilfred et al. (2010)
Oil in the dried kernel	67.6	Wilfred et al. (2010)

Alliaria petiolata (M.Bieb.) Casara & Grande—*Brassicaceae*

✓ Synonym	<i>Alliaria officinalis</i> Andr. ex M. Bieb.
✓ Common names	Garlic mustard (Eng.); alliaire (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Mediterranean

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.1 (method IUPAC/2.401, 1979; except extr. with 2-methoxy-2-methylpropane)	Ucciani et al. (1994)
Oil in the dried seed	15.4	Ucciani et al. (1994)

Allium cepa L.—*Liliaceae*

✓ Common names	Onion (Eng.); oignon (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, oil from a company (Parry et al. 2006)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Badami and Patil (1975)
	1.4 (method AOCS, 1981)	Narasimha Reddy et al. (1989)
Oil in the dried seed	18.0	Badami and Patil (1975)
	22.7	Narasimha Reddy et al. (1989)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil ^a)
Unsaponifiable fractions	Parry et al. (2006)
Tocopherols (α -tocopherol is dominant)	68–93 (HPLC)
Carotenoids (zeaxanthin is dominant)	0.2 (HPLC)

^aOil obtained by pressure*Amaranthus hybridus* L.—*Amaranthaceae*

✓ Common names	Slim amaranth (Eng.); Amarante hybride (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Argentina, Brazil, China, Mexico, Republic of the Congo, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.3–7.2 (method not indicated)	Dhellot et al. (2006)
Oil in the dried seed	8.5–14	Dhellot et al. (2006)
	2.4–7.0	He and Corke (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable compound	He and Corke (2003)
Squalene	2,300–7,300 (HPLC)

Ambrosia artemisiifolia* var. *elator* (L.) Descourt.—*Asteraceae

✓	Synonym	<i>Ambrosia elator</i> L.
✓	Common names	Common ragweed (Eng.); ambroisie annuelle (Fr.)
✓	Organ analyzed	Achene
✓	Origine of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.8 (method not indicated)	Roedel and Thornton (1942)
Oil in the dried achene	18.3	Roedel and Thornton (1942)

Amygdalus scoparia* Spach—*Rosaceae

✓	Organ analyzed	Kernel
✓	Origins of the samples	Iran

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	5.3 (method AFNOR, 1988; adapted)	Farhoosh and Tavakoli (2008)
Oil in the dried kernel	44.1	Aitzetmuller and Ihrig (1988)

Contents of unsaponifiable fractions in kernel oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Farhoosh and Tavakoli (2008)
Tocopherols	75 (Spectro)

Anabasis aphylla* L.—*Chenopodiaceae

✓	Organ analyzed	Seed
✓	Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.4 (method not indicated)	Umarov et al. (1970)
Oil in the dried seed	16.3	Umarov et al. (1970)

Anacardium occidentale* L.—*Anacardiaceae

✓	Common names	Cashew (Eng.); anacardier (Fr)
✓	Organ analyzed	Kernel
✓	Origins of the samples	Brazil, India, Indonesia, Thailand, doubtful, oil from a company (Gómez-Caravaca et al. 2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.2 (method of Schwartz, 1988)	Schwartz (1988)
	0.9–1.9 (method NGD/C-12, 1976)	Gallina Toschi et al. (1993)
	0.3–0.5 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the kernel seed	49	Jeong et al. (1974)
	43–50	Gallina Toschi et al. (1993)
	44.8–49.1	Kornsteiner et al. (2006)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)			
	Jeong et al. (1974)	Gallina Toschi et al. (1993)	Kornsteiner et al. (2006)	Gómez-Caravaca et al. (2010) ^a
Unsaponifiable fractions				
Sterols [β -sitosterol is dominant according to Gallina Toschi et al. (1993)]	312 (TLC)			
Triterpene alcohols	72 (TLC)			
4-Methylsterols [cycloeucalenol is dominant according to Jeong et al. (1975)]	36 (TLC)			
Tocopherols [β -tocopherol is dominant according to Gómez-Caravaca et al. (2010)]		52–95 (HPLC)	5–6 (HPLC)	171 (HPLC)
3-Alkenylphenols ^b				15 (GC)
Apolar lipids (hydrocarbons etc.)	180 (TLC)			

^aOil obtained by pressure
^bSeveral areas of components in the chromatographic profile are not in accordance with values reported

Andrographis paniculata (Burm.f.) Nees—*Acanthaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method not indicated ^a)	Badami and Alagawadi (1983)
Oil in the dried seed	39.4	Badami and Alagawadi (1983)

^aNor in another paper mentioned by the authors

Anethum graveolens L.—*Apiaceae*

✓ Common names	Dill (Eng.); aneth odorant (Fr.)
✓ Organ analyzed	Fruit
✓ Origins of the samples	Bulgaria, Pakistan, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the fruit oil	1.2 (method not indicated)	Khalid et al. (2005)
Oil in the dried fruit	15.3	Khalid et al. (2005)
	17.2	Zlatanov and Ivanov (1995)
	18.2	Matthäus et al. (2003)

Contents of unsaponifiable fractions in fruit oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Zlatanov and Ivanov (1995)	Matthäus et al. (2003)
Sterols	≈ 300 (TLC)	
Tocopherols (α-tocopherol is dominant)	16 (HPLC)	
Tocotrienols (α-tocotrienol is dominant)	20 (HPLC)	
Plastochromanol-8	5 (HPLC)	

Annona squamosa L.—*Annonaceae*

✓ Common names	Custard apple (Eng.); pomme cannelle (Fr.)
✓ Organ analyzed	Seed
✓ Origins of sample	India, Sudan, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method AOCS, 1971)	Ansari et al. (1985)
	1.0 (method BS/684, 1958)	Ahmed et al. (1996)
Oil in the dried seed	23.0	Ansari et al. (1985)
	27.5	Mariod et al. (2010)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Ahmed et al. (1996)	Mariod et al. (2010)
Sterols	251 (TLC)	
Tocopherols		16 (HPLC)
Fatty alcohols	541 (TLC)	
Hydrocarbons	208 (TLC)	

Antiaris toxicaria ssp. africana (Engl.) C.C.Berg—*Moraceae*

✓ Synonym	<i>Antiaris Africana</i> Engl.
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.5 (method described; extr. ethoxyethane)	Esuoso et al. (2000)
Oil in the dried seed	68.8	Esuoso et al. (2000)

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Esuoso et al. (2000)
Hydrocarbons	4,100 (TLC)

Aphanamixis polystachya (Wall.) R.Parker—*Meliaceae*

✓ Synonym	<i>Amoora rohituka</i> (Roxb.) Wight & Arn.
✓ Organ analyzed	Seed
✓ Origins of the samples	Inde

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.8 (method not indicated) 2.6 (method AOCS, 1973)	Sengupta and Mazumder (1976) Daulatabad and Jamkhandi (1997)
Oil in the dried seed	35 41.4	Sengupta and Mazumder (1976) Daulatabad and Jamkhandi (1997)

Aphyllantes monspeliensis L.—*Liliaceae*

✓ Common name	Aphyllante de Montpellier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.7 (method of a thesis; extr. 2-isopropoxypropane)	Viano and Gaydou (1984)
Oil in the dried seed	32.5	Viano and Gaydou (1984)

Arachis hypogaea L.—*Fabaceae*

✓ Common names	Peanut, groundnut (Eng.); arachide, cacahuète (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	More than 15 different countries, doubtful, oils of companies (Itoh et al. 1973; Kornfeldt and Croon 1981; McGill et al. 1993; De Greyt et al. 1998; Phillips et al. 2002; Itoh et al. 1974)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.1 (one of the two methods of Wolff, 1968; but extr. solvent not indicated)	Gaydou et al. (1983)
	0.3–0.4 (method Schwartz, 1988)	Schwartz (1988)
	0.4–0.6 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
	≤1.0 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius 2009
Oil in the dried seed	46.7	Gaydou et al. (1983)
	49.4–53.8	Kornsteiner et al. (2006)

Contents of unsaponifiable fractions in seed oil							
Unsaponifiable fractions	Contents (mg/100 g of oil)						
	Itoh et al. (1973)	Codex Alimentarius (2009)	Kornfeldt and Croon (1981)	Rossell et al. (1983)	McGill et al. (1993)	Phillips et al. (2002)	Maguire et al. (2004)
Sterols (β-sitosterol is dominant)	240 (TLC)	90–290 (GC)	321 (GC)	90–285 (GC)		153–171 (GC)	
4-Methylsterols	16 (TLC)		18 (GC)				
Triterpene alcohols	36 (TLC)		17 (GC)				
[24-methylene-cycloartanol is dominant according to Itoh et al. (1974)]							
Tocopherols		17–130 (HPLC)		45–90 (HPLC)		40–46 (HPLC)	
[γ-tocopherol is dominant according to Rossell et al. (1983)]							
Tocotrienols		– (HPLC)					
Hydrocarbons and aliphatic alcohols	108 (TLC)				3–4 (HPLC)		
<i>n</i> -Alkanes (C _{15–33})							10 (HPLC)
Squalene							

Arctium tomentosum Mill.—*Asteraceae*

✓ Common names	Wooly burdock (Eng.); bardane poilue (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Mediterranean

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.6 (method IUPAC/2.401, 1979; but extr. 2-methoxy-2-methylpropane)	Ucciani et al. (1994)
Oil in the dried achene	11.6	Ucciani et al. (1994)

Argania spinosa (L.) Skeels—*Sapotaceae*

✓ Common names	Argan tree (Eng.); arganier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Marocco

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.0 (method IUPAC/II. D.5) 0.8 (method IUPAC/2.401, 1979)	Huyghebaert and Hendricks (1974) Farines et al. (1984)
Oil in the dried kernel	50	Farines et al. (1984)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Farines et al. (1984)	Khallouki et al. (2003)
Sterols (shottenol and spinasterol are dominant)		272–295 (GC)
Triterpene alcohols and 4-methylsterols	160 (OCLC)	
Tocopherols (γ -tocopherol is dominant)	64 (Spectro)	63–64 (HPLC)
Squalene		311–319 (GC)

Argemone mexicana L.—*Papaveraceae*

✓ Common names	Mexican princkly poppy (Eng.), Argémone mexicaine (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bengladesh, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2–1.5 (method AOCS, 1955; extr. ethoxyethane)	Ahmed et al. (2011)
Oil in the dried seed	34.5–35.0 22–33	Ahmed et al. (2011) Ghosh et al. (2005)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable compounds	Ghosh et al. (2005)
Dihydrosanguinarine	313–404 (TLC)
Sanguinarine	171–222 (TLC)

Argyreia osyrensis (Roth) Choisy var. *osyrensis*—*Convolvulaceae*

✓ Synonym	<i>Argyreia aggregata</i> Arn. ex Choisy
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.9 (method AOCS, 1973)	Kittur et al. (1987)
Oil in the dried seed	13.5	Kittur et al. (1987)

Aristolochia littoralis Parodi—*Aristolochiaceae*

✓ Synonym	<i>Aristolochia elegans</i> Mast.
✓ Organ analyzed	Seed
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried seed	25.0	Miralles and Pares (1980)

Artemisia absinthium L.—*Asteraceae*

✓ Common names	Absinthe (Eng., Fr.), common wormwood (Eng.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Ouzbekistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	3.5 (method not indicated)	Ul'chenko et al. (1980)
Oil in the dried achene	31.5	Ul'chenko et al. (1980)

Artemisia biennis Willd.—*Asteraceae*

✓ Common names	Biennial wormwood (Eng.); armoise biannuelle (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Canada

Unsaponifiable matter and oil contentd

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	≤5.3 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried achene	28	Coxworth (1965)

Artemisia caerulescens L.—*Asteraceae*

✓ Common names	Encens de mer, armoise bleuâtre (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.7 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried achene	40.5	Ferlay et al. (1993)

Arthropodium cirrhatum (G.Forst) R.Br.—*Asparagaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.4–2.7 (method Cocks, 1933; extr. ethoxyethane)	Morice (1969)
Oil in the dried seed	20.5–23.0	Morice (1969)

Artocarpus altilis (Parkinson) Fosberg—*Moraceae*

✓ Synonym	<i>Artocarpus communis</i> J.R.Forst. et G.Forst
✓ Common names	Breadfruit (Eng.); arbre à pain (Fr.)
✓ Organs analyzed	Seed, fruit or dehulled seed (?)
✓ Origins of the samples	Democratic Republic of the Congo, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the fresh fruit (or dehulled fresh seed ?) oil	2 (method BS/ 684, 1976)	Achinewhu and Akpapunam (1985)
Oil in the dried seed	29.0	Kabele Ngiefu et al. (1976)

Asclepias syriaca L.—*Asclepiadaceae*

✓ Common names	Common milkweed (Eng); herbe à la ouate (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8–2.2 (method not indicated)	Chisholm and Hopkins (1960)
Oil in the dried seed	19.4–22.7	Chisholm and Hopkins (1960)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Abidi (2003)
Tocopherols	0–70 (HPLC)

Asimina triloba (L.) Dunal—Annonaceae

✓ Common names	Pawpaw (Eng.); asiminier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method described in a very old book)	Riebsomer et al. (1938)
Oil in the dried seed	38	Riebsomer et al. (1938)

Asparagus officinalis L.—Asparagaceae

✓ Common names	Asparagus (Eng.); asperge (Fr.)
✓ Organ analyzed	Seed
✓ Origine of the sample	New zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method Cocks, 1933; extr. ethoxyethane)	Morice (1967)
Oil in the dried seed	16	Morice (1967)

Asphodelus fistulosus L.—Liliaceae

✓ Common names	Onionweed (Eng.); asphodèle fistuleux (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand, Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8–1.9 (method AOAC, 1955; extr. ethoxyethane)	Khan et al. (1961)
	1.9 (method Cocks, 1933; extr. ethoxyethane)	Morice (1967)
Oil in the dried seed	21	Morice (1967)

Aspilia latifolia Oliv. & Hiern—*Asteraceae*

✓ Organ analyzed	Achene
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.5 (method AOAC, 1980; extr. ethoxyethane)	Eguavoen and Pervez (1990)
Oil in the dried achene	75.0	Eguavoen and Pervez (1990)

Astelia spp.—*Asteliaceae*

(Thirteen and fourteen species analyzed)

✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1–3.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1967)
	1.1–4.0 (method Cocks, 1933; extr. ethoxyethane)	Morice (1975)
Oil in the dried seed	12.8–48.4	Morice (1967)
	8.2–36.7	Morice (1975)

Astrocaryum aculeatum G.Mey.—*Arecaceae*

✓ Synonym	<i>Astrocarium tucuma</i> Mart.
✓ Common names	Tucuma (Eng.); tucum (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Malaysia, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method not indicated)	Collin (1933)
	0.5–1.0 (method not indicated)	Mensier (1957)
Oil in the dried kernel	39.8	Collin (1933)
	24–38	Mensier (1957)

Astrocaryum murumuru Mart.—*Arecaceae*

✓ Common name	Murumuru palm (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Brazil

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9 (method AOCS/Ca 6b-53, 1988; extr. ethoxyethane)	Mambrim and Barrera-Arellano (1997)
Oil in the dried kernel	27.7	Mambrim and Barrera-Arellano (1997)
	42.7	Litchfield (1970)

Contents of unsaponifiable fractions in kernel oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Mambrim and Barrera-Arellano (1997)
Carotenoids	0.5 (Spectro)

Astrocaryum vulgare Mart.—*Arecaceae*

✓ Common names	Tucum palm, tucuma palm (Eng.); awara (Fr.)
✓ Organs analyzed	Mesocarp (pulp), kernel
✓ Origins of the samples	Brazil, French Guiana

Unsaponifiable mater and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the dried pulp oil	2.2 (method AOCS/Ca 6b-53, 1988; extr. ethoxyethane)	Mambrim and Barrera-Arellano (1997)
Unsaponifiable matter in the fresh pulp oil	1.0 (method AFNOR, NFT 60-205)	Lubrano and Robin (1997)
	0.8 (method described; extr. <i>n</i> -hexane)	Bony et al. (2012)
Unsaponifiable matter in the pulp* oil (*frozen pulp)	0.3 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bereau (2001)
Unsaponifiable matter in the dried kernel oil	1.1 (method AOCS/Ca 6b-53, 1988; extr. ethoxyethane)	Mambrim and Barrera-Arellano (1997)
Unsaponifiable matter in the kernel* oil (*frozen kernel)	0.7 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bereau et al. (2003)
Oil in the dried pulp	18.2	Mambrim and Barrera-Arellano (1997)
Oil in the frozen pulp	16.5 ^a	Bereau (2001)
Oil in the fresh pulp	9.5	Lubrano and Robin (1997)
Oil in the dried kernel	29.6	Mambrim and Barrera-Arellano (1997)
Oil in the frozen kernel	9.6	Bereau et al. (2003)

^aContent expressed to dry matter

Contents of unsaponifiable fractions in pulp oil

	Contents (mg/100 g of pulp oil)		
	Mambrim and Barrera-Arellano (1997)	Bony et al. (2012)	Bureau (2001)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)			107–142 (GC)
Sterols and triterpene alcohols		143 ^a (GC)	
Tocopherols and tocotrienols (α -tocopherol is dominant)		15 (HPLC)	4 (HPLC)
Carotenoids	242 (Spectro)	164 ^b (HPLC)	
Squalene		6 (GC)	

^aResult expressed as 5 α -cholestan-3 β -ol^bResult expressed as β -carotene

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of kernel oil)	
	Mambrim and Barrera-Arellano (1997)	Bureau et al. (2003)
Unsaponifiable fractions		
Sterols (β -sitosterol is dominant)		211–214 (GC)
Tocopherols		1–2 (HPLC)
Carotenoids	<1 (Spectro)	

Attalea maripa (Aubl.) Mart.—*Arecaceae*

✓ Synonyms	<i>Maximiliana caribaea</i> Griseb. & H. Wendl.; <i>Maximiliana maripa</i> Drude; <i>Maximiliana regia</i> Mart.
✓ Commun name	Maripa palm (Eng.)
✓ Organs analyzed	Kernel, mesocarp (pulp)
✓ Origins of the samples	French Guiana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel* oil (*frozen kernel)	0.6 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau et al. (2003)
Unsaponifiable matter in the pulp* oil (*frozen pulp)	1.0 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau (2001)
Oil in the frozen kernel	31.3	Bureau et al. (2003)
Oil in the frozen pulp	13.6 ^a	Bureau (2001)

^aContent expressed to dry matter

Contents of unsaponifiable fractions in oils

	Contents (mg/100 g of kernel oil)		Contents (mg/100 g of pulp oil)	
	Bereau et al. (2003)	Bereau et al. (2001)	Bereau (2001)	Bereau et al. (2001)
Unsaponifiable fractions				
Sterols (β -sitosterol is dominant)	109–136 (GC)		57–62 (GC)	
Tocopherols (α -tocopherol is dominant)		0.4 (HPLC)	10–14 (HPLC)	12 (HPLC)
Tocotrienols		1 (HPLC)	4–10 (HPLC)	7 (HPLC)

Attalea spp. (including *Attalea speciosa* Mart. ex Spreng.)—*Areaceae*

✓ Synonym	<i>Orbignya</i> spp. (including <i>Orbignya oleifera</i> Burret)
✓ Common names	Babassu (Eng.); babassou (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Brazil, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method NGD, 1976)	Oliveira et al. (1993)
	≤ 1.2 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried kernel	47.0	Oliveira et al. (1993)
	60.8 ^a	Litchfield (1970)

^aOil from *Attalea speciosa*

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Codex Alimentarius (2009)
Sterols (β -sitosterol is dominant)	50–80 (GC)
Tocopherols	– (HPLC)
Tocotrienols	6–13 (HPLC)

Atuna racemosa Raf.—*Chrysobalanaceae*

✓ Synonym	<i>Parinarium laurinum</i> A. Gray
✓ Organ analyzed	Kernel
✓ Origin of samples	Fiji

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9–1.2 (method Cocks, 1933; extr. ethoxyethane)	Riley (1950)
Oil in the dried kernel	12.0–12.9	Riley (1950)

Averrhoa carambola L.—*Oxalidaceae*

✓ Common names	Carambola, starfruit (Eng.); carambolier (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Malaisia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	3.0 (method AOAC, 1970; extr. ethoxyethane)	Berry (1978)
Oil in the dried kernel	73.9	Berry (1978)

Azadirachta indica A.Juss.—*Meliaceae*

✓ Common names	Neem (Fr., Eng.); margosier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Benin, Brazil, India, Senegal, oil from a company (Forim et al. 2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.4 (method not indicated)	Rukmini (1987)
	1.2 (or 1.0) (method IUPAC, 1987)	Djenontin et al. (2012)
Oil in the dried kernel	44.0	Djenontin et al. (2012)
	18.5–52.5	Kumar and Parmar (1996)
	34.6–50.0	Gupta et al. (2010)
	44.6–55.5	Faye (2011)
Oil in the dried seed	31.9–38.3	Faye (2011)

Contents of unsaponifiable fractions in oils

Unsaponifiable fractions	Contents (mg/100 g of kernel oil)				Contents (mg/100 g of seed oil)	
	Kumar and Parmar (1996)	Isman et al. (1990)	Forim et al. (2010) ^a	Forim et al. (2010) ^b	Djenontin et al. (2012)	Faye (2011)
Sterols (β -sitosterol is dominant)					188 (GC)	314–507 (GC)
Tocopherols (γ -tocopherol is dominant)					30 (HPLC)	
Limonoids (tetranortriterpenoids) (the three main)	0–4 715 (HPLC)					
Azadirachtin ^c	0–232 (HPLC)	0–403 (HPLC)	23–63 (HPLC)	86–158 (HPLC)		

^aKernel oil from Brazil^bKernel oil from India^cThe best known and studied limonoid of *Azadirachta indica**Bactris gasipaes* Kunth—*Arecaceae*

✓ Common names	Peach palm, pejibaye palm (Eng.); palmier pêche (Fr.)
✓ Organ analyzed	Kernel, mesocarp with epicarp (pulp)
✓ Origins of the samples	French Guiana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the frozen pulp oil	0.4 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau (2001)
Unsaponifiable matter in the kernel* oil (*frozen kernel)	0.8 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau et al. (2003)
Oil in the frozen pulp	31.2 ^a	Bureau (2001)
Oil in the frozen kernel	16.4	Bureau et al. (2003)

^aContent expressed to dry matter

Contents of unsaponifiable fractions in oils

Unsaponifiable fractions	Contents (mg/100 g of pulp oil)	Contents (mg/100 g of kernel oil)
	Bureau (2001)	Bureau et al. (2003)
Sterols (β -sitosterol is dominant)	68–91 (GC)	200–204 (GC)
Tocopherols	1 (HPLC)	
Tocotrienols	– (HPLC)	

***Bactris guineensis* (L.) H.E.Moore—Arecaceae**

✓ Synonym	<i>Bactris piritu</i> (H.Karst) H.Wendl.
✓ Organ analyzed	Seed
✓ Origin of the sample	Venezuela

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method COVENIN, 1984; extr. <i>n</i> -hexane)	Belén et al. (2004)
Oil in the dried seed	39.4	Belén et al. (2004)

***Balanites aegyptiacus* (L.) Delile—Zygophyllaceae**

✓ Common names	Desert date (Eng.); dattier du désert, datte amère (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Egypt, India, Nigeria, Senegal, Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	2.0 (method AOCS, 1946)	Hussain et al. (1949)
	2.1 (method not indicated)	Abdel-Rahim et al. (1986)
	1.6 (method described; extr. <i>n</i> -hexane)	Dial Ndiaye (1997)
Unsaponifiable matter in the seed oil	0.7 (method not described; refers to a book without method)	Jain and Banerjee (1988)
Oil in the dried kernel	46.5	Hussain et al. (1949)
	52.8	Dial Ndiaye (1997)
Oil in the dried seed	45	Jain and Banerjee (1988)
	42.4	Hardman et al. (1970)

Contents of unsaponifiable fractions in oils

	Contents (mg/100 g of kernel oil)	Content (mg/100 g of seed oil)
Unsaponifiable fractions	Dial Ndiaye (1997)	Hardman et al. (1970)
Sterols (β -sitosterol is dominant)	182 (TLC)	
Tocopherols	89 (HPLC)	
Alkanes		10 (TLC)

***Baphia nitida* Lodd.—Fabaceae**

✓ Common names	Camwood (Eng.); bois de cam (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method described; extr. ethoxyethane)	Adewuyi et al. (2009)
Oil in the dried seed	27.1	Adewuyi et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Adewuyi et al. (2009)
Sterols	825 (TLC)
Triterpene alcohols	550 (TLC)
<i>n</i> -Alkanes	400 (TLC)
Unidentified fractions	725 (TLC)

Basella alba* L.—*Basellaceae

✓ Synonym	<i>Basella rubra</i> L.
✓ Common names	Malabar spinach, Ceylon spinach (Eng.); épinard de Malabar (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Daulatabad and Ankalgi (1983)
Oil in the dried seed	24.0	Daulatabad and Ankalgi (1983)
	23.2	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols (γ -tocopherol is dominant)	49 (HPLC)
Tocotrienols	– (HPLC)

Bauhinia monandra* Kurz—*Fabaceae

✓ Common names	Butterfly-flower, Jerusalem date (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method not indicated)	Badami and Daulatabad (1969)
Oil in the dried seed	11.0	Badami and Daulatabad (1969)

Content of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β-carotene	0.2 (OCLC-Spectro)

Bauhinia petersiana Bolle—*Fabaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	<0.1 (method IUPAC, 1979)	Ketshajwang et al. (1998)
Oil in the dried seed	20.8	Ketshajwang et al. (1998)

Bauhinia purpurea L.—*Fabaceae*

✓ Common names	Butterfly orchid tree (Eng.); arbre aux orchidées mauves (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method not indicated)	Badami and Daulatabad (1969)
Oil in the dried seed	22.0	Badami and Daulatabad (1969)
	17.5	Ramadan et al. (2006b)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ramadan et al. (2006b)
Sterols (β-sitosterol is dominant)	592 (GC)
Tocopherols (β-tocopherol is dominant)	356 (HPLC)

Bauhinia racemosa Lam.—*Fabaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.2 (method not described, refers to a reference without method)	Amoo and Moza (1999)
Oil in the dried seed	15.5	Amoo and Moza (1999)

Bauhinia roxburghiana* Voigt—*Fabaceae

✓ Synonym	<i>Bauhinia retusa</i> Roxb.
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.8 (method described; extr. ethoxyethane)	Saeed et al. (1991)
Oil in the dried seed	18.6	Prakash et al. (2001)

Bauhinia variegata* L.—*Fabaceae

✓ Common names	Mountain ebony, orchid tree (Eng.); arbre de Saint-Thomas (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried seed	22.7	Miralles and Pares (1980)

Benincasa hispida* (Thunb. ex Murray) Cogn.—*Cucurbitaceae

✓ Synonym	<i>Benincasa cerifera</i> Savi
✓ Common names	Waxgourd (Eng.); courge cireuse, pastèque de Chine (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method AOCS/Ca 6a-40, 1946; extr. petroleum ether)	Chowdhury et al. (1955)
Oil in the dried kernel	48.3	Chowdhury et al. (1955)

Bertholletia excelsa* Humb. & Bonpl.—*Lecythidaceae

✓ Common names	Brazil nut (Eng.); Noyer du Brésil (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of samples	Brazil, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method AOCS, 1957)	Elias and Bressani (1961)
	0.5 (method Schwartz, 1988)	Schwartz (1988)
	1.1 (method NGD/C-12 (B), 1976; extr. ethoxyethane)	Gomes Da Silva et al. (1997)
	0.4–0.7 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	69.7	Elias and Bressani (1961)
	66.6	Gomes Da Silva et al. (1997)
	66.2–69.5	Kornsteiner et al. (2006)
	67.4	Miraliakbari and Shahidi (2008)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)		
	Gomes Da Silva et al. (1997)	Kornsteiner et al. (2006)	Miraliakbari and Shahidi (2008)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)			192–206 (GC)
Tocopherols (γ -tocopherol is dominant)	29 (HPLC)	8–19 (HPLC)	17–20 (HPLC)

Betula platyphylla ssp. *mandshurica* (Regel) Kitag—*Betulaceae*

✓	Synonym	<i>Betula platyphylla</i> var. <i>japonica</i> (Miq.) H. Hara
✓	Common names	Japanese white birch, asian white birch (Eng.)
✓	Organ analyzed	Seed
✓	Origins of the samples	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.9–3.5 (method not indicated)	Ihara and Tanaka (1980)
Oil in the dried seed	19.1–28.1	Ihara and Tanaka (1980)

Bidens engleri O.E.Schulz—*Asteraceae*

✓	Organ analyzed	Achene
✓	Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	3.6 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried achene	15.5	Miralles and Pares (1980)

Blighia sapida K.D.Koenig—*Sapindaceae*

✓ Common names	Akee, akee apple (Eng.); akée, aki (Fr.)
✓ Organs analyzed	Aril, seed
✓ Origins of the samples	Benin, Ivory coast, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method in another paper; extr. ethoxyethane) 0.6 (method AOCS, 1975) 2.4 (IUPAC, 1987)	Ucciani et al. (1964) Essien et al. (1989) Djenontin et al. (2009)
Unsaponifiable matter in the aril oil	0.9 (method in another paper; extr. ethoxyethane)	Ucciani et al. (1964)
Oil in the dried seed	17.0 25.9 21.6	Ucciani et al. (1964) Essien et al. (1989) Djenontin et al. (2009)
Oil in the dried aril	72.5	Ucciani et al. (1964)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Essien et al. (1989)	Djenontin et al. (2009)
Sterols (stigmasterol is dominant)		143 (GC)
Tocopherols (α - and γ -tocopherol are dominant)		34 (HPLC)
β -carotene	<0.1 (OCLC-Spectro)	

Boehmeria japonica (L.f.) Miq.—*Urticaceae*

✓ Synonym	<i>Boehmeria longispica</i> Steud.
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.2 (method not indicated)	Kato and Tanaka (1981)
Oil in the dried seed	12.1	Kato and Tanaka (1981)

Boehmeria nivea (L.) Gaudich.—*Urticaceae*

✓ Common names	Ramie (Eng.); ramie de Chine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6 (method not indicated)	Kato and Tanaka (1981)
Oil in the dried seed	17.5	Kato and Tanaka (1981)

Boehmeria spicata Thunb.—*Urticaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Japon

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.9 (method not indicated)	Kato and Tanaka (1981)
Oil in the dried seed	10.6	Kato and Tanaka (1981)

Bombax ceiba L.—*Bombacaceae*

✓ Synonym	<i>Gossampinus malabarica</i> DC.Merr.
✓ Common names	Indian kapok, red silk cotton tree (Eng.); fromager, kapok rouge (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Vietnam, oil from a company (Itoh et al. 1973)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method DGF/C-III, 1953) 0.5 ^a (method described; extr. 2-isopropoxypropane)	Franzke et al. (1971) Itoh et al. (1973)
Oil in the dried seed	22.4	Franzke et al. (1971)

^aFrom a deodorized oil

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Itoh et al. (1973) ^a
Sterols	285 (TLC)
4-Methylsterols	25 (TLC)
Triterpene alcohols	95 (TLC)
Hydrocarbons and other nonpolar compounds	95 (TLC)

^aFrom a deodorized oil*Borago officinalis* L.—*Boraginaceae*

✓ Common names	Borage (Eng.); bourrache (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Spain, oils from companies (Ntsourankoua and Artaud 1997; Hammond 1998; Phillips et al. 2002)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.2–1.9 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane) 0.7 (method AFNOR/NFT 60-205, 1981; extr. ethoxyethane)	Ucciani et al. (1992) Ntsourankoua and Artaud (1997)
Oil in the dried achene	34.0–35.1	Ucciani et al. (1992)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
Unsaponifiable fractions	Ntsourankoua and Artaud (1997)	Hammond (1998)	Phillips et al. (2002)
Sterols			287–292 (GC)
Triterpene alcohols (cycloartenol is dominant)	98 (HPLC)		
Tocopherols (δ-tocopherol is dominant)		141 (HPLC)	
Tocotrienols		– (HPLC)	

Borago pygmaea (DC.) Chater & Greuter—*Boraginaceae*

✓ Common names	Slender borage (Eng.); bourrache naine (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9–1.0 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ucciani et al. (1992)
Oil in the dried seed	20.7–21.4	Ucciani et al. (1992)

Brassica cretica Lam.—*Brassicaceae*

✓ Synonym	<i>Brassica oleracea</i> var. <i>botrytis</i> L.
✓ Common names	Cauliflower (Eng.); chou-fleur, brocoli (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Vietnam, doubtful; variety not specified (Matthäus et al. 2003)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1–1.5 (method not indicated)	Mensier (1957)
Oil in the dried seed	30–35	Mensier (1957)
	38.0	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols (γ -tocopherol is dominant)	38 (HPLC)
Tocotrienols	traces (CLHP)
Plastochromanol-8	6 (HPLC)

Brassica juncea (L.) Czern. ssp. *juncea*—*Brassicaceae*

✓ Common names	Brown mustard, Indian mustard (Eng.); moutarde brune, moutarde orientale (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	China, Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS, 1975)	Ali and McKay (1982)
	1.4 (method described; extr. ethoxyethane)	Li et al. (2000)
	≤1.5 ^a (method ISO/3596:2000 or AOCS/ Ca 6b-53; extr. ethoxyethane or ISO/ 18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	39.2	Ali and McKay (1982)
	37.2	Li et al. (2000)
	34.8	Matthäus et al. (2003)

^aStandard for “Rapeseed oil” (turnip rape oil, colza oil, ravison oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica rapa* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Li et al. (2000)	Codex Alimentarius (2009) ^a	Matthäus et al. (2003)
Unsaponifiable fractions			
Sterols (β-sitosterol is dominant)	895 (HPLC)	450–1,130 (GC)	
4-Methylsterols	39 (HPLC)		
Triterpene alcohols	63 (HPLC)		
Tocopherols (γ-tocopherol is dominant)		43–268 (HPLC)	48 (HPLC)
Tocotrienols		– (HPLC)	<1 (HPLC)
Plastochromanol-8			5 (HPLC)
Hydrocarbons	273 (HPLC)		

^aContents for “Rapeseed oil” (turnip rape oil, colza oil, ravison oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica rapa* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

Brassica napus L. ssp. *napus*—*Brassicaceae*

✓ Common names	Canola, rape (Eng.); colza (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, Korea, Italy, Germany, Pakistan, USA, doubtful, oils from companies (Itoh et al. 1973; Ali et al. 2009; Kornfeldt and Croon 1981; Phillips et al. 2002; Verleyen et al. 2002; Gruszka and Kruk 2007; Tuberoso et al. 2007), no details (Kundu and Deb 1981).

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.9 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.7 (method AOCS/Ca 6a-40, 2nd edn.; extr. petroleum ether)	Kundu and Deb (1981)
	0.5–1.1 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Ali et al. (2009)
	≤2.0 ^a (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	34.3–39.3	Ali et al. (2009)

^aStandard for “Rapeseed oil” (turnip rape oil, colza oil, ravison oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica rapa* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

Contents of unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)									
	Fedeli et al. (1966)	Itoh et al. (1973)	Ali et al. (2009)	Codex Alimentarius (2009) ^a	Kornfeldt and Croon (1981)	Phillips et al. (2002)	Verleyen et al. (2002)	Gruszka and Kruk (2007)	Tuberoso et al. (2007) ^b
Unsaponifiable fractions	590 (TLC)	610 (TLC)							
Sterols (β-sitosterol is dominant)				450–1,130 (GC)	954 (GC)	659–668 (GC)	824 (GC)		
4-Methylsterols									
Triterpene alcohols [cycloartenol is dominant according to Kornfeldt and Croon (1981)]	30 (TLC)	27 (TLC)			7 (GC)				
Tocopherols (γ-tocopherol is dominant)		54 (TLC)			18 (GC)				
Tocotrienols			36–69 (HPLC)	43–268 (HPLC)				37–45 (HPLC)	
Plastochromanol-8				– (HPLC)				<1 (HPLC)	
								8–9 (HPLC)	
Hydrocarbons and fatty alcohols		207 (TLC)							
Squalene									44 (GC)

^aContents for “Rapeseed oil” (turnip rape oil, colza oil, rapeseed oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

^bOil obtained by pressure

Brassica nigra* (L.) K.Koch—*Brassicaceae

✓ Common names	Black mustard (Eng.); moutarde noire (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Algeria, China, Denmark, Ethiopia, India, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	13–38	Ucciani (1995)

Brassica rapa* L. (and its subspecies)—*Brassicaceae

✓ Common names	Turnip rape, field mustard (Eng.); navettes (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nepal, Pakistan, doubtful, oil from a company (Codex Alimentarius 2009)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8–0.9 (method AOCS, 1975) ≤2.0 ^a (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Ali and McKay (1982) Codex Alimentarius (2009)
Oil in the dried seed	38.5–46.8	Ali and McKay (1982)

^aStandard for “Rapeseed oil” (turnip rape oil, colza oil, ravison oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica rapa* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Codex Alimentarius (2009) ^a	Phillips et al. (2002)
Sterols (β-sitosterol is dominant)	450–1,130 (GC)	713–803 (GC)
Tocopherols (γ-tocopherol is dominant)	43–268 (HPLC)	
Tocotrienols	– (HPLC)	

^aContents for “Rapeseed oil” (turnip rape oil, colza oil, ravison oil, sarson oil, toria oil) produced from seeds of *Brassica napus* L., *Brassica rapa* L., *Brassica juncea* L. and *Brassica tournefortii* Gouan species

Brochoneura acuminata* (Lam.) Warb.—*Myristicaceae

✓ Synonym	<i>Brochoneura freneeii</i> Heckel
✓ Common name	Mafotra (Malagasy)
✓ Organ analyzed	Seed
✓ Origins of the samples	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.0 (imprecise method, referring to a book and a paper with different methods) 3.1 (method Ph. Fr. 10/V.3.4.7, 1983; extr. ethoxyethane)	Bianchini et al. (1981) Unpublished personal work
Oil in the dried seed	64.5 57.8	Bianchini et al. (1981) Unpublished personal work

Brunfelsia americana L.—*Solanaceae*

✓ Common name	Lady of the night (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method AOCS, 1973)	Daulatabad and Hosamani (1991)
Oil in the dried seed	30.0	Daulatabad and Hosamani (1991)

Buchanania cochinchinensis (Lour.) M.R.Almeida.—*Anacardiaceae*

✓ Synonym	<i>Buchanania lanzan</i> Spreng.
✓ Common names	Chirauli nut (Eng.); almondette (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.7 (method not indicated) 1.9 (method not indicated)	Sengupta and Roychoudhury (1977) Banerjee and Jain (1988)
Oil in the dried kernel	50 33.5	Sengupta and Roychoudhury (1977) Banerjee and Jain (1988)

Bulbinella spp.—*Xanthorrhoeaceae*
(Six species analyzed)

✓ Organ analyzed	Seed
✓ Origins of samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2–12.3 (method Cocks, 1933; extr. ethoxyethane)	Morice (1969)
Oil in the dried seed	13.9–37.4	Morice (1969)

Butea monosperma (Lam.) Taub.—*Fabaceae*

✓ Common names	Flame of the forest, Bengal kino (Eng.)
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Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≈ 3 (method AOAC, 1965; extr. ethoxyethane)	Gunakunru et al. (2004)
Oil in the dried seed	26.7	Gunakunru et al. (2004)

Butia capitata (Mart.) Becc.—*Arecaceae*

✓ Synonym	<i>Butia capitata</i> var. <i>pulposa</i> (Barb. Rodr.) Becc.
✓ Common names	Jelly palm (Eng.); palmier abricot (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of samples	Uruguay

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method not indicated)	Grompone (1985)
Oil in the dried kernel	41.2–48.0	Grompone (1985)

Buxus sempervirens L.—*Buxaceae*

✓ Common names	Boxwood (Eng.); buis (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.1 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	25.2	Ferlay et al. (1993)
	42	Radunz and Schmid (2000)

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Chapter 3

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species C

Caesalpinia spinosa (Molina) Kuntze—*Fabaceae*

✓ Common name	Tara (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Peru

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.4–2.7 (method of a thesis; extr. 2-isopropoxypropane)	Rahanitriniana et al. (1984)
Oil in the dried seed	23.9–25.5	Rahanitriniana et al. (1984)

Calendula officinalis L.—*Asteraceae*

✓ Common names	Pot marigold, marigold (Eng.); souci (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France, doubtful, oil from a company (personal communication; ITERG)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	4.5 (method AFNOR/NFT 60-205; but extr. petroleum ether) 6.4–6.6 (method AFNOR/NFT 60-205; extr. ethoxyethane)	Personal communication (ITERG) Personal communication (ITERG)
Oil in the dried achene	44 16.8–18.6	Earle et al. (1964) Unpublished personal work

Contents in unsaponifiable fractions in seed oil

Unsaponifiable fraction	Contents (mg/100 g of oil)	References
Tocopherols (γ -tocopherol is dominant)	175–197 (method not indicated)	Personal communication (ITERG)

Calodendrum capense (L.f.) Thunb.—*Rutaceae*

✓ Common name	Cape chestnut (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Italy, Kenya

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9 (method not indicated)	Munavu (1983)
	0.8 (method not indicated)	Giuffrè et al. (1999)
Oil in the dried kernel	60	Munavu (1983)
	61.3	Giuffrè et al. (1999)

Calophyllum calaba L.—*Clusiaceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	France (Guadeloupe)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method ISO/3596:2000)	Crane et al. (2005)
Oil ^a in the dried kernel	67.2	Crane et al. (2005)

^aOil obtained by pressure

Contents in unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Crane et al. (2005)
Sterols (stigmasterol and β -sitosterol are dominant)	148 (GC)
Tocopherols (α -tocopherol is dominant)	30 (HPLC)
Tocotrienols (γ -tocotrienol is dominant)	26 (HPLC)
Carotenes	Traces (HPLC)

Calophyllum inophyllum L.—*Clusiaceae*

✓ Common names	Alexandrian laurel, laurel wood, ballnut (Eng.); calophyllum, tamanu (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India, Madagascar, Senegal, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.7 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane) 1.4 (method AOCS/Ca 6a-40, 1987; extr. petroleum ether) 2.0 (method ISO/3596:2000)	Miralles and Pares (1980) Hemavathy and Prabhakar (1990) Crane et al. (2005)
Oil in the dried kernel	65.5 60.1 75.7	Miralles and Pares (1980) Hemavathy and Prabhakar (1990) Matthäus et al. (2003)

Contents in unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions ^a	Crane et al. (2005)	Matthäus et al. (2003)
Sterols (β -sitosterol is dominant)	131 (GC)	
Tocopherols	7 (HPLC)	14 (HPLC)
Tocotrienols (δ -tocotrienol is dominant)	30 (HPLC)	20 (HPLC)
Carotenoids	Traces (HPLC)	

^aAmong the hydrophobic coumarinic derivatives without carboxylic group, only one content was found (0.8% of calophyllolide in oil), but the source was too old and not credible enough to be included in the table

Calotropis gigantea (L.) Dryand.—*Asclepiadaceae*

✓ Common names	Giant milkweed, crown flower (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method AOCS, 1973)	Rao et al. (1983)
Oil in the dried seed	30.8	Rao et al. (1983)

Camelina sativa (L.) Crantz—*Brassicaceae*

✓ Common names	Camelina, false flax, gold-of-pleasure (Eng.); caméline (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Denmark, France, Germany, Slovenia, Sweden, doubtful, oil from a company (Schwartz et al. 2008)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method not indicated) 0.5 (method with GC)	Raie et al. (1983) Shukla et al. (2002)
Oil in the dried seed	23 40–47	Raie et al. (1983) Zubr (1997)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)			
	Shukla et al. (2002)	Zubr and Matthäus (2002)	Abramovic et al. (2007)	Schwartz et al. (2008)
Unsaponifiable fractions				
Sterols (β -sitosterol is dominant)	360 (GC)			511 (GC)
Tocopherols (γ -tocopherol is dominant)		71–88 (HPLC)	75 (HPLC)	78 (HPLC)
Plastochromanol-8		1–3 (HPLC)		

Camellia japonica L.—*Theaceae*

✓ Common names	Camellia (Eng.); camélia (Fr.)
✓ Organs analyzed	Seed, kernel
✓ Origins of the samples	Japan, doubtful, oil from a company (Akihisa et al. 1999)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the dried seed oil	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1974a)
Oil in the dried kernel	64–66	Mensier (1957)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)	
	Itoh et al. (1974a)	Akihisa et al. (1999)
Unsaponifiable fractions		
Sterols	104 (TLC)	
4-Methylsterols	28 (TLC)	
Triterpene alcohols	192 (TLC)	≈142 (OCLC)
Hydrocarbons and other nonpolar compounds	76 (TLC)	

Camellia saluenensis Stapf ex Bean—*Theaceae*

✓ Synonym	<i>Camellia weiningensis</i> Y.K. Li
✓ Organ analyzed	Seed
✓ Origin of the sample	China

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method described; extr. ethoxyethane)	Li et al. (2000)
Oil in the dried seed	51.4	Li et al. (2000)

Contents in unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)
Unsaponifiable fractions	Li et al. (2000)
Sterols	45 (HPLC)
4-Methylsterols	2 (HPLC)
Triterpene alcohols	232 (HPLC)
Hydrocarbons	83 (HPLC)

Camellia sasanqua Thunb.—*Theaceae*

✓ Common names	Sasanqua camellia (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Vietnam, oil of a company (Itoh et al. 1974a; Akihisa et al. 1999)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method DGF/C-III, 1953; extr. not indicated) 0.4–0.6 (method described; extr. 2-isopropoxypropane)	Franzke et al. (1971) Itoh et al. (1974a)
Oil in the dried seed	47.2	Franzke et al. (1971)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Itoh et al. (1974a)	Akihisa et al. (1999)
Sterols (Δ^7 -stigmasterol is dominant)	72–108 (TLC)	
4-Methylsterols	1–6 (TLC)	
Triterpene alcohols	256–354 (TLC)	≈220 (OCLC)
Hydrocarbons and other nonpolar compounds	72–132 (TLC)	

Camellia sinensis (L.) Kuntze—*Theaceae*

✓ Common names	Tea, teaplant (Eng.); théier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of samples	China, India, Turkey, oil of a company (Itoh et al. 1974a)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.6 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1974a)
	1.0–1.1 (method not indicated)	Yazicioglu et al. (1977)
	2.2 (method AOCS, 1980)	Ravichandran (1993)
Oil in the dried seed	20	Yazicioglu et al. (1977)
	31.0	Ravichandran (1993)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Fedeli et al. (1966)	Itoh et al. (1974a)
Sterols	600 (TLC)	110 (TLC)
4-Methylsterols		6 (TLC)
Triterpene alcohols	40 (TLC)	350 (TLC)
Hydrocarbons and other nonpolar compounds		130 (TLC)

Campanula rapunculoides L.—*Campanulaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried seed	28	Coxworth (1965)

Canarium schweinfurthii Engl.—*Burseraceae*

✓ Common names	Schweinfurth's olive, African elemi (Eng.), aïélé (Eng., Fr.); élémier d'Afrique (Fr.)
✓ Organ analyzed	Mesocarp (pulp)
✓ Origins of the samples	Cameroon, Ivory Coast

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable in the pulp oil	1.0 (method not described, nor in a cited reference)	Agbo N'zi et al. (1992)
	1.3 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
Oil in the dried pulp	40	Agbo N'zi et al. (1992)
	36.1	Kapseu and Parmentier (1997)

Canarium zeylanicum (Retz.) Blume—*Burseraceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Ceylon

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.02 ^a (method with OCLC, Kundu and Deb, 1981)	Seneviratne and Kotuwegedara (2009)
Oil in the dried kernel	Not mentioned ^a	Seneviratne and Kotuwegedara (2009)

^aOil obtained by pressure

Cannabis sativa L.—*Cannabaceae*

✓ Common names	Hem, Indian hem (Eng.); chanvre, chanvre indien (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, France, Germany, Pakistan, Poland, Turkey, Ukraine, doubtful, oil from a company (Lachenmeier et al. 2004)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Raie et al. (1995)
	0.7–1.3 (method AOCS, 1997)	Anwar et al. (2006)
Oil in the dried seed	33.3	Raie et al. (1995)
	26.9–31.5	Anwar et al. (2006)
	30.5	Oomah et al. (2002)
	26.3–37.5	Matthäus et al. (2006)

Contents in unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)				
Unsaponifiable fractions	Anwar et al. (2006)	Oomah et al. (2002)	Matthäus et al. (2006)	Lachenmeier et al. (2004)	Matthäus and Brühl (2008)
Sterols (β-sitosterol is dominant)					392–672 (GC)
Tocopherols (γ-tocopherol is dominant)	68–83 (HPLC)	77–87 (HPLC)	41–111 (HPLC)		
Carotenoids		2–5 (Spectro)			
Cannabinoids				1–3 ^a (GC)	

^aUsual contents for marketed hemp oils

Capparis sicula* Duhamel—*Capparaceae

✓ Synonym	<i>Capparis ovata</i> Desf. var. <i>canescens</i> (Coss.) Heywood
✓ Organ analyzed	Seed
✓ Origins of the samples	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method AOAC, 1984; extr. ethoxyethane)	Akgül and Özcan (1999)
Oil in the dried seed	36.7 14.6–38.0	Akgül and Özcan (1999) Matthäus and Özcan (2005)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Matthäus and Özcan (2005)
Sterols (β -sitosterol is dominant)	488–1 219 (GC)
Tocopherols	271–2 072 (HPLC)
Tocotrienols	1 (HPLC)
Plastochromanol-8	1–5 (HPLC)

***Capparis spinosa* L. (including var. *spinosa* (Coss.) Heywood)*—*Capparaceae*
*(Matthäus and Özcan 2005)**

✓ Common names	Caper (Eng.); câprier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Tunisia, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AOAC, 1984; extr. ethoxyethane) 1.7–2.7 (method described; extr. ethoxyethane) 1.7–2.5 (method described; extr. ethoxyethane)	Akgül and Özcan (1999) Tlili et al. (2009, 2010) Tlili et al. (2011)
Oil in the dried seed	35.2 23.3–33.6 31.5–41.2 27.3–37.6	Akgül and Özcan (1999) Tlili et al. (2009) Tlili et al. (2011) Matthäus and Özcan (2005)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)			
	Tlili et al. (2009)	Tlili et al. (2010)	Tlili et al. (2011)	Matthaäus and Özcan (2005)
Unsaponifiable fractions				
Sterols (β -sitosterol is dominant)		207–247 (GC)		496–812 (GC)
Triterpene alcohols			23–61 (GC)	
Tocopherols [γ -tocopherol is dominant according to Tlili et al. (2009)]	545–859 (HPLC)			248–1 982 (HPLC)
Tocotrienols				<2 (HPLC)
Plastochromanol-8				<3 (HPLC)
Carotenoids (β -carotene is dominant)				0.1–2 (HPLC)
Fatty alcohols (octadecanol is dominant)			4–5 (GC)	

Capparis zeylanica L.—*Capparaceae*

✓ Common name	Indian caper (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method AOCS, 1973)	Daulatabad et al. (1991)
Oil in the dried seed	30.0	Daulatabad et al. (1991)

Capsicum annuum L. var. *annuum*—*Solanaceae*

✓ Common names	Paprika (Eng., Fr.), bell pepper (Eng.); poivron doux (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	South Korea, Egypt

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	1.5 (method AOCS/Ca 6a-40, 1973; extr. Petroleum ether)	El-Adawy and Taha (2001)
Oil in the dried seed	26	Jeong et al. (1974)
	25.6	El-Adawy and Taha (2001)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
	Jeong et al. (1974)	El-Adawy and Taha (2001)
Unsaponifiable fractions		
Sterols	558 (TLC)	890 (TLC)
4-Methylsterols	108 (TLC)	
Triterpene alcohols	828 (TLC)	
Hydrocarbons and other nonpolar compounds	306 (TLC)	
Hydrocarbons		970 (TLC)

Carapa grandifolia Sprague—*Meliaceae*

✓ Common name	Carapa (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Ouganda, Democratic Republic of Congo

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 ^a and 3.7 ^b (method not indicated)	Lewkowitsch (1908)
	1.3 (method described; extr. ethoxyethane)	Minzangi et al. (2011)
Oil in the dried seed	30.3	Lewkowitsch (1908)
	41.6	Minzangi et al. (2011)

^aOil obtained by hot pressing^bOil obtained by cold pressing*Carapa guianensis* Aubl.—*Meliaceae*

✓ Common names	Crabwood, carapa (Eng.); andiroba (Fr.)
✓ Organ analyzed	Kernel, seed
✓ Origins of the samples	Brazil

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.9 ^a and 2.6 ^b (method AOAC, 1945; extr. ethoxyethane)	Pinto (1956)
Oil in the dried seed	41.9	Pinto (1956)

^aOil obtained by hot pressing^bOil obtained by cold pressing

Contents in unsaponifiable fractions in kernel oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Tappin et al. (2008)
Limonoids (tetranortriterpenoids)	707 (HPLC)

Carapa procera DC.—*Meliaceae*

✓ Common name	Carapa (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Democratic Republic of Congo, Nigeria, Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.4 (method described in another paper; extr. ethoxyethane)	Derbesy and Busson (1968)
	0.8 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	1.3 (method AOCS, 1975)	Essien et al. (1989)
	1.2 (method described; extr. ethoxyethane)	Minzangi et al. (2011)
Oil in the dried seed	48	Derbesy and Busson (1968)
	52.8	Miralles and Pares (1980)
	47.9	Minzangi et al. (2011)

Contents in unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β-carotene	<0.1 (OCLC-Spectro)

Cardiospermum halicacabum L.—*Sapindaceae*

✓ Common names	Balloon vine (Eng.); pois de coeur (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Democratic Republic of Congo

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method described; extr. ethoxyethane)	Minzangi et al. (2011)
Oil in the dried seed	38.9	Minzangi et al. (2011)

Carduus acanthoides L.—*Asteraceae*

✓ Organ analyzed	Achene
✓ Origin of the sample	Argentina

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the achene oil	1.9 (method AOCS/Ca 6b-53; extr. ethoxyethane)	Nolasco et al. (1987)
Oil in the dried achene	29.2	Nolasco et al. (1987)

Carduus nigrescens Vill.—Asteraceae

✓ Common name	Chardon noirissant (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France, Italy, doubtful

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the achene oil	16.6 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	21.3	Unpublished work (Laboratoires Expanscience and Fontanel D)
	41.0	Madrigal et al. (1975)

Contents in unaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unaponifiable fractions	Unpublished work (Laboratoires Expanscience and Fontanel D)
Triterpene alcohols and few sterols	14,400 (GC)
Hydrocarbons	80 (GC)
Squalene	20 (GC)
Unidentified fractions	2,100 (GC)

Carduus nutens L. ssp. *nutens*—Asteraceae

✓ Common names	Musk thistle (Eng.); chardon penché (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France, Italy

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the achene oil	21.9–22.3 (method AOCS/Ca 6b-53; extr. ethoxyethane)	Unpublished work (Laboratoires Expanscience and Fontanel D)
	10.6–11.5 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	24.1–24.6	Unpublished work (Laboratoires Expanscience and Fontanel D)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Unpublished work (Laboratoires Expanscience and Fontanel D)
Triterpene alcohols and few sterols	9,669–10,048 (GC)
Hydrocarbons including squalene	<220 (GC)

Carica papaya L.—*Caricaceae*

✓ Common names	Papaya (Eng.); papayer (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Senegal, Somalia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method not indicated)	Badami and Daulatabad (1967a)
	1.5 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	2.2–2.3 (method not indicated)	Angelin and Cum (1990)
Oil in the dried seed	22.2	Badami and Daulatabad (1967a)
	28.8	Miralles and Pares (1980)
	24–29	Angelin and Cum (1990)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Angelin and Cum (1990)
Sterols	475–514 (method not indicated)
Triterpene and aliphatic alcohols	839–903 (method not indicated)
Tocopherols	288–333 (method not indicated)
Hydrocarbons and carotenoids	224–258 (method not indicated)
Other “pigments”	226–241 (method not indicated)

Carissa spinarum L.—*Apocynaceae*

✓ Common names	Conkerberry, bush plum (Eng.); bois amer (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.2 (method AOCS/Ca 6a-40, 1973; extr. petroleum ether)	Rao et al. (1984)
Oil in the dried seed	22.4	Rao et al. (1984)

Carthamus tinctorius L.—Asteraceae

✓ Common names	Safflower (Eng.); carthame, carthame des teinturiers (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Italy, Sudan, Turkey, doubtful, oil from a company (Itoh et al. 1973)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene	0.6 (method described; extr. 2-isopropoxypropane) 0.6–1.1 (method NGD, 1967) ≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane) 1.0–1.4 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Itoh et al. (1973) Conte et al. (1983) Codex Alimentarius (2009) Rahamatalla et al. (2001)
Oil in the dried achene	27.5 17–50	Bozan and Temelli (2008) Ucciani (1995)

Contents in unsaponifiable fractions in achene oil

	Contents (mg/100 g of oil)			
Unsaponifiable fractions	Itoh et al. (1973)	Codex Alimentarius (2009)	Rahamatalla et al. (2001)	Bozan and Temelli (2008)
Sterols (β-sitosterol is dominant)	348–384 (TLC)	200–460 (GC)	560–739 (TLC)	
4-Methylsterols	24–30 (TLC)		20–116 (TLC)	
Triterpene alcohols	60–66 (TLC)		73–195 (TLC)	
Tocopherols (α-tocopherol is dominant)		24–70 (HPLC)		52 (HPLC)
Tocotrienols		0–1 (HPLC)		1 (HPLC)
Hydrocarbons and aliphatic alcohols	126–162 (TLC)		242–350 (TLC)	

Carum carvi L.—Apiaceae

✓ Common names	Caraway (Eng.); carvi (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Pakistan, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	It may exceed 2.5 (method not indicated) 1.3 (method not indicated)	Mensier (1957) Khalid et al. (2005)
Oil in the dried seed	≈15 9.1	Mensier (1957) Khalid et al. (2005)

Carya cordiformis (Wangenh.) K. Koch—*Juglandaceae*

✓ Common names	Bitternut hickory (Eng.); caryer cordiforme (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method in a very old book)	Riebsomer et al. (1940) ^a
Oil in the dried seed	27	Riebsomer et al. (1940) ^a

^a*Carya cordiformis*

Carya illinoensis (Wangenh.) K. Koch—*Juglandaceae*

✓ Common names	Pecan (Eng.); pacanier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Italy, Mexico, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.3 (method Schwartz, 1988)	Schwartz (1988)
	0.8–1.5 (method not indicated)	Poiana et al. (1996)
	0.3–0.5 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	66.6–75.9	Poiana et al. (1996)
	70.2–73.6	Kornsteiner et al. (2006)
	72.8–81.7	Toro-Vazquez and Pérez-Briceño (1998)
	71.5	Miraliakbari and Shahidi (2008)

Contents in unsaponifiable fractions in kernel oil

Unsaponifiable fractions	Contents (mg/100 g of oil)				
	Jeong et al. (1974)	Poiana et al. (1996)	Kornsteiner et al. (2006)	Toro-Vazquez and Pérez-Briceño (1998)	Miraliakbari and Shahidi (2008)
Sterols (β -sitosterol is dominant)	128 (TLC)	102–289 (GC)			262–276 (GC)
4-Methylsterols [citraoladienol is dominant according to Jeong et al. (1975)]	24 (TLC)				
Triterpene alcohols [cycloartenol is dominant according to Jeong et al. (1975)]	36 (TLC)				
Tocopherols		9–39 (HPLC)	2–24 (HPLC)	11–44 (HPLC)	45–49 (HPLC)
Hydrocarbons and other nonpolar compounds	212 (TLC)				

Caryocar villosum (Aubl.) Pers.—*Caryocaraceae*

✓ Common names	Pekea nut, Piqui-a (Eng.)
✓ Organ analyzed	Mesocarp (pulp)
✓ Origin of the sample	Brazil

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	>0.6 (method with GC)	Marx et al. (1997)
Oil in the dried pulp	64.5	Marx et al. (1997)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Marx et al. (1997)
Sterols	580 (GC)
Squalene	64 (GC)

Caryodendron orinocense H. Karst.—*Euphorbiaceae*

✓ Common name	Tacaynut (Eng.)
✓ Organs analyzed	Kernel, seed (?)
✓ Origin of the sample	Venezuela

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.1 (method AOAC/28.092, 1990; extr. ethoxyethane) (method 28.092 is in 1984 edn.)	De Pérez et al. (1999)
Oil in the dried kernel or seed (?)	30	Mentioned by De Pérez et al. (1999)

Catharanthus roseus (L.) G. Don—*Apocynaceae*

✓ Synonym	<i>Vinca rosea</i> L.
✓ Common names	Madagascar periwinkle (Eng.); Pervenche de Madagascar (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated)	Daulatabad and Ankalgi (1985)
Oil in the dried seed	31.5	Daulatabad and Ankalgi (1985)

Cedrus atlantica (Endl.) G. Manetti ex Carrière—*Pinaceae*

✓ Common names	Atlas cedar (Eng.); cèdre de l'Atlas (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	12.5 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	40.8 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Ceiba pentandra Gaertn.—*Malvaceae*

✓ Common names	Kapoktree, silk-cottontree (Eng.); kapokier, fromager (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Malaysia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.7 (method AOAC, 1975; extr. ethoxyethane)	Berry (1979)
Oil in the dried kernel	49.5	Berry (1979)
Oil in the dried seed	28.7	Berry (1979)

Celastrus paniculatus Willd.—*Celastraceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.9 (method not indicated)	Sengupta and Bhargava (1970)
	1.6 (method not indicated)	Ramadan et al. (2010)
Oil in the dried seed	52.0	Sengupta and Bhargava (1970)
	46	Ramadan et al. (2010)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ramadan et al. (2010)
Sterols (β -sitosterol is dominant)	880 (GC)
Tocopherols (γ -tocopherol is dominant)	156 (HPLC)

Celosia argentea L.—*Amaranthaceae*

✓ Synonym	<i>Celosia pyramidalis</i> Burm.f.
✓ Common names	Cockscomb (Eng.); amarante crête-de-coq (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.2 (method AOCS, 1964)	Badami and Thakkar (1984a)
	0.3 (method AOCS, 1964)	Badami and Thakkar (1984b)
Oil in the dried seed	23.0	Badami and Thakkar (1984a)
	22.5	Badami and Thakkar (1984b)

Celtis australis L.—*Ulmaceae*

✓ Common names	European hackberry, European nettletree (Eng.); micocoulier de Provence (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1989)
Oil in the dried kernel	48	Erciyes et al. (1989)

Celtis sinensis Pers.—*Ulmaceae*

✓ Synonym	<i>Celtis sinensis</i> Pers. var. <i>japonica</i> (Planch.) Nakai
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method not indicated)	Ihara and Tanaka (1978)
Oil in the dried seed	13.0	Ihara and Tanaka (1978)

Centaurea cyanus L.—*Asteraceae*

✓ Common names	Cornflower, bachelor's button (Eng.); bleuet (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.3 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	24.9–30.7	Unpublished work (Laboratoires Expanscience and Fontanel D)

Cephalaria syriaca (L.) Schrad. ex Roem. & Schult.—*Dipsacaceae*

✓ Common names	Makhobeli (Eng.); céphalaire de Syrie (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2–1.3 (method AOCS, 1973)	Yazicioğlu et al. (1978)
Oil in the dried seed	25	Yazicioğlu et al. (1978)

Cephalocroton cordofanus Hochst.—*Euphorbiaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Bharucha and Gunstone (1956)
Oil in the dried seed	32.7	Bharucha and Gunstone (1956)

Ceratotheca sesamoides Endl.—*Pedaliaceae*

✓ Common names	Bungu, flase sesame (Eng.); boungou, faux-sésame (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	“Gold coast”, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Bolton (1919)
Oil in the dried seed	35.5	Bolton (1919)
	17.3–21.0	Fasakin (2004)

Cercis siliquastrum L.—*Fabaceae*

✓ Common names	Judas tree (Eng.); arbre de Judée (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method not indicated)	Lata Kaul et al. (1990)
Oil in the dried seed	10.0	Lata Kaul et al. (1990)

Cichorium intybus L.—*Asteraceae*

✓ Common names	Chicory (Eng.); chicorée (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Argentina, France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene	5.3 (method AOCS/Ca 6b-53, 1963; extr. ethoxyethane) 1.1–1.3 (method with GC)	Nolasco et al. (1996) Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	13.3 11.4–17.7	Nolasco et al. (1996) Unpublished work (Laboratoires Expanscience and Fontanel D)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Unpublished work (Laboratoires Expanscience and Fontanel D)
Sterols and triterpene alcohols	730 (GC)
Hydrocarbons	40 (GC)
Squalene	20 (GC)

Cirsium vulgare (Savi) Ten.—*Asteraceae*

✓ Common names	Bull thistle (Eng.); cirse vulgaire (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Argentina, France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene	2.1 (method AOCS/Ca 6b-53; extr. ethoxyethane) 4.5 (method with GC)	Nolasco et al. (1987) Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	20.2 20.8	Nolasco et al. (1987) Unpublished work (Laboratoires Expanscience and Fontanel D)

Citrullus colocynthis (L.) Schrad.—*Cucurbitaceae*

✓ Common names	Colocynth, bitter apple (Eng.); coloquinte (Fr.)
✓ Organs analyzed	Seed, kernel
✓ Origins of the samples	Ghana, Niger, Saudi Arabia, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method AOAC, 1980; extr. ethoxyethane) 0.6 (method IUPAC, 1987) 1.1 (method AFNOR/T60-205; extr. ethoxyethane)	Sawaya et al. (1983) Mabaleha et al. (2007) Sadou et al. (2007)
Unsaponifiable matter in the kernel oil	0.6 (method IUPAC, 1979)	Al-Khalifa (1996)
Oil in the dried seed	26.1 30.0 19.5	Sawaya et al. (1983) Mabaleha et al. (2007) Sadou et al. (2007)
Oil in the dried kernel	51.5	Al-Khalifa (1996)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Sadou et al. (2007)
Tocopherols (γ -tocopherol is dominant)	48 (method not indicated)

Citrullus lanatus (Thunb.) Matsum. & Nakai [wild species (Nyam et al. 2009) and varieties other than *C. lanatus* var. *lanatus*]—*Cucurbitaceae*

Variety: *karingda* (cultivar) (Das et al. 2002); *wrewre*, *sesoswane*, *tsama melon*, *desert melon* (Mabaleha et al. 2007); *colocynthoides* (Mariod et al. 2009).

✓ Synonym	<i>Citrullus vulgaris</i> Schrad.
✓ Common names (wild species)	Wild melon, Kalahari melon (Eng.)
✓ Organs analyzed	Seed, kernel
✓ Origins of the samples	Botswana, Ghana, India, Namibia (wild species), Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOAC, 1970; extr. ethoxyethane)	Das et al. (2002)
	1.1–2.6 (method IUPAC, 1987)	Mabaleha et al. (2007)
	0.8 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Mariod et al. (2009)
Oil in the dried seed	28.3	Das et al. (2002)
	24.8–28.0	Mabaleha et al. (2007)
	27.1	Mariod et al. (2009)
	32.4	Nyam et al. (2009)
Oil in the dried kernel	50.0	Das et al. (2002)

Contents in unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of seed oil)	
	Mariod et al. (2009)	Nyam et al. (2009)
Sterol (β -sitosterol is dominant)		642 (GC)
Tocopherols (γ -tocopherol is dominant)	37 (HPLC)	109 (HPLC)
Squalene		160 (GC)

Citrullus lanatus (Thunb.) Matsum. & Nakai var. *lanatus*—*Cucurbitaceae*

Cultivars: Charleston Gray, Crimson sweet, Congo, Gubble (El-Adawy and Taha 2001)

✓ Synonym	<i>Citrullus vulgaris</i> Schrad.
✓ Common names	Watermelon (Eng.); pastèque (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Egypt, India, Nigeria, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method AOCS/Ca 6a-40, 1946; extr. petroleum ether)	Chowdhury et al. (1955)
	0.9 (method AOCS/Ca 6a-40, 1990; extr. petroleum ether)	El-Adawy and Taha (2001)
Unsaponifiable matter in the seed oil	1.1 (method AOCS/Ca 6a-40, 1974; extr. petroleum ether)	Kamel et al. (1985)
Oil in the dried kernel	69.4	Chowdhury et al. (1955)
	50.1	El-Adawy and Taha (2001)
	51.4	Kamel et al. (1985)
Oil in the dried seed	23.1	Kamel et al. (1985)

Contents in unsaponifiable fractions in kernel oil

	Contents (mg/100 g of kernel oil)	
Unsaponifiable fractions	El-Adawy and Taha (2001)	Badifu (1991b)
Sterols	1,120 (TLC)	
β-carotene		2 (Spectro)
Hydrocarbons	270 (TLC)	

Citrus limetta Risso—*Rutaceae*

✓ Common names	Sweet lime, sweet lemon (Eng.); limette d'Italie
✓ Organ analyzed	Seed
✓ Origin of the sample	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.3 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Anwar et al. (2008)
Oil in the dried seed	29.8	Anwar et al. (2008)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Anwar et al. (2008)
Tocopherols	10 (HPLC)

Citrus x microcarpa Bunge—*Rutaceae*

✓ Common names	Calamandarin, musk lime (Eng.); calamondin (Fr., Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Malaysia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method AOAC, 1984; extr. ethoxyethane)	Manaf et al. (2008)
Oil in the dried seed	33.8	Manaf et al. (2008)

Citrus x paradisi Macfad.—*Rutaceae*

✓ Common name	Grapefruit (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated) 0.4 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Habib et al. (1986) Anwar et al. (2008)
Oil in the dried seed	41.4 36.5	Habib et al. (1986) Anwar et al. (2008)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Anwar et al. (2008)
Tocopherols (α -tocopherol is dominant)	43 (HPLC)

Citrus reticulata Blanco—*Rutaceae*

✓ Common names	Mandarin orange, tangerine (Eng.); mandarinier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated) 0.5 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Habib et al. (1986) Anwar et al. (2008)
Oil in the dried seed	40.2 31.1	Habib et al. (1986) Anwar et al. (2008)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Anwar et al. (2008)
Tocopherols (α -tocopherol is dominant)	66 (HPLC)

Citrus sinensis (L.) Osbeck—*Rutaceae*

✓ Synonym	<i>Citrus aurantium</i> L. var. <i>dulcis</i> L.
✓ Common names	Sweet orange (Eng.); oranger (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Greece, India, Nigeria, Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method not indicated)	Subrahmanyam and Achaya (1957b)
	1.3 (method not indicated)	Habib et al. (1986)
	1.2 (method AOAC, 1975; extr. ethoxyethane)	Lazos and Servos (1988)
	0.5 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Anwar et al. (2008)
	0.7 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
Oil in the dried seed	39.8	Subrahmanyam and Achaya (1957b)
	45.5	Habib et al. (1986)
	36.2	Lazos and Servos (1988)
	27.0	Anwar et al. (2008)
	35.6	Oyekunle and Omode (2008)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Anwar et al. (2008)
Tocopherols (α -tocopherol is dominant)	26 (HPLC)

Cleome viscosa L.—*Capparaceae*

✓ Common name	Tickweed (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AOCS, 1964)	Prasada Rao et al. (1980a)
	2.0 (method not indicated)	Rukmini et al. (1982)
Oil in the dried seed	25–27	Prasada Rao et al. (1980a)
	26	Rukmini et al. (1982)

Clitoria ternatea L.—*Fabaceae*

✓ Common name	Butterfly pea (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method not indicated)	Joshi et al. (1981)
Oil in the dried seed	10.2	Joshi et al. (1981)

Coccinia grandis (L.) Voigt—*Cucurbitaceae*

✓ Common names	Ivy gourd (Eng.); courge écarlate (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Niger

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.4 (method AFNOR/T60-205)	Sadou et al. (2007)
Oil in the dried seed	15.1	Sadou et al. (2007)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Sadou et al. (2007)
Tocopherols	9 (method not indicated)

Cocos nucifera L.—*Arecaceae*

✓ Common names	Coconut (Eng.); cocotier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Cameroun, Malaysia, doubtful, oils from companies (Itoh et al. 1973; Kornfeldt and Croon 1981; Phillips et al. 2002; Schwartz et al. 2008; Itoh et al. 1974b), no details concerning the oils analyzed (Kundu and Deb 1981; Homberg and Bielefeld 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	0.5 (method in another paper; extr. ethoxyethane)	Gutfinger and Letan (1974)
	0.02–0.03 (method AOAC, 1970; extr. ethoxyethane)	Moura Fe et al. (1974)
	0.2 (method Schwartz, 1988)	Schwartz (1988)
	0.1 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
	0.8 (method AOCS/Ca 6a-40, 2 ^{ed} edn.; extr. petroleum ether)	Kundu and Deb (1981)
	≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried kernel	59.0	Gutfinger and Letan (1974)
	38.7	Kapseu and Parmentier (1997)

Contents in unsaponifiable fractions in kernel oil

Contents (mg/100 g of oil)							
	Itoh et al. (1973)	Gutfinger and Letan (1974)	Moura Fe et al. (1974)	Codex Alimentarius (2009)	Homberg and Bielefeld (1982)	Komfeldt and Croon (1981)	Phillips et al. (2002)
Unsaponifiable fractions							Schwartz et al. (2008)
Sterols (β -sitosterol is dominant)	228 (TLC)	79 (GC)		40–120 (GC)	75 (GC)	102 (GC)	71–74 114 (GC)
4-Methylsterols	16 (TLC)				3 (GC)	7 (GC)	
Triterpene alcohols [cycloartenol is dominant selon according to [Itoh et al., (1974b)]]	68 (TLC)				13 (GC)	20 (GC)	
Tocopherols and tocotrienols		– (Spectro)	– (OCLC)	0–5 (HPLC)			0.3 (HPLC) 4 (HPLC)
Tocopherols							
Tocotrienols (α -tocotrienol is dominant)							
Hydrocarbons and aliphatic alcohols	88 (TLC)						
Hydrocarbons			4–5 (OCLC)				
Squalene		<2 (GC)					

Coffea arabica L.—*Rubiaceae*

✓ Common names	Arabica coffee, coffee (Eng.); caféier d'Arabie (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil, Colombia, Costa-Rica, India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	7.7 (method not indicated)	Subrahmanyam and Achaya (1957)
	12.0 (method described in another paper; extr. ethoxyethane)	Al-Kanhal (1997)
	13.5 (method AOCS/Ca 6b-53, 1998; extr. ethoxyethane)	Wagemaker et al. (2011)
Oil in the dried seed	11.8	Subrahmanyam and Achaya (1957)
	11	Al-Kanhal (1997)
	11.5–15.0	Wagemaker et al. (2011)
	15.7–16.0 ^a (without caffeine)	Folstar et al. (1977)

^aDried and fermented seeds

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Folstar et al. (1977)	Mensink et al. (1995)	Kamm et al. (2002)
Unsaponifiable fractions			
Sterols [β -sitosterol is dominant according to Kamm et al. (2002)]		599 (GC)	132–140 (CL-GC)
Tocopherols	49–61 (GC)		
Diterpenes (cafestol is dominant)		6,538 (GC)	

Coffea canephora Pierre ex A. Froehner—*Rubiaceae*

✓ Synonym	<i>Coffea robusta</i> L. Linden
✓ Common names	Robusta coffee (Eng.); caféier robuste (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil, India, Ivory Coast, Ouganda, Togo

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.1 (method not indicated)	Subrahmanyam and Achaya (1957)
	4.2 (method AOCS/Ca 6b-53, 1998; extr. ethoxyethane)	Wagemaker et al. (2011)
Oil in the dried seed	10.0	Subrahmanyam and Achaya (1957)
	6.3–14.6	Wagemaker et al. (2011)
	11.2 (without caffeine)	Folstar et al. (1977)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Folstar et al. (1977)	Mensink et al. (1995)	Kamm et al. (2002)
Unsaponifiable fractions			
Sterols [β -sitosterol is dominant according to Kamm et al. (2002)]		842 (GC)	158–171 (CL-GC)
Tocopherols	44 (GC)		
Diterpenes (cafestol is dominant)		3,295 (GC)	

Coffea spp.—*Rubiaceae*

✓ Common names	Coffee (Eng.); caféier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil, oils from companies (Hartman et al. 1968; Itoh et al. 1973, 1974b)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	7.9–10.9 (method AOCS/Ca 6a-40, 1965; extr. petroleum ether)	Hartman et al. (1968)
	3.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	8.0 (without caffeine) (method AOAC, 1965; extr. ethoxyethane)	Folstar et al. (1977)
Oil in the dried seed	11.1 (without caffeine)	Folstar et al. (1977)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Itoh et al. (1973)
Sterols (β -sitosterol is dominant)	1,836 (TLC)
4-Methylsterols	578 (TLC)
Triterpene alcohols [24-methylene-cycloartanol is dominant according to Itoh et al. (1974b)]	442 (TLC)
Hydrocarbons and aliphatic alcohols	544 (TLC)

Collospermum hastatum (Colenso) Skottsb.
C. microspermum (Colenso) Skottsb.—*Asteliaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiables in the seed	2.9–3.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1967)
Oil in the dried seed	43.1–48.5	Morice (1967)

***Consolida ajacis* (L.) Schur—Ranunculaceae**

✓	Synonym	<i>Delphinium ajacis</i> L.
✓	Common names	Rocket larkspur (Eng.); pied d'alouette d'Ajax (Fr.)
✓	Organ analyzed	Seed
✓	Origins of the samples	Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.9 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried seed	29	Coxworth (1965)
	44.1	Matthäus et al. (2003)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols	28 (HPLC)
Tocotrienols (α -tocotrienol is dominant)	72 (HPLC)

***Convolvulus arvensis* L.—Convolvulaceae**

✓	Common names	Field bindweed (Eng.); liseron des champs (Fr.)
✓	Organ analyzed	Seed
✓	Origins of the samples	France, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method AOCS, 1964)	Badami and Thakkar (1984c)
	1.8 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	9.0	Badami and Thakkar (1984c)
	12.7	Ferlay et al. (1993)

***Cordyline* spp.—Asteraceae**

Cordyline australis (G. Forst) Endl.; *C. cannifolia* R. Br.; *C. terminalis* Kunth [= *Cordyline fruticosa* (L.) A. Chev.].

✓	Organ analyzed	Seed
✓	Origins of the samples	Australia, New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiables in the seed	1.5–2.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1962, 1970)
Oil in the dried seed	22.3–36.9	Morice (1962, 1970)

Coreopsis tinctoria Nutt.—*Asteraceae*

✓ Common names	Golden tickseed (Eng.); coréopsis des teinturiers (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiables in the achene oil	2.2 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried achene	24	Coxworth (1965)

Coriandrum sativum L.—*Apiaceae*

✓ Common names	Coriander (Eng.); coriandre (Fr.)
✓ Organ analyzed	Seed
✓ Origins of samples	Bulgaria, Hungary, Tunisia, Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method not indicated)	Ramadan et al. (2003)
Oil in the dried seed	23.6	Zlatanov and Ivanov (1995)
	28.4	Ramadan and Mörsel (2002)
	19.7	Matthäus et al. (2003)
	22.6	Sriti et al. (2010)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)				
	Ramadan et al. (2003)	Zlatanov and Ivanov (1995)	Ramadan and Mörsel (2002)	Matthäus et al. (2003)	Sriti et al. (2010)
Unsaponifiable fractions					
Sterols	597 (GC)	≈200 (TLC)	519 (GC)		^a
Tocopherols (α -tocopherol is dominant)	127 (HPLC)			8 (HPLC)	4 (HPLC)
Tocotrienols (γ -tocotrienol is dominant)				37 (HPLC)	28 (HPLC)
β -Carotene	^b				

^aMentioned content of sterols, 3,693 mg/100 g (GC), is probably excessive

^bMentioned content of β -carotene, 89 mg/100 g (HPLC), is probably excessive

Cornus sanguinea L.—*Cornaceae*

✓ Common names	Blood-twig dogwood (Eng.); cornouiller sanguin (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.3 (method of a thesis; extr. 2-isopropoxypropane)	Viano and Gaydou (1984)
Oil in the dried seed	27.1	Viano and Gaydou (1984)

Corylus avellana L.—*Betulaceae*

✓ Common names	Hazelnut (Eng.); noisetier commun (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of samples	Croatia, Spain, France, Germany, Iran, Italy, New Zealand, Portugal, Turkey, USA, doubtful, oil from a company (Benítez-Sánchez et al. 2003)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.3 (method Schwartz, 1988)	Schwartz (1988)
	0.2–0.3 (method not indicated)	Savage et al. (1997)
	0.2–0.3 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	54.6–63.2	Savage et al. (1997)
	55.9–67.1	Kornsteiner et al. (2006)
	60.4–61.9	Miraliakbari and Shahidi (2008)
	59.2–69.0	Amaral et al. (2006a)

Contents in unsaponifiable fractions in kernel oil

Contents (mg/100 g of oil)								
	Savage et al. (1997)	Miraliakbari and Shahidi (2008)	Amaral et al. (2006a)	Benitez- Sánchez et al. (2003)	Maguire et al. (2004)	Crews et al. (2005a)	Amaral et al. (2006b)	Azadmard- Damirchi and Dutta (2007)
Unsaponifiable fractions	172–200 (GC)	185–199 (GC)	134–263 (GC)	124–196 (GC)		106–195 (GC)		
Sterols (β -sitosterol is dominant)								
Triterpene alcohols								5–6 (GC)
Tocopherols (α -tocopherol is dominant)	22–55 (HPLC)	46–51 (HPLC)				31–61 (HPLC)	13–26 (HPLC)	
Tocotrienols							<0.5 (HPLC)	
Fatty alcohols (docosanol is dominant)				5–28 (GC)				
Squalene				20–25 (GC)	19 (HPLC)			

Corylus colurna L.—*Betulaceae*

✓ Common names	Turkish hazelnut (Eng.); noisetier de Turquie (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	58.1 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Coula edulis Baill.—*Olacaceae*

✓ Common names	Gabon nut (tree), African walnut (Eng.); noyer indigène (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Cameroon, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≈1 (method not indicated)	Mensier (1957)
Oil in the dried kernel	22–30 33.5–36.6 ^a	Mensier (1957) Tchiegang et al. (1998)

^aIt is mentioned that the oil is obtained from the “nut”

Crambe hispanica ssp. *abyssinica* Hochst. ex R. E. Fr.—*Brassicaceae*

✓ Synonym	<i>Crambe abyssinica</i> Hochst. ex R. E. Fr.
✓ Common names	Crambe (Eng.); crambe d’Abyssinie (Fr.)
✓ Organ analyzed	Seed with pericarp
✓ Origins of the samples	Austria, Italy, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed with pericarp oil	2.7 (method not indicated) 0.6 (method Schwartz, 1988) 1.9 (method NGD/C-12, 1976)	Miwa and Wolff (1963) Schwartz (1988) Lazzeri et al. (1994)
Oil in the dried seed and pericarp	25–40 35.2–36.3	Miwa and Wolff (1963) Lazzeri et al. (1994)

Contents in unsaponifiable fractions in seed and pericarp oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Lazzeri et al. (1994)	Lechner et al. (1999a)
Sterols (β-sitosterol is dominant)	1,132–1,319 (GC)	892–1,371 (CL-GC)
Aliphatic alcohols	14–16 (GC)	

Crescentia cujete L.—*Bignoniaceae*

✓ Common names	Calabash tree (Eng.); calebassier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Honduras

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.1 (method Cocks, 1933; extr. ethoxyethane)	Smith and Dollear (1947)
Oil in the dried seed	37	Smith and Dollear (1947)

Croton bonplandianus Baill.—*Euphorbiaceae*

✓ Synonymous	<i>Croton sparsiflorus</i> Morong
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.4 (method AOCS, 1973)	Rao and Lakshminarayana (1987)
Oil in the dried seed	20.4	Rao and Lakshminarayana (1987)

Cucumeropsis mannii Naudin—*Cucurbitaceae*

✓ Synonym	<i>Cucumeropsis edulis</i> (Hook. f.) Cogn.
✓ Common name	White-seed melon (Eng.)
✓ Organs analyzed	Seed, kernel
✓ Origins of the samples	Cameroon, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1–1.6 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
	1.2 (method described; extr. ethoxyethane)	Esuoso et al. (2000)
	0.7 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
Unsaponifiable matter in the kernel oil	1.2 (method in another paper: Hudson, 1984; extr. ethoxyethane)	Badifu (1991a)
Oil in the dried seed	47–55	Kapseu and Parmentier (1997)
	46.1	Esuoso et al. (2000)
	32.5	Oyekunle and Omode (2008)
Oil in the dried kernel	26.9 ^a	Badifu (1991a)

^aOil obtained by pressure

Contents in unsaponifiable fractions in oils

	Contents (mg/100 g of seed oil)	Contents (mg/100 g of kernel oil)
Unsaponifiable fractions	Esuoso et al. (2000)	Badifu (1991b)
α -Tocopherol		19 (Spectro)
β -Carotene		2 (Spectro)
Hydrocarbons	\approx 1,100 (TLC)	

Cucumis melo L.—*Cucurbitaceae*

Varieties including: *agrestis* (Mariod and Matthäus 2008), *inodorus* (Yanty et al. 2008), *flexuosus* (Mariod et al. 2009)

✓ Common name	Melon (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Greece, Malaysia, Sudan, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AOAC, 1975; extr. ethoxyethane)	Lazos (1986)
	1.0 (method IUPAC/2.401, 1987)	Ghaleb et al. (1991)
	0.8 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Mariod and Matthäus (2008)
	0.9 (method AOAC, 1984; extr. ethoxyethane)	Yanty et al. (2008)
	1.2 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Mariod et al. (2009)
Oil in the dried seed	37.8	Lazos (1986)
	34	Ghaleb et al. (1991)
	30.0–31.0	Mariod and Matthäus (2008)
	25.0	Yanty et al. (2008)
	23.2	Mariod et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)			
Unsaponifiable fractions	Ghaleb et al. (1991)	Mariod and Matthäus (2008)	Mariod et al. (2009)	Akihisa et al. (1986)
Sterols (β -sitosterol is dominant)	235 (TLC)	379–388 (GC)		663 (TLC)
4- Methylsterols	25 (TLC)			
Triterpene alcohols	208 (TLC)			
Tocopherols (γ -tocopherol is dominant)	127 (Spectro)	39–40 (HPLC)	35 (HPLC)	

Cucumis metuliferus E. Mey. ex Naudin—*Cucurbitaceae*

✓ Common names	Horny cucumber (Eng.); concombre africain (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Niger

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method AFNOR/T60-205; extr. ethoxyethane)	Sadou et al. (2007)
Oil in the dried seed	24.9	Sadou et al. (2007)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Sadou et al. (2007)
Tocopherols	60 (method not indicated)

Cucumis prophetarum L.—*Cucurbitaceae*

✓ Common name	Concombre du prophète (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Niger, Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AFNOR/T60-205; extr. ethoxyethane) 0.9 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Sadou et al. (2007) Mariod et al. (2009)
Oil in the dried seed	25.6 11.7	Sadou et al. (2007) Mariod et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Sadou et al. (2007) Mariod et al. (2009)
Tocopherols	64 (method not indicated) 1 (HPLC)

Cucumis sativus L.—*Cucurbitaceae*

✓ Common names	Cucumber (Eng.); concombre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Mariod et al. (2009)
Oil in the dried seed	25.9	Mariod et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Mariod et al. (2009)
Tocopherols (γ -tocopherol is dominant)	43 (HPLC)

Cucurbita digitata A. Gray—*Cucurbitaceae*

✓ Common names	Fingerleaf gourd, bitter squash (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method not indicated)	Ault et al. (1947)
Oil in the dried seed	28.1	Ault et al. (1947)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Akihisa et al. (1986)
Sterols	187 (TLC)

Cucurbita foetidissima Kunth—*Cucurbitaceae*

✓ Common name	Buffalo gourd (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Shahani et al. (1951)
Oil in the dried seed	24.3	Shahani et al. (1951)
	31.8–39.4	Vasconcellos et al. (1980)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Vasconcellos et al. (1980)	Akihisa et al. (1986)
Sterols		127 (TLC)
Carotenoids	5–23 (Spectro)	

Cucurbita maxima Duchesne—*Cucurbitaceae*

✓ Common names	Winter squash, hubbard squash (Eng.); potiron (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	India, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9 (method AOCS/Ca 6a-40, 1946; extr. petroleum ether)	Chowdhury et al. (1955)
Unsaponifiable matter in the seed oil	2.1 (method IUPAC/2.401, 1987)	Ghaleb et al. (1991)
Oil in the dried kernel	48	Chowdhury et al. (1955)
Oil in the dried seed	37	Ghaleb et al. (1991)
	10.9–30.1	Stevenson et al. (2007)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Ghaleb et al. (1991)	Stevenson et al. (2007)
Sterols	502 (TLC)	
4-Methylsterols	76 (TLC)	
Triterpene alcohols	189 (TLC)	
Tocopherols [δ-tocopherol is dominant except in one sample according to Stevenson et al. (2007); γ-tocopherol is dominant according to Ghaleb et al. (1991)]	65 (Spectro)	59–123 (HPLC)

Cucurbita moschata Duchesne—*Cucurbitaceae*

✓ Common names	Butternut squash, pumkin, squash (Eng.); courge musquée, patisson (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method IUPAC, 1979)	Al-Khalifa (1996)
Oil in the dried kernel	43.0	Al-Khalifa (1996)

Cucurbita palmata S. Watson—*Cucurbitaceae*

✓ Common name	Coyote-melon (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Ault et al. (1947)
Oil in the dried seed	30.8	Ault et al. (1947)

Cucurbita pepo L.—*Cucurbitaceae*

✓ Common names	Pumpkin (Eng.); courge, courgette, citrouille (Fr.)	
✓ Organs analyzed	Kernel, seed	
✓ Origins of samples	Croatia, Egypt, Germany, Greece, Malaysia, Slovenia, USA, Vietnam, doubtful, oils from companies (Parry et al. 2006; Tuberoso et al. 2007)	

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AOAC, 1975; extr. ethoxyethane)	Lazos (1986)
	0.7 (method Schwartz, 1988)	Schwartz (1988)
	1.2 (method IUPAC/2.401, 1987)	Ghaleb et al. (1991)
Unsaponifiable matter in the kernel oil	0.9 (method AOCS/Ca 6a-40, 1990; extr. petroleum ether)	El-Adawy and Taha (2001)
Oil in the dried seed	45.4	Lazos (1986)
	50	Ghaleb et al. (1991)
	52 ^a	Vogel (1978)
	36.9	Nakić et al. (2006) ^b
	37.9	Nyam et al. (2009)
Oil in the dried kernel	51.0	El-Adawy and Taha (2001)
	44.7	Nakić et al. (2006) ^b

^aThe organ analyzed is not well defined

^bUnsaponifiable matter contents are also mentioned. Adapted ISO 12228 method cited concerns determination of sterol content and the results are much higher than the levels provided by other data

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)				
	Ghaleb et al. (1991)	Vogel (1978)	Nakić et al. (2006)	Nyam et al. (2009)	Parry et al. (2006) ^a
Unsaponifiable fractions					Tuberoso et al. (2007) ^a
Sterols	361 (TLC)		385 (GC)	274 ^b (GC)	
4-Methylsterols	55 (TLC)				
Triterpene alcohols	167 (TLC)				
Tocopherols (γ -tocopherol is dominant)	84 (Spectro)	34 (GC)	71 (HPLC)	81 (HPLC)	26 (HPLC)
Carotenoids [luteine is dominant according to Vogel (1978)]		1.5 (Spectro)			4 (HPLC)
Squalene			351 (GC)	591 (GC)	353 (GC)

^aOil obtained by pressure
^bThis analysis, briefly described, indicates that the β -sitosterol is dominant; but this is not the case according to Nakić et al. (2006) whose results included more sterols

Contents in unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nakić et al. (2006)
Sterols	317 (GC)
Tocopherols (γ -tocopherol is dominant)	52 (HPLC)
Squalene	296 (GC)

Cuminum cyminum L.—*Apiaceae*

✓ Common name	Cumin (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.1 (method AOCS, 1973)	Hemavathy and Prabhakar (1988)
Oil in the dried seed	14.5	Hemavathy and Prabhakar (1988)
	23.1	Zlatanov and Ivanov (1995)

Contents in unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Zlatanov and Ivanov (1995)
Sterols	\approx 400 (TLC)

Cuphea spp.—*Lythraceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1 (method not indicated)	Evangelista and Manthey (2006)
Oil in the dried seed ^a	27	Evangelista and Manthey (2006)

^aHybrid between *Cuphea viscosissima* Jacq. and *Cuphea lanceolata* W.T. Aiton

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
	Lechner et al. (1999a) (five species ^a)	Lechner et al. (1999b) (one species ^b)
Unsaponifiable fractions		
Sterols (β -sitosterol is dominant)	550–753 (LC-GC)	
Tocopherols		31 (GC)

^a*Cuphea lanceolata* W.T. Aiton, *C. lutea* Rose, *C. paucipetala* S.A. Graham, *C. viscosissima* Jacq., *C. wrightii* A. Gray

^b*Cuphea wrightii* A. Gray

Cydonia oblonga Mill.—Rosaceae

✓ Synonym	<i>Cydonia vulgaris</i> Pers.
✓ Common names	Quince (Eng.); cognassier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method not indicated)	Rakhimov et al. (1983)
Oil in the dried seed	29.3	Rakhimov et al. (1983)
	45.4	Zlatanov et al. (1998)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)
Unsaponifiable fractions		
Sterols (β -sitosterol is dominant)	≈300 (TLC)	
Tocopherols (α -tocopherol is dominant)		66 (HPLC)
Tocotrienols		–(HPLC)

Cynara cardunculus L.—Asteraceae

✓ Common names	Cardoon (Eng.); cardon (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France, Italy, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.9 (meth AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Benjelloun-Mlayah et al. (1997)
	2.3–3.0 (method described; extr. ethoxyethane)	Maccarone et al. (1999)
Oil in the dried achene	25	Benjelloun-Mlayah et al. (1997)
	21.1–26.6	Maccarone et al. (1999)

Contents in unsaponifiable fractions in achene oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Maccarone et al. (1999)
Sterols	400–509 (GC)
α -tocopherol	25–67 (HPLC)

Cynara cardunculus L. ssp. *cardunculus*—*Asteraceae*

✓ Synonym	<i>Cynara scolymus</i> L.
✓ Common names	Artichoke (Eng.); artichaut (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Italy

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.9 (method not indicated, refers to a book hard to find!)	Miceli and De Leo (1996)
	2.6–3.2 (method described; extr. ethoxyethane)	Maccarone et al. (1999)
Oil in the dried achene	20.5	Miceli and De Leo (1996)
	23.0–25.1	Maccarone et al. (1999)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Maccarone et al. (1999)
Sterols	469–555 (GC)
α -tocopherol	28–40 (HPLC)

Cyperus esculentus L.—*Cyperaceae*

✓ Synonym	<i>Cyperus tuberosus</i> Pursh (Mensier 1957)
✓ Common names	Yellow nutsedge, tigernut sedge (Eng.); souchet comestible (Fr.)
✓ Organs analyzed	Seed, tubercle
✓ Origins of the samples	Ghana, Nigeria, Democratic Republic of the Congo, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method IUPAC; extr. solvent not indicated, probably ethoxyethane)	Yeboah et al. (2012)
Unsaponifiable matter in the tubercle oil	≈0.6 (method not indicated)	Mensier (1957)
Oil in the dried seed	16.0	Yeboah et al. (2012)
Oil in the dried tubercle	20–28	Mensier (1957)
	17.0	Kabele Ngiefu et al. (1976)

Contents in unsaponifiable fractions in oils

	Contents (mg/100 g of seed oil)	Contents (g/100 g of unsaponifiable matter of tubercle oil)	
		Oderinde and Tairu (1992)	Oderinde et al. (1992)
Unsaponifiable fractions	Yeboah et al. (2012)		
Sterols (β -sitosterol is dominant)	99 (GC)		
Free sterols (β -sitosterol is dominant)		18.5 (OCLC-TLC)	25.9 (OCLC-TLC)
Triterpene alcohols (cycloartenol is dominant)		1.9 (OCLC-TLC)	4.5 (OCLC-TLC)
Tocopherols (α -tocopherol is dominant)	12 (HPLC)		
Aliphatic alcohols		3.5 (OCLC-TLC)	7.4 (OCLC-TLC)
Hydrocarbons		20.6 (OCLC-TLC)	18.4 (OCLC-TLC)

Cyperus ustulatus A. Rich.—*Cyperaceae*

✓ Common name	Giant umbrella sedge (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.2 (method Cocks, 1933; extr. ethoxyethane)	Morice (1977)
Oil in the dried seed	18.4	Morice (1977)

Cyphomandra betacea (Cav.) Sendtn.—*Solanaceae*

✓ Common names	Tree tomato (Eng.); arbre à tomates (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Venezuela

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method COVENIN, 1984; extr. <i>n</i> -hexane)	Belén-Camacho et al. (2004)
Oil in the dried seed	15.8–17.1	Belén-Camacho et al. (2004)

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Chapter 4

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species D to K

Dacryodes edulis (G. Don) H.J. Lam.—*Burseraceae*

✓ Synonym	<i>Pachylobus edulis</i> G. Don
✓ Common names	African pear (Eng.); safoutier (Fr.)
✓ Organ analyzed	Mesocarp (pulp)
✓ Origin of the samples	Cameroon

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	0.9 (method in another paper; extr. ethoxyethane)	Ucciani and Busson (1963)
	2.3 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
Oil in the dried pulp	44.7	Ucciani and Busson (1963)
	57.0	Kapseu and Parmentier (1997)

Dalbergia melanoxylon Guill. & Perr.—*Fabaceae*

✓ Common names	African blackwood (Eng.); ébène du Mozambique (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method AOCS, 1973)	Kittur et al. (1987)
Oil in the dried seed	13.8	

Dalbergia odorifera T.C. Chen.—*Fabaceae*

✓ Common name	Fragrant rosewood (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	China

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method AOAC, 1990; extr. ethoxyethane)	Zheng et al. (2012)
Oil in the dried seed	13.0	Zheng et al. (2012)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Zheng et al. (2012)
Tocopherols (γ -tocopherol is dominant)	51 (HPLC)
β -Carotene	6 (Spectro)

Datura stramonium L.—*Solanaceae*

✓ Common names	Torn apple (Eng.); datura stramoine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the samples	Egypt

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1–3 (method not indicated)	Mensier (1957)
Oil in the dried seed	15–25	Mensier (1957)
	10.3	Ramadan et al. (2007)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ramadan et al. (2007)
Sterols	816 (GC)
Tocopherols and tocotrienols (γ -tocotrienol is dominant)	205 (HPLC)

Daucus carota L.—*Apiaceae*

✓ Common names	Carrot (Eng.); carotte (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AOAC, 1984 or 1990; extr. ethoxyethane)	Özcan and Chalchat (2007)
Oil in the dried seed	8.5	Özcan and Chalchat (2007)
	26.8	Zlatanov and Ivanov (1995)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Zlatanov and Ivanov (1995)
Sterols	≈ 200 (TLC)

Delonix elata (L.) Gamble—*Fabaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1 (method AOCS, 1973)	Daulatabad et al. (1987)
Oil in the dried seed	13.5	Daulatabad et al. (1987)

Dianella intermedia Endl.—*Xanthorrhoeaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4–2.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1969a)
Oil in the dried seed	33.6–35.8	Morice (1969a)

Diploknema butyracea (Roxb.) H.J. Lam.—*Sapotaceae*

✓ Synonyms	<i>Bassia butyracea</i> Roxb.; <i>Madhuca butyracea</i> (Roxb.) J. F. Macbr.
✓ Common name	Indian butter tree (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India, oil from a company (Kolhe et al. 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	3.5 (method not indicated) 0.8 ^a (method described; extr. petroleum ether 40–60°C)	Sengupta and Roy Choudhury (1978) Kolhe et al. (1982)
Oil in the dried kernel	44.4	Sengupta and Roy Choudhury (1978)

^aSeveral other unsaponifiable matter contents are low in this paper

Diplotaxis tenuifolia (L.) DC.—*Brassicaceae*

✓ Common names	Lincoln's-weed (Eng.); diplotaxis vulgaire (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Morocco

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bettach et al. (1996)
Oil in the dried seed	33	Bettach et al. (1996)

Ditrysinia fruticosa (Bartram) Govaerts & Frodin—*Euphorbiaceae*

✓ Synonym	<i>Sebastiana linguistrina</i> (Michx.) Müll. Arg.
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOAC; extr. ethoxyethane)	Hanks and Potts (1951)
Oil in the dried seed	37	Hanks and Potts (1951)

Duabanga grandiflora (DC.) Walp.—*Lythraceae*

✓ Synonym	<i>Duabanga sonneratioides</i> Buch. Ham.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method not indicated ^a)	Badami et al. (1985)
Oil in the dried seed	13.3	Badami et al. (1985)

^aNor in another paper mentioned by the authors*Ecballium elaterium* (L.) A. Rich.—*Cucurbitaceae*

✓ Common names	Squirting cucumber (Eng.); concombre d'âne (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.1 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1989)
Oil in the dried seed	31	Erciyes et al. (1989)

Echinocystis lobata Torr. & A. Gray.—*Cucurbitaceae*

✓ Common names	Wild cucumber (Eng.); concombre grim pant (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.2 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried seed	41	Coxworth (1965)

Echinops ritro L.—*Asteraceae*

✓ Common names	Echinops (Fr.), globe thistle (Eng.)
✓ Organ analyzed	Achene
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.4 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	29.4	Unpublished work (Laboratoires Expanscience and Fontanel D)

Echium plantagineum L.—*Boraginaceae*

✓ Common names	Purple viper's bugloss (Eng.); vipérine à feuille de plantain (Fr.),
✓ Organ analyzed	Seed
✓ Origins of the samples	Portugal (Madeira), doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method not indicated)	Croda Chemicals Europe Ltd. (2006)
Oil in the freeze-dried seed	23.7	Guil-Guerrero et al. (2000)

Elaeis guineensis Jacq.—*Arecaceae*

✓ Common names	African oil palm (Eng.); Palmier à huile (Fr.)
✓ Organs analyzed	Kernel, mesocarp (pulp)
✓ Origins of the samples	Brazil, Cameroon, Ivory Coast, Indonesia, Malaysia, Nigeria, New Guinea, doubtful, oils from companies (Itoh et al. 1973; Gapor et al. 1985; Goh and Gee 1986; Verleyen et al. 2002; Kornfeldt and Croon 1981; Itoh et al. 1974b), no details concerning the oils analyzed (Kundu and Deb 1981; Homberg and Bielefeld 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	0.4 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	0.3 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
	≤1.2 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Unsaponifiable matter in the kernel oil	0.6 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	0.2 (method Schwartz 1988)	Kapseu and Parmentier (1997)
	≤1.0 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
	0.6 (method AOCS/Ca 6a-40, 2nd edn.; extr. petroleum ether)	Kundu and Deb (1981)
Oil in the dried pulp	46.5	Kapseu and Parmentier (1997)
Oil in the dried kernel	50.1	Zaidul et al. (2006)

Contents of unsaponifiable fractions in pulp oil

Contents (mg/100 g of pulp oil)						
	Fedeli et al. (1966)	Itoh et al. (1973)	Codex Alimentarius (2009)	Homborg and Bielefeld (1982)	Rossell et al. (1983)	Gapor et al. (1985)
Unsaponifiable fractions						
Sterol (β -sitosterol is dominant)	170 ^a (TLC)	256 ^a (TLC)	30–70 (GC)	67 (GC)	33–63 (GC)	69–79 (GC)
4-Methylsterols		36 (TLC)		9 (GC)		
Triterpene alcohols [cycloartenol is dominant according to Homborg and Bielefeld (1982)]	20 (TLC)	32 (TLC)		8 (GC)		
Tocopherols and tocotrienols			15–150 (HPLC)		10–13 (HPLC)	
Carotenoids (β -carotene is dominant)			50–200 (Spectro)			38–95 (Spectro)
Hydrocarbons and aliphatic alcohols		76 (TLC)				
<i>n</i> -Alkanes						3–5 (OCLC)
Squalene						42–98 (GC)

^aExcessive result

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of kernel oil)			
	Itoh et al. (1973)	Codex Alimentarius (2009)	Homberg and Bielefeld (1982)	Kornfeldt and Croon (1981)
Unsaponifiable fractions				
Sterols (β -sitosterol is dominant)	132 (TLC)	70–140 (GC)	81 (GC)	140 (GC)
4-Methylsterols	4 (TLC)		– (GC)	3 (GC)
Triterpene alcohols [cycloartenol is dominant according to Itoh et al. (1974b)]	72 (TLC)		8 (GC)	22 (GC)
Tocopherols and tocotrienols		0–26 (HPLC)		
Tocotrienols (γ -tocotrienol is dominant)		0–6 (HPLC)		
Hydrocarbons and aliphatic alcohols	192 (TLC)			

Elaeis oleifera (Kunth) Cortés—*Arecaceae*

✓ Synonym	<i>Elaeis melanococca</i> Mart.
✓ Common names	American oil palm (Eng.); palmier à oil américain (Fr.)
✓ Organs analyzed	Kernel, mesocarp (pulp)
✓ Origins of the samples	Colombia, French Guiana, Malaysia, Democratic Republic of Congo, Suriname, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	0.5–1 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the pulp* oil (*frozen oil)	1.4 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau (2001)
Unsaponifiable matter in the dried kernel oil	0.5–1.0 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the frozen kernel oil	0.5 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bureau et al. (2003)
Oil in the fresh pulp	30 14.8–38.3	Mensier (1957) Mensier (1975)
Oil in the frozen pulp	13.3 ^a	Bureau (2001)
Oil in the dried kernel	35–45 35.0	Mensier (1957) Kabele Ngiefu et al. (1976)
Oil in the frozen kernel	15.8	Bureau et al. (2003)

^aContent expressed in dry matter

Contents of unsaponifiable fractions in oils

	Contents (mg/100 g of pulp oil)		Contents (mg/100 g kernel oil)
	Bereau (2001)	Yap et al. (1991)	Bereau et al. (2003)
Unsaponifiable fractions			
Sterols (β -Sitosterol is dominant)	132–175 (GC)		167–186 (GC)
Tocopherols	3 (HPLC)		0.5 (HPLC)
Tocotrienols	3–4 (HPLC)		0.5 (HPLC)
Carotenoids (β -carotene is dominant)		435 (Spectro)	

Entandrophragma angolense (Welw.) C.DC.—*Meliaceae*

✓ Common name	Tiama (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AOCS, 1975)	Essien et al. (1989)
Oil in the dried seed	52.0	Balogun and Fetuga (1985)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β -carotene	<0.1 (Spectro)

Epilobium parviflorum Schreb.—*Onagraceae*

✓ Common names	Small flower willowherb (Eng.); épilobe à petite fleur (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	21.8	Ferlay et al. (1993)

Eriolaena hookeriana Wight & Arn.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method AOCS, 1971)	Ahmad et al. (1979a)
Oil in the dried seed	10.0	Ahmad et al. (1979a)

Eruca sativa Mill.—*Brassicaceae*

✓ Common names	Garden rocket, salad rocket (Eng.); roquette (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Morocco

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bettach et al. (1996)
Oil in the dried seed	30	Bettach et al. (1996)
	31.9–41.3	Yadava et al. (1998)

Erythrina senegalensis DC.—*Fabaceae*

✓ Common name	Érythrine du Sénégal (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried seed	14.5	Miralles and Pares (1980)

Eugenia uniflora L.—*Myrtaceae*

✓ Common names	Surinam cherry (Eng.); cerisier de Cayenne (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method AOAC, 1990; extr. ethoxyethane)	Amoo et al. (2006)
Oil in the dried seed	18.9	Amoo et al. (2006)

Euphorbia characias L.—*Euphorbiaceae*

✓ Common names	Mediterranean spurge (Eng.); Euphorbe characias (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	38.4	Ferlay et al. (1993)

Fagus sylvatica L.—*Fagaceae*

✓ Common names	Beech (Eng.); hêtre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	28.9 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	24 (OCLC-TLC)

Fagus orientalis Lipsky—*Fagaceae*

✓ Common names	Oriental beech (Eng.); hêtre d'orient (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 ^a (method Cocks and Von Rede 1966; extr. ethoxyethane)	Dandik et al. (1992)
Oil in the dried kernel	47.6	Dandik et al. (1992)

^aOil obtained by pression

Firmiana colorata (Roxb.) R.Br.—*Sterculiaceae*

✓ Synonym	<i>Sterculia colorata</i> Roxb.
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Daulatabad and Ankalgi (1982)
Oil in the dried seed	20.7	Daulatabad and Ankalgi (1982)

Foeniculum vulgare Mill.—*Apiaceae*

✓ Common names	Fennel (Eng.); fenouil (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	11.2–15.3 (method AOCS/Ca 6a-40, 2nd edn.; extr. petroleum ether)	Moreau et al. (1966)
Oil in the dried seed	10.7–19.0	Moreau et al. (1966)
	21.4	Zlatanov and Ivanov (1995)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Zlatanov and Ivanov (1995)
Sterols	≈ 400 (TLC)

Fraxinus pennsylvanica Marshall—*Oleaceae*

✓ Synonym	<i>Fraxinus lanceolata</i> Borkh.
✓ Common names	Red ash, green ash (Eng.); frêne rouge, frêne de Pennsylvanie (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	12.1–19.9 (method not indicated)	Sabirov et al. (1968)
Oil in the dried kernel	24.0–25.8	Sabirov et al. (1968)

Galeopsis tetrahit L.—*Lamiaceae*

✓ Common names	Hemp nettle (Eng.); ortie royale (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Canada

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.9 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried achene	30	Coxworth (1965)

***Gahnia* spp.—Cyperaceae**

(Six species analyzed)

✓ Organ analyzed	Seed
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5–8.0 (method Cocks 1933; extr. ethoxyethane)	Morice (1977)
Oil in the dried seed	2.3–17.3	Morice (1977)

***Garcia nutans* Vahl ex Rohr.—Euphorbiaceae**

✓ Organ analyzed	Kernel
✓ Origin of the sample	Mexico

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated)	Jamieson and Rose (1943)
Oil in the dried kernel	53.8	Jamieson and Rose (1943)

***Garcinia indica* (Thouars) Choisy—Clusiaceae**

✓ Common name	Kokum (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method AOCS, 1973)	Hosamani et al. (2009)
Oil in the dried seed	45.5	Hosamani et al. (2009)

***Garcinia multiflora* Champ. ex Benth.—Clusiaceae**

✓ Organ analyzed	Seed
✓ Origin of the sample	Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.8 (method DGF/C-III, 1953)	Franzke et al. (1971)
Oil in the dried seed	32.7	Franzke et al. (1971)

***Geoffroea decorticans* (Hook. & Arn.) Burkart—Fabaceae**

✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.15 (method AOAC, 1980; extr. ethoxyethane)	Lamarque et al. (2000)
Oil in the dried seed	47.2	Lamarque et al. (2000)

Gevuina avellana Molina—*Proteaceae*

✓ Common names	Chilean hazelnut (Eng.); noisetier chilien (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Argentina, Chile

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.9 (method AOCS; extr. ethoxyethane)	Malec et al. (1986)
	1.5 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Uquiche et al. (2008)
Oil in the dried kernel	41.8	Malec et al. (1986)
	46	Bertoli et al. (1998)

Contents in unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bertoli et al. (1998)
Tocopherols	Traces (HPLC)
Tocotrienols (α -tocotrienol is dominant)	13 (HPLC)

Gliricidia sepium (Jacq.) Walp.—*Fabaceae*

✓ Synonym	<i>Lonchocarpus sepium</i> (Jacq.) DC.
✓ Common names	Quick-stick (Eng.); gliricidia (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	1.5 (method AOCS, 1975)	Essien et al. (1989)
	1.0 (method described, extr. ethoxyethane)	Adewuyi et al. (2009)
Oil in the dried seed	25.1	Miralles and Pares (1980)
	24.7	Adewuyi et al. (2009)

Contents in unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)	
	Essien et al. (1989)	Adewuyi et al. (2009)
Sterols		294 (TLC)
Triterpene alcohols		310 (TLC)
β -Carotene	<0.1 (OCLC-Spectro)	
<i>n</i> -Alkanes		212 (TLC)
Not identified fractions		184 (TLC)

Glycine max (L.) Merr.—*Fabaceae*

✓ Synonym	<i>Soja max</i> (L.) Piper
✓ Common names	Soybean, soya (Eng.); soja (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Italy, USA, doubtful, oils from companies (Itoh et al. 1973; Gutfinger and Letan 1974; Kornfeldt and Croon 1981; Phillips et al. 2002; Verleyen et al. 2002)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.6 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.5–1.7 (method in another paper; extr. ethoxyethane)	Gutfinger and Letan (1974)
	0.6 (method Schwartz, 1988)	Schwartz (1988)
	≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	19.2–19.4	Gutfinger and Letan (1974)

Contents in unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)									
	Fedeli et al. (1966)	Itoh et al. (1973)	Gutfinger and Letan (1974)	Codex Alimentarius (2009)	Evans et al. (1964)	Komfeldt and Croon (1981)	Helmy (1992)	Phillips et al. 2002	Verleyen et al. (2002)
Unsaponifiable fractions	420 (TLC)	360 (TLC)	343–387 (GC)	180–450 (GC)		394 (GC)		210–297 (GC)	302–327 (GC)
Sterols (β -sitosterol is dominant)									
4-Methyl- sterols (citro- stadienol is dominant)		66 (TLC)				25 (GC)			
Triterpene alcohols	60 (TLC)	84 (TLC)				40 (GC)			
Tocopherols and tocotrienols (γ -tocopherol is dominant)				60–337 (HPLC)					
Tocopherols (γ -tocopherol is dominant)			113–145 (Spectro)						
Tocotrienols				<20 (HPLC)					
Carotenoids								7 (Spectro)	
Hydrocarbons		90 (TLC)							
Squalene			12–14 (GC)		50% of hydrocarbons (OCLC)				

***Gmelina philippensis* Cham.—Lamiaceae**

✓ Synonym	<i>Gmelina hystrix</i> Schult. ex Kurz.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Daulatabad et al. 1990
Oil in the dried seed	11.1	Daulatabad et al. (1990)

***Gomphrena globosa* L.—Amaranthaceae**

✓ Common names	Globe amaranth (Eng.); amarantine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method AOCS, 1964)	Badami and Thakkar (1984)
Oil in the dried seed	11.8	Badami and Thakkar (1984)

***Gossypium hirsutum* L.—Malvaceae**

✓ Common names	Cotton (Eng.); cotonnier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Israel, Pakistan, oil from company (Itoh et al. 1973)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.2 (method in another paper; extr. ethoxyethane)	Gutfinger and Letan (1974)
	0.6 (method AOCS, 1997)	Latif et al. (2007)
	0.3–0.4 (method AOCS, 1985)	Sawan et al. (2007)
Oil in the dried seed	28.2	Gutfinger and Letan (1974)
	16.3	Latif et al. (2007)
	19–20	Sawan et al. (2007)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Itoh et al. (1973)	Gutfinger and Letan (1974)	Latif et al. (2007)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)	426 (TLC)	364 (GC)	
4-Methylsterols	42 (TLC)		
Triterpene alcohols	48 (TLC)		
Tocopherols [α -tocopherol is dominant according to Gutfinger and Letan (1974); γ -tocopherol is dominant according to Latif et al. (2007)]		86 (Spectro)	63 (HPLC)
Hydrocarbons and aliphatic alcohols	84 (TLC)		
Squalene		9 (GC)	

Gossypium spp.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Doubtful, oil from company (Kornfeldt and Croon 1981; Phillips et al. 2002), no details concerning the oils analyzed (Kundu and Deb 1981)

Unsaponifiable matter contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method AOCS/Ca 6a-40, 2nd edn.; extr. petroleum ether) 0.7 (method Schwartz, 1988) ≤ 1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Kundu and Deb (1981) Schwartz (1988) Codex Alimentarius (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Codex Alimentarius (2009)	Kornfeldt and Croon (1981)	Phillips et al. (2002)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)	270–640 (GC)	510 (GC)	308 (GC)
4-Methylsterols (citrostadienol is dominant)		12 (GC)	
Triterpene alcohols		17 (GC)	
Tocopherols	38–120 (HPLC)		
Tocotrienols	– (HPLC)		

Guizotia abyssinica (L.f.) Cass.—*Asteraceae*

✓ Synonym	<i>Guizotia oleifera</i> DC.
✓ Common name	Niger (Fr., Eng.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Ethiopia, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.2 (method from a book; extr. ethoxyethane)	Nakhare and Garg (1992)
	1.0 (method not indicated)	Ramadan et al. (2003)
Oil in the dried achene	33	Nakhare and Garg (1992)
	28.5–38.8	Dutta et al. (1994)

Contents in unsaponifiable fractions in achene oil

	Contents (mg/100 g of oil)		
	Ramadan et al. (2003)	Dutta et al. (1994)	Marini et al. (2003)
Unsaponifiable fractions			
Sterols (β -sitostsrol is dominant)	422 (GC)	414–528 (GC)	
Tocopherols (α -tocopherol is dominant)	195 (HPLC)	66–85 (HPLC)	76–82 (HPLC)
β -Carotene	70 ^a (HPLC)		

^aThis content seems excessive

Gundelia tournefortii L.—*Asteraceae*

✓ Organ analyzed	Achene
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.1 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1989)
Oil in the dried achene	39.2	Erciyes et al. (1989)

Gymnacranthera canarica (King) Warb.—*Myristicaceae*

✓ Synonym	<i>Myristica canarica</i> Bedd. ex King
✓ Organ analyzed	Kernel
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.7 (method AOCS)	Sreenivasan (1968)
Oil in the dried kernel	58.1	Sreenivasan (1968)

Hackelia deflexa (Wahlenb.) Opiz var. ***americana*** (A.Gray) Fernald & I.M.Johnst.—*Boraginaceae*

✓ Synonymous	<i>Hackelia americanum</i> (Gray) Fernald
✓ Common name	American stickseed (Eng.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Canada

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.3 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried achene	32	Coxworth (1965)

Hannoa undulata (Guill. & Perr.) Planch.—*Simaroubiaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Senegal, oil from a company (Martret et al. 1992)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method not indicated)	Miralles et al. (1988)
	1.0 (method IUPAC, 1987)	Martret et al. (1992)
Oil in the dried seed	55.6	Miralles et al. (1988)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
	Miralles et al. (1988)	Martret et al. (1992) ^a
Unsaponifiable fractions		
Sterols (β -sitosterol is dominant)	522 (GC)	620 (OCLC)
4-Methylsterols		50 (OCLC)
Triterpene alcohols (24-methylenecycloartenol and cycloartenol is are dominant)		115 (OCLC)
Tocopherols (α -tocopherol is dominant)		95 (OCLC)
Hydrocarbons		50 (OCLC)
Other fractions		30 (OCLC)

^aThe paper includes some results in mg/kg and others as a percentage, which is somewhat discordant

Helianthus annuus L.—*Asteraceae*

✓ Common names	Sunflower (Eng.); tournesol (Fr.);
✓ Organ analyzed	Achene
✓ Origins of the samples	15 different countries, doubtful, oil from companies (Itoh et al. 1973 ; Perretti et al. 2004 ; Kornfeldt and Croon 1981 ; Kioseoglou et al. 1987 ; McGill et al. 1993 ; Rovellini et al. 1997 ; Albi et al. 1997 ; Tuberoso et al. 2007)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.6 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.7 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.3 (method NGD C-12, 1976)	Mozzon et al. (1998)
	0.4–1.0 (method AOAC/28.092, 1984; extr. ethoxyethane)	Perretti et al. (2004)
	≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/8609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried achene	45.1	Mozzon et al. (1998)
	53.5	Rade et al. (2004)

Contents in unsaponifiable fractions in achene oil

Contents (mg/100 g of oil)									
	Fedeli et al. (1966)	Itoh et al. (1973)	Mozzon et al. (1998)	Perretti et al. (2004)	Codex Alimentarius (2009)	Rade et al. (2004)	Komfeldt and Croon (1981)	Rosell et al. (1983)	Kiosseoglou et al. (1987)
Unsaponifiable fractions									Albi et al. (1997)
Sterols (β -sitosterol is dominant)	250 (TLC)	392 (TLC)			170–520 (GC)	375 (GC)	494 (GC)	275–436 (GC)	309–312 (GC)
4-Methylsterols		112 (TLC)					78 (GC)		
Triterpene alcohols	220 (TLC)	70 (TLC)					33 (GC)		
[24-methylene cycloartanol is dominant according to Komfeldt and Croon (1981)]									
4-Methylsterols and Triterpene alcohols								18–56 (HPLC)	91 (GC)
Tocopherols (α -tocopherol is dominant)				61–152 (HPLC)	44–111 (HPLC)			72–73 (HPLC)	
Tocotrienols					– (HPLC)			– (HPLC)	
Carotenoids						0.3 (OCLC-Spectro)			
Hydrocarbons and aliphatic alcohols		126 (TLC)							
Fatty alcohols			27 (GC)						112–121 (GC)
<i>n</i> -Alkanes (C _{15–33})								11–17 (HPLC)	
Squalene			17 (GC)						18–22 (GC)
									17 (GC)

^aOil obtained by pressure

Herissantia crispa* (L.) Brizicky—*Malvaceae

✓ Synonym	<i>Abutilon crispum</i> (L.) Medik
✓ Common name	Bladdermallow (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.0 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	18.4	Rao and Lakshminarayana (1984)

Hevea brasiliensis* (Willd. ex A.Juss.) Müll.Arg.—*Euphorbiaceae

✓ Common names	Rubber tree (Eng.); hevea (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil, India, Malaysia, Nigeria, oil from company (Gandhi et al. 1990)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method BSI/684, 1976)	Achinewhu and Akpapunam (1985)
	2.1 (method AOCS, 1973)	Gandhi et al. (1990)
	2.7 (method Maxwell and Schwartz 1979)	Da Rocha Filho et al. (1992)
	1.7 (method AOCS, 1973)	Hosamani and Katagi (2008)
	1.6 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
	1.8 (method AOCS/Ca 6a-40, 1989; extr. petroleum ether)	Abdullah and Salimon (2009)
Oil in the dried seed	43	Da Rocha Filho et al. (1992)
	30.0	Hosamani and Katagi (2008)
	44.0	Oyekunle and Omode (2008)
	40.0	Abdullah and Salimon (2009)

Heynea trijuga* Roxb. ex Sims—*Meliaceae

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.9 (method AOCS, 1973)	Rao and Lakshminarayana (1987)
Oil in the dried seed	34.7	Rao and Lakshminarayana (1987)

Hibiscus cannabinus* L.—*Malvaceae[*Hibiscus cannabinus* var. *cubano* (Hopkins and Chrisholm 1959)]

✓ Common names	Kenaf (Eng.); chanvre de Madras (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Cuba, Malaysia, San Salvador, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method AOAC, 1940; extr. ethoxyethane)	Lewy (1947)
	1.0 (method not indicated)	Hopkins and Chrisholm (1959)
Oil in the dried seed	20	Lewy (1947)
	15	Hopkins and Chrisholm (1959)
	21.4–26.4	Mohamed et al. (1995)
	20.8	Nyam et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nyam et al. (2009)
Sterols (β -sitosterol is dominant)	368 (GC)
Tocopherols (γ -tocopherol is dominant)	85 (HPLC)
Squalene	4 (GC)

Hibiscus hirtus* L.—*Malvaceae

✓ Common name	Lesser mallow (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.2 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	14.6	Rao and Lakshminarayana (1985)

Hibiscus lobatus* (Murray) Kuntze—*Malvaceae

✓ Synonym	<i>Hibiscus solandra</i> l'Hér.
✓ Common name	Lobed leaf mallow (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.7 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	15.7	Rao and Lakshminarayana (1985)

Hibiscus micranthus L.f.—*Malvaceae*

✓ Common name	Tiny flower hibiscus (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.9 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	15.2	Rao and Lakshminarayana (1985)

Hibiscus moscheutos L. (hybrides)—*Malvaceae*

✓ Common names	Common rose mallow (Eng.); hibiscus des marais (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method not indicated)	Barkenbus and Thorn (1935)
Oil in the dried seed	21.9	Barkenbus and Thorn (1935)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Holser et al. (2004)
Sterols (β -sitosterol is dominant)	490 (imprecise method)

Hibiscus mutabilis L.—*Malvaceae*

✓ Common names	Confederate rose, cotton rose mallow (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS, 1971)	Rafat Husain et al. (1989)
Oil in the dried seed	11.5	Rafat Husain et al. (1989)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Holser et al. (2004)
Sterols (β -sitosterol is dominant)	500 (imprecise method)

Hibiscus obtusilobus Garcke—*Malvaceae*

✓ Synonym	<i>Hibiscus punctatus</i> Dalzell
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.2 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	13.0	Rao and Lakshminarayana (1985)

Hibiscus panduriformis Burm.f.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.4 (method AOCS, 1969)	Kittur et al. (1982)
Oil in the dried seed	15.4	Kittur et al. (1982)

Hibiscus sabdariffa L.—*Malvaceae*

✓ Common names	Roselle (Eng.); karkadé (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Spain, Malaysia, Vietnam, doubtful, oils from companies (Rukmini et al. 1982; Sarojini et al. 1985)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AOCS/Ca 6a-40, 1973; extr. petroleum ether)	Ahmad et al. (1979b)
	1.0 (method not indicated)	Rukmini et al. (1982)
	1.4 (method AOCS, 1973)	Sarojini et al. (1985)
Oil in the dried seed	16.0	Ahmad et al. (1979b)
	16.9	Matthäus et al. (2003)
	19	Mohamed et al. (2007)
	14.6	Nyam et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Matthäus et al. (2003)	Mohamed et al. (2007)	Nyam et al. (2009)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)		457 (GC)	758 (GC)
Tocopherols (γ -tocopherol is dominant)	41 (HPLC)	200 (HPLC)	82 (HPLC)
Tocotrienols	– (HPLC)		
Plastochromanol-8	4 (HPLC)		
Squalene			15 (GC)

Hibiscus surattensis L.—*Malvaceae*

✓ Common names	Bush sorrel (Eng.); oseille de Malabar (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	16.6	Rao and Lakshminarayana (1985)

Hibiscus syriacus L.—*Malvaceae*

✓ Common names	Rose-of-Sharon (Eng.); althéa (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Uzbekistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method not indicated)	Chernenko et al. (1975)
Oil in the dried seed	21.2	Chernenko et al. (1975)

Hibiscus vitifolius L.—*Malvaceae*

✓ Common name	Tropical rose mallow (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	13.3	Rao and Lakshminarayana (1985)

Hibiscus zeylanicus L.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.7 (method AOCS, 1973)	Rao and Lakshminarayana (1985)
Oil in the dried seed	13.6	Rao and Lakshminarayana (1985)

Hippophae rhamnoides L.* ssp. *rhamnoides*—*Elaeagnaceae*

*This name is a synonym of *Elaeagnus rhamnoides* (L.) A.Nelson; but this last name is very rarely used.

✓ Common names	Seabukthorn (Eng.); argousier (Fr.)
✓ Organs analyzed	Seed, fruit, mesocarp (pulp)
✓ Origins of the samples	Canada, Finland, India, Poland, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the dried seed	2.2 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Unsaponifiable matter in the fresh seed	0.6 (method AOAC, 16th edn., 1995; extr. ethoxyethane)	Kaushal and Sharma (2011) ^b
Oil in the dried seed	15.4 ^a	Chouda and Jankowski (2005)
	9.1	Schiller (1989)
	7–14.2	Yang and Kallio (2001)
Oil in the fresh seed	4.8–5.3	Kaushal and Sharma (2011) ^b
Oil in the freeze-dried fruit	11.7–20.5	Yang and Kallio (2001)
Oil in the freeze-dried pulp	11.6–24.3	Yang and Kallio (2001)

^aContent resulting from three successive extractions with different solvents

^bssp. not mentioned

Contents in unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of seed oil)			
	Chouda and Jankowski (2005)	Schiller (1989)	Arimboor et al. (2006)	Cenkowski et al. (2006)
Sterols (β -sitosterol is dominant)		1,100 (GC)	1,620 (HPLC)	772 (GC)
Tocopherols and tocotrienols (α -tocopherol is dominant)			91 (HPLC)	
Tocopherols (α -tocopherol is dominant)				420 (HPLC)
Tocotrienols (β -tocotrienol is dominant)				10 (HPLC)
Carotenoids			39 (Spectro)	22 (Spectro)
Polyprenols	19 (OCLC-TLC)			

Contents in unsaponifiable fractions in pulp or fruit oil

Unsaponifiable fractions	Contents (mg/100 g of fruit or pulp oil)		
	Schiller (1989) (fruit oil)	Arimboor et al. (2006) (pulp oil)	Cenkowski et al. (2006) (pulp oil)
Sterols (β -sitosterol is dominant)	527 (GC)	410–440 (HPLC)	600 (GC)
Tocopherols and tocotrienols (α -tocopherol is dominant)		141–160 (HPLC)	
Tocopherols (α -tocopherol is dominant)			471 (HPLC)
Tocotrienols			2 (HPLC)
Plastochromanol-8			8 (HPLC)
Carotenoids		245–281 (Spectro)	528 (Spectro)

Hiptage benghalensis (L.) Kurz—*Malpighiaceae*

✓ Synonym	<i>Hiptage madablota</i> Gaertn.
✓ Common names	Hiptage (Eng.); liane de cerf (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.9 (method not indicated)	Badami and Kudari (1970)
Oil in the dried kernel	66.7	Badami and Kudari (1970)

Hosta longipes (Franch. & Sav.) Matsum.—*Liliaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.6 (method not indicated)	Kato and Tanaka (1981)
Oil in the dried seed	28.5	Kato and Tanaka (1981)

Hura crepitans L.—*Euphorbiaceae*

✓ Common names	Sandbox tree (Eng.); sablier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AFNOR/NFT 60-205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	1.2 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
	1.0 (method AOAC, 1984; extr. ethoxyethane)	Oderinde and Ajayi (2009)
Oil in the dried seed	46.1	Miralles and Pares (1980)
	47.8	Oyekunle and Omode (2008)
	37.8	Oderinde and Ajayi (2009)

Hydnocarpus anthelminthicus Pierre ex Laness.—*Flacourtiaceae*

✓ Common name	Siamese chaulmoogra (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Thailand, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≈ 0.3 (method not indicated)	Cole and Cardoso (1939)
	0.5 (method not indicated)	Mensier (1957)
Oil in the dried seed	15–20	Mensier (1957)

Hydnocarpus kurzii (King) Warb.—*Flacourtiaceae*

✓ Common names	Chaulmoogra tree (Eng.); chaulmoogra (Fr, Eng.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	India, oil from a company (Itoh et al. 1974b)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method in another paper; extr. 2-isopropoxypropane)	Itoh et al. (1974b)
Oil in the dried kernel	23.1	Sengupta and Gupta (1973)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)
Unsaponifiable fractions	Itoh et al. (1974b)
Sterols (β -sitosterol is dominant)	188 (TLC)
4-Methylsterols	32 (TLC)
Triterpene alcohols (24-methylenecycloartanol is dominant)	40 (TLC)
Nonpolar compounds (hydrocarbons etc.)	140 (TLC)

Hyoscyamus niger L.—*Solanaceae*

✓ Common names	Black henbane (Eng.); jusquiame noire (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5–2 (method not indicated)	Mensier (1957)
Oil in the dried seed	\approx 30	Mensier (1957)
	12.6	Ramadan et al. (2007)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ramadan et al. (2007)
Sterols	1,038 (GC)
Tocopherols (γ -tocopherol is dominant)	261 (HPLC)

Hypericum perforatum L.—*Hypericaceae*

✓ Common names	St John wort (Eng.); millepertuis (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France, Montenegro, Mediterranean

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	7.3 (method IUPAC/2.401, 1979; but extr. 2-methoxy-2-methylpropane)	Ucciani et al. (1994)
	2.6 (method in a Yugoslav book)	Bojovic et al. (1992)
	2.1 (method Ph. Fr. 10/5.3.4.7, 1983; extr. ethoxyethane)	Unpublished personal work
Oil in the dried seed	27.2	Ucciani et al. (1994)
	30	Bojovic et al. (1992)
	30.6	Unpublished personal work

Hypochaeris variegata Baker—*Asteraceae*

✓ Organ analyzed	Achene
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	8.5 (method AOCS/Ca 6b-53, 1963; extr. ethoxyethane)	Quiroga et al. (2000)
Oil in the dried achene	24.7	Quiroga et al. (2000)

Hypoxis decumbens L.—*Hypoxidaceae*

✓ Synonym	<i>Hypoxis pusilla</i> Kunth
✓ Organ analyzed	Seed
✓ Origin of the sample	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.3 (method Cocks, 1933; extr. ethoxyethane)	Morice (1970)
Oil in the dried seed	32.8	Morice (1970)

Hyptis suaveolens (L.) Poit.—*Lamiaceae*

✓ Common name	Pignut (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AFNOR/NFT 60-205, 1980; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried seed	15.6	Miralles and Pares (1980)

Iberis odorata L.—*Brassicaceae*

✓ Common name	Candytuft (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method not indicated ^a)	Badami and Patil (1980)
Oil in the dried seed	26.0	Badami and Patil (1980)

^aNor in another paper mentioned by the authors

Impatiens balsamina L.—*Balsaminaceae*

✓ Common names	Garden balsam (Eng.); impatience (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.6 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1974a)
Oil in the dried seed	13.9	Itoh et al. (1974a)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Itoh et al. (1974a)
Sterols (α -spinasterol is dominant)	2,408 (TLC)
4-Methylsterols	1,736 (TLC)
Triterpene alcohols (α -amyirin is dominant)	224 (TLC)
Hydrocarbons and others nonpolar compounds	1,232 (TLC)

Iphigenia novae-zelandiae (Hook.f.) Baker—*Colchicaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.5 (method Cocks, 1933; extr. ethoxyethane)	Morice (1969a)
Oil in the dried seed	19.1	Morice (1969a)

Ipomoea cholulensis Kunth—*Convolvulaceae*

✓ Synonym	<i>Quamoclit coccinea</i> (L.) Moench.
✓ Common names	Red morning glory, star ipomoea (Eng.); ipomée à fleur rouge (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.7 (method AOCS, 1973) 2.2 (method AOCS, 1973)	Kittur et al. (1987) Daulatabad et al. (1992)
Oil in the dried seed	22.6 18	Kittur et al. (1987) Daulatabad et al. (1992)

Ipomoea hederacea Jacq.—*Convolvulaceae*

✓ Common names	Ivy-leaved morning glory (Eng.); étoile du matin, ipomée à feuille de lierre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AOCS, 1964)	Badami and Thakkar (1984c)
Oil in the dried seed	14.7	Badami and Thakkar (1984c)

Ipomoea hederifolia L.—*Convolvulaceae*

✓ Synonym	<i>Quamoclit phoenicea</i> (Roxb.) Choisy
✓ Common names	Ivy-leaved morning glory (Eng.); ipomée à feuille de lierre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AOCS, 1973)	Daulatabad et al. (1992)
Oil in the dried seed	14	Daulatabad et al. (1992)

Ipomoea horsfalliae Hook.—*Convolvulaceae*

✓ Common name	Lady Doorly's morning glory (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOCS, 1973)	Kittur et al. (1987)
Oil in the dried seed	19.8	Kittur et al. (1987)

Ipomoea marginata (Desr.) Verdc.—*Convolvulaceae*

✓ Synonym	<i>Ipomoea sepiaria</i> J. König ex Roxb.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AOCS, 1964)	Badami and Thakkar (1984a)
Oil in the dried seed	34.7	Badami and Thakkar (1984a)

***Ipomoea pes-caprae* (L.) R. Br.—Convolvulaceae**

✓ Synonym	<i>Ipomoea biloba</i> Forssk.
✓ Common names	Beach morning glory, goat's foot (Eng.); patate à Durand (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method AOCS, 1964)	Badami and Thakkar (1984c)
Oil in the dried seed	15.0	Badami and Thakkar (1984c)

***Ipomoea pileata* Roxb.—Convolvulaceae**

✓ Synonym	<i>Ipomoea involucrata</i> P. Beauv.
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOCS, 1964)	Badami and Thakkar (1984a)
Oil in the dried seed	13.8	Badami and Thakkar (1984a)

***Ipomoea quamoclit* L.—Convolvulaceae**

✓ Common names	Cypressvine (Eng.); ipomée rouge, cheveux de Vénus (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS, 1964)	Badami and Thakkar (1984c)
Oil in the dried seed	16.5	Badami and Thakkar (1984c)

***Irvingia gabonensis* (Aubry-Lecomte ex O'Rorke) Baill.—Irvingiaceae**

✓ Common names	African wild mango, dikanut (Eng.); manguier sauvage (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.1 (method in another paper; extr. petroleum ether) 1.7 ^b (method AOCS, 1973)	Njoku and Ugwuanyi (1997) ^a Onyeike and Acheru (2002)
Oil in the dried seed	54 62.8	Njoku and Ugwuanyi (1997) Onyeike and Acheru (2002)

^aNjoku and Ugwuanyi (1997) indicates a sterol content of 800 mg/100 g oil and β -carotene 70 mg/100 g oil, but the experimental conditions are too briefly described and the results questionable

^bSeveral other unsaponifiable contents in the paper are excessive

Irvingia malayana Oliv. ex A.W.Benn.—*Irvingiaceae*

✓ Organ analyzed	“Nut”
✓ Origin of the sample	Cambodia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the “nut” oil	1.2 (method ISO/3596-1, 1988; extr. ethoxyethane)	Bandelier et al. (2002)
Oil in the dried “nut”	70.3	Bandelier et al. (2002)

Isatis tinctoria L.—*Brassicaceae*

✓ Common names	Dyer’s woad, woad (Eng.); pastel (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the dried kernel	0.8 (method not indicated)	Iba et al. (1992)
Oil in the dried kernel	30.7	Iba et al. (1992)

Jatropha curcas L.—*Euphorbiaceae*

✓ Common names	Barbados nut (Eng.); pourghère, pignon d’Inde (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Benin, Nigeria, Republic of the Congo, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method DGF/C-III, 1953)	Franzke et al. (1971)
	1.5 (method Hendrikse et al. 1994; extr. ethoxyethane)	Abigor et al. (1997)
	0.8 (method AOAC, 1995; extr. ethoxyethane)	Akintayo (2004)
	0.8 (IUPAC, 1987)	Djenontin et al. (2006)
	3.8 (method described; extr. ethoxyethane)	Adebowale and Adedire (2006)
	1.3 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
	0.9 (method AOAC; extr. ethoxyethane)	Nzikou et al. (2009)
Oil in the dried seed	52.0	Franzke et al. (1971)
	50.5	Abigor et al. (1997)
	47.2	Akintayo (2004)
	66.4	Adebowale and Adedire (2006)
	37.4	Oyekunle and Omode (2008)
	48.5	Nzikou et al. (2009)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Djenontin et al. (2006)	Adebowale and Adedire (2006)
Sterols (β -sitosterol is dominant)	130 (GC)	2,200 (TLC)
Tocopherols (γ -tocopherol is dominant)	20 (HPLC)	

Jatropha gossypifolia L.—*Euphorbiaceae*

✓ Common name	Bellyache bush (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method AOCS, 1964)	Badami and Thakkar (1984b)
	2.1 (method AOCS, 1973)	Hosamani and Katagi (2008)
Oil in the dried seed	18.0	Badami and Thakkar (1984b)
	32.0	Hosamani and Katagi (2008)

Jatropha integerrima Jacq.—*Euphorbiaceae*

✓ Synonym	<i>Jatropha panduraefolia</i> Andrews
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.8 (method AOCS, 1973)	Rao and Lakshminarayana (1987)
Oil in the dried seed	33.2	Rao and Lakshminarayana (1987)

Jatropha podagrica Hook.—*Euphorbiaceae*

✓ Common names	Gout plant, Buddha belly plant (Eng.); plante bouteille (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.3 (method AOCS, 1973)	Rao and Lakshminarayana (1987) ^a
Oil in the dried seed	34.1	Rao and Lakshminarayana (1987) ^a

^aName of the plant given by authors: *Jatropha podagrica**Jubaea chilensis* (Molina) Baill.—*Arecaceae*

✓ Synonym	<i>Jubaea spectabilis</i> Kunth
✓ Common names	Chilean cocopalm, Chilean winepalm (Eng.); cocotier du Chili (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Chile, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.2 (method not indicated)	Lathrap (1922)
Oil in the dried seed	68.2	Lathrap (1922)
	66.1–70.3	Masson et al. (2008)

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Masson et al. (2008)
Sterols (β -sitosterol is dominant)	97–103 (GC)
Tocopherols	7–9 (HPLC)

Juglans mandshurica Maxim.—*Juglandaceae*

✓ Common names	Manchurian walnut (Eng.); noyer de Mandchourie (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel	0.4 (method not indicated)	Umarov et al. (1970)
Oil in the dried kernel	66.2	Umarov et al. (1970)

Juglans regia L.—*Juglandaceae*

✓ Common names	English walnut (Eng.); noyer (Fr.)	
✓ Organ analyzed	Kernel	
✓ Origins of the samples	China, France, Hungary, India, Italy, New Zealand, Portugal, Spain, Turkey, USA, doubtful, oils from companies (Kallel 1981; Lavedrine et al. 1997; Schwartz et al. 2008)	

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel	0.5 (method Schwartz, 1988)	Schwartz (1988)
	0.5 (method described; extr. <i>n</i> -hexane)	Özcan (2009)
	0.6–0.8 (method described; extr. <i>n</i> -hexane and then 2-isopropoxypropane)	Kallel (1981)
Oil in the dried kernel	64.2	Özcan (2009)
	62.3–66.3	Amaral et al. (2003)
	64.2–68.9	Savage et al. (1999)

Contents in unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)								
Unsaponifiable fractions	Kallel (1981)	Amaral et al. (2003)	Savage et al. (1999)	Lavedrine et al. (1997)	McGill et al. (1993)	Maguire et al. (2004)	Crews et al. (2005)	Schwartz et al. (2008)
Sterols (β -sitosterol is dominant)	174–270 (TLC)	121–203 (GC)					90–283 (GC)	234 (GC)
4-Methyl- sterols (citra-stadienol is dominant)	32–76 (TLC)							
Triterpene alcohols (Cycloartenol is dominant)	50–180 (TLC)							
Tocopherols (γ -tocopherol is dominant)	22–32 (HPLC)		27–44 (HPLC)	27–35 (HPLC)			31–63 (HPLC) – (HPLC)	50 (HPLC) 0.3 (HPLC)
Tocotrienols					1–3 (HPLC)			
<i>n</i> -Alkanes (C _{15–33})						1 (HPLC)		
Squalene	0–3 (GC)							

Juncus* spp.—*Juncaceae
(Nine species analyzed)

✓ Organ analyzed	Seed
✓ Origins of samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiables in the seed	5–20 (method Cocks, 1933; extr. ethoxyethane)	Morice (1967)
Oil in the dried seed	8–22	Morice (1967)

Juniperus communis* L.—*Cupressaceae

✓ Common names	Common juniper (Eng.); genévrier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AOCS, 1973)	Mannan et al. (1984)
Oil in the dried seed	20.1	Mannan et al. (1984)

Khaya ivorensis* A.Chev.—*Meliaceae

✓ Common names	African-Mahogany (Eng.); acajou d'Afrique (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method AOAC, 1990; extr. ethoxyethane)	Oyekunle and Omode (2008)
Oil in the dried seed	48.3	Oyekunle and Omode (2008)

Khaya senegalensis* (Desv.) A.Juss.—*Meliaceae

✓ Common names	Dry-zone mahogany (Eng.); acajou du Sénégal (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Nigeria, Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane) 0.6 (method not indicated ^a) 1.5 (imprecise method)	Miralles and Pares (1980) Badami et al. (1985) Ayo et al. (2007)
Oil in the dried seed	58.5 66.6 28.5	Miralles and Pares (1980) Badami et al. (1985) Ayo et al. (2007)

^aNor in another paper mentioned by the authors

Contents in unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β-carotene	<0.1 (Spectro)

Knema attenuata (Hook. f. & Thoms.) Warb.—*Myristicaceae*

✓ Synonym	<i>Myristica attenuata</i> Wall.
✓ Organ analyzed	Kernel
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	4.6 (method AOCS)	Sreenivasan (1968)
Oil in the dried kernel	41.2	Sreenivasan (1968)

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Chapter 5

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species L to N

Laburnum anagyroides Medik.—*Fabaceae*

✓ Common names	Common laburnum (Eng.); cytise commun (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	11.6 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	113 (OCLC-TLC)

Lactuca sativa L.—*Asteraceae*

✓ Common names	Lettuce (Eng.); laitue (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.0 (method Schwartz 1988) 3.0 (method Ph. Fr. 10/V.3.4.7, 1983; extr. ethoxyethane)	Schwartz (1988) Unpublished personal work
Oil in the dried achene	33.0	Unpublished personal work

Lactuca serriola L. var. *oleifera*—*Asteraceae*

✓ Synonym	<i>Lactuca scariola</i> L. var. <i>oleifera</i>
✓ Common names	Prickly lettuce (Eng.); laitue d’Egypte, laitue du Soudan (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Egypt

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.1 (method AOAC, 1960; but extr. petroleum ether) 4.6 (method AOAC, 1960; extr. ethoxyethane) ≤1.5 (g/100 ml) ^a (method in an Egyptian book)	Ramadan (1976) Ramadan (1976) Said et al. (1996)
Oil in the dried achene	29.2–32 20 ^a	Ramadan (1976) Said et al. (1996)

^aOil obtained by pression*Lagenaria breviflora* (Benth.) Roberty—*Cucurbitaceae*

✓ Synonym	<i>Adenopus breviflorus</i> Benth.
✓ Common names	Wild colocynth (Eng.); calebasse tigrée (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method described; extr. ethoxyethane)	Esuoso et al. (2000)
Oil in the dried seed	55.1	Esuoso et al. (2000)

Contents of unsaponifiable fractions in seed oil

	Content (mg/100 g of oil)
Unsaponifiable fraction	Esuoso et al. (2000)
Hydrocarbons	1,000 (TLC)

Lagenaria siceraria (Molina) Standl.—*Cucurbitaceae*

✓ Synonyms	<i>Lagenaria vulgaris</i> Ser.; <i>L. leucantha</i> (Duchesne ex Lam.) Rusby
✓ Common names	Bottle gourd (Eng.); calebasse, gourde bouteille (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India, Japan, Nigeria, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.7 (method AOCS/Ca 6a-40, 1948; extr. petroleum ether)	Chowdhury et al. (1955)
	1.2 (method in another paper: Hudson 1984; extr. ethoxyethane)	Badifu (1991a)
	1.3 (method not indicated)	Itoh et al. (1980)
Oil in the dried kernel	45.1	Chowdhury et al. (1955)
	27.2–28.6 ^a	Badifu (1991a)

^aOil obtained by pressure

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Akihisa et al. (1986)	Badifu (1991b)
Sterols	887 (TLC)	
β-Carotene		<2 (Spectro)

Lallemantia iberica (M. Bieb.) Fisch. & C.A.Mey.—*Lamiaceae*

✓ Common name	Dragon's head (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France, Morocco, Russia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method not indicated)	Steger and Van Loon (1944)
	1.3–1.5 (method not indicated)	Dangoumau and Debruyne (1953)
Oil in the dried seed	31.0	Steger and Van Loon (1944)
	30.4–31.8	Dangoumau and Debruyne (1953)

Lappula echinata Gilib.—*Boraginaceae*

✓ Common names	European stickseed, bluebur (Eng.); bardanette (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Canada

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.0 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried achene	26	Coxworth (1965)

Larix decidua Mill.—*Pinaceae*

✓ Synonym	<i>Larix europaea</i> DC.
✓ Common names	European larch (Eng.); mélèze commun (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Poland, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.8 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	9.6 ^a	Chouda and Jankowski (2005)
	≈10	Mensier (1957)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	10 (OCLC-TLC)

Laurus nobilis L.—*Lauraceae*

✓ Common names	Laurel (Eng.); laurier (Fr.)
✓ Organs analyzed	Fruit, seed
✓ Origins of the samples	Italy, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the fruit oil	6.8 (method not indicated)	Frega et al. (1982)
Oil in the dried fruit	37.9	Frega et al. (1982)
Oil in the dried seed	28	Beis and Dunford (2006)

Leonotis nepetifolia (L.) R.Br.—*Lamiaceae*

✓ Common names	Lion's-tail (Eng.); pompon soldat (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Porto Rico

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.1 (method AOAC, 1935; extr. ethoxyethane)	Asenjo et al. (1945)
	2.5 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	28	Asenjo et al. (1945)
	25.0	Badami and Patil (1975)

Leonurus sibiricus L.—*Lamiaceae*

✓ Common names	Siberian motherwort (Eng.); Marihuanilla (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	16.0	Badami and Patil (1975)

Lepidium sativum L.—*Brassicaceae*

✓ Common names	Garden cress (Eng.); cresson alénois (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, Morocco, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bettach et al. (1996)
	0.5 ^a (method described; extr. ethoxyethane)	Patel et al. (2010)
Oil in the dried seed	23	Bettach et al. (1996)
	32.1 ^a	Patel et al. (2010)
	22.7	Moser et al. (2009)

^aOil obtained by pressure

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Moser et al. (2009)
Sterols	1,441 (GC)
Tocopherols (γ -tocopherol is dominant)	178 (HPLC)

Lesquerella fendleri (A. Gray) S. Watson—*Brassicaceae*

✓ Common name	Fendler's bladderpod (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6–1.7 (method AOCS/Ca 6b-53, 1983; extr. ethoxyethane)	Carlson and Kleiman (1993)
Oil in the dried seed	25	Carlson and Kleiman (1993)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Lechner et al. (1999)
Sterols	1,485 (CL-GC)

Leucas aspera (Willd.) Link—*Lamiaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	23.0	Badami and Patil (1975)

Libertia spp.—*Iridaceae*

(Four species analyzed)

✓ Organ analyzed	Seed
✓ Origins of samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0–13.2 (method Cocks 1933; extr. ethoxyethane)	Morice (1969)
Oil in the dried seed	6.8–20.4	Morice (1969)

Licania arborea Seem.—*Chrysobalanaceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Mexico

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated)	Rose and Jamieson (1943)
Oil in the dried kernel	68.9	Rose and Jamieson (1943)

Licania rigida Benth.—*Chrysobalanaceae*

✓ Common names	Oiticica (Eng.); oiticica (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Brazil, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method not indicated) 0.6 (method described; extr. ethoxyethane)	McKinney and Jamieson (1936) Fedeli et al. (1966)
Oil in the dried kernel	56	Bergter and Seidl (1984)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Fedeli et al. (1966)
Sterols	510 (TLC)
Triterpene alcohols	20 (TLC)

Ligustrum lucidum W.T.Aiton—*Oleaceae*

✓ Common names	Chinese privet (Eng.); troène luisant (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the samples	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	11 (method AOCS/Ca 6b-53, 1963; extr. ethoxyethane)	Perez et al. (2001)
Oil in the dried seed	8.7–10.0	Perez et al. (2001)

Ligustrum sinense Lour.—*Oleaceae*

✓ Common names	Chinese privet (Eng.); troène luisant (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	18 (method AOCS/Ca 6b-53, 1963; extr. ethoxyethane)	Perez et al. (2001)
Oil in the dried seed	10.7	Perez et al. (2001)

Limnanthes douglasii R.Br.—*Limnanthaceae*

✓ Common names	Meadowfoam, poached eggplant (Eng.); oeuf sur le plat (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Austria, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method not indicated)	Miwa and Wolff (1962)
Oil in the dried seed	26.6	Miwa and Wolff (1962)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Lechner et al. (1999)
Sterols	667–761 (LC-GC)

Limonia acidissima L.—*Rutaceae*

✓ Synonym	<i>Feronia elephantum</i> Corrêa
✓ Common name	Indian wood apple (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method AOCS, 1973)	Ramakrishna et al. (1979)
Oil in the dried seed	34.0	Ramakrishna et al. (1979)

Lindera umbellata Thunb.—*Lauraceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated)	Hopkins et al. (1966)
Oil in the dried seed	52.1	Hopkins et al. (1966)

Linum usitatissimum L.—*Linaceae*

✓ Common names	Flax (Fr.); lin (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Italy, Germany, Tunisia, Turkey, doubtful, oils from companies (Itoh et al. 1973; Choo et al. 2007; Kornfeldt and Croon 1981; Gruszka and Kruk 2007; Tuberoso et al. 2007; Schwartz et al. 2008)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.7 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	0.9 (method Schwartz, 1988)	Schwartz (1988)
	0.4–0.7* (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Choo et al. (2007)
Oil in the dried seed	29.9–40.1**	Velasco and Goffman (2000)
	33.6	Bozan and Temelli (2008)

*Oil obtained by pressure
**Seeds of de subspecies “*usitatissimum*”

Contents of unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)									
	Fedeli et al. (1966)	Itoh et al. (1973)	Velasco and Goffman (2000)	Bozan and Temelli (2008)	Kornfeldt and Croon (1981)	Gruszka and Kruk (2007)	Tuberoso et al. (2007) ^a	Schwartz et al. (2008)	Herchi et al. (2009a)
Unsaponifiable fractions	500 (TLC)	420 (TLC)			471 (GC)		689 (GC)		Herchi et al. (2009b)
Sterols [β -sitosterol is dominant according to Kornfeldt and Croon (1981) but not according to Schwartz et al. (2008)]									\approx 260–500 (GC)
4-Methylsterols		49 (TLC)			39 (GC)				7–19 (GC)
Triterpene alcohols [cycloartenol is dominant according to Kornfeldt and Croon (1981)]	120 (TLC)	154 (TLC)			246 (GC)				\approx 100–240 (GC)
Tocopherols (γ -tocopherol is dominant)			38–47 (HPLC)	77 (HPLC)		22–42 (HPLC)		54 (HPLC)	
Tocotrienols (δ -tocotrienol is dominant)				3 (HPLC)		<1 (HPLC)		– (HPLC)	
Plastochromanol-8			13–20 (HPLC)			17–30 (HPLC)			4–5 (GC)
Hydrocarbons and other nonpolar compounds		77 (TLC)					– (GC)		<1 (GC)
Squalene									

^aOil obtained by pressure

Litsea longifolia (Nees) Trimen—*Lauraceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Ceylon

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.4 (method not indicated)	Child and Nathanael (1942)
Oil in the dried kernel	29.0	Child and Nathanael (1942)

Lophira alata Banks ex C.F.Gaertn.—*Ochnaceae*

✓ Synonym	<i>Lophira procera</i> A. Chev.
✓ Common names	Red ironwood (Eng.); azobé (Fr., Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Sierra Leone

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7–1.4 (method not indicated)	Hilditch et al. (1951)
	0.9 (method AOCS, 1975)	Essien et al. (1989)
Oil in the dried seed	40.0–60.6	Hilditch et al. (1951)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β-carotene	<0.1 (OCLC-Spectro)

Lovoa trichilioides Harms—*Meliaceae*

✓ Common names	African walnut (Eng.); noyer du Gabon (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method AOCS, 1975)	Essien et al. (1989)
Oil in the dried seed	25.9	Balogun and Fetuga (1985)

Contents of unsaponifiable fractions in oil

	Contents (mg/100 g of oil)
Unsaponifiable compound	Essien et al. (1989)
β-carotene	<0.1 (OCLC-Spectro)

Ludwigia longifolia (DC.) H.Hara—*Onagraceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method AOCS, 1973)	Zygadlo et al. (1994)
Oil in the dried seed	13.9	Zygadlo et al. (1994)

Ludwigia peruviana (L.) H.Hara.—*Onagraceae*

✓ Common name	Peruvian primrose-willow (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method AOCS 1973)	Zygadlo et al. (1994)
Oil in the dried seed	10.1	Zygadlo et al. (1994)

Luffa acutangula (L.) Roxb.—*Cucurbitaceae*

✓ Common names	Angled loofah; ridge gourd (Eng.); pipangaye côtelée (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of samples	Bangladesh, Canada, India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated)	Chakrabarty et al. (1955)
	1.7 (method not indicated)	Badami and Daulatabad (1967)
	1.2–1.7 (method in an Indian book; extr. petroleum ether or ethoxyethane?)	Ali et al. (2009)
Unsaponifiable matter in the kernel oil	1.0 (method AOCS/Ca 6a-40, 1974)	Kamel and Blackman (1982)
Oil in the dried seed	19.9	Chakrabarty et al. (1955)
	20.0	Badami and Daulatabad (1967)
	23.2–28.2	Ali et al. (2009)
Oil in the dried kernel	44.3	Kamel and Blackman (1982)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)
Unsaponifiable fraction	Akihisa et al. (1986)
Sterols (Stigmasta-7,22,25-trien-3 β -ol is dominant)	654 (TLC)

Luffa aegyptiaca Mill.—*Cucurbitaceae*

✓ Synonym	<i>Luffa cylindrica</i> (L.) Roem.
✓ Common names	Loofah, spongy gourd (Eng.); courge-éponge (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, India, USA, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method not indicated)	Chakrabarty et al. (1955)
	1.5 (method not indicated)	Badami and Daulatabad (1967)
	1.4 (method AOCS, 1957)	Osman et al. (1969)
	2.3 (method not indicated)	Rathanam and Sail (1998)
Oil in the dried seed	20.3	Chakrabarty et al. (1955)
	17.9	Badami and Daulatabad (1967)
	24	Rathanam and Sail (1998)
	19.5	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable Fractions	Matthäus et al. (2003) Akihisa et al. (1986)
Sterols (Stigmasta-7,22,25-trien-3 β -ol is dominant)	316 (TLC)
Tocopherols (γ -tocopherol is dominant)	33 (HPLC)
Tocotrienols and plastochromanol-8	-(HPLC)

Luffa echinata Roxb.—*Cucurbitaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS/Ca 6a-40,1998; extr. petroleum ether)	Mariod et al. (2009a)
Oil in the dried seed	23.8	Mariod et al. (2009a)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Mariod et al. (2009a)
Tocopherols	2 (HPLC)

Lunaria annua ssp. *annua* L.—*Brassicaceae*

✓ Common names	Money plant (Eng.); monnaie du Pape (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method not indicated)	Miwa and Wolff (1963)
	0.9 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	28.6	Ferlay et al. (1993)

Lupinus albus L.—*Fabaceae*

✓ Synonyms	<i>Lupinus termis</i> Forssk.; <i>Lupinus albus</i> L. var. <i>albus</i>
✓ Common names	White lupin (Eng.); lupin blanc (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Argentina, Chile, England, Sudan, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.5 (method not indicated)	Grindley and Akour (1955)
	1.3 (method IUPAC/II.D.5, 1973; extr. petroleum ether)	Hudson et al. (1983)
	2.1–2.8 (method in another paper; extr. ethoxyethane)	Hamama and Bhardwaj (2004)
Oil in the dried seed	9.9	Grindley and Akour (1955)
	9.2	Hudson et al. (1983)
	11.6–15.6	Fuentes and Planchuelo (1997)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Hudson et al. (1983)	Hamama and Bhardwaj (2004)
Sterols (β -sitosterol is dominant)	377 (TLC)	453–697 (TLC)
4-Methylsterols	-(TLC)	
Triterpene alcohols (lupeol is dominant)	364 (TLC)	391–557 (TLC)

Lupinus mutabilis Sweet—*Fabaceae*

✓ Common names	Tarwi, Andean lupin (Eng.); lupin changeant (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	England, Peru

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method IUPAC/II.D.5, 1973; extr. petroleum ether)	Hudson et al. (1983)
	1.0 ^a (method not indicated)	Hatzold et al. (1983)
Oil in the dried seed	13.1	Hudson et al. (1983)
	12.8–22.2	Hatzold et al. (1983)

^aRefined oil

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Hudson et al. (1983)	Hatzold et al. (1983)
Sterols (β-sitosterol is dominant)	336 (TLC)	
4-Methylsterols	– (TLC)	
Triterpene alcohols (lupeol is dominant)	324 (TLC)	
Tocopherols (α- and γ-tocopherols are dominant)		53 (Spectro)

Lythrum salicaria L.—*Lythraceae*

✓ Common names	Purple loosestrife (Eng.); salicaire (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	12.1	Ferlay et al. (1993)

Macadamia integrifolia Maiden & Betche—*Proteaceae**Macadamia tetraphylla* L.A.S.Johnson—*Proteaceae*

And their hybrids

✓ Common names	Macadamia nut (Eng.), macadamia (Fr., Eng.); macadamier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Egypt, New Zealand, USA (Hawai), doubtful Kaijser et al. (2000); <i>Macadamia tetraphylla</i> ; Wall (2010); <i>M. integrifolia</i>

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.3 (method Schwartz, 1988)	Schwartz (1988)
	1.2 (method AOAC, 1975; extr. ethoxyethane)	Farag et al. (1990)
	0.3 (method AOAC, 1975, but extr. <i>n</i> -hexane)	Farag et al. (1990)
	0.3 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	71.5	Farag et al. (1990)
	73.9–77.6	Kornsteiner et al. (2006)
	69.1–78.4	Kaijser et al. (2000)
	59.2	Maguire et al. (2004)
	63.9–71.9	Wall (2010)

Contents of unsaponifiable fractions in kernel oil

Unsaponifiable fractions	Contents (mg/100 g of oil)				
	Farag et al. (1990)	Kornsteiner et al. (2006)	Kaijser et al. (2000)	Maguire et al. (2004)	Wall (2010)
Sterols [β -sitosterol is dominant according to Kaijser et al. (2000); campesterol is dominant according to Farag et al. (1990)]			112–155 (method not indicated)	162 (HPLC)	
Tocopherols (α -tocopherol is dominant)		-(HPLC)	2–5 (HPLC)	12 (HPLC)	<1 (HPLC)
Tocotrienols					3–9 (HPLC)
β -Carotene		-(HPLC)			
Saturated hydrocarbons (22- <i>n</i> -docosane is dominant)	292 or 1,032? ^a (GC)				
Squalene				19 (HPLC)	7–17 (HPLC)

^aThe authors of the paper indicate 86.29% of hydrocarbons/unsaponifiable matter, without specifying which extractive solvent (hexane or ethoxyethane) was used for unsaponifiable determination

Madhuca longifolia (J.König ex L.) J.F.Macbr.—*Sapotaceae*

✓ Common names	Butter tree, mahua (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method described; extr. petroleum ether)	Ramadan et al. (2006)
Oil in the dried seed	58	Ramadan et al. (2006)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ramadan et al. (2006)
Sterols (isofucosterol is dominant)	394 (GC)
Tocopherols (γ -tocopherol is dominant)	197 (HPLC)

Madhuca longifolia var. *latifolia* (Roxb.) A.Chev.—*Sapotaceae*

✓ Synonym	<i>Madhuca latifolia</i> (Roxb.) J.F.Macbr.
✓ Common name	Mowra butter tree (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of samples	India, oil from companies (Rukmini 1990; Dhara et al., 2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	3.2 (method AOAC, 1984; extr. ethoxyethane)	Rukmini (1990)
	2.4 (method described; extr. petroleum ether)	Dhara et al. (2010)
Oil in the dried kernel	45	Rukmini (1990)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Dhara et al. (2010)
Sterols (β -sitosterol is dominant) and 4-methyl-sterols	725 (TLC)
Triterpene alcohols	935 (TLC)
Fatty alcohols	515 (TLC)
Hydrocarbons	225 (TLC)

Madhuca pasquieri (Dubard) H.J.Lam.—*Sapotaceae*

✓ Synonym	<i>Bassia pasquieri</i> Lecomte
✓ Organ analyzed	Seed
✓ Origin of the sample	Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6 (method DGF/C-III, 1953)	Franzke et al. (1971)
Oil in the dried seed	45.5	Franzke et al. (1971)

Magnolia champaca* (L.) Baill. ex Pierre—*Magnoliaceae

✓ Synonym	<i>Michelia champaca</i> L.
✓ Common names	Champak (Eng.); champaca (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6 (method AOCS, 1973) 2.0 (method AOCS, 1973)	Mandal and Maity (1992) Hosamani et al. (2009)
Oil in the dried seed	30.9 45.0	Mandal and Maity (1992) Hosamani et al. (2009)

Mallotus japonicus* (L.f.) Müll.Arg.—*Euphorbiaceae

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
Oil in the dried seed	42	Jeong et al. (1974)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Jeong et al. (1974)
Sterols	270 (TLC)
4-Methylsterols	54 (TLC)
Triterpene alcohols [24-methylene-cycloartanol is dominant according to Jeong et al. (1975)]	54 (TLC)
Hydrocarbons and others nonpolar compounds	222 (TLC)

Mallotus philippinensis* (Lam.) Müll. Arg.—*Euphorbiaceae

✓ Common name	Kamala (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0–2.2 (method not indicated) 2.0–2.5 (method not indicated)	Chakrabarty and Bhattacharyya (1957) Mensier (1957)
Oil in the dried seed	20	Mensier (1957)

Malus domestica Borkh.—*Rosaceae*

✓ Synonyms	<i>Pyrus malus</i> L.; <i>Malus pumila</i> Auct.
✓ Common names	Apple (Eng.); pommier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, China, New Zealand, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3–4.4 (method Cocks 1933; extr. ethoxyethane)	Morice et al. (1971)
	0.9 (method Schwartz, 1988)	Schwartz (1988)
	1.7 (method AOAC, 1970; extr. ethoxyethane)	Yu et al. (2007)
Oil in the dried seed	22.1–30.0	Morice et al. (1971)
	27.7	Yu et al. (2007)
	21.5	Zlatanov et al. (1998); Zlatanov and Ivanov (1999)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)
Sterols (β -sitosterol is dominant)	\approx 300 (TLC)	
Tocopherols (α -tocopherol is dominant)	176 (HPLC)	
Tocotrienols	-(HPLC)	

Malva parviflora L.—*Malvaceae*

✓ Common names	Cheeseweed (Eng.); mauve à petite fleur (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method AOCS, 1957)	Osman et al. (1969)
Oil in the dried seed	11.0	Bohannon and Kleiman (1978)

Mangifera indica L.—*Anacardiaceae*

✓ Common names	Mango (Eng.); manguier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Egypt, India, Madagascar, Democratic Republic of Congo, oil from a company (Dhara et al. 2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.3–2.2 (method AOCS/Ca 6b-53, 1963; extr. ethoxyethane)	Van Pee et al. (1981)
	1.0–5.3 (method AOCS, 1973)	Lakshminarayana et al. (1983)
	0.9 (method not indicated)	Badami and Alagawadi (1983)
	0.9–3.2 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Gaydou and Bouchet (1984)
	1.6 (method AOCS, 1973)	Hemavathy et al. (1987)
	2.8 (method described; extr. ethoxyethane)	Abdalla et al. (2007)
	2.0 (method described; extr. petroleum ether)	Dhara et al. (2010)
Oil in the dried kernel	6.8–12.6	Van Pee et al. (1981)
	3.7–12.6	Lakshminarayana et al. (1983)
	12.0	Badami and Alagawadi (1983)
	24–38	Gaydou and Bouchet (1984)
	11.6	Hemavathy et al. (1987)
	12.3	Abdalla et al. (2007)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Abdalla et al. (2007)	Dhara et al. (2010)
Sterols (β -sitosterol is dominant)	630 (GC)	
Sterols and 4-methylsterols		1,020 (TLC)
Triterpene alcohols		160 (TLC)
Tocopherols (α -tocopherol is dominant)	333 (GC)	
Fatty alcohols		160 (TLC)
Hydrocarbons		660 (TLC)
Squalene	1,070 (GC)	

Manicaria saccifera Gaertn.—*Arecaceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Trinidad

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.05 (method not indicated)	Collin (1933)
Oil in the dried kernel	57.7	Collin (1933)

Manihot esculenta Crantz—*Euphorbiaceae*

✓ Synonymous	<i>Manihot utilissima</i> Pohl
✓ Common names	Cassava (Eng.); manioc (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	India, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method AOCS, 1974) 2.0 (method described by Egan et al., 1981; extr. ethoxyethane)	Prasada Rao et al. (1980b) Popoola and Yangomodou (2006)
Oil in the dried seed	26.1 25.0	Prasada Rao et al. (1980b) Popoola and Yangomodou (2006)
Oil in the dried kernel	49.0	Prasada Rao et al. (1980b)

Manilkara hexandra (Roxb.) Dubard—*Sapotaceae*

✓ Synonym	<i>Mimusops hexandra</i> Roxb
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the seed oil	4.0 (method described; extr. ethoxyethane)	Saeed et al. (1991)
Oil in the dried kernel	45–50	Mensier (1957)

Manilkara zapota (L.) Royen—*Sapotaceae*

✓ Synonym	<i>Achras sapota</i> L.
✓ Common names	Sapote, sapodilla (Eng.); sapotier, sapotillier (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.1 (method BS/684, 1958; extr. ethoxyethane)	Ahmad et al. (1995)
Oil in the dried kernel	19.8	Ahmad et al. (1995)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Ahmad et al. (1995)
Sterols	213 (TLC)
Fatty alcohols	353 (TLC)
Hydrocarbons	494 (TLC)

Mauritia flexuosa L.f.—*Arecaceae*

✓ Synonym	<i>Mauritia vinifera</i> C. Mart.
✓ Common names	Muriti (Eng.), aguaje (Eng., Fr.); buriti (Fr.)
✓ Organs analyzed	Mesocarp (pulp) with or without epicarp, uncertain
✓ Origins of the samples	Brazil, Peru, oil from a company (Silva et al. 2009)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	0.5–0.9 (method IUPAC, 1979)	Lognay et al. (1987)
Unsaponifiable matter in the dried pulp with epicarp oil	0.5 (method AOAC/933.08, 1998; extr. ethoxyethane)	Jacobo et al. (2009)
Unsaponifiable matter in the mixed oils from a factory (organ not indicated)	0.5 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Silva et al. (2009)
Oil in the dried pulp	22.0	Lognay et al. (1987)
Oil in the fresh pulp with epicarp	18.1 (33.3 in the dried pulp with epicarp)	Jacobo et al. (2009)

Contents of unsaponifiable fractions in oil

	Contents(mg/100 g of pulp oil)	Contents (mg/100 g of oil)
Unsaponifiable fractions	Lognay et al. (1987)	Silva et al. (2009) ^a
Sterols (β -sitosterol is dominant)	70 (method not explicit)	
Carotenoids	173 (method not explicit)	90 (HPLC)
Tocopherols	82–97 (method not explicit)	149 (HPLC)
Tocotrienols		3 (HPLC)

^aMixed oils from a factory (organ not indicated)*Medicago sativa* L.—*Fabaceae*

✓ Common names	Alfalfa (Eng.); luzerne (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Japan, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	May exceed 4 (method not indicated) 3.3 (method described; extr. 2-isopropoxypropane) 4.4 (method Schwartz DP, 1988)	Mensier (1957) Itoh et al. (1974) Schwartz (1988)
Oil in the dried seed	7–11 9.5	Mensier (1957) Itoh et al. (1974)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Itoh et al. (1974)
Sterols	1,914 (TLC)
4-Methylsterols (obtusifoliol is dominant)	165 (TLC)
Triterpene alcohols (β -amyrin is dominant)	990 (TLC)
Hydrocarbons and others nonpolar compounds	231 (TLC)

Mentzelia lindleyi Torr. & A.Gray—Loasaceae

✓ Common name	Blazing star (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried seed	33	Coxworth (1965)

Mesua ferrea L.—Clusiaceae

✓ Common names	Ceylon ironwood, Indian rose chestnut (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Bangladesh, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.9 (method AOCS)	Sreenivasan (1968)
	2.7 (method of Fedeli et al., 1966; extr. ethoxyethane)	Konwer et al. (1989)
	2.7 (method AOCS, 1975)	De and Bhattacharyya (1999)
	1.4–1.5 (imprecise method)	Abu Sayeed et al. (2004)
Oil in the dried kernel	61.7	Sreenivasan (1968)
	75.1	Konwer et al. (1989)
	67–70	Abu Sayeed et al. (2004)

Microula sikkimensis (C.B. Clarke) Hemsl.—Bignoniaceae

✓ Organ analyzed	Seed
✓ Origin of the sample	China

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method described; extr. ethoxyethane)	Li et al. (2000)
Oil in the dried seed	42.3	Li et al. (2000)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Li et al. (2000)
Sterols	529 (HPLC)
4-Methylsterols	160 (HPLC)
Triterpene alcohols	247 (HPLC)
Hydrocarbons	186 (HPLC)

Millingtonia hortensis L.f.—*Bignoniaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6 (method AOCS, 1973)	Rao and Lakshminarayana (1987)
Oil in the dried seed	39.5	Rao and Lakshminarayana (1987)

Mimusops elengi L.—*Sapotaceae*

✓ Common names	Bullet wood tree (Eng.); coing de Chine (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1–1.5 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the seed oil	6.4 (method described; extr. ethoxyethane)	Saeed et al. (1991)
Oil in the dried kernel	16–21	Mensier (1957)

Mitracarpus hirtus (L.) DC.—*Rubiaceae*

✓ Synonym	<i>Mitracarpus villosus</i> (Sw.) Cham. & Schltdl. ex DC.
✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method not indicated)	Mariod and Matthäus (2008)
Oil in the dried seed	11.5	Mariod and Matthäus (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mariod and Matthäus (2008)
Tocopherols (γ -tocopherol is dominant)	49 (HPLC)
Tocotrienols	2 (HPLC)

Momordica charantia L.—*Cucurbitaceae*

✓ Common names	Bitter melon, bitter gourd (Eng.); margose (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bangladesh, Japan, Malaysia, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0–1.1 (method not indicated)	Kikuchi et al. (1986)
	1.1–1.7 (method in an Indian book; extr. petroleum ether or ethoxyethane?)	Ali et al. (2008a)
Oil in the dried seed	26	Ali et al. (2008a)
	25.4	Matthäus et al. (2003)
	19.3	Nyam et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Kikuchi et al. (1986)	Matthäus et al. (2003)	Nyam et al. (2009)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)			464 (GC)
Triterpene alcohols	140 (TLC)		
Tocopherols (γ -tocopherol is dominant)		89 (HPLC)	135 (HPLC)
Tocotrienols		3 (HPLC)	
Squalene			13 (GC)

Momordica cochinchinensis Spreng.—*Cucurbitaceae*

✓ Common name	Spiny bitter gourd (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	USA, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method DGF/C-III, 1953)	Franzke et al. (1971)
Oil in the dried seed	32.1	Franzke et al. (1971)
	52.7	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Matthäus et al. (2003)	Akihisa et al. (1986)
Sterols		218 (TLC)
Tocopherols (α -tocopherol is dominant)	27 (HPLC)	
Tocotrienols	-(HPLC)	

Monechma ciliatum (Jacq.) Milne-Redhead—*Acanthaceae*

✓ Common name	Black mahlab (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AOCS, 2000)	Mariod et al. (2009b)
Oil in the dried seed	13.1	Mariod et al. (2009b)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Mariod et al. (2009b)
Tocopherols (γ -tocopherol is dominant)	45 (HPLC)

Monodora myristica (Gaertn.) Dunal—*Annonaceae*

✓ Common names	Calabash nutmeg (Eng.); faux muscadier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter	0.8 (method not indicated)	Njoku et al. (1996)
in the seed oil	1.8 (method AOAC, 1990; extr. ethoxyethane)	Amoo et al. (2006)
Oil in the dried seed	\approx 50	Njoku et al. (1996)
	38.1	Amoo et al. (2006)

Monodora tenuifolia Benth.—*Annonaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	7.9 (method described; extr. ethoxyethane)	Esuoso et al. (2000)
Oil in the dried seed	34.7	Esuoso et al. (2000)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Esuoso et al. (2000)
Hydrocarbons	≈3,400 (TLC)

Monothea buxifolia (Falc.) A. DC.—*Sapotaceae*

✓ Organ analyzed	Seed
✓ Origin of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method not indicated)	Nazir et al. (1986)
Oil in the dried seed	11–12	Nazir et al. (1986)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nazir et al. (1986)
Sterols	90 (OCLC)
Fatty acids	245 (OCLC)
Hydrocarbons	57 (OCLC)

Morelotia affinis (Brongn.) S.T.Blake—*Cyperaceae*

✓ Common name	Morelotia (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method Cocks 1933; extr. ethoxyethane)	Morice (1977)
Oil in the dried seed	16.8	Morice (1977)

Moringa concanensis Nimmo ex Dalzell & Gibson—*Moringaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Manzoor et al. (2007)
Oil in the dried seed	37.6–40.0	Manzoor et al. (2007)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Manzoor et al. (2007)
Tocopherols	12 (HPLC)

Moringa hildebrandtii Engl.—*Moringaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Madagascar

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.6 (imprecise method, referring to a book and a paper with different methods)	Bianchini et al. (1981)
Oil in the dried seed	48.8	Bianchini et al. (1981)

Moringa oleifera Lam.—*Moringaceae*

Varieties Periyakulam and Mbololo (Lalas and Tsaknis 2002)

✓ Common names	Ben oil tree, horseradish tree (Eng.); moringa ailé (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bangladesh, Kenya, Malaysia, Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7–1.1 (method AOCS, 1989)	Anwar and Bhangar (2003)
	0.7 (method AOAC, 1984; extr. ethoxyethane)	Abdulkarim et al. (2005)
	0.8 (method AOCS, 1998)	Rahman et al. (2009)
Oil in the dried seed	38–42	Anwar and Bhangar (2003)
	30.8	Abdulkarim et al. (2005)
	35.6–40.2	Rahman et al. (2009)
	31.2–41.4	Lalas and Tsaknis (2002)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Anwar and Bhangar (2003)	Rahman et al. (2009)	Lalas and Tsaknis (2002)
Unsaponifiable fractions			
Sterols totaux (β-sitosterol is dominant)			480–560 ^a depending on the solvents (GC)
Tocopherols (α-tocopherol is dominant, except ^a)	28 (HPLC)	24–29 (HPLC)	4–22 (HPLC)

^aVariety Periyakulam

Moringa peregrina (Forssk.) Fiori—*Moringaceae*

✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Saudi Arabia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.3 (method AOCS, 1973)	Somali et al. (1984)
Oil in the dried kernel	54.3	Somali et al. (1984)
Oil in the dried seed	49.8	Tsaknis (1998)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)
Unsaponifiable fraction	Tsaknis (1998)
Tocopherols (α-tocopherol is dominant)	27 (HPLC)

Moringa stenopetala (Baker f.) Cufod.—*Moringaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Kenya, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≤3 (method not indicated)	Mensier (1957)
Oil in the dried seed	44.9	Mensier (1957)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Lalas et al. (2003)
Sterols (β-sitosterol is dominant)	580 (GC)
Tocopherols	22 (HPLC)

Myrianthus arboreus P.Beauv.—*Cecropiaceae*

✓ Common names	Corkwood, giant yellow mulberry (Eng.); arbre à pain indigène, faux à arbre à pain (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Ivory Coast, Democratic Republic of Congo

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated) 0.5 (method described; extr. ethoxyethane)	Ucciani and Busson (1963) Minzangi et al. (2011)
Oil in the dried kernel	45 52.4	Ucciani and Busson (1963) Minzangi et al. (2011)

Myrianthus libericus Rendle—*Cecropiaceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Ivory Coast

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method not indicated)	Ucciani and Busson (1963)
Oil in the dried kernel	39	Ucciani and Busson (1963)

Myrianthus serratus (Trécul) Benth.—*Cecropiaceae*

✓ Organ analyzed	Kernel
✓ Origin of the sample	Ivory Coast

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.4 (method not indicated)	Ucciani and Busson (1963)
Oil in the dried kernel	30	Ucciani and Busson (1963)

Nelumbo nucifera Gaertn.—*Nelumbonaceae*

✓ Synonym	<i>Nymphaea nelumbo</i> L.
✓ Common names	Indian lotus, sacred lotus (Eng.); lotus sacré, lotus des Indes (Fr.)
✓ Organs analyzed	Seed, plumule
✓ Origins of the samples	China, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	10.0 (method described; extr. ethoxyethane)	Saeed et al. (1991)
Unsaponifiable matter in the plumule oil	14.2 (method AOCS, 1998)	Bi et al. (2006)
Oil in the plumule	12.5–13	Bi et al. (2006)

Contents of unsaponifiable fractions in plumule oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bi et al. (2006)
Sterols (β -sitosterol is dominant)	>11,360 (TLC)
Tocopherols (γ -tocopherol is dominant)	394 (HPLC)
Polyenic alcohols (including phytol)	\approx 2,130 (TLC)
Hydrocarbons	\approx 142 (TLC)

Neocarya macrophylla (Sabine) Prance—*Chrysobalanaceae*

✓ Synonym	<i>Parinari macrophylla</i> Sabine
✓ Common names	Gingerbread plum (Eng.); pommier de Cayor (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.7 (method described; extr. <i>n</i> -hexane)	Dial Ndiaye (1997)
Oil in the dried kernel	66.2	Dial Ndiaye (1997)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Dial Ndiaye (1997)
Sterols (stigmasterol is dominant)	257 (TLC)
Tocopherols	258 (HPLC)

Nephelium lappaceum L.—*Sapindaceae*

✓ Common names	Rambutan (Eng.); ramboutan (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≈0.5 (method not indicated)	Mensier (1957)
Oil in the dried seed	35–40	Mensier (1957)
	29.7	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols and tocotrienols	3 (HPLC)

Nicotiana tabacum L.—*Solanaceae*

✓ Common names	Tobacco (Eng.); tabac (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bangladesh, Italy, Uzbekistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Umarov et al. (1990)
	1.2–1.5 (method NGD/C-12, 1976)	Frega et al. (1991)
	1.4–1.5 (method from an Indian book; extr. petroleum ether or ethoxyethane?)	Ali et al. (2008b)
Oil in the dried seed	43.2	Umarov et al. (1990)
	47.2–48.0	Frega et al. (1991)
	42.3–45.7	Ali et al. (2008b)

Nigella sativa L.—*Ranunculaceae*

✓ Common names	Black cumin (Eng.); nigelle cultivée, cumin noir (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Iran, Pakistan, Tunisia, Turkish

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6–0.7 (method IUPAC, 1954)	Gad et al. (1963)
	1.8 (method AOAC, 1990; extr. ethoxyethane)	Atta (2003)
	1.5 (method not indicated)	Ramadan et al. (2003)
	1.5–1.6 (method described; extr. ethoxyethane)	Cheikh-Rouhou et al. (2008)
	1.8 (method not indicated)	Sultan et al. (2009)
Oil in the dried seed	33.0–33.8	Gad et al. (1963)
	34.8	Atta (2003)
	28.5–40.4	Cheikh-Rouhou et al. (2008)
	31.2	Sultan et al. (2009)
	37.1	Hamrouni-Sellami et al. (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Ramadan et al. (2003)	Cheikh-Rouhou et al. (2008)	Sultan et al. (2009)
Unsaponifiable fractions			
Sterols [β -sitosterol is dominant according to Cheikh-Rouhou et al. (2008)]	366 (GC)	258–281 (GC)	
Tocopherols [γ -tocopherol is dominant according to Sultan et al. (2009)]	60 (HPLC)		36 (HPLC)
Carotenoids			9 (method not indicated)
β -Carotene	59 ^a (HPLC)		

^aExcessive content?*Nothapodytes nimmoniana* (J. Graham) Mabb.—*Icacinaeae*

✓ Synonym	<i>Mappia foetida</i> (Wight) Miers
✓ Common name	Nothapodytes tree (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method AOCS, 1973)	Hosamani and Pattanashettar (2005)
Oil in the dried seed	35.0	Hosamani and Pattanashettar (2005)

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Chapter 6

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species O to Q

Ocimum basilicum L.—*Lamiaceae*

✓ Common names	Basil (Eng.); basilic (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method not indicated)	Malik et al. (1989)
Oil in the dried seed	21.4	Malik et al. (1989)

Ocimum tenuiflorum L.—*Lamiaceae*

✓ Synonym	<i>Ocimum sanctum</i> L.
✓ Common names	Holy basil (Eng.); basilic sacré (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.9 (method not indicated)	Malik et al. (1987)
Oil in the dried seed	18.2	Malik et al. (1987)

Oenocarpus bacaba Mart.—*Arecaceae*

✓ Common name	Comou (Fr.)
✓ Organ analyzed	Mesocarp (pulp)
✓ Origins of the samples	French Guiana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	0.7 (method AFNOR/NF T60-205)	Lubrano and Robin (1997)
Unsaponifiable matter in the pulp* oil (*frozen pulp)	0.2 (method AFNOR/NF T60-205, 1984; extr. <i>n</i> -hexane)	Bureau (2001)
Oil in the fresh pulp	14	Lubrano and Robin (1997)
Oil in the frozen pulp	29 ^a	Bureau (2001)

^aContent expressed to dry matter

Contents of unsaponifiable fractions in pulp oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bureau (2001)
Sitosterol (β -sitosterol is dominant)	50–56 (GC)
Tocopherols	1 (HPLC)
Tocotrienols	– (HPLC)

Oenocarpus bataua Mart. var. *bataua*—*Arecaceae*

✓ Synonyms	<i>Jessenia bataua</i> (Mart.) Burret; <i>Jessenia polycarpa</i> H. Karst.
✓ Common names	Pataua palm (Eng.); patawa (Fr.)
✓ Organ analyzed	Mesocarp (pulp) with or without epicarp
✓ Origins of the samples	Brazil, French Guiana, Peru

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the dried pulp oil	1.0 (method NGD/C-12, 1976)	Gomes Da Silva and Fedeli (1995)
	0.8 (method AOCS/Ca6b-53, 1988; extr. ethoxyethane)	Mambrim and Barrera-Arellano (1997)
Unsaponifiable matter in the fresh pulp oil	0.5 (method AFNOR/NF T60-205)	Lubrano and Robin (1997)
Unsaponifiable matter in the pulp* oil (*frozen pulp)	1.3 (method AFNOR/NF T60-205, 1984; extr. <i>n</i> -hexane)	Bureau (2001)
Unsaponifiable matter in the pulp and epicarp oil	0.4 (method AOAC/933.08, 1998; extr. ethoxyethane)	Jacobo et al. (2009)
Oil in the dried pulp	31	Gomes Da Silva and Fedeli (1995)
	23.3	Mambrim and Barrera-Arellano (1997)
	51.6	Montúfar et al. (2010)
Oil in the fresh pulp	16	Lubrano and Robin (1997)
Oil in the frozen pulp	10.6 ^a	Bureau (2001)
Oil in the dried pulp and epicarp	54.8	Jacobo et al. (2009)

^aContent expressed to dry matter

Contents of unsaponifiable fractions in pulp oil

Unsaponifiable fractions	Contents (mg/100 g of pulp oil)			
	Gomes Da Silva and Fedeli (1995)	Mambrim and Barrera-Arellano (1997)	Bereau (2001)	Montúfar et al. (2010)
Sterols (β -sitosterol is dominant)	60 (TLC)		96–126 (CPG)	37 (CPG)
Triterpene alcohols (cycloartenol is dominant)	100 (TLC)			
Tocopherols (α -tocopherol is dominant)			9–11 (CLHP)	197 (CLHP)
Tocotrienols			– (CLHP)	
Carotenoids		2 (Spectro)		0.2 (CLHP)

Oenocarpus distichus Mart.—*Arecaceae*

✓ Organ analyzed	Mesocarp (pulp)
✓ Origin of the sample	Brazil

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the pulp oil	2.6 (method AOCS/Ca6b-53, 1988; extr. ethoxyethane)	Mambrim and Barrera-Arellano (1997)
Oil in the dried pulp	24.9	Mambrim and Barrera-Arellano (1997)

Contents of unsaponifiable fractions in pulp oil

Unsaponifiable fraction	Contents (mg/100 g of oil)
	Mambrim and Barrera-Arellano (1997)
Carotenoids	3 (Spectro)

Oenothera biennis L.—*Onagraceae*

✓ Common names	Evening primrose (Eng.); onagre bisannuelle (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	England, doubtful, oils from companies (Ntsourankoua and Artaud 1997; Phillips et al. 2002)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5–2.0 (method described; extr. ethoxyethane)	Hudson (1984)
	1.9 (method Schwartz, 1988)	Schwartz (1988)
	1.9 (method AFNOR/NFT 60-205, 1981; extr. ethoxyethane)	Ntsourankoua and Artaud (1997)
Oil in the dried seed	24.3	Hudson (1984)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
		Ntsourankoua and Artaud (1997)	Philips et al. (2002)
Unsaponifiable fractions	Hudson (1984)		
Sterols (β-sitosterol is dominant)	660–880 (TLC)		1,094–1,107 (GC)
4-Methylsterols (citraostadienol is dominant)	120–160 (TLC)		
Triterpene alcohols	195–260 (TLC)	188 (HPLC)	
Tocopherols (γ-tocopherol is dominant)	26 (GC)		
Other fractions	525–700 (TLC)		

Oenothera indecora Cambess.—*Onagraceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AOCS, 1973)	Zygadlo et al. (1994)
Oil in the dried seed	16.4	Zygadlo et al. (1994)

Oenothera picensis Phil.—*Onagraceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method AOCS, 1973)	Zygadlo et al. (1994)
Oil in the dried seed	18.3	Zygadlo et al. (1994)

Olea europaea L.—*Oleaceae*

✓ Common names	Olive (Eng.); olivier (Fr.)
✓ Organs analyzed	Mesocarp with epicarp (pulp), kernel
✓ Origins of the samples	Israel, Italy (Dionisi et al. 1995), Tunisia, doubtful, oil from companies (Kornfeldt and Croon 1981; Kioseoglou et al. 1987; Grob et al. 1990; McGill et al. 1993; Dionisi et al. 1995; Gandul-Rojas and Mínguez-Mosquera 1996; De Leonardi et al. 1998; Nenadis and Tsimidou 2002; Phillips et al. 2002; Benitez-Sánchez et al. 2003; Cunha et al. 2006; Azadmard-Damirchi S et Dutta PC 2007; Rovellini et al. 1997)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents	References
Unsaponifiable matter in the pulp oil	0.8–1.5 (method described in another paper; extr. ethoxyethane) 0.6–0.7 (method Schwartz, 1988) ≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane) 1.1–1.7 (method IOOC, 2001 rev.1; extr. ethoxyethane)	Gutfinger and Letan (1974) Schwartz (1988) Codex Alimentarius (2009b) Lazzez et al. (2011)
Unsaponifiable matter in the kernel oil	1.5 (method described in another paper; extr. ethoxyethane) ≤3.0 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Gutfinger and Letan (1974) Codex Alimentarius (2009b)
Oil in the pulp	29.5–34.9	Gutfinger and Letan (1974)
Oil in the kernel	43.7	Gutfinger and Letan (1974)

Contents of unsaponifiable fractions in pulp oil

Contents(mg/100 g of oil)															
Unsaponifiable fractions	Gutfinger and Letan (1974)	Lazzez et al. (2011) ^a	Kornfeldt and Croon (1981) ^a	Kioseoglou et al. (1987) ^a	Grob et al. (1990)	McGill et al. (1993) ^a	Dionisi et al. (1995) ^a	Gandul-Rojas and Mosquera (1996) ^a	De Leonardis et al. (1998)	Nenadis and Tsimidou (2002)	Phillips et al. (2002) ^a	Benitez-Sánchez et al. (2003) ^a	Cunha et al. (2006) ^a	Azadmard-Damirchi and Dutta (2007) ^a	Sakouhi et al. (2009)
Sterols (β-sitosterol is dominant)	105–221 (GC)	172–258 (GC)	150 (GC)		97–145 (LC-GC)						150–166 (GC)	110–230 (GC)			659 (TLC)
4-Methylsterols			68 (GC)												64 (TLC)
l-cyclooctalenol is dominant															
according to Benitez-Sánchez PL et al. (2003)]															
Triterpene alcohols (24-methylene-cycloartanol is dominant)			292 (GC)											52–80 (GC)	222 (TLC)
4-Methylsterols and triterpene alcohols				61–144 (GC)											
Tocopherols (α-tocopherol is dominant)	12–19 (Spectro)						16–26 (HPLC)						10–25 (HPLC)		
Tocotrienols													1–2 (HPLC)		
Carotenoids		0.3–1 (Spectro)						0.3–1.3 (HPLC)							
lutein is dominant according to Gandul-Rojas and Minguez-Mosquera (1996)]															
Aliphatic alcohols					4–165 2–15 ^a (LC-GC) 61–477 0.5–8 ^a (LC-GC)							20–60 (GC)			
Hydrocarbons						3–10 (HPLC)									
n-Alkanes (C ₁₅ –33)									90–870 (GC)	208–652 (HPLC)					
Squalene	250–925 (GC)														

^aOil obtained by pressure

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of kernel oil)		
	Gutfinger and Letan (1974)	Codex Alimentarius (2009b)	Rovellini et al. (1997) ^a
Unsaponifiable fractions			
Sterols (β-sitosterol is dominant)	420 (GC)	≥160 (GC)	
Tocopherols (α-tocopherol is dominant)	29 (Spectro)		28 (HPLC)
Tocotrienols			– (HPLC)
Squalene	10 (GC)		

^aOil obtained by pressure*Ongokea gore* Pierre—*Olacaceae*

✓ Common names	Boleko nut (Eng.); boléko (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method not indicated)	Kneeland et al. (1958)
Oil in the dried seed	60	Kneeland et al. (1958)

Onopordum acanthium L.—*Asteraceae*

✓ Common names	Scotch thistle (Eng.); onopordon faux-acanthe (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Argentina, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.5–1.5 (method not indicated) 5 (method AOCS/Ca 6b-53; extr. ethoxyethane)	Ul'chenko et al. (1980) Nolasco et al. (1987)
Oil in the dried achene	21.1	Nolasco et al. (1987)

Onopordum tauricum Willd.—*Asteraceae*

✓ Common names	Taurian thistle, bull cottonthistle (Eng.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.6 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1995)
Oil in the dried achene	16.5	Erciyes et al. (1995)

Opuntia ficus-indica (L.) Mill.—*Cactaceae*

✓ Common names	Prickly pear (Eng.); figuier de Barbarie (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Saudi Arabia, Tunisia, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AOAC, 1980; extr. ethoxyethane) 2–4 (method of a thesis; extr. <i>n</i> -hexane and then 2-isopropoxypropane) 2.0 (method not indicated)	Sawaya and Khan (1982) Krifa et al. (1993) Ramadan and Mörsel (2003)
Oil in the dried seed	13.6 9.9 11.8	Sawaya and Khan (1982) Ramadan and Mörsel (2003) El Mannoubi et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Ramadan and Mörsel (2003)	El Mannoubi et al. (2009)
Sterols (β -sitosterol is dominant)	933 (GC)	1,606 (GC)
Tocopherols (γ -tocopherol is dominant)	40 (HPLC)	45 (HPLC)
β -Carotene	5 (HPLC)	0.8 (spectro)

Oryza sativa L.—*Poaceae*

✓ Common names	Rice (Eng.); riz (Fr.)
✓ Organs analyzed	Bran, germ
✓ Origins of the samples	Pakistan, doubtful, oils from companies (Itoh et al. 1973; Gopala Krishna et al. 2003; Afinisha Deepam and Arumughan 2012; Saker et al. 1986; Akihisa et al. 1999; Abidi 2003; Afinisha Deepam et al. 2007)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the bran oil	4.2 (method described; extr.2-isopropoxypropane)	Itoh et al. 1973
	4.1–4.2 (method Schwartz, 1988)	Schwartz (1988)
	4.2 (method not indicated)	Sayre and Saunders (1990)
	4.5 (method AOCS/Ca 6a-40, 1973; extr. petroleum ether)	Gopala Krishna et al. (2003)
	5.0–6.2 (method AOCS, 1992)	Anwar et al. (2005)
	≤6.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009a)
	5.9 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Afinisha Deepam and Arumughan (2012)
	5.4 (method with TLC)	Afinisha Deepam and Arumughan (2012)
Unsaponifiable matter in the germ oil	4.5 (imprecise method referring to a paper with various methods)	Saker et al. (1986)
Oil in the dried bran	20–22	Sayre and Saunders (1990)
	14.7–19.1	Anwar et al. (2005)
Oil in the dried germ	20.8	Saker et al. (1986)

Contents of unsaponifiable fractions in bran oil

Contents (mg/100 g of bran oil)									
	Itoh et al. (1973)	Gopala Krishna et al. (2003)	Anwar et al. (2005)	Codex Alimentarius (2009a)	Afinisha Deepam and Arumughan (2012) (via unsap. matter)	Afinisha Deepam and Arumughan (2012) (direct in the oil)	Akihisa et al. (1999)	Abidi (2003)	Afinisha Deepam et al. (2007)
Unsaponifiable fractions									
Sterols (β -sitosterol is dominant)	1,800 (TLC)	1,300–1,480 (TLC)		1,050–3,100 (GC)	1,452 (TLC)	1,970 (TLC)			1,840 (TLC)
4-Methylsterols	420 (TLC)	530–550 (TLC)							
Triterpene alcohols	1,180 (TLC)	870–900 (TLC)			460 (TLC)		\approx 934 (OCLC)		
γ -Orizanol		1,600 (Spectro)	42–80 ^a (HPLC)	900–2,000 (spectro)	15 (TLC)	1,820 (TLC)		11–36 (HPLC)	1,880 (TLC)
Tocopherols [α -tocopherol is dominant, except according to Abidi (2003)]			33–47 (HPLC)						200 (TLC)
Tocotrienols (γ -tocotrienol is dominant)			25–48 (HPLC)					40–107 (HPLC)	
Tocopherols and tocotrienols				19–235 (HPLC)	39 (TLC)	212 (TLC)			
Hydrocarbons and aliphatic alcohols	800 (TLC)								
Polycosanols					2,580 (TLC)				
Fatty aldehydes					790 (TLC)				
Squalene					15 (TLC)	36 (TLC)			40 (TLC)

^a γ -orizanol being a mixture, the low content reported may correspond to one of the compounds

Pachira glabra* Pasq.—*Malvaceae

✓ Synonym	<i>Bombax glabrum</i> A. Robyns
✓ Common name	French peanut (Eng.)
✓ Organs analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.2 (method AOAC, 1990; extr. etoxyethane)	Adeleke and Abiodun (2010) ^a
Oil in the dried seed	58.2	Adeleke and Abiodun (2010) ^a

^aAuthors of the paper mentioned the invalid synonym, but it is commonly used

Pachira insignis* (Sw.) Savigny—*Malvaceae

✓ Common name	Wild chesnut (Eng.) (Fr.)
✓ Analyzed organ	Seed
✓ Origins of the sample	Ghana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed	0.4 (method IUPAC; extr. solvent not indicated, probably ethoxyethane)	Yeboah et al. (2012)
Oil in the dried seed	38.9	Yeboah et al. (2012)

Contents in unsaponifiable fractions in seed oil

	Content(mg/100 g of oil)
Unsaponifiable fractions	Yeboah et al. (2012)
Sterols (β-sitosterol is dominant)	59 (GC)
Tocopherols (γ-tocopherol is dominant)	21 (HPLC)

Pachira sessilis* Benth.—*Malvaceae

✓ Synonym	<i>Bombax sessile</i> (Benth.) Bakh.
✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method not indicated)	Grindley and Akour (1955)
Oil in the dried seed	45.8	Grindley and Akour (1955)

Panax ginseng* C.A. Meyer—*Pedaliaceae

✓ Common name	Ginseng (Fr., Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1 (method not indicated)	Matsumoto et al. (1986)
Oil in the dried seed	23.3	Matsumoto et al. (1986)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Matsumoto et al. (1986)
Sterols	180 (TLC)
4-Methylsterols	20 (TLC)
Triterpene alcohols	70 (TLC)
Squalene and squalene-2,3-oxide	730 (TLC)

Panax quinquefolius* L.—*Pedaliaceae

✓ Common names	American ginseng (Eng.); ginseng américain (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method not indicated)	Matsumoto et al. (1986)
Oil in the dried seed	20	Matsumoto et al. (1986)
	15.0–26.6	Beveridge et al. (2002)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Matsumoto et al. (1986)	Beveridge et al. (2002)
Sterols	1,040 (TLC)	314–347 (GC)
4-Methylsterols	130 (TLC)	
Triterpene alcohols	598 (TLC)	
Squalene and squalene-2,3-oxide		528–580 (GC)

Papaver somniferum* L.—*Papaveraceae

✓ Common names	Opium poppy (Eng.); pavot, oeillette (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Poland, Turkey, doubtful, oil from a company (Itoh et al. 1974)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.5 (method in another paper; extr. 2-isopropoxypropane)	Itoh et al. (1974)
	0.5 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Raie and Salma (1985)
	0.3 (method Schwartz, 1988)	Schwartz (1988)
	1.0 (method AOAC, 1984; extr. ethoxyethane)	Azcan et al. (2004)
	1.0–2.4 (method AOAC, 1990; extr. ethoxyethane)	Özcan and Atalay (2006)
Oil in the dried seed	53.0	Raie and Salma (1985)
	33.6–49.2	Azcan et al. (2004)
	32.4–45.5	Özcan and Atalay (2006)
	49.9	Bozan and Temelli (2008)
	48.3–52.7	Erinç et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)				
	Fedeli et al. (1966)	Itoh et al. (1974)	Özcan and Atalay (2006)	Bozan and Temelli (2008)	Erinç et al. (2009)
Unsaponifiable fractions					
Sterols (β-sitosterol is dominant)	250 (TLC)	275 (TLC)			110–482 (GC)
4-Methylsterols		30 (TLC)			
Triterpene alcohols	20 (TLC)	35 (TLC)			
Tocopherols [γ-tocopherol is dominant except according to Özcan and Atalay (2006)]			35–62 (HPLC)	29 (HPLC)	23–31 ^a (HPLC)
Tocotrienols				2 (HPLC)	
Hydrocarbons and other nonpolar compounds		160 (TLC)			

^aα- and γ-tocopherol content only

Parkia bicolor A. Chev.—*Fabaceae*

✓ Common names	African locust bean (Eng.); faux néré (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method BP, 1988; extr. ethoxyethane)	Aiyelaagbe et al. (1996)
Oil in the dried seed	32.7	Aiyelaagbe et al. (1996)

Parkia biglobosa (Jacq.) G. Don—*Fabaceae*

✓ Common names	African locust bean (Eng.); néré (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method BP, 1988; extr. ethoxyethane)	Aiyelaagbe et al. (1996)
	2.6 (method AOAC, 1995; extr. ethoxyethane)	Akintayo (2004)
Oil in the dried seed	12.4	Aiyelaagbe et al. (1996)
	26.5	Akintayo (2004)

Passiflora caerulea L.—*Passifloraceae*

✓ Common names	Blue passionflower (Eng.); passiflore bleue (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method AOAC or AOCS or IUPAC)	Quiroga et al. (2000)
Oil in the dried seed	29.9	Quiroga et al. (2000)

Passiflora edulis Sims—*Passifloraceae*

✓ Common names	Granadilla, purple passionflower (Eng.); grenadille (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method not indicated)	Jamieson and McKinney (1934)
Oil in the dried seed	18.2	Jamieson and McKinney (1934)
	18.6	Piombo et al. (2006)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Piombo et al. (2006)
Sterols	209 (GC)
Tocopherols (δ -tocopherol is dominant)	47 (HPLC)

Peganum harmala L.—*Nitrariaceae*

✓ Common names	Harmal, Syrian rue (Eng.); rue de Syrie (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Pakistan, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.3 (method not indicated)	Kurachko et al. (1969)
	5.5 (method not indicated)	Javed et al. (1972)
Oil in the dried seed	15.9	Kurachko et al. (1969)
	12–14	Javed et al. (1972)

Pentaclethra eetveldeana De Wild. & T. Durand—*Fabaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Democratic Republic of Congo

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method not indicated)	Hilditch et al. (1951)
Oil in the dried seed	35.2	Hilditch et al. (1951)

Pentaclethra macrophylla Benth.—*Fabaceae*

✓ Common names	African oil bean tree (Eng.); arbre à semelles (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Democratic Republic of Congo, Sierra Leone

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method not indicated)	Hilditch et al. (1951)
	0.9 (method not indicated)	Kar and Okechukwu (1978)
	0.6 (method BS/684 2.7, 1977)	Jones et al. (1987)
	3.6 (method described: Pearson, 1976; extr. ethoxyethane)	Odoemelam (2005)
	2.0 (method described; extr. ethoxyethane)	Minzangi et al. (2011)
Oil in the dried seed	23.6	Hilditch et al. (1951)
	38.0	Kar and Okechukwu (1978)
	42.4	Jones et al. (1987)
	47.4	Odoemelam (2005)
	55.8	Minzangi et al. (2011)

Pentadesma butyracea Sabine—*Clusiaceae*

✓ Common names	Butter tree, tallow tree (Eng.); arbre à beurre (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Benin, Ghana, Ivory Coast

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.5–1.8 (method described: Williams, 1950; extr. ethoxyethane)	Adomako (1977)
	1.5 (method AFNOR/NFT 60-205)	Dencausse et al. (1995)
	0.8–1.8 (method AFNOR/NFT 60.205-2; extr. <i>n</i> -hexane)	Tchobo et al. (2007)
Oil in the dried kernel	50	Adomako (1977)
	39.1–47.3	Tchobo et al. (2007)

Contents of unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)
Unsaponifiable fractions	Tchobo et al. (2007)
Sterols	135–221 (GC)
Tocopherols	10–20 (HPLC)

Perilla frutescens (L.) Britton—*Lamiaceae*

✓ Common names	Perilla (Eng.); périlla (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, South Korea, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter	1.4–1.8 (method AOCS/Ca 6a-40, 1987; extr. petroleum ether)	Shin and Kim (1994)
in the seed oil	1.0 (method BP, 1963; extr. ethoxyethane)	Longvah et al. (2000)
Oil in the dried seed	38.6–47.8	Shin and Kim (1994)
	25.4	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Matthäus et al. (2003)	Adhikari et al. (2008)
Tocopherols (γ -tocopherol is dominant)	67 (HPLC)	45 (HPLC)
Tocotrienols	– (HPLC)	– (HPLC)

Persea americana Mill.—*Lauraceae*

✓ Synonym	<i>Persea gratissima</i> C.F. Gaertn.
✓ Common names	Avocado (Eng.); avocat (Fr.)
✓ Organs analyzed	Mesocarp and endocarp (pulp), fruit
✓ Origins of the samples	Cameroun, France (Corsica, Martinique), Israel, Italy, Spain, doubtful, oils from companies (Kapseu and Parmentier 1997 ; Phillips et al. 2002)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the dried pulp oil	1.6 ^a (method in another paper; extr. 2-isopropoxypropane) 1.7–1.8 ^b (method AOCS/Ca 6b-53, 1974; extr. ethoxyethane) 2.0–3.0 ^b (method not indicated) 2.8 (method Schwartz, 1988) 4.0–8.8 ^b (method AFNOR, 1988, adapted; extr. ethoxyethane)	Itoh et al. (1975) Werman and Neeman (1987) Frega et al. (1990) Kapseu and Parmentier (1997) Lozano et al. (1993)
Unsaponifiable matter in the fresh pulp oil	1.4 ^c (method AOCS/Ca 6b-53, 1974; extr. ethoxyethane) 4.8–12.2 (method described in another paper; extr. ethoxyethane) 1.0–1.2 ^d (method not indicated)	Werman and Neeman (1987) Gutfinger and Letan (1974) Giuffrè (2005)
Unsaponifiable matter in the pulp oil (state not indicated)	3.9–8.6 (method AOCS, 1964)	Petronici et al. (1978)
Unsaponifiable matter in the dried fruit oil	5 (method described; extr. 1,2-dichloroethane)	Farines et al. (1995)
Oil in the dried pulp	65.4–66.1 ^b 65.8	Werman and Neeman (1987) Kapseu and Parmentier (1997)
Oil in the fresh pulp	8.7–14.8 ^b 10.5–19.1 ^b 14.1–19.8 20.2–21.4 ^d 5.3–17.4 14.8–27.0	Frega et al. (1990) Lozano et al. (1993) Gutfinger and Letan (1974) Giuffrè (2005) Petronici et al. (1978) Poiana et al. (1999)
Oil in the dried fruit	45	Farines et al. (1995)

^aFrom an oil obtained by pressing a “dehydrated” pulp^bFrom an oil obtained by solvent and a lyophilized pulp^cFrom a factory oil obtained by centrifugation^dFrom an oil obtained by solvent and a fresh pulp treated with anhydrous sodium sulfate

Contents of unsaponifiable fractions in pulp oil

Unsaponifiable fractions	Contents (mg/100 g of pulp oil)					
	Itoh et al. (1975) ^a	Frega et al. (1990) ^b	Lozano et al. (1993) ^b	Gutfinger and Letan (1974)	Giuffrè (2005) ^c	Poiana et al. (1999)
Phillips et al. (2002) ^d						367 (GC)
Sterols (β-sitosterol is dominant)	544 (TLC)	620–870 (TLC)	800–2,000 (HPLC)	377–486 (GC)	250–399 (GC)	
4-Methylsterols (citraostenol is dominant)	112 (TLC)	90–440 (TLC)				
Triterpene alcohols (24-methylenecycloartanol is dominant)	96 (TLC)	50–170 (TLC)				
Tocopherols (α-tocopherol is dominant)		0–80 (TLC)	6–10 (HPLC)	14–15 (Spectro)		4–23 (method not indicated)
Carotenoids						
The most polar fraction (1,2,4-trihydroxy- <i>n</i> -heptadec-16-ene is dominant)	544 (TLC)					
Hydrocarbons	304 (TLC)	290–390 (TLC)				
<i>n</i> -Alkanes					2–3 (GC)	
Squalene				34–37 (GC)		

^aOil obtained by pressing a “dehydrated” pulp

^bOil obtained by solvent and a lyophilized pulp

^cOil obtained by solvent and a fresh pulp treated with anhydrous sodium sulfate

^dOil obtained by pressure

Contents of unsaponifiable fractions in fruit oil

	Contents (mg/100 g of fruit oil)
Unsaponifiable fraction	Farines et al. (1995)
Alkylfurans	1,750–2,500 (OCLC)

Petroselinum crispum (Mill.) Nyman ex A.W. Hill—*Apiaceae*

✓ Synonym	<i>Petroselinum sativum</i> Hoffm.
✓ Common names	Parslay (Eng.); persil (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, Pakistan, oil from a company (Parry et al. 2006)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Khalid et al. (2005)
Oil in the dried seed	12.9	Khalid et al. (2005)
	28.8	Zlatanov and Ivanov (1995)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Zlatanov and Ivanov (1995)	Parry et al. (2006) ^a
Sterols	≈400 (TLC)	
Tocopherols (α -tocopherol is dominant)		3–4 (HPLC)
Carotenoids (zeaxanthin is dominant)		2 (HPLC)

^aOil obtained by pressure*Phoenix canariensis* Chabaud—*Arecaceae*

✓ Common names	Canary Island date palm (Eng.); dattier des Canaries (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Tunisia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (number of ISO method is wrong)	Nehdi et al. (2010)
Oil in the dried seed	10.4	Nehdi et al. (2010)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nehdi et al. (2010)
Sterols (β -sitosterol is dominant)	336 (GC)
Tocopherols (γ -tocopherol is dominant)	13 (HPLC)
Tocotrienols (α -tocotrienol is dominant)	39 (HPLC)
Carotenoids (expr. β -carotene)	0.6 (Spectro)

***Phormium tenax* J.R. Forst. & G. Forst—Agavaceae**

✓ Analyzed organ	Seed
✓ Common names	New Zealand flax (Eng.), lin de Nouvelle-Zélande (Fr.)
✓ Origins of the samples	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiables in the seed	1.8–2.2 (method Cocks, 1933; extr. ethoxyethane)	Morice (1962)
Oil in the dried seed	26.9–30.7	Morice (1962)

***Phyllanthus emblica* L.—Euphorbiaceae**

✓ Synonym	<i>Emblica officinalis</i> Gaertn.
✓ Common names	Indian gooseberry, emblic (Eng.); amla, groseiller de Ceylan (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method not indicated ^a)	Badami and Alagawadi (1983)
Oil in the dried seed	22.4	Badami and Alagawadi (1983)

^aAlso in a paper to which the authors make reference

***Phyllanthus maderaspatensis* L.—Euphorbiaceae**

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.3 (method AOCS, 1973)	Rao and Lakshminarayana (1987)
Oil in the dried seed	16.3	Rao and Lakshminarayana (1987)

Phyllanthus niruri L.—*Euphorbiaceae*

✓ Common names	Stonebreaker (Eng.); phyllanthus, casse-pierre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.0 (method AOCS/Ca 6a-40, 1971; extr. petroleum ether)	Ahmad et al. (1981)
Oil in the dried seed	16.6	Ahmad et al. (1981)

Physalis minima L.—*Solanaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOCS/Ca 6a-40, 1973; extr. petroleum ether)	Rao et al. (1984)
Oil in the dried seed	40.0	Rao et al. (1984)

Physalis peruviana L.—*Solanaceae*

✓ Common names	Cape gooseberry (Eng.); coqueret du Pérou (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	20.0	Badami and Patil (1975)

Physalis pruinosa L.—*Solanaceae*

✓ Synonym	<i>Physalis maxima</i> Mill.
✓ Common names	Groundcherry (Eng.); cerise de terre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method AOCS, 1964)	Badami and Thakkar (1984)
Oil in the dried seed	14.3	Badami and Thakkar (1984)

Picea abies* (L.) H. Karst.—*Pinaceae

✓ Common names	Norway spruce (Eng.); épicéa commun (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	30.9 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents**Contents of unsaponifiable fractions in seed oil**

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	32 (OCLC-TLC)

Pimpinella anisum* L.—*Apiaceae

✓ Common names	Anise (Eng.); anis (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	6.7 (method not indicated)	Yazicioğlu and Karaali (1983)
Oil in the dried seed	13.5	Yazicioğlu and Karaali (1983)
	14.8	Zlatanov and Ivanov (1995)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Zlatanov and Ivanov (1995)
Sterols	≈700 (TLC)

Pinus cembra* L.—*Pinaceae

✓ Common names	Arolla pine (Eng.); pin cembro, arolle (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	58.7 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	20 (OCLC-TLC)

Pinus halepensis Mill.—*Pinaceae*

✓ Common names	Aleppo pine (Eng.); pin d'Alep (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Tunisia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method described; extr. ethoxyethane)	Cheikh-Rouhou et al. (2008)
Oil in the dried seed	43.3	Cheikh-Rouhou et al. (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Cheikh-Rouhou et al. (2008)
Sterols (β-sitosterol is dominant)	735 (GC)

Pinus monophylla Torr. & Frém.—*Pinaceae*

✓ Common names	Single-leaf pinyon (Eng.); pin à une feuille (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	2.0 (method not indicated)	Gill (1933)
Oil in the dried kernel	21	Gill (1933)

Pinus nigra* J.F. Arnold—*Pinaceae

✓ Common names	Black pine (Eng.); pin noir (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	30.4 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents**Contents of unsaponifiable fractions in seed oil**

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	46 (OCLC-TLC)

Pinus pinea* L.—*Pinaceae

✓ Common names	Stone pine (Eng.); pin parasol, pin pignon (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	France, Greece, Italy, Morocco, Spain, Tunisia, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.3–2.1 (method not indicated)	Nasri et al. (2007)
Oil in the dried kernel	45–50	Nasri et al. (2007)

Contents of unsaponifiable fractions in oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nasri et al. (2007)
Sterols (β-sitosterol is dominant)	370–430 (GC)
Fatty alcohols (octacosanol is dominant)	17–417 (GC)

Pinus* spp.—*Pinaceae

✓ Common names	Pines (Eng.); pins (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	China, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.7 (method Schwartz, 1988)	Schwartz (1988)
	0.4 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	67.8–70.7	Kornsteiner et al. (2006)
	73.9	Miraliakbari and Shahidi (2008)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)		
	Jeong et al. (1974)	Kornsteiner et al. (2006)	Miraliakbari and Shahidi (2008)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)	240 (TLC)		129–160 (GC)
4-methylsterols [citrostadienol is dominant according to Jeong et al. (1975)]	36 (TLC)		
Triterpene alcohols [24-methylenecycloartanol is dominant according to Jeong et al. (1975)]	24 (TLC)		
Tocopherols (γ -tocopherol is dominant)		13 (average) (HPLC)	40–46 (GC)
Nonpolar fraction (hydrocarbons)	100 (TLC)		

Pinus sylvestris L.—*Pinaceae*

✓ Common names	Scots pine (Eng.); pin sylvestre (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	30.6 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	49 (OCLC-TLC)

Pistacia atlantica Desf.—*Anacardiaceae*

Subspecies: *mutica* (Daneshrad and Aynehchi 1980; Farhoosh et al. 2009), *kurdica* (Daneshrad and Aynehchi 1980)

✓ Common names	Betoum (Fr., Eng.); pistachier de l'Atlas (Fr.)
✓ Organs analyzed	Kernel, fruit, fruit without seed
✓ Origins of the samples	Algeria, Iran

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated)	Daneshrad and Aynehchi (1980)
	5.2 (method AFNOR, 1988, adapted)	Farhoosh et al. (2009)
Unsaponifiable matter in the fruit oil	1.7 (method AFNOR, 1984; extr. <i>n</i> -hexane)	Yousfi et al. (2003)
Unsaponifiable matter in the fruit without seed oil	1.6 (method not indicated)	Daneshrad and Aynehchi (1980)
	6.5 (method AFNOR, 1988, adapted)	Farhoosh et al. (2009)
	5.6 (method described; extr. ethoxyethane)	Farhoosh et al. (2011)
Oil in the dried kernel	54–57	Daneshrad and Aynehchi (1980)
Oil in the dried fruit	52	Yousfi et al. (2003)
Oil in the fruit without seed	30.1–63	Daneshrad and Aynehchi (1980)

Contents of unsaponifiable fractions in oils

	Contents (mg/100 g of kernel oil)	Contents (mg/100 g of seed oil)	Contents (mg/100 g of fruit without seed oil)
Unsaponifiable fractions	Farhoosh et al. (2009)	Farhoosh et al. (2009)	Farhoosh et al. (2011)
Sterols (β-sitosterol dominant)			112 (GC)
Tocopherols (β-tocopherol is dominant)	82 (Spectro)	86 (Spectro)	59 (HPLC)

Pistacia lentiscus L.—*Anacardiaceae*

✓ Common names	Mastic tree (Eng.); lentisque, arbre au mastic (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	France, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≈1 (method not indicated)	Mensier (1957)
Unsaponifiable matter in the seed oil	5.6 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried kernel	50	Mensier (1957)
Oil in the dried seed	9.8	Ferlay et al. (1993)

Pistacia terebinthus L.—*Anacardiaceae*

✓ Common names	Terebinth (Eng.); térébinthe (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method AOAC, 1984 or 1990; extr. ethoxyethane)	Özcan (2004)
Oil in the dried seed	38.7 38.4–45.1	Özcan (2004) Matthäus and Özcan (2006)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Özcan (2004)	Matthäus and Özcan (2006)
Sterols (β-sitosterol is dominant)		134–180 (GC)
Tocopherols		25–31 (HPLC)
Tocotrienols (γ-tocotrienol is dominant)		14–23 (HPLC)
Plastochromanol-8		0–1 (HPLC)
Carotenoids	32 (Spectro)	

Pistacia vera L.—*Anacardiaceae*

✓ Common names	Pistachio (Eng.); pistachier cultivé (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Iran, Italy, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method IUPAC, 1964)	Daneshrad (1974)
	0.6 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.7 (method Schwartz, 1988)	Schwartz (1988)
	0.3–0.5 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	52–57	Daneshrad (1974)
	48	Jeong et al. (1974)
	44.7–58.9	Kornsteiner et al. (2006)
	52.3	Miraliakbari and Shahidi (2008)
	46.2–52.0	Saitta et al. (2009)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)				
	Daneshrad (1974)	Jeong et al. (1974)	Kornsteiner et al. (2006)	Miraliakbar and Shahidi (2008)	Saitta et al. (2009)
Unsaponifiable fractions					
Sterols (β -sitosterol is dominant)	464 (TLC)	354 (TLC)		152–169 (GC)	
4-Methylsterols		48 (TLC)			
Triterpene alcohols [24-methylene-cycloartanol is dominant according to Jeong et al. (1975)]	11 (TLC)	48 (TLC)			
Tocopherols (the dominant tocopherol differs according to papers)	26 (TLC)		10–44 (HPLC)	33–40 (HPLC)	
3-Alkenylphenols [3-(8-pentadecenyl)-phenol is dominant]					44 (TLC)
Carotenoids (lutein and β -carotene; lutein is dominant)			2–10 (HPLC)		
Hydrocarbons and other nonpolar compounds		150 (TLC)			

Pithecellobium dulce (Roxb.) Benth.—*Fabaceae*

✓	Synonym	<i>Pithecolobium dulce</i> (Roxb.) Benth.
✓	Common names	Manila tamarind (Eng.); tamarin de l’Inde, tamarin de Manille (Fr.)
✓	Organ analyzed	Seed
✓	Origins of the samples	Senegal, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AFNOR, NFT 60-205; extr. <i>n</i> -hexane) 2.1 (method AOCS, 1973)	Miralles and Pares (1980) Hosamani (1995)
Oil in the dried seed	16.0 16.0	Miralles and Pares (1980) Hosamani (1995)

Platycladus orientalis (L.) Franco—*Cupressaceae*

✓ Synonym	<i>Thuja orientalis</i> L.
✓ Common names	Chinese thuja (Eng.); thuya de Chine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.1 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	14.2 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	35 (OCLC-TLC)

Platycodon grandiflorus (Jacq.) A.DC.—*Campanulaceae*

✓ Common names	Balloon flower (Eng.); platycodon (Fr., Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method AOCS, 1957)	Coxworth (1965)
Oil in the dried seed	34	Coxworth (1965)

Plukenetia volubilis L.—*Euphorbiaceae*

✓ Synonym	<i>Tetracarpidium conophorum</i> (Müll. Arg.) Hutch. & Dalziel
✓ Common names	Sacha Inchi, Inca inchi (Fr., Eng.); Inca peanut (Eng)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Peru, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≈0.5 (method not indicated)	Mensier (1957)
Oil in the dried kernel	35–60	Mensier (1957)
Oil in the dried seed	37.7	Bondioli et al. (2006)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Bondioli et al. (2006)
Sterols (β-sitosterol is dominant)	247 (GC)
Tocopherols (α-tocopherol is dominant)	226 (HPLC)
Tocotrienols	– (HPLC)

Pongamia pinnata (L.) Pierre—*Fabaceae*

✓ Synonym	<i>Pongamia glabra</i> Vent. <i>Millettia pinnata</i> (L.) Panigrahi
✓ Common names	Karanja (Fr., Eng.), Indian beech tree, pongam oil tree (Eng.); pongamia (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful (Gore and Satyamoorthy 2000)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.5 (method described; extr. ethoxyethane) 3.3 (method AOCS, 1975)	Saeed et al. (1991) De and Bhattacharyya (1999)
Oil in the dried seed	29 33.1	Mandal et al. (1984) Vismaya et al. (2010)

Contents of unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)	
Unsaponifiable compounds	Vismaya et al. (2010)	Gore and Satyamoorthy (2000)
Karanjin (furanoflavonols)	5,430 (Spectro)	1,100–4,500 (HPLC)
Pongamol (benzofuran)		400–900 (HPLC)

Prosopis velutina Wooton—*Fabaceae*

✓ Common name	Velvet mesquite (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Mexico, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.0 (method Schwartz, 1988)	Schwartz (1988)
Oil in the dried seed	10	Ortega-Nieblas et al. (1996)

Prunus armeniaca L.—*Rosaceae*

✓ Common names	Apricot (Eng.); abricotier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Bulgaria, Canada, Greece, Iran, Pakistan, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (sweet kernel) (method AOAC/28.063, 1970; extr. ethoxyethane)	Filsoof et al. (1976)
	0.7 (better kernel) (method AOAC/28.063, 1970; extr. ethoxyethane)	Filsoof et al. (1976)
	1.0 (method AOAC, 1975; extr. ethoxyethane)	Lazos (1991)
	0.6 (method AOCS/Ca 6a-40, 1980; extr. petroleum ether)	Kamel and Kakuda (1992)
	0.6–0.9 (method AOCS/Ca 6a-40, 1997; extr. petroleum ether)	Manzoor et al. (2012)
Oil in the dried kernel	49.7 (sweet kernel)	Filsoof et al. (1976)
	50.6 (better kernel)	Filsoof et al. (1976)
	38.4	Lazos (1991)
	49.3	Kamel and Kakuda (1992)
	32.2–42.5	Manzoor et al. (2012)
	40.2–53.2	Turan et al. (2007)
	46.3–55.4	Matthäus and Özcan (2009)
	45.2	Zlatanov et al. (1998); Zlatanov and Ivanov (1999)

Contents of unsaponifiable fractions in kernel oil

Unsaponifiable fractions	Contents (mg/100 g of oil)				
	Manzoor et al. (2012)	Turan et al. (2007)	Matthäus and Özcan (2009)	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)
Sterols (β-sitosterol is dominant)		301–376 (GC)		≈200 (TLC)	
Tocopherols (γ-tocopherol is dominant)	40–60 (HPLC)	37–60 (HPLC)	15–41 (HPLC)		80 (HPLC)
Tocotrienols			2–3 (HPLC)		– (HPLC)
Plastochromanol-8			<1 (HPLC)		

***Prunus avium* (L.) L.—Rosaceae**

✓ Common names	Sweet cherry (Eng.); cerisier (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Bulgaria, Canada, Iran, Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8–1.2 ^a (method AOCS/Ca 6b-53, 1972; extr. ethoxyethane)	Farrohi and Mehran (1975)
	0.7 (method AOCS/Ca 6a-40, 1980; extr. petroleum ether)	Kamel and Kakuda (1992)
Unsaponifiable matter in the seed oil	0.8 (method described in another paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried kernel	22.2–37.9	Farrohi and Mehran (1975)
	41.9	Kamel and Kakuda (1992)
	43.7	(Zlatanov et al. 1998; Zlatanov and Ivanov 1999)
Oil in the dried seed	40.1 ^b	Chouda and Jankowski (2005)

^aContents for *P. avium* L. and *P. cerasus* L.^bContent resulting from three successive extractions with different solvents**Contents of unsaponifiable fractions in oil**

	Contents (mg/100 g of kernel oil)		Contents (mg/100 g of seed oil)
	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)	Chouda and Jankowski (2005)
Unsaponifiable fractions			
Sterols (β-sitosterol is dominant)	≈200 (TLC)		
Tocopherols (γ-tocopherol is dominant)		30 (HPLC)	
Tocotrienols		– (HPLC)	
Polyprenols			17 (OCLC-TLC)

***Prunus cerasus* L.—Rosaceae**

✓ Synonym	<i>Cerasus vulgaris</i> Mill.
✓ Common names	Cherry, sour cherry (Eng.); griottier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Bulgaria, Canada, Iran, Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8–1.2 ^a (method AOCS/Ca 6b-53, 1972; extr. ethoxyethane)	Farrohi and Mehran (1975)
	0.7 (method AOCS/Ca 6a-40, 1980; extr. petroleum ether)	Kamel and Kakuda (1992)
Oil in the dried kernel	20.5–33.2	Farrohi and Mehran (1975)
	41.9	Kamel and Kakuda (1992)
	38.8	(Zlatanov et al. 1998; Zlatanov and Ivanov 1999)
	50.8	Matthäus and Özcan (2009)

^aContents for *P. avium* L. and *P. cerasus* L.

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)		
	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)	Matthäus and Özcan (2009)
Unsaponifiable fractions			
Sterols (β-sitosterol is dominant)	≈800 (TLC)		
Tocopherols (γ-tocopherol is dominant)		35 (HPLC)	22 (HPLC)
Tocotrienols		<1 (HPLC)	2 (HPLC)
Plastochromanol-8			<1 (HPLC)

Prunus domestica L.—*Rosaceae*

✓ Common names	Plum, European plum (Eng.); prunier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Bulgaria, Canada, Turkey, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.4 (one of the two methods described by Wolff 1968; solvent is not specified)	Farines et al. (1986)
	0.6 (method AOCS/Ca 6a-40, 1980; extr. petroleum ether)	Kamel and Kakuda (1992)
Oil in the dried kernel	45.9	Kamel and Kakuda (1992)
	40.6	(Zlatanov et al. 1998; Zlatanov and Ivanov 1999)
	47.1–47.8	Matthäus and Özcan (2009)

Contents of unsaponifiable fractions in kernel oil

Unsaponifiable fractions	Contents(mg/100 g of oil)			
	Farines et al. (1986)	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)	Matthäus and Özcan (2009)
Sterols (β -sitosterol is dominant)	≈ 300 (TLC)			
Tocopherols (γ -tocopherol is dominant)	78 (Spectro)		93 (HPLC)	22–37 (HPLC)
Tocotrienols			– (HPLC)	3–4 (HPLC)
Plastochromanol-8				<1 (HPLC)

Prunus dulcis (Mill.) D.A. Webb—*Rosaceae*

✓ Synonyms	<i>Amygdalus communis</i> L., <i>Prunus amygdalus</i> Batsch
✓ Common names	Almond (Eng.); amandier (Fr.)
✓ Organ analyzed	Kernel (sweet and bitter)
✓ Origins of the samples	Bulgaria, Iran, Spain, Tunisia, Turkey, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5–0.7 (method AOAC/28.063, 1970; extr. ethoxyethane)	Mehran and Filsoof (1974)
	0.9 (method in another paper; extr. 2-isopropoxypropane)	Itoh et al. (1974)
	0.5 (method AOAC/28.063, 1970; extr. ethoxyethane)	Filsoof et al. (1976)
	0.4–0.5 (method described; extr. <i>n</i> -hexane)	Kornsteiner et al. (2006)
Oil in the dried kernel	45.9–61.7	Mehran and Filsoof (1974)
	46.0 (better kernel)	Filsoof et al. (1976)
	58.7 (sweet kernel)	Filsoof et al. (1976)
	52.1–60.4	Kornsteiner et al. (2006)
	55.7	Aitzetmuller and Ihring (1988)
	40.8	Maguire et al. (2004)
	51.2–53.5	Miraliakbari and Shahidi (2008)
	53.9	Zlatanov and Ivanov (1999)
	44.7–60.1	López-Ortiz et al. (2008)
	47.1–55.4	Matthäus and Özcan (2009)

***Prunus laurocerasus* L.—Rosaceae**

✓ Synonym	<i>Laurocerasus officinalis</i> Roem.
✓ Common names	Cherry laurel (Eng.); laurier-cerise (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1995)
Oil in the dried kernel	38.1 38.1–41.6	Erciyes et al. (1995) Alasalvar et al. (2006)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Alasalvar et al. (2006)
Sterols (β -sitosterol is dominant)	258–303 (GC)
Tocopherols and tocotrienols	1–2 (HPLC)

***Prunus mahaleb* L.—Rosaceae**

✓ Common names	Mahaleb cherry (Eng.); bois de Sainte-Lucie (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method AOAC, 2000; extr. ethoxyethane)	Mariod et al. (2009)
Oil in the dried seed	30.9	Mariod et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents(mg/100 g of oil)
Unsaponifiable fraction	Mariod et al. (2009)
Tocopherols (γ -tocopherol is dominant)	29 (HPLC)

***Prunus persica* (L.) Stokes var. *persica* ou var. *nucipersica*—Rosaceae**

✓ Common names	Peach (Eng.) pêcheur et nectarinier (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Bulgaria, Canada, Greece, Iran, Turkey, doubtful

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the kernel oil	0.5 (method AOAC/28.063, 1970; extr. ethoxyethane)	Filsoof et al. (1976)
	1.5 (one of the two methods described by Wolff 1968; solvent is not specified)	Farines et al. (1986)
	1.6 (method AOAC, 1975; extr. ethoxyethane)	Lazos (1991)
	0.7–0.8 ^a (method AOCS/Ca 6a-40, 1980; extr. petroleum ether)	Kamel and Kakuda (1992)
Oil in the dried kernel	51.2	Filsoof et al. (1976)
	48.0	Lazos (1991)
	42.2–43.8 ^a	Kamel and Kakuda (1992)
	44.3	Zlatanov et al. (1998); Zlatanov and Ivanov (1999)
	50.4	Matthäus and Özcan (2009)

^aVarieties: *persica* and *nucipersica*

Contents of unaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)			
	Farines et al. (1986)	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)	Matthäus and Özcan (2009)
Unaponifiable fractions				
Sterols (β-sitosterol is dominant)	≈200 (TLC)			
Tocopherols (α-tocopherol is dominant)	12 (Spectro)		11 (HPLC)	4 (HPLC)
Tocotrienols			<1 (HPLC)	2 (HPLC)
Plastochromanol-8				– (HPLC)

Psidium guajava L.—*Myrtaceae*

✓ Common names	Guava (Eng.); goyavier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, France (Martinique), India, doubtful

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the seed oil	1.6 (method AOCS, 1957)	Osman et al. (1969)
	1.4 (method not indicated)	Habib (1986)
	0.5 (method not indicated)	Prasad and Azeemoddin (1994)
Oil in the dried seed	9.1	Habib (1986)
	16.0	Prasad and Azeemoddin (1994)
	12.6	Piombo et al. (2006)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Piombo et al. (2006)
Sterols (stigmasterol is dominant)	329 (GC)
Tocopherols (γ -tocopherol is dominant)	67 (HPLC)

Psophocarpus tetragonolobus (L.) DC—*Fabaceae*

✓ Common names	Winged bean (Eng.); haricot ailé, pois carré (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method AOAC, 1990; extr. ethoxyethane)	Amoo et al. (2006)
Oil in the dried seed	19.3	Amoo et al. (2006)

Pulicaria dysenterica (L.) Bernh.—*Asteraceae*

✓ Common names	Common fleabane (Eng.); pulicaire dysentérique (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Mediterranean

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.8 (method IUPAC/2.401, 1979; but extr. 2-methoxy-2-methylpropane)	Ucciani et al. (1994)
Oil in the dried achene	11.7	Ucciani et al. (1994)

Punica granatum L.—*Lythraceae*

✓ Common names	Pomegranate (Eng.); grenadier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	China, Egypt, Italy, oil from a company Caligiani et al. (2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method AOCS, 1964) 3.1–4.2 (method described; extr. ethoxyethane)	El-Nemr et al. (1990) Caligiani et al. (2010)
Oil in the dried seed	27.2	El-Nemr et al. (1990)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Caligiani et al. (2010)	Caligiani et al. (2010) ^a	Liu et al. (2009)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)	496–754 (GC)	1,009 (GC)	
4-Methylsterols and triterpene alcohols(cycloartenol is dominant)	659–930 (GC)	1,069 (GC)	
Tocopherols [β -tocopherol is dominant according to Caligiani et al. (2010) and γ -tocopherol is dominant according to Liu et al. (2009)]	345–352 (GC)		259 (HPLC)
Fatty alcohols	16–66 (GC)	3 (GC)	
Squalene	83–85 (GC)	145 (GC)	

^aOil from accompany, obtained by pressure*Pyrus communis* L.—*Rosaceae*

✓ Common names	Pear (Eng.); poirier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Bulgaria, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5–1 (method not indicated)	Mensier (1957)
Oil in the dried seed	15–22	Mensier (1957)
	22.4	Zlatanov et al. (1998); Zlatanov and Ivanov (1999)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
	Zlatanov et al. (1998)	Zlatanov and Ivanov (1999)
Unsaponifiable fractions		
Sterols (β -sitosterol is dominant)	≈400 (TLC)	
Tocopherols (γ -tocopherol is dominant)		93 (HPLC)
Tocotrienols		– (HPLC)

Quercus rubra L.—*Fagaceae*

✓ Common names	Red oak (Eng.); chêne rouge (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method described in another paper, extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	26.5 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	23 (OCLC-TLC)

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Chapter 7

Total Content of Unsaponifiable Matter and Content of Corresponding Chemical Families in Various Plant Seed Oils: Species R to Z

Ranunculus gramineus L.—*Ranunculaceae*

✓ Common names	Grass buttercup (Eng.); renoncule à feuilles de graminées (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6 (method of a thesis; extr. 2-isopropoxypropane)	Viano and Gaydou (1984)
Oil in the dried seed	14.0	Viano and Gaydou (1984)

Raphanus sativus L.—*Brassicaceae*

✓ Common names	Radish (Eng.); radis (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.9 (method AOCS/Ca 6a-40, 1998; extr. petroleum ether)	Domingos et al. (2008)
Oil in the dried seed	40–54	Domingos et al. (2008)
	23.6	Imbs and Pham (1995)
	45.2	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)	
	Imbs and Pham (1995)	Matthäus et al. (2003)
Sterols	≈ 900 (TLC)	
Tocopherols (γ-tocopherol is dominant)		56 (HPLC)
Tocotrienols		<1 (HPLC)
Plastochromanol-8		2 (HPLC)
Hydrocarbons and others nonpolar compounds	– (TLC)	

Rauvolfia serpentina (L.) Benth. ex Kurz—Apocynaceae

✓ Common name	Serpentine wood (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method not indicated)	Daulatabad and Ankalgi (1985)
Oil in the dried seed	17.5	Daulatabad and Ankalgi (1985)

Rauvolfia tetraphylla L.—Apocynaceae

✓ Common name	Four leaf devilpepper (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated)	Daulatabad and Ankalgi (1985)
Oil in the dried seed	14.0	Daulatabad and Ankalgi (1985)

Renealmia alpina (Rottb.) Maas—Zingiberaceae

✓ Organ analyzed	Seed
✓ Origin of the sample	Peru

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	8.6 (method IUPAC, 1979)	Lognay et al. (1989)
Oil in the dried seed	14	Lognay et al. (1989)

Reseda lutea* L.—*Resedaceae

✓ Common names	Wild mignonette (Eng.); réséda jaune (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	24.5	Ferlay et al. (1993)

Rhus coriaria* L.—*Anacardiaceae

✓ Common names	Sicilian sumac, tanner's sumac (Eng.); sumac des corroyeurs (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Turkey

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.3 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Erciyes et al. (1989)
Oil in the dried kernel	16.0	Erciyes et al. (1989)

Ribes nigrum* L.—*Grossulariaceae

✓ Common names	Blackcurrant (Eng.); cassissier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Italy, oil from a company (Lercker et al. 1988; Ntsourankoua and Artaud 1997)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0–1.2 (method NGD, 1967) 1.2 (method AFNOR/NFT 60-205, 1981; extr. ethoxyethane)	Lercker et al. (1988) Ntsourankoua and Artaud (1997)
Oil in the dried seed	17.2–22.3	Goffman and Galletti (2001)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)		
	Lercker et al. (1988) ^a	Ntsourankoua and Artaud (1997)	Goffman and Galletti (2001)
Sterols (β-sitosterol is dominant)	400 (TLC)		
4-Methylsterols	120 (TLC)		
Triterpene alcohols (24-methylenecycloartanol is dominant)	100 (TLC)	146 ^b (HPLC)	
Tocopherols (γ-tocopherol is dominant)	150 (TLC)		123–246 (HPLC)
Aliphatic alcohols	130 (TLC)		
Hydrocarbons	100 (for squalene, 35) (TLC)		

^aRefined oil
^bResult expressed as lupeol

Ricinodendron heudelotii (Baill.) Pierre ex Pax ssp. ***africanum*** (Mull. Arg.) Leonard—*Euphorbiaceae*

✓	Synonym	<i>Ricinodendron africanum</i> Müll. Arg.
✓	Common names	African wood-oil nut tree (Eng.); njangsa (Fr.)
✓	Organ analyzed	Seed
✓	Origins of samples	Cameroon

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method Schwartz, 1988)	Kapseu and Tchiégang (1995)
Oil in the dried seed	44.9–54.7	Kapseu and Tchiégang (1995)

Ricinus communis L.—*Euphorbiaceae*

✓	Common names	Castor oil plant (Eng.); ricin (Fr.)
✓	Organ analyzed	Kernel (“hulled seed”)
✓	Origins of the samples	Brazil, Italy, doubtful, oils from companies (Itoh et al. 1973; Itoh et al. 1974b; Syväoja et al. 1986)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.7 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.5 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.2 (method not indicated)	Raie et al. (1985)
	≤0.8 (method Ph. Eur. 6/2.5.7; extr. ethoxyethane)	European Pharmacopoeia (2009)
Oil in the dried kernel	39.6–59.5	Da Silva Ramos et al. (1984)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)					
	Fedeli et al. (1966)	Itoh et al. (1973)	Itoh et al. (1974b)	Syväoja et al. (1986)	Lechner et al. (1999b)	Gruszka and Kruk (2007)
Unsaponifiable fractions						
Sterols	280	150	285		244	
(β-sitosterol is dominant)	(TLC)	(TLC)	(TLC)		(LC-GC)	
4-Methylsterols		30	20			
		(TLC)	(TLC)			
Triterpene alcohols		100	45			
		(TLC)	(TLC)			
Tocopherols				82 (HPLC)	52	64 (HPLC)
(γ-tocopherol is dominant)					(LC-GC)	
Tocotrienols				– (HPLC)		Traces (HPLC)
Less polar compounds (hydrocarbons etc.)		220 (TLC)	135 (TLC)			

Robinia pseudoacacia L.—*Fabaceae*

✓ Common names	Black locust (Eng.); robinier faux-acacia, acacia
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method not indicated)	Lata Kaul et al. (1990)
Oil in the dried seed	10.0	Lata Kaul et al. (1990)

***Rosa canina* L.—Rosaceae**

✓ Common names	Dog rose (Eng.); églantier commun (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.3 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	11.8 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

***Rosa rubiginosa* L.—Rosaceae**

✓ Common names	Eglantine rose (Eng.); rosier rouillé (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Chile, Mediterranean, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method IUPAC/2.401, 1979; but extr. 2-methoxy-2-methylpropane)	Ucciani et al. (1994a)
	1.2 (method AOAC, 1990; extr. ethoxyethane)	Concha et al. (2006)
Oil in the dried seed ^a	9.5	Ucciani et al. (1994a)
	9	Concha et al. (2006)

^aIn fact, the seeds of *Rosa rubiginosa* L. are poorer in oil (<10%) than those of a number of other species of the genus *Rosa* (up 15.1% of oil) [Delabays and Slacanin (1995)], but they were selected because of the commercial importance of the oil of this species

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fraction	Contents (mg/100 g of oil)	References
Tocopherols (γ -tocopherol is dominant)	53 (HPLC)	Malter et al. (2002) ^a

^aOil obtained by pressure

***Roystonea regia* (Kunth) O.F.Cook—Arecaceae**

✓ Common names	Cuban royal palm, royal palm (Eng.); palmier royal, palmier royal de Cuba (Fr.)
✓ Organs analyzed	Kernel, fruit without kernel
✓ Origin of samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method not indicated ^a)	Badami et al. (1979)
Unsaponifiable matter in the fruit without kernel oil	1.8 (method not indicated ^a)	Badami et al. (1979)
Oil in the dried kernel	25.0	Badami et al. (1979)
Oil in the dried fruit without kernel	13.0	Badami et al. (1979)

^aNor in another paper mentioned by the authors

Rubus coreanus Miq.—*Rosaceae*

✓ Common name	Korean bramble (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	South Korea

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method described extr. ethoxyethane)	Ku and Mun (2008)
Oil in the dried seed	18.4	Ku and Mun (2008)

Rubus fruticosus L.—*Rosaceae*

✓ Common names	Blackberry (Eng.); ronce commune, murier sauvage (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Doubtful, oils from companies (Malter et al. 2002; Van Hoed et al. 2009)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5–1 (method not indicated)	Mensier (1957)
Oil in the dried seed	10–15	Mensier (1957)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Malter et al. (2002) ^a	Van Hoed et al. (2009) ^a
Sterols		404 (GC)
Tocopherols (γ -tocopherol is dominant)	19 (HPLC)	137 (HPLC)
Tocotrienols		2 (HPLC)
Squalene		17 (GC)

^aOil obtained by pressure

***Rubus idaeus* L.—Rosaceae**

✓ Common names	Raspberry (Eng.); framboisier (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, doubtful, oil from a company (Van Hoed et al. (2009))

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method AFNOR/NFT 60-205; extr. ethoxyethane)	Pourrat and Carnat (1981)
Oil in the dried seed	16–18 10.7	Pourrat and Carnat (1981) Oomah et al. (2000)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)	
	Oomah et al. (2000)	Van Hoed et al. (2009) ^a
Sterols		494 (GC)
Tocopherols (γ -tocopherol is dominant)	360 (HPLC)	211 (HPLC)
Tocotrienols	– (HPLC)	<1 (HPLC)
Carotenoids	23 (Spectro)	
Squalene		8 (GC)

^aOil obtained by pressure***Salicornia bigelovii* Torr.—Chenopodiaceae**

✓ Common names	Dwarf glasswort, dwarf saltwort (Eng.)
✓ Organ analyzed	Seed
✓ Origins of samples	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6–2.0 (method AOCS, 1989)	Anwar et al. (2002)
Oil in the dried seed	27.2–30.0	Anwar et al. (2002)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fraction	Contents (mg/100 g of oil)	References
Tocopherols (α -tocopherol is dominant)	34 (HPLC)	Anwar et al. (2002)

***Salvadora persica* L.—Salvadoraceae**

✓ Common name	Toothbrush tree (Eng.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Sudan, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≈ 1 (method not indicated)	Mensier (1957)
Oil in the dried seed	40–45	Mensier (1957)
	41.4–42.8	Mariod et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mariod et al. (2009)
Sterols (β-sitosterol is dominant)	340 (GC)
Tocopherols (γ-tocopherol is dominant)	40 (HPLC)
Tocotrienols	5 (HPLC)

Salvia aegyptiaca L.—*Lamiaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Pakistan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method not indicated)	Malik et al. (1987)
Oil in the dried seed	17.4	Malik et al. (1987)

Salvia farinacea Benth.—*Lamiaceae*

✓ Common names	Mealy sage (Fr.); sauge farineuse (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method AOCS, 1964)	Badami and Thakkar (1984a)
Oil in the dried seed	27.4	Badami and Thakkar (1984a)

Salvia hispanica L.—*Lamiaceae*

✓ Common name	Chia (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Mexico, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method not indicated) 0.9 (method Schwartz, 1988)	Baughman and Jamieson (1929) Schwartz (1988)
Oil in the dried seed	33.8 25.5–29.7	Baughman and Jamieson (1929) Álvarez-Chávez et al. (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Álvarez-Chávez et al. (2008)
Sterols (β -sitosterol is dominant)	814–1,206 (GC)
Squalene	Traces (GC)

Salvia sclarea L.—*Lamiaceae*

✓ Common names	Clary sage (Eng.); sauge sclarée (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	29.8	Ferlay et al. (1993)

Sambucus nigra L.—*Caprifoliaceae*

✓ Common names	Elder (Eng.); sureau, sureau noir (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Uzbekistan, Poland, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method not indicated) 1.1 (method described in other paper; extr. ethoxyethane) ^a	Gigienova et al. (1969) Chouda and Jankowski (2005)
Oil in the dried seed	35.8 32.0	Gigienova et al. (1969) Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Malter et al. (2002) ^a
Tocopherols	13 (HPLC)

^aOil obtained by pressure

Santalum album L.—*Santalaceae*

✓ Common names	Sandalwood, white sandalwood (Eng.); santal, santal blanc (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, oil of a company (Unpublished work (Laboratoires Expanscience and Fontanel D))

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	16.8–18.8 (method not indicated)	Iyer (1935)
	8.8 (method not indicated)	Madhuranath and Manjunath (1938)
	6.9 (method not indicated)	Gunstone and Russell (1955)
	3.2 (method AOCS/Ca 6b-53; extr. ethoxyethane)	Unpublished work (Laboratoires Expanscience and Fontanel D)
	1.3 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried seed	44–49	Iyer (1935)
	44	Madhuranath and Manjunath (1938)
	53.3	Gunstone and Russell (1955)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable contents	Unpublished work (Laboratoires Expanscience and Fontanel D)
Sterols and triterpene alcohols	320 (GC)
Aliphatic hydrocarbons	Traces (GC)
Squalene	Traces (GC)
Others unidentified terpenic fractions	920 (GC)

Sapindus saponaria L.—*Sapindaceae*

✓ Synonym	<i>Sapindus mukurossi</i> Gaertn.
✓ Common names	Chinese soapberry (Eng.); savonnier (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	India, Vietnam

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method DGF/C-III, 1953)	Franzke et al. (1971)
Unsaponifiable matter in the kernel oil	1.1 (method not indicated)	Sengupta et al. (1975)
Oil in the dried seed	39.5	Franzke et al. (1971)
	31.8	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols (γ -tocopherol is dominant)	30 (HPLC)
Tocotrienols	3 (HPLC)

Sapindus drummondi Hook. & Arn.—*Sapindaceae*

✓ Common name	Western soapberry (Eng.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.2 (method from very old book)	Dermer and Crews (1939)
Oil in the dried kernel	42.7	Dermer and Crews (1939)

*Sapindus trifoliatu*s L.—*Sapindaceae*

✓ Common name	Three-leaf soapberry (Eng.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.2 (method not indicated)	Subrahmanyam and Achaya (1957a)
	1.5 (method IUPAC/2,401, 1979)	Ucciani et al. (1994b)
Oil in the dried kernel	45.4	Subrahmanyam and Achaya (1957a)
	51.8	Ucciani et al. (1994b)

Schefflera venulosa (Wight & Arn.) Harms—*Araliaceae*

✓ Synonym	<i>Heptapleurum venulosum</i> (Wight & Arn.) Harms
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.0 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	50.0	Badami and Patil (1975)

***Schinus molle* L.—Anacardiaceae**

✓ Common names	Peruvian pepper tree (Eng.); faux poivrier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Australia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	19 (method not indicated)	Vickery (1980)
Oil in the dried seed	13.3	Vickery (1980)

***Schinziophyton rautanenii* (Schinz) Radcl.-Sm.—Euphorbiaceae**

✓ Synonym	<i>Ricinodendron rautanenii</i> Schinz
✓ Common names	Manketti, mongongo (Eng.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.6 (method IUPAC, 1987)	Mitei et al. (2008)
Oil in the dried kernel	41.5	Mitei et al. (2008)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mitei et al. (2009)
Sterols (β -sitosterol is dominant)	162 (GC)
Tocopherols (γ -tocopherol is dominant)	224 (HPLC)
Tocotrienols	– (HPLC)

***Schisandra chinensis* (Turcz.) Baill.—Schisandraceae**

✓ Common names	Schisandra, schizandra (Eng., Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Russia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	5.5 (method not indicated)	Balandin (1940)
Oil in the dried kernel	33.8	Balandin (1940)

Schleichera oleosa* (Lour.) Merr.—*Sapindaceae

✓ Synonym	<i>Schleichera trijuga</i> Willd.
✓ Common names	Ceylon oak, lac tree (Eng.); chêne de Ceylan (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	2.0 (method AOCS)	Sreenivasan (1968)
Oil in the dried kernel	74.2	Sreenivasan (1968)

Sclerocarya birrea* (A. Rich.) Hochst.—*AnacardiaceaeSubspecies: *caffera* (Mariod et al. (2004))

✓ Common name	Marula (Eng., Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Sudan, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method IUPAC, IL.D.5.3; extr. ethoxyethane)	Salama (1973)
	0.8 (method AOCS/Ca 6a-40, 1993; extr. petroleum ether)	Mariod et al. (2005)
Unsaponifiable matter in the seed oil	3.1 (method AOCS, 1973)	Ogbobe (1992)
Oil in the dried kernel	63.3	Salama (1973)
	53.5	Mariod et al. (2004, 2005)
Oil in the dried seed	11.0	Ogbobe (1992)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mariod et al. (2004)
Sterols (β -sitosterol is dominant)	287 (GC)
Tocopherols (γ -tocopherol is dominant)	14 (HPLC)

Serenoa repens* (W.Bartram) Small—*Arecaceae

✓ Common names	Saw-palmetto (Eng.); palmier de Floride (Fr.)
✓ Organs analyzed	Fruit, seed
✓ Origins of the samples	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the fruit oil	5.5 (method IUPAC, 1987; extr. ethoxyethane)	Wajda-Dubois et al. (1996)
Unsaponifiable matter in the seed oil	1.8 (method IUPAC, 1987; extr. ethoxyethane)	Wajda-Dubois et al. (1996)
Oil in the dried fruit	16.0	Wajda-Dubois et al. (1996)
Oil in the dried seed	12.0	Wajda-Dubois et al. (1996)

Contents of unsaponifiable fractions in fruit oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Schantz et al. (2008) ^a
Sterols (β-sitosterol is dominant)	245 (GC)
γ- and δ-tocopherols	≈ 32 (HPLC)
Carotenes	5 (HPLC)

^aOil obtained by supercritical fluid*Sesamum alatum* Thonn.—*Pedaliaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.8–4.9 (method described; extr. ethoxyethane)	Kamal-Eldin and Appelqvist (1994b)
	0.8 (method not indicated)	Mariod and Matthäus (2008)
Oil in the dried seed	21.3	Mariod and Matthäus (2008)
	28.1–29.8	Kamal-Eldin and Appelqvist (1994a)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Kamal-Eldin and Appelqvist (1994b)	Mariod and Matthäus (2008)
Sterols	870–1,000 (TLC)	
4-Methylsterols	30–90 (TLC)	
Triterpene alcohols (cycloartenol is dominant)	40–60 (TLC)	
Tocopherols (γ-tocopherol is dominant)	21–32 (HPLC)	25 (HPLC)
Tocotrienols		<1 (HPLC)
Lignans (2-episesalatin is dominant)	1,220–1,660 (HPLC)	

Sesamum angustifolium (Oliv.) Engl.—*Pedaliaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.6–3.7 (method described; extr. ethoxyethane)	Kamal-Eldin and Appelqvist (1994b)
Oil in the dried seed	29.2–29.7	Kamal-Eldin and Appelqvist (1994a)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Kamal-Eldin and Appelqvist (1994b)
Sterols (β -sitosterol is dominant)	530 (TLC)
4-Methylsterols (citra-stadienol is dominant)	40–50 (TLC)
Triterpene alcohols (cycloartenol is dominant)	12 (TLC)
Tocopherols (γ -tocopherol is dominant)	73–76 (HPLC)
Lignans (sesangolin is dominant)	3,370–3,630 (HPLC)

Sesamum indicum L.—*Pedaliaceae*

✓ Common names	Sesame (Eng.); sésame (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Burkina Faso, Burma, Cameroon, China, Egypt, India, Japan, Mexico, Sudan, Thailand, USA, doubtful, oil from companies (Itoh et al. 1973; Kornfeldt and Croon 1981; McGill et al. 1993; Schwartz et al. 2008)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	1.1–1.4 (method Cocks and Van Rede, 1966; extr. ethoxyethane)	Raie and Salma (1985)
	1.4 (method Schwartz, 1988)	Schwartz (1988)
	1.4–1.8 (method described; extr. ethoxyethane)	Kamal-Eldin and Appelqvist (1994b)
	1.2 (method Schwartz, 1988)	Kapseu (1998)
	≤2.0 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/8609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	46.8–47.6	Raie and Salma (1985)
	50–57	Kapseu (1998)
	47.4–55.5	Kamal-Eldin and Appelqvist (1994a)
	45.0–45.4	Mohamed and Awatif (1998)

Contents of unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)									
	Itoh et al. (1973)	Kamal-Eldin and Appelqvist (1994b)	Codex Alimentarius (2009)	Mohamed and Awatif (1998)	Kornfeldt and Croon (1981)	McGill et al. (1993)	Hemalatha and Ghafoorunissa (2004) ^a	Crews et al. (2006b)	Schwartz et al. (2008)
Unsaponifiable fractions									
Sterols (β -sitosterol is dominant)	616 (TLC)	430–680 (TLC)	450–1,900 (GC)		331 (GC)			324–798 (GC)	595 (GC)
4-Methylsterols	406 (TLC)	60–70 (TLC)			47 (GC)				
Triterpene alcohols [cycloartenol is dominant according to Kornfeldt and Croon (1981)]	182 (TLC)	10–20 (TLC)			20 (GC)				
Tocopherols (γ -tocopherol is dominant)	49–68 (HPLC)		33–101 (HPLC)				19–70 (HPLC)	43–72 (HPLC)	45 (HPLC)
Tocotrienols			0–2 (HPLC)					0.3 (HPLC)	
Lignans (sesamin is dominant ^b)		620–1,220 (HPLC)		530–634 (HPLC)			590–2,910 (HPLC)		
Hydrocarbons and aliphatic alcohols	196 (TLC)								
<i>n</i> -Alkanes (C _{15–33})							2–8 (HPLC)		

^aBotanical species not named in the paper

^bSesamol is dominant in one of samples analyzed by Hemalatha and Ghafoorunissa (2004)

Sesamum radiatum Schumach.—*Pedaliaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	Sudan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5–2.7 (method described; extr. ethoxyethane)	Kamal-Eldin and Appelqvist (1994b)
Oil in the dried seed	30.3–33.4	Kamal-Eldin and Appelqvist (1994a)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Kamal-Eldin and Appelqvist (1994b)
Sterols (β -sitosterol is dominant)	340–440 (TLC)
4-Methylsterols (citra-stadienol is dominant)	90–120 (TLC)
Triterpene alcohols (cycloartenol is dominant)	20–30 (TLC)
Tocopherols (γ -tocopherol is dominant)	80–81 (HPLC)
Lignans (sesamin is dominant)	2,330–2,570 (HPLC)

Shepherdia argentea (Pursh) Nutt.—*Elaeagnaceae*

✓ Common names	Silver buffaloberry (Eng.); sh��pherdie argent��e (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.8 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	13.7 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Shorea robusta Gaertn.—*Dipterocarpaceae*

✓ Common names	Sal tree (Eng.); sal (Fr.)
✓ Organ analyzed	Seed
✓ Origins of samples	India, doubtful, oils from companies (Jeong et al. 1974; Soulier et al. 1990; Dhara et al. 2010; Kolhe et al. 1981; Soulier et al. 1989; Itoh et al. 1974b), no details concerning the oils analyzed (Kundu and Deb 1981; Homberg and Bielefeld 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	1.5 (method AOCS, 2nd edn.)	Kundu and Deb (1981)
	1.6 (method described too briefly)	Soulier et al. (1990)
	2.0 (method described; extr. petroleum ether)	Dhara et al. (2010)
Oil in the dried seed	14 (content cited)	Kolhe et al. (1981)
	15.3	Kershaw (1982)

Contents of unsaponifiable fractions in seed oil

Contents (mg/100 g of oil)					
	Jeong et al. (1974)	Soulier et al. (1990)	Dhara et al. (2010)	Homberg and Bielefeld (1982)	Soulier et al. (1989)
Unsaponifiable fractions					
Sterols (β-sitosterol is dominant)	612 (TLC)	1,045 (HPLC)		300 (GC)	
4-Methylsterols	60 (TLC)	69 (HPLC)		30 (GC)	
Sterols and 4-methylsterols			637 (TLC)		
Triterpene alcohols [cycloartenol is dominant according to Itoh et al. (1974b)]	240 (TLC)	486 (HPLC)	318 (TLC)	118 (GC)	
Tocopherols (α-tocopherol is dominant)					12 (Spectro)
Fatty alcohols			213 (TLC)		
Nonpolar compounds (hydrocarbons etc.)	288 (TLC)		576 (TLC)		
Unidentified fractions			256 (TLC)		

Shorea stenoptera Burck—*Dipterocarpaceae*

✓ Common names	Illipé, Borneo tallow nut (Eng.); illipé de Bornéo (Fr.)
✓ Organ analyzed	Kernel, but none of the papers cited are clearly specifies the organ used to prepare the fat
✓ Origins of samples	Borneo, doubtful, oils from companies (Jeong et al. 1974; Kolhe et al. 1982; Soulier et al. 1989, 1990), no details concerning the oil analyzed (Homberg and Bielefeld 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.1 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.5 (method described; extr. petroleum ether)	Kolhe et al. (1982)
	1.4 (method described too briefly)	Soulier et al. (1990)
Oil in the dried kernel	50.3	Kershaw (1982)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)			
	Jeong et al. (1974)	Soulier et al. (1990)	Homberg and Bielefeld (1982)	Soulier et al. (1989)
Unsaponifiable fractions				
Sterols (β -sitosterol is dominant)	462 (TLC)	914 (HPLC)	215 (GC)	
4-Methylsterols	88 (TLC)	45 (HPLC)	41 (GC)	
Triterpene alcohols	110 (TLC)	441 (HPLC)	51 (GC)	
Tocopherols (α -tocopherol is dominant)				33 (Spectro)
Nonpolar compounds (hydrocarbons etc)	440 (TLC)			

Sida acuta Burm.f.—*Malvaceae*

✓ Common name	Common wireweed (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method Indian Ph. 1966; extr. ethoxyethane)	Rao et al. (1973)
Oil in the dried seed	12	Rao et al. (1973)

Sida cordata (Burm. f.) Borss.Waalk.—*Malvaceae*

✓ Synonymous	<i>Sida veronicifolia</i> Lam.
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.1 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	15.5	Rao and Lakshminarayana (1984)

Sida cordifolia L.—*Malvaceae*

✓ Common name	Bala (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.3 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	11.5	Rao and Lakshminarayana (1984)

Sida mysorensis Wight & Arn.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.9 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	13.6	Rao and Lakshminarayana (1984)

Sida ovata Forssk.—*Malvaceae*

✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.7 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	12.1	Rao and Lakshminarayana (1984)

Sida rhombifolia L.—*Malvaceae*

✓ Common names	Cuban jute, arrow-leaf sida, Queensland hemp (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	4.8 (method AOCS, 1973)	Rao and Lakshminarayana (1984)
Oil in the dried seed	12.6	Rao and Lakshminarayana (1984)

Silybum marianum (L.) Gaertn.—*Asteraceae*

✓ Common names	Milk thistle (Eng.); chardon-Marie (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	Egypt, Mediterranean, Pakistan, doubtfuls, oil from companies (Parry et al. 2006; Gruszka and Kruk 2007)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.9 (method not indicated)	El-Tahawi et al. (1987)
	1.1 (method IUPAC/2.401, 1979; but extr. 2-methoxy-2-methylpropane)	Ucciani et al. (1994a)
	2.4 (method AOAC, 1990; extr. ethoxyethane)	Ahmad et al. (2007)
Oil in the dried achene	29.5	El-Tahawi et al. (1987)
	24.2	Ucciani et al. (1994a)
	26.7	Ahmad et al. (2007)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	El-Mallah et al. (2003)	Parry et al. (2006) ^a	Gruszka and Kruk (2007)
Unsaponifiable fractions			
Sterols (β -sitosterol is dominant)	600 (TLC)		
Tocopherols (α -tocopherol is dominant)	26 (HPLC)	20 (HPLC)	25 (HPLC)
Tocotrienols			1–2 (HPLC)
Carotenoids (zeaxanthin is dominant)		<1 (HPLC)	

^aOil obtained by pressure*Simarouba glauca* DC.—*Simaroubaceae*

✓ Common names	Paradise tree (Eng.); bois amer (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India, San Salvador

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method AOCS, 1946)	Lewy-Van Severen (1953)
	1.0 (method AOCS/Ca 6a-40, 1996; extr. petroleum ether)	Jeyarani and Reddy (2001)
Oil in the dried kernel	55–65	Lewy-Van Severen (1953)

Simmondsia chinensis (Link) C.K.Schneid.—*Buxaceae*

✓ Common name	Jojoba (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Argentina, India, USA, doubtfuls, oil from company (Busson-Breysse et al. (1994))

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	48.9 (method described; extr. ethoxyethane preceded by an ethanolysis)	Hamilton et al. (1975)
	44.7 (method Schwartz, 1988)	Schwartz (1988)
	44.6 ^a (method AOCS, 1992)	Tobares et al. (2003)
	48.2–49.2 (method imprecise)	Sandha and Swami (2009)
Oil in the dried seed	43–47	Sandha and Swami (2009)
	40.3–52.1	Miwa (1971)
	50	Van Boven et al. (1997)

^aOil obtained by pressure

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)		
	Tobares et al. (2003) ^a	Van Boven et al. (1997)	Busson-Breysse et al. (1994) ^a
Unsaponifiable fractions			
Sterols (β-sitosterol is dominant)			394 (HPLC)
Free sterols (β-sitosterol is dominant)		≈ 380 (GC)	
Free 4-methylsterols and triterpene alcohols		≈ 20 (GC)	
Tocopherols (γ-tocopherol is dominant)	6 (method not indicated)		
Aliphatic fatty alcohols:			
<i>cis</i> -13-docosenol		45.8% of fatty alcohols	46.4% of fatty alcohols
<i>cis</i> -11-eicosenol		47.3% of fatty alcohols (GC)	45.4% of fatty alcohols (HPLC)
Free aliphatic fatty alcohols		≈ 1,000 (TLC; confirmed by GC)	

^aOil obtained by pressure

Sinapis alba L.—*Brassicaceae*

✓	Synonym	<i>Brassica hirta</i> Moench
✓	Common names	White mustard (Eng.); moutarde blanche (Fr.)
✓	Organ analyzed	Seed
✓	Origins of the samples	Doubtful

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the seed oil	0.9 (method AOCS, 1975) ≤1.5 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Ali and McKay (1982) Codex Alimentarius (2009)
Oil in the dried seed	22–41	Ucciani (1995)

Sinapis arvensis L.—*Brassicaceae*

✓	Common names	Charlock (Eng.); moutarde des champs (Fr.)
✓	Organ analyzed	Seed
✓	Origin of the sample	Morocco

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the seed oil	≤1.0 (method AFNOR/NFT 60-205, 1984; extr. <i>n</i> -hexane)	Bettach et al. (1996)
Oil in the dried seed	27	Bettach et al. (1996)

Sisymbrium irio L.—*Brassicaceae*

✓	Common names	London rocket (Eng.); roquette jaune (Fr.)
✓	Organ analyzed	Seed
✓	Origin of the sample	Doubtful

Unaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unaponifiable matter in the seed oil	0.7 (method not indicated)	Raie et al. (1983)
Oil in the dried seed	22	Raie et al. (1983)

Smilax glycyphylla Sm.—*Smilacaceae*

✓	Common names	Sweet Sarsaparilla (Eng.)
✓	Organ analyzed	Seed
✓	Origin of the sample	Australia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1970)
Oil in the dried seed	11.9	Morice (1970)

Solanum lycopersicum L. var. *lycopersicum*—*Solanaceae*

✓ Common names	Tomato (Eng.); tomate (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Greece, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.1 (method AOCS, 1963 or AOAC, 1965) 1.2 (method Schwartz, 1988) 1.4 (method CE, 1991; extr. ethoxyethane)	Morad et al. (1980) Schwartz (1988) Lazos et al. (1998)
Oil in the dried seed	22.5–25.1 21.8	Morad et al. (1980) Lazos et al. (1998)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Lazos et al. (1998)	Kioseoglu et al. (1987)
Sterols (β -sitosterol is dominant)	325–533 (GC)	
4-Methylsterols and triterpene alcohols		79–122 (GC)
Tocopherols (δ -tocopherol is dominant)	126 (HPLC)	

Solanum melongena L.—*Solanaceae*

✓ Common names	Eggplant (Eng.); aubergine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method UIPAC/2.401)	Cocallemen et al. (1988), Farines et al. (1988)
Oil in the dried seed	22	Cocallemen et al. (1988)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Cocallemen et al. (1988)
Sterols	540 (obtained by precipitation)
4-Methylsterols (24-ethylphenol is dominant)	400 (OCLC)
Triterpene alcohols (cycloartenol is dominant)	220 (OCLC)
Tocopherols (γ -tocopherol is dominant)	33 (Spectro)

Solanum sisymbriifolium Lam.—*Solanaceae*

✓ Common names	Sticky nightshade (Eng.); morelle de Balbis (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Argentina

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	14 (method AOCS/Ca 6b-53, 1998; extr. ethoxyethane)	Nolasco et al. (2001)
Oil in the dried seed	20.6	Nolasco et al. (2001)

Sophora tomentosa L.—*Fabaceae*

✓ Common names	Necklace pod (Eng.); haricot batard (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	\approx 1.2 (method AFNOR/NFT 60–205; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
Oil in the dried seed	\approx 16.5	Miralles and Pares (1980)

Sopubia delphiniifolia (L.) G. Don—*Orobanchaceae*

✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method not indicated ^a)	Badami and Alagawadi (1983)
	1.1 (method not indicated)	Farooqui (1986)
Oil in the dried seed	5.2	Badami and Alagawadi (1983)
	10.5	Farooqui (1986)

^aNor in another paper mentioned by the authors

Spartium junceum L.—*Fabaceae*

✓ Common names	Spanish broom (Eng.); genêt d'Espagne (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method not indicated)	Lata Kaul et al. (1990)
Oil in the dried seed	10.5	Lata Kaul et al. (1990)

Staphylea trifolia L.—*Staphyleaceae*

✓ Common names	American bladdernut (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	24.1 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	12 (OCLC-TLC)

Sterculia africana (Lour.) Fiori—*Sterculiaceae*

✓ Common name	African star chestnut (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method IUPAC, 1987)	Mitei et al. (2008)
Oil in the dried seed	31.7	Mitei et al. (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mitei et al. (2009)
Sterols (β -sitosterol is dominant)	86 (GC)
Tocopherols and tocotrienols (γ -tocotrienol is dominant)	25 (HPLC)

Stillingia sylvatica L.—*Euphorbiaceae*

✓ Common names	Queen's delight, queen's root (Eng.); racine royale (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.8 (method AOAC; extr. ethoxyethane)	Batterson and Potts (1951)
Oil in the dried seed	30–33	Batterson and Potts (1951)

Swietenia macrophylla King—*Meliaceae*

✓ Common names	Honduras mahogany (Eng.); acajou du Honduras (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Mexico, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method AOCS, 1946) 1.1 (method AOCS, 1946)	Munguia et al. (1949a) Chakrabarty and Chowdhuri (1957)
Oil in the dried seed	50 50	Munguia et al. (1949a) Chakrabarty and Chowdhuri (1957)

Swietenia mahagoni (L.) Jacq.—*Meliaceae*

✓ Common names	West Indian mahogany (Eng.); acajou d'Amérique (Fr.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method described by Williams, 1966; extr. ethoxyethane)	Majid et al. (2004)
Oil in the dried kernel	47.5	Majid et al. (2004)

Syagrus romanzoffiana (Cham.) Glassman—*Arecaceae*

✓ Synonym	<i>Arecastrum romanzoffianum</i> (Cham.) Becc.
✓ Common names	Queen palm (Eng.); palmier reine (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Uruguay, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.4 (method AOAC, 1940; extr. ethoxyethane)	Pulley and von Loesecke (1941)
	0.7 (method not indicated)	Grompone (1985)
Oil in the dried kernel	52.2	Pulley and von Loesecke (1941)
	34.8–55.0	Grompone (1985)

Symphoricarpos albus (L.) S.F.Blake—*Caprifoliaceae*

✓ Common names	Snowberry (Eng.); symphorine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	22.0 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Taraxacum officinale Weber ex F.H. Wigg.—*Asteraceae*

✓ Common names	Dandelion (Eng.); pissenlit (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.9–1.4 (method with GC)	Unpublished work (Laboratoires Expanscience and Fontanel D)
Oil in the dried achene	23.5–27.3	Unpublished work (Laboratoires Expanscience and Fontanel D)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Unpublished work (Laboratoires Expanscience and Fontanel D)
Sterols and triterpene alcohols	770–1,090 (GC)
Hydrocarbons	10–60 (GC)
Squalene	10–60 (GC)

Taxus baccata L.—*Taxaceae*

✓ Common names	European yew (Eng.); if (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.4 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	31.2 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	10 (OCLC-TLC)

Tectona grandis L.f.—*Verbenaceae*

✓ Common names	Teak (Eng.); teck (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.8 (method not indicated) 1.4 (method AOCS, 1964)	Subrahmanyam and Achaya (1957b) Rao and Lakshminarayana (1979)
Oil in the dried kernel	44.5 43.2	Subrahmanyam and Achaya (1957b) Rao and Lakshminarayana (1979)

Telfairia occidentalis Hook.f.—*Cucurbitaceae*

✓ Common names	Fluted pumpkin, oyster nuts (Eng.); courage cannellée (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	1.3 ^a (method in another paper: Hudson, 1984; extr. ethoxyethane)	Badifu (1991a)
Unsaponifiable matter in the seed oil	1.1 (method described; extr. ethoxyethane)	Esuoso et al. (2000)
Oil in the dried seed	48.6	Esuoso et al. (2000)

^aOil obtained by pressure

Contents of unsaponifiable fractions in oil

	Contents (mg/100 g of kernel oil)	Contents (mg/100 g of seed oil)
Unsaponifiable fraction	Badifu (1991b)	Esuoso et al. (1998)
Carotenoids	2 (Spectro)	18 (Spectro)

Terminalia bellirica (Gaertn.) Roxb.—*Combretaceae*

✓ Common names	Beleric, beleric myrobalan (Eng.); myrobalan beleric (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Bangladesh, India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	8.2 (method BP, 1963; extr. ethoxyethane) 0.7(method with GC, excepted tocopherols)	Rukmini and Udayasekhara Rao (1986) Unpublished work (Laboratoires Expanscience and Fontanel D)
Unsaponifiable matter in the seed oil	1.2 (method AOAC, 1990; extr. ethoxyethane)	Molla et al. (2007)
Oil in the dried kernel	40.9 35.0	Rukmini and Udayasekhara Rao (1986) Unpublished work (Laboratoires Expanscience and Fontanel D)
	22.6	Molla et al. (2007)
Oil in the dried seed	12.3	Molla et al. (2007)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of kernel oil)
Unsaponifiable fractions	Unpublished work (Laboratoires Expanscience and Fontanel D)
Sterols totaux (β -sitosterol is dominant)	308 (GC)
Aliphatic hydrocarbons	Traces (GC)
Squalene	7 (GC)
Other hydrocarbons	112 (GC)
Unidentified fractions	273 (GC)

Terminalia catappa L.—Combretaceae

✓ Common names	Tropical almond, Indian almond (Eng.); badamier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.5 (method BP, 1988; extr. ethoxyethane)	Omeje et al. (2008)
Oil in the dried seed	56.7	Omeje et al. (2008)

Theobroma bicolor Humb. & Bonpl.—Sterculiaceae

✓ Common names	Peruvian cacao, tiger cocoa, patashte (Eng.); mocambo (Fr.)
✓ Organ analyzed	Seed ("beans")
✓ Origins of samples	Costa Rica, Ecuador

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.6 (method AOAC/28.081, 1980; extr. ethoxyethane)	Jee (1984)
Oil in the dried seed	38	Jee (1984)
	29.6	Carpenter et al. (1994)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Carpenter et al. (1994)
Sterols (β -sitosterol is dominant)	237 (GC)
Tocopherols (γ -tocopherol is dominant)	9 (HPLC)
Tocotrienols	– (HPLC)

Theobroma cacao L.—Sterculiaceae

✓ Common names	Cacaoyer (Fr.); cacao (Eng.)
✓ Organ analyzed	Seed (“beans”)
✓ Origins of samples	Brazil, Ecuador, Togo, doubtful, oils from companies (Itoh et al. 1973; Derbesy and Richert 1979), no details concerning the oil analyzed (Homberg and Bielefeld 1982)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.4 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	0.1–0.3 (method described by Williams, 1950; extr. ethoxyethane)	Adomako (1977)
	0.2–0.8 (method of a thesis; extr. 2-isopropoxypropane)	Derbesy and Richert (1979)
	0.5 (method AOAC/28.081, 1980; extr. ethoxyethane)	Jee (1984)
	<0.7 (<0.35) ^a (method IUPAC/2.401, 1987)	Codex Alimentarius (2001)
Oil in the dried seed	53.4	Adomako (1977)
	54.5	Carpenter et al. (1994)

^aIf fat is obtained by pressure

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)					
	Fedeli et al. (1966)	Itoh et al. (1973)	Derbesy and Richert (1979)	Carpenter et al. (1994)	Homberg and Bielefeld (1982)	Staphylakis and Gegiou (1985)
Sterols (β -sitosterol is dominant)	300 (TLC)	296 (TLC)	135–250 (GC)	205 (GC)	180 (GC)	178 (TLC)
4-Methylsterol		16 (TLC)			10 (GC)	10 (TLC)
Triterpene alcohols (cycloartenol is dominant)	50 (TLC)	52 (TLC)			32 (GC)	20 (TLC)
Tocopherols (γ -tocopherol is dominant)				29 (HPLC)		
Tocotrienols				1 (HPLC)		
Hydrocarbons and other apolar compounds		36 (TLC)				

Theobroma grandiflorum (Willd ex Spreng.) K. Schum.—*Sterculiaceae*

✓ Common name	Cupuaçu (Eng., Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Brazil

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.2 (method NGD/C-12, 1976; extr. ethoxyethane)	Gomes Da Silva et al. (1999)
Oil in the dried seed	56.7	Carpenter et al. (1994)

Contents of unsaponifiable fractions in oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Carpenter et al. (1994)
Sterols (β -sitosterol is dominant)	228 (GC)
Tocopherols (α -tocopherol is dominant)	2 (HPLC)
Tocotrienols	– (HPLC)

Thespesia populnea (L.) Sol. ex Corrêa—*Malvaceae*

✓ Common names	Milo, portia tree (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method not indicated)	Subbaram (1954)
Oil in the dried seed	20.0	Subbaram (1954)

Thevetia peruviana (Pers.) K. Schum.—*Apocynaceae*

✓ Synonym	<i>Thevetia neriiifolia</i> Juss. ex. Steud.
✓ Common names	Luckynut, yellow oleander (Eng.); thévétia du Pérou, laurier jaune (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Nigeria, Senegal

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.1 (method AFNOR/NFT 60-205, 1976; extr. <i>n</i> -hexane)	Miralles and Pares (1980)
	1.4 (method in another paper; extr. 2-isopropoxypropane)	Miralles (1981)
	<1 (method briefly described; extr. ethoxyethane)	Obasi et al. (1990)
Oil in the dried seed	60.6	Miralles and Pares (1980)
	54.5–83.8 (ml/100 g)	Obasi et al. (1990)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Miralles (1981)
Sterols (β -sitosterol is dominant)	210 (TLC)
4-Methylsterols (gramisterol is dominant)	70 (TLC)
Triterpene alcohols (cycloartenol is dominant)	168 (TLC)
Tocopherols	140 (TLC)
Hydrocarbons	770 (TLC)
Unidentified fractions	42 (TLC)

Thlaspi arvensis L.—*Brassicaceae*

✓ Common names	Field pennycress (Eng.); tabouret des champs (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.4 (method AOCS, 1998; extr. ethoxyethane)	Diwakar et al. (2010)
Oil in the dried seed	21.5	Diwakar et al. (2010)
	29.0	Moser et al. (2009)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Moser et al. (2009)
Sterols	855 (GC)
Tocopherols (α -tocopherol is dominant)	85 (HPLC)

Tilia cordata Mill.—*Tiliaceae*

✓ Common names	Small leaf linden (Eng.); tilleul à petite feuille (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	27.9 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	7 (OCLC-TLC)

Torreya nucifera (L.) Siebold & Zucc.—*Cupressaceae*

✓ Synonym	<i>Thuja orientalis</i> L.
✓ Common names	Japanese torreya (Eng.); torreya du Japon (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.7 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	49.3 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	112 (OCLC-TLC)

***Trachyspermum ammi* (L.) Sprague—Apiaceae**

✓	Synonym	<i>Carum copticum</i> Benth.
✓	Common name	Ajowan (Eng., Fr.)
✓	Organ analyzed	Seed
✓	Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.2 (method not indicated)	Farooq et al. (1953)
Oil in the dried seed ^a	24.0	Farooq et al. (1953)

^aEssential oil was previously removed***Tragopogon pratensis* L.—Asteraceae**

✓	Common names	Meadow salsify, goat's beard (Eng.); salsifis des près (Fr.)
✓	Organ analyzed	Achene
✓	Origin of the sample	France

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	1.7 (method Ph. Fr. 10/V.3.4.7, 1983; extr. ethoxyethane)	Unpublished personal work
Oil in the dried achene	17.0	Unpublished personal work

***Triadica cochinchinensis* Lour.—Euphorbiaceae**

✓	Synonym	<i>Sapium discolor</i> (Champ. ex Benth.) Müll. Arg.
✓	Organs analyzed	Seed, fruit
✓	Origin of the sample	China

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed (or fruit?) oil	0.4–0.9 (method not indicated)	Crossley and Hilditch (1950)
Oil in the dried seed	26.6–27.1	Crossley and Hilditch (1950)
Oil in the dried fruit	21.5–23.7	Crossley and Hilditch (1950)

***Triadica sebifera* (L.) Small—Euphorbiaceae**

✓	Synonyms	<i>Stillingia sebifera</i> (L.) Michx.; <i>Sapium sebiferum</i> (L.) Roxb.
✓	Common names	Stillingia (Eng.); arbre à suif (Fr.)
✓	Organs analyzed	Fruit, kernel, seed
✓	Origins of the samples	China, India, USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed (or fruit?) oil	0.8–1.0 (method not indicated)	Crossley and Hilditch (1950)
Unsaponifiable matter in the kernel oil	1.1–1.2 (method not indicated)	Narang and Sadgopal (1958)
Oil in the dried fruit	15.9–22.4	Crossley and Hilditch (1950)
Oil in the dried kernel	55.0–59.4	Narang and Sadgopal (1958)
Oil in the dried seed	20.7–26.8	Crossley and Hilditch (1950)
	16.9–18.3	Narang and Sadgopal (1958)

Trichilia hirta L.—Meliaceae

✓ Common name	Broomstick (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Mexico

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method AOCS, 1946)	Munguia et al. (1949b)
Oil in the dried seed	46.6	Munguia et al. (1949b)

Trichosanthes anguina L.—Cucurbitaceae

✓ Common names	Snake gourd, viper gourd (Eng.); courge serpent (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	≈ 1.5 (method not indicated)	Mensier (1957)
Oil in the dried seed	29.1	Chisholm and Hopkins (1964)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Akihisa et al. (1986)
Sterols	344 (TLC)

Tricyrtis affinis Makino—*Liliaceae*

✓ Common names	Toad lily (Eng.); lis crapaud (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.8 (method not indicated)	Kato and Tanaka (1981)
Oil in the dried seed	22.0	Kato and Tanaka (1981)

Triticum aestivum L. ssp. *aestivum*—*Poaceae*

✓ Common names	Wheat (Eng.); blé (Fr.)
✓ Organ analyzed	Germ of the seed
✓ Origins of the samples	Egypt, doubtful, oil from companies (Itoh et al. 1973; Kuksis 1964; Kornfeldt and Croon 1981; Syväoja et al. 1986; Kioseoglou et al. 1987; Gasparoli et al. 1996; Rovellini et al. 1997; Caligiani et al. 2010)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter of the germ oil	3.2 (method described; extr. 2-isopropoxypropane)	Itoh et al. (1973)
	3.8 (imprecise method referring to a paper with different methods)	Saker et al. (1986)
	4.8–5.0 (method Schwartz, 1988)	Schwartz (1988)
Oil in the dried germ	10.7	Saker et al. (1986)

Contents of unsaponifiable fractions in germ oil

Contents (mg/100 g of oil)							
	Itoh et al. (1973)	Kuksis (1964)	Barnes and Taylor (1980)	Kornfeldt and Croon (1981)	Syv��ja et al. (1986)	Kioseoglou et al. (1987)	Caligiani et al. (2010) ^a
Unsaponifiable fractions							
Sterols	2,592 (TLC)			1,425 (GC)			1,137 (GC)
(β -sitosterol is dominant)							
4-Methylsterols	160 (TLC)			59 (GC)			
Triterpene alcohols	224 (TLC)			59 (GC)			
4-Methylsterols and triterpene alcohols						120 (GC)	167 (GC)
(citra-stadienol is dominant)							
Tocopherols			141–309 (HPLC)		235–239 (HPLC)		294–387 (HPLC)
(α -tocopherol is dominant)						152–454 (GC)	
Tocotrienols			9–38 (HPLC)		3–6 (HPLC)		
(β -tocotrienol is dominant)							
Fatty alcohols							2 (GC)
Hydrocarbons and aliphatic alcohols	224 (TLC)						
Hydrocarbons		50 (OCLC)					
Squalene							0.6 (GC)

^aOil obtained by pressure

Tropaeolum majus L.—*Tropaeolaceae*

✓ Common names	Garden nasturtium (Eng.); grande capucine (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Canada, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.8 (method not indicated)	Chisholm and Hopkins (1953)
Oil in the dried seed	7	Chisholm and Hopkins (1953)
	5.9–10.5	Carlson and Kleiman (1993b)

Tylosema esculentum (Burch.) A.Schreib.—*Fabaceae*

✓ Common names	Marama bean, gemsbok-bean (Eng.)
✓ Organ analyzed	Hulled bean
✓ Origins of the samples	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the hulled bean oil	0.1 (method IUPAC, 1979) 0.5 (method IUPAC, 1987)	Ketshajwang et al. (1998) Mitei et al. (2008)
Oil in the dried hulled bean	48.2 38.4	Ketshajwang et al. (1998) Mitei et al. (2008)

Contents of unsaponifiable fractions in hulled bean oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mitei et al. (2009)
Sterols (β -sitosterol is dominant)	15 (GC)
Tocopherols (γ -tocopherol is dominant)	20 (HPLC)
Tocotrienols	– (HPLC)

Typha latifolia L.—*Typhaceae*

✓ Common names	Bulrush, common cattail (Eng.); massette à larges feuilles (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil seed contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.5 (method AOCS)	Clopton and von Korff (1945)
Oil in the dried seed	17.9	Clopton and von Korff (1945)

Ulmus glabra Huds.—*Ulmaceae*

✓ Common names	Wych elm (Eng.); orme blanc (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	39.7 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	13 (OCLC-TLC)

Ulmus laevis Pall.—*Ulmaceae*

✓ Common names	European white elm (Eng.); orme lisse (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.9 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	37.0 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Chouda and Jankowski (2005)
Polyprenols	14 (OCLC-TLC)

Uncinia uncinata (L.f.) Kük.—*Cyperaceae*

✓ Common name	Hawai'i birdcatching sedge (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	New Zealand

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method Cocks, 1933; extr. ethoxyethane)	Morice (1977)
Oil in the dried seed	11.1	Morice (1977)

Urena lobata L.—*Malvaceae*

✓ Common names	Caesarweed, bur mallow (Eng.); hérisson rouge (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	3.1 (method AOCS/Ca 6a-40, 1971; extr. petroleum ether)	Ahmad et al. (1978)
Oil in the dried seed	18.0	Ahmad et al. (1978)

Valenzuela trinervis Bert.—*Sapindaceae*

✓ Common name	Guindilla (Eng.)
✓ Organ analyzed	Cotyledon
✓ Origin of the sample	Chile

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the cotyledon oil	0.8 (method AOAC/28.035!, 1980) (erroneous number)	Aguilera et al. (1986)
Oil in the dried cotyledon	67.0	Aguilera et al. (1986)

Vateria indica L.—*Dipterocarpaceae*

✓ Common names	White dammar (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.0 (method AOCS)	Sreenivasan (1968)
Oil in the dried seed	22.5	Sreenivasan (1968)

Ventilago calyculata Tul.—*Rhamnaceae*

✓ Common name	Supplejack (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.6 (method not indicated)	Grover and Rao (1981)
Oil in the dried seed	40	Grover and Rao (1981)

Verbascum thapsus L.—*Scrophulariaceae*

✓ Common names	Mullein, white mullein (Eng.); bouillon blanc, molène (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	France, oil from a company [Parry et al. (2006)]

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.3 (method AFNOR/NFT 60-205, 1981; extr. <i>n</i> -hexane)	Ferlay et al. (1993)
Oil in the dried seed	32.6	Ferlay et al. (1993)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Parry et al. (2006) ^a
Tocopherols (γ -tocopherol is dominant)	32 (HPLC)
Carotenoids (zeaxanthin is dominant)	9 (HPLC)

^aOil obtained by pressure*Vernicia fordii* (Hemsl.) Airy Shaw—*Euphorbiaceae*

✓ Synonym	<i>Aleurites fordii</i> Hemsl.
✓ Common names	Tung tree (Eng.); bois de Chine (Fr.)
✓ Organ analyzed	Kernel
✓ Origins of the samples	Doubtfuls, oil from company [Jeong et al. (1974)]

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	0.5 (method described; extr. 2-isopropoxypropane)	Jeong et al. (1974)
	0.3 (method Schwartz, 1988)	Schwartz (1988)
Oil in the dried kernel	53–60	Duke (2001)

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Jeong et al. (1974)
Sterols	205 (TLC)
4-Methylsterols	55 (TLC)
Triterpene alcohols	30 (TLC)
Nonpolar compounds (hydrocarbons...)	210 (TLC)

Vernicia montana Lour.—*Euphorbiaceae*

✓ Synonym	<i>Aleurites montana</i> (Lour.) E.H. Wilson
✓ Common names	Chinese wood-oil tree (Eng.); abrasin (Fr.)
✓ Organs analyzed	Kernel, seed
✓ Origins of the samples	Vietnam, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≈ 0.5 (method not indicated)	Mensier (1957)
Oil in the dried kernel	50–67	Mensier (1957)
Oil in the dried seed	25.1	Matthäus et al. (2003)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of seed oil)
Unsaponifiable fractions	Matthäus et al. (2003)
Tocopherols (γ -tocopherol is dominant)	150 (HPLC)
Tocotrienols	3 (HPLC)

Vernonia anthelmintica (L.) Willd.—*Asteraceae*

✓ Common name	Kinka-oil (Eng.)
✓ Organ analyzed	Achene
✓ Origins of samples	India, Pakistan, USA, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	6.7 (method not indicated)	Krewson and Scott (1964)
	5.7 (method described; extr. ethoxyethane)	Fioriti et al. (1971)
	2.6 (method not indicated)	Raie et al. (1985)
Oil in the dried achene	22–28	Krewson and Scott (1964)
	37.6	Raie et al. (1985)

Contents of unsaponifiable fractions in achene oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Fioriti et al. (1971)
Sterols (Δ_7 -avenasterol is dominant)	3,762 (TLC)
Saturated hydrocarbons	567 (precipitated by the cold)
Squalene	1,231 (TLC-GC)

Vernonia galamensis (Cass.) Less.—*Asteraceae*

✓ Organ analyzed	Achene
✓ Origins of the samples	Zimbabwe, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter	1.6 (method Schwartz, 1988)	Schwartz (1988)
in the achene oil	3.6 (method AOAC, 1984; extr. ethoxyethane)	Ologunde et al. (1992)
Oil in the dried achene	39.1	Ologunde et al. (1992)

Contents of unsaponifiable fractions in achene oil

	Contents (mg/100 g of oil)
Unsaponifiable fraction	Lechner et al. (1999a)
Sterols	1,182–1,227 (CL-GC)

Viburnum dentatum L.—*Caprifoliaceae*

✓ Common names	Southern arrowwood (Eng.); viorne dentée (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method not indicated)	Schuette et al. (1943)
Oil in the dried seed	13	Schuette et al. (1943)

Viburnum lantana L.—*Caprifoliaceae*

✓ Common names	Wayfaringtree (Eng.); viorne lantane, viorne mancienne (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.6 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	21.3 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Viburnum opulus L.—*Caprifoliaceae*

✓ Common names	Guelder-rose (Eng.); viorne obier (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Poland

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.4 (method described in other paper; extr. ethoxyethane)	Chouda and Jankowski (2005)
Oil in the dried seed	22.5 ^a	Chouda and Jankowski (2005)

^aContent resulting from three successive extractions with different solvents

Viburnum opulus L. var. *americanum* Aiton—*Caprifoliaceae*

✓ Common name	Highbush cranberry (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	USA

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	1.7 (method not indicated)	Schuette and Korth (1940)
Oil in the dried seed	11.5	Schuette and Korth (1940)

Virola sebifera Aubl.—*Myristicaceae*

✓ Synonym	<i>Virola venezuelensis</i> Warb.
✓ Common names	Ucuuba, red ucuuba (Eng.)
✓ Organ analyzed	Kernel
✓ Origin of the sample	Brazil, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	≈ 1 (method not specified) 6.0 (method Maxwell and Schwartz, 1979)	Mensier (1957) Da Rocha Filho et al. (1992)
Oil in the dried kernel	70–75 69	Mensier (1957) Da Rocha Filho et al. (1992)

<i>Vitellaria paradoxa</i> C.F.Gaertn.— <i>Sapotaceae</i>		
✓	Synonym	<i>Butyrospermum parkii</i> (G. Don) Kotschy
✓	Common names	Shea tree, karite nut tree (Eng.); karité (Fr.)
✓	Organ analyzed	Kernel
✓	Origins of the samples	Burkina Faso, Cameroon, Ethiopia, Gambia, Ghana, Guinea, Mali, Nigeria, Uganda, Senegal, Chad, doubtful, oils from companies (Itoh et al. 1974b; Derbesy and Richert 1979)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the kernel oil	5.1 (method described in other paper; extr. 2-isopropoxypropane)	Itoh et al. (1974b)
	7.3–9.0 (method described by Williams, 1950; extr. ethoxyethane)	Adomako (1977)
	9.3 (method described; extr. ethoxyethane)	Peers (1977)
	7–10 (method of a thesis; extr. 2-isopropoxypropane)	Derbesy and Richert (1979)
	7.5 (method not indicated)	Tano-Debrah and Ohta (1994)
	5.1 (method Schwartz, 1988)	Kapseu (1998)
Oil in the dried kernel	3–9 ^a (AFNOR, 1993 or AOAC, 1999; extr. ethoxyethane)	Womeni et al. (2007)
	52.1	Adomako (1977)
	50.0	Kapseu (1998)
	41.2–55.2	Di Vincenzo et al. (2005)

^aDepending on the thickness of the ground almond and/or the heating time

Contents of unsaponifiable fractions in kernel oil

	Contents (mg/100 g of oil)				Contents (g/100 g of unsaponifiable matter)
	Ittoh et al. (1974b)	Peers (1977)	Derbesy and Richert (1979)	Di Vincenzo et al. (2005)	Maranz and Wiesman (2004)
Unsaponifiable fractions					Womeni et al. (2007)
Sterols [α -spinasterol is dominant according to Derbesy and Richert (1979)]	250 (TLC)		150–260 (GC)		0–7 ^a (TLC)
4-Methylsterols	100 (TLC)				
Triterpene alcohols	3,820 (TLC)			3,700–12,600 ^b (GC)	38–82 ^a (TLC)
[α -amyirin is dominant according to Ittoh et al. (1974b)]					
Triterpene alcohols and sterols		\approx 6,000 ^c (TLC)			
Tocopherols (α -tocopherol is dominant)					3–81 (HPLC)
Hydrocarbons	920 (including other apolar compounds (TLC))	\approx 4,000 (TLC)			4–57 ^a (TLC)

^aDepending on the thickness of the ground almond and/or the heating time

^bIn the form of acetic or cinnamic esters

^cBefore saponification, 5,000 in the form of cinnamic esters and 1,000 in free form

Vitis vinifera L.—*Vitaceae*

✓	Common names	Common grape wine (Eng.); vigne (Fr.)
✓	Organ analyzed	Seed
✓	Origins of the samples	France, Italy, Spain Turkey, doubtful, oils from companies (Kornfeldt and Croon 1981 ; Kioseoglou et al. 1987 ; Gruszka and Kruk 2007)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.3 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	0.9 (method AOCS/Ca 6a-40, 1974; extr. petroleum ether)	Kamel et al. (1985)
	≤2.0 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried seed	14.0	Kamel et al. (1985)
	12.4–16.0	Baydar et al. (2007)

Contents of unsaponifiable fractions in seed oil

Unsaponifiable fractions	Contents (mg/100 g of oil)					
	Fedeli et al. (1966)	Codex Alimentarius (2009)	Baydar et al. (2007)	Kornfeldt and Croon (1981)	Kioseoglou et al. (1987)	Crews et al. (2006a)
Tuberoso et al. (2007) ^a						Gruszka and Kruk (2007)
Sterols (β-sitosterol is dominant)	130 (TLC)	200–700 (GC)		534 (GC)		258–1,125 (GC)
4-Methylsterols				64 (GC)		
Triterpene alcohols	10 (TLC)			90 (GC)		
4-Methylsterols and triterpene alcohols					134 (GC)	
Tocopherols and tocotrienols		24–41 (HPLC)				6–121 (HPLC)
(γ-tocotrienol is dominant with few exceptions)						
Tocopherols (α-tocopherol is dominant)			14–36 (HPLC)			46 (HPLC)
Tocotrienols		≈ 15–25 (HPLC)				3 (HPLC)
Plastochromanol-8						1 (HPLC)
Squalene						– (GC)

^aOil obtained by pressure

Voacanga africana* Stapf.—*Apocynaceae

✓ Common name	Voacanga (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Cameroon, Nigeria

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5–1.0 (method Ph. Fr. 10) 1.7 (method AOCS, 1975)	Rafidison et al. (1987) Essien et al. (1989)
Oil in the dried seed	13–20	Rafidison et al. (1987)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)	
Unsaponifiable fractions	Rafidison et al. (1987)	Essien et al. (1989)
Tocopherols	30–75 (Spectro)	
β-carotene		<1 (OCLC-Spectro)

Washingtonia filifera* (Linden ex André) H. Wendl.—*Arecaceae

✓ Common names	California fan palm (Eng.); palmier (jupon) de Californie (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Egypt, Tunisia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method AOAC, 1975; but extr. <i>n</i> -hexane) 1.4 (method AOAC, 1975; extr. ethoxyethane) 0.8 (method ISO/3596, 2000; extr. ethoxyethane)	Farag et al. (1990) Farag et al. (1990) Nehdi (2011)
Oil in the dried seed	12.7 16.3	Farag et al. (1990) Nehdi (2011)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Nehdi (2011)
Tocopherols (γ-tocopherol is dominant)	9 (HPLC)
Tocotrienols (γ-tocotrienol is dominant)	125 (HPLC)
Carotenoids ^a	1.5 (Spectro)

^aResult expressed as β-carotene***Welwitschia mirabilis* Hook.f.—*Welwitschiaceae***

✓ Organ analyzed	Seed
✓ Origin of the sample	South Africa

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method not indicated)	Daulatabad et al. (1985)
Oil in the dried seed	13.5	Daulatabad et al. (1985)

Wisteria sinensis (Sims) Sweet—*Fabaceae*

✓ Common names	Chinese wisteria (Eng.); glycine de Chine (Fr.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.5 (method not indicated)	Lata Kaul et al. (1990)
Oil in the dried seed	11.4	Lata Kaul et al. (1990)

Woodfordia fruticosa (L.) Kurz—*Lythraceae*

✓ Synonym	<i>Woodfordia floribunda</i> Salisb.
✓ Common names	Fire flame bush (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	India

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	2.0 (method not indicated)	Badami and Patil (1975)
Oil in the dried seed	16.0	Badami and Patil (1975)

Xanthium strumarium L.—*Asteraceae*

✓ Common names	Rough cocklebur (Eng.); lampourde glouteron (Fr.)
✓ Organ analyzed	Achene
✓ Origins of the samples	India, doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	0.5–1 (method not indicated)	Mensier (1957)
	2.6 (method not indicated)	Kapoor et al. (1976)
Oil in the dried achene	25–30	Mensier (1957)
	25	Kapoor et al. (1976)

Xanthocercis zambesiaca (Baker) Dumaz-le-Grand—*Fabaceae*

✓ Common name	Nyala tree (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.03 (method IUPAC, 1979)	Ketshajwang et al. (1998)
Oil in the dried seed	17.6	Ketshajwang et al. (1998)

Xanthorrhoea resinosa Pers.—*Xanthorrhoeaceae*

✓ Synonym	<i>Xanthorrhoea hastilis</i> Sm.
✓ Common name	Grass tree (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Australia

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	5.2 (method Cocks, 1933; extr. ethoxyethane)	Morice (1970)
Oil in the dried seed	19.1	Morice (1970)

Xerochrysum bracteatum (Vent.) Tzvelev—*Asteraceae*

✓ Synonym	<i>Helichrysum monstrosum</i> hort.
✓ Common names	Golden everlasting, everlasting daisy (Eng.); immortelle à bractée (Fr.)
✓ Organ analyzed	Achene
✓ Origin of the sample	Doubtful

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the achene oil	5.5 (method briefly described; extr. ethoxyethane)	Powell et al. (1965)
Oil in the dried achene	26.6	Powell et al. (1965)

Ximenia caffra Sond.—*Oleaceae*

✓ Common name	Large sourplum (Eng.)
✓ Organ analyzed	Seed
✓ Origin of the sample	Botswana

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the seed oil	0.1 (method IUPAC, 1987)	Mitei et al. (2008)
Oil in the dried seed	38.5	Mitei et al. (2008)

Contents of unsaponifiable fractions in seed oil

	Contents (mg/100 g of oil)
Unsaponifiable fractions	Mitei et al. (2009)
Sterols (β -sitosterol is dominant)	11 (GC)
Tocopherols	– (HPLC)
Tocotrienols (α -tocotrienol is dominant)	13 (HPLC)

Zea mays L.—*Poaceae*

✓ Common names	maize (Eng.); Maïs (Fr.)
✓ Organ analyzed	Germ of the seed
✓ Origins of the samples	Cameroon, Germany, Italy, Tunisia, USA, doubtful, oils from companies (Kuksis 1964; Kornfeldt and Croon 1981; Syväoja et al. 1986; McGill et al. 1993; Rovellini et al. 1997; compilation of several books; Phillips et al. 2002)

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter in the germ oil	1.5 (method not indicated)	Kuksis (1964)
	2.3 (method described; extr. ethoxyethane)	Fedeli et al. (1966)
	1.5 (method Schwartz, 1988)	Schwartz (1988)
	0.9 (method Schwartz, 1988)	Kapseu and Parmentier (1997)
	≤2.8 (method ISO/3596:2000 or AOCS/Ca 6b-53; extr. ethoxyethane or ISO/18609:2000; extr. <i>n</i> -hexane)	Codex Alimentarius (2009)
Oil in the dried germ	24.3–30.7	Harrabi et al. (2008)

Contents of unsaponifiable fractions in germ oil											
Contents (mg/100 g of oil)											
Unsaponifiable fractions	Fedeli et al. (1966)	Codex Alimentarius (2009)	Harrabi et al. (2008)	Kornfeldt and Croon (1981)	Syväoja et al. (1986)	McGill et al. (1993)	Rovellini et al. (1997)	Compilation of several books	Goffman and Böhme (2001)	Phillips et al. (2002)	Moreau et al. (2010)
Sterols	1,380 (TLC)	700–2,210 (GC)	401–633 (GC)	1,441 (GC)						732–766 (GC)	
(β-sitosterol is dominant)											
4-Methylsterols			6–9 (GC)	62 (GC)							
Triterpene alcohols	110 (TLC)		92–189 (GC)	54 (GC)							
[24-methylene-cycloartenol is dominant according to Harrabi et al. (2008); cycloartenol is dominant according to Kornfeldt and Croon (1981)]											
Tocopherols and tocotrienols (γ-tocopherol is dominant)		33–372 (HPLC)							91–157 (HPLC)		
Tocopherols					105 (HPLC)		136–148 (HPLC)		77–134 (HPLC)		
					4 (HPLC)				10–23 (HPLC)		
Tocotrienols											
Carotenoids											
<i>n</i> -Alkanes (C _{15–33})						2–4 (HPLC)					<1 (HPLC)
Squalene								10–36 (GC)			

Zelkova serrata (Thunb.) Makino—*Ulmaceae*

✓ Common names	Japanese zelkova (Eng.); orme du Japon (Fr.)
✓ Organ analyzed	Seed
✓ Origins of the samples	Japan

Unsaponifiable matter and oil contents

Fat fractions and sources	Contents (g/100 g)	References
Unsaponifiable matter	0.6 (method not indicated)	Hopkins and Chrisholm (1959)
in the seed oil	1.4 (method not indicated)	Ihara and Tanaka (1978)
Oil in the dried seed	24.1	Hopkins and Chrisholm (1959)
	21.8	Ihara and Tanaka (1978)

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Chapter 8

Exceptionally High Content of Unsaponifiable Matter in Plant Species with High Fat Content

The Table lists the oil and unsaponifiable matter content in those cases where there is an exceptionally high content (≥ 3 g/100 g) of unsaponifiable matter in plant species with a high fat content (≥ 30 g/100 g)

Plant species	Dried organ analyzed	Oil content (g/100 g)	Unsaponifiable matter content in oil (g/100 g)
<i>Abies alba</i>	Seed	33.3	6.8 (extr. ethoxyethane)
<i>Amygdalus scoparia</i>	Kernel	44.1	5.3 (extr.?)
<i>Antiaris toxicaria</i> ssp. africana	Seed	68.8	6.5 (extr. ethoxyethane)
<i>Aphanamixis polystachya</i>	Seed	35–41.4	2.6–5.8 (extr.?)
<i>Aphyllantes monspeliensis</i>	Seed	32.5	6.7 (ext. 2-isopropoxypropane)
<i>Artemisia absinthium</i>	Achene	31.5	3.5 (extr.?)
<i>Averrhoa carambola</i>	Kernel	73.9	3.0 (extr. ethoxyethane)
<i>Azadirachta indica</i>	Kernel	18.5–52.5	1.4–4.7 (extr.?; three compounds)
<i>Baccharoides anthelmintica</i>	Achene	22–37.6	2.6–6.7 (extr. ethoxyethane; extr.?)
<i>Brochoneura acuminata</i>	Seed	57.8–64.5	3.1–6.0 (extr. ethoxyethane; extr.?)
<i>Bulbinella</i> spp.	Seed	13.9–37.4	1.2–12.3 (extr. ethoxyethane)
<i>Calandula officinalis</i>	Akene	16.8–44	4.5–6.6 (extr. petroleum ether; extr. ethoxyethane)
<i>Carapa procera</i>	Seed	47.9–52.8	0.8–3.4 (extr. <i>n</i> -hexane; extr. ethoxyethane)
<i>Carduus nigrescens</i>	Achene	21.3–41.0	16.6 (method with GC)
<i>Carduus nutus</i>	Achene	24.1–24.6	21.9–22.3 (extr. ethoxyethane)
<i>Cedrus atlantica</i>	Seed	40.8	12.5 (extr. ethoxyethane)
<i>Celastrus paniculatus</i>	Seed	46–52.0	1.6–3.9 (extr.?)
<i>Collospermum hastatum</i> and <i>C. microspermum</i>	Seed	43.1–48.5	2.9–3.6 (extr. ethoxyethane)
<i>Diploknema butyracea</i>	Kernel	44.4	0.8–3.5 (extr. petroleum ether; extr.?)
<i>Echinocystis lobata</i>	Seed	41	4.2 (extr.?)
<i>Heynea trijuga</i>	Seed	34.7	4.9 (extr.?)

(continued)

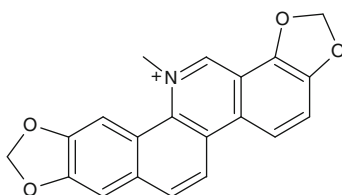
Plant species	Dried organ analyzed	Oil content (g/100 g)	Unsaponifiable matter content in oil (g/100 g)
<i>Hypericum perforatum</i>	Seed	27.2–30.6	2.1–7.3 (extr. ethoxyethane; extr. 2-methoxy-2-methyl-propane)
<i>Jatropha podagrica</i>	Seed	34.1	3.3 (extr.?)
<i>Knema attenuata</i>	Kernel	41.2	4.6 (extr.?)
<i>Lactuca sativa</i>	Achene	33.0	1.0–3.0 (special method; extr. ethoxyethane)
<i>Lactuca seriola</i>	Achene	29.2–32	1.1–4.6 (extr. petroleum ether; extr. ethoxyethane)
<i>Laurus nobilis</i>	Fruit	37.9	6.8 (extr.?)
<i>Madhuca longifolia</i> var. <i>latifolia</i>	Kernel	45	2.4–3.2 (extr. petroleum ether; extr. ethoxyethane)
<i>Madhuca pasquieri</i>	Seed	45.5	3.6 (extr.?)
<i>Magnolia champaca</i>	Seed	30.9–45.0	2.0–3.6 (extr.?)
<i>Mangifera indica</i>	Kernel	3.7–38	0.9–5.3 (extr. <i>n</i> -hexane; extr.?)
<i>Millingtonia hortensis</i>	Seed	39.5	3.6 (extr.?)
<i>Monodora tenuifolia</i>	Seed	34.7	7.9 (extr. ethoxyethane)
<i>Moringa hildebrandtii</i>	Seed	48.8	4.6 (extr.?)
<i>Moringa stenopetala</i>	Seed	44.9	≤3 (extr.?)
<i>Pachira glabra</i>	Seed	58.2	4.2 (extr. ethoxyethane)
<i>Pentaclethra macrophylla</i>	Seed	23.6–55.8	0.5–3.6 (extr.?, extr. ethoxyethane)
<i>Persea americana</i>	Pulp of the fruit	65.4–66.1	1.7–8.8 (extr. ethoxyethane)
<i>Pistacia atlantica</i>	Fruit without seed	30.1–63	1.6–6.5 (extr.?)
<i>Pistacia atlantica</i>	Kernel	54–57	0.5–5.2 (extr.?)
<i>Pongamia pinnata</i>	Seed	29–33.1	3.3–5.5 (extr.?, extr. ethoxyethane)
<i>Raphanus sativus</i>	Seed	23.6–54	3.9 (extr. petroleum ether)
<i>Santalum album</i>	Seed	44–53.3	3.2–6.9–18.8 (extr. ethoxyethane; extr.?)
<i>Schefflera venulosa</i>	Seed	50.0	4.0 (extr.?)
<i>Schisandra chinensis</i>	Kernel	33.8	5.5 (extr.?)
<i>Simmondsia chinensis</i>	Seed	40.3–52.1	44.6–49.2 (extr.?)
<i>Terminalia bellirica</i>	Kernel	22.6–40.9	0.7–8.2 (method with GC; extr. ethoxyethane)
<i>Vernonia anthelmintica</i>	Achene	22–37.6	2.6–6.7 (extr.?)
<i>Vernonia galamensis</i>	Achene	39.1	1.6–3.6 (special method; extr. ethoxyethane)
<i>Virola sebifera</i>	Kernel	69–75	1–6.0 (extr.?, special method)
<i>Vitellaria paradoxa</i>	Kernel	41.2–55.2	3–9.3 (extr. ethoxyethane)

extr. ? extraction solvent uncertain

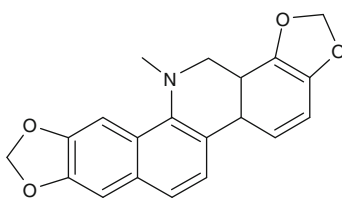
Chapter 9

Structures of Chemical Constituents Listed, Ordered by Family

Alkaloids

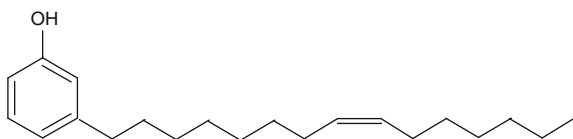


sanguinarine

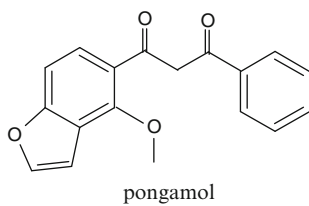
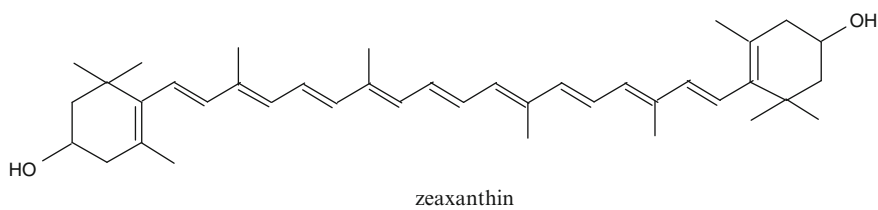
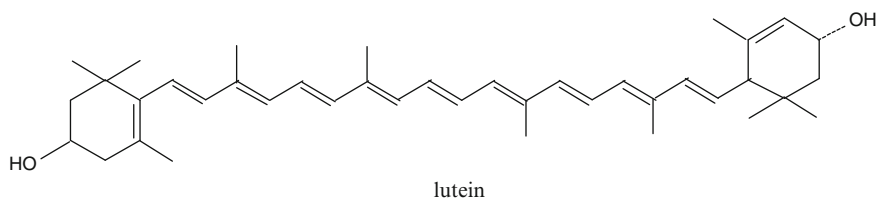
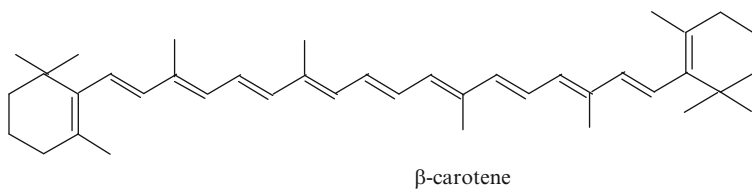


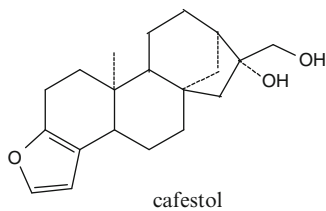
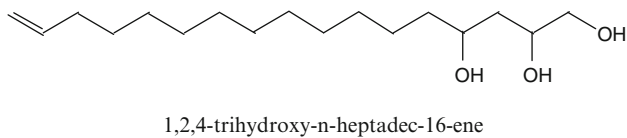
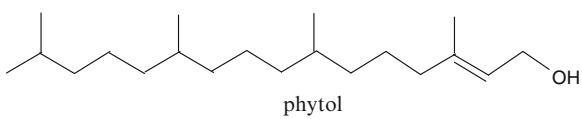
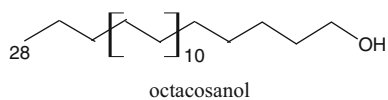
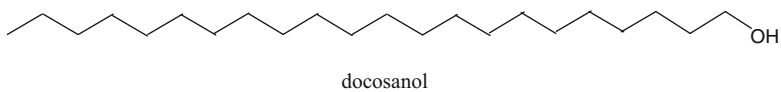
dihydrosanguinarine

Alkenylphenols

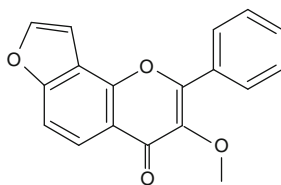


3-(8-pentadecenyl) phenol

Benzofurans*Carotenoids*

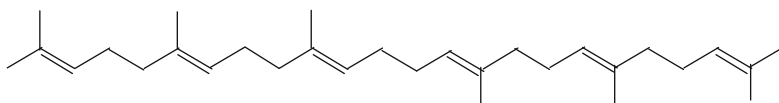
Diterpenes*Fatty alcohols*

Furanoflavonols



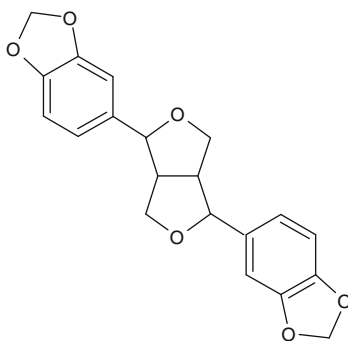
karanjin

Hydrocarbons

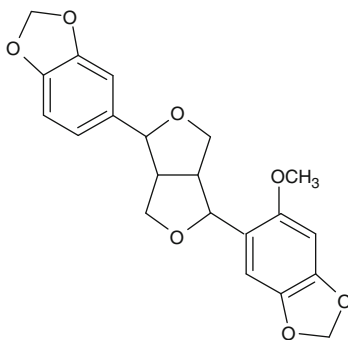


Squalene

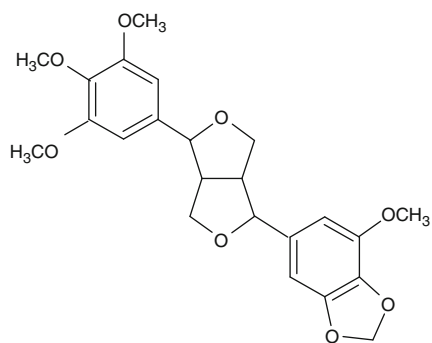
Lignans



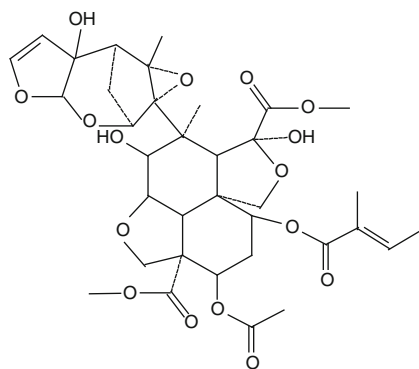
Sesamin



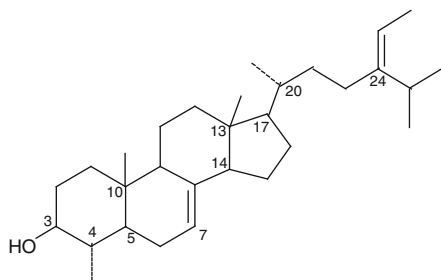
Sesangolin



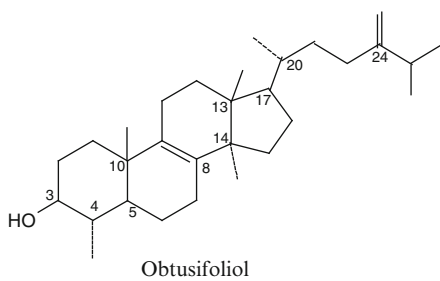
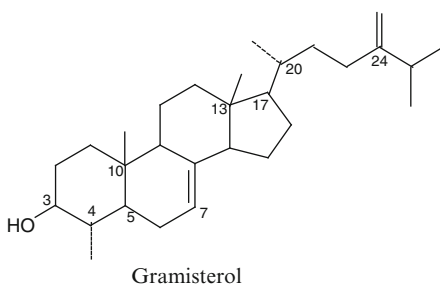
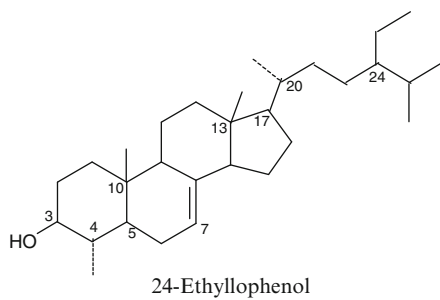
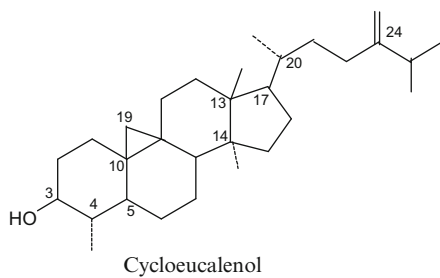
2-Episesalatin

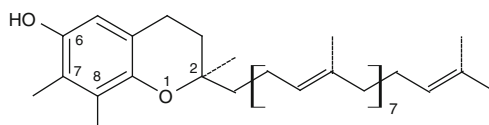
Limonoids

azadirachtin

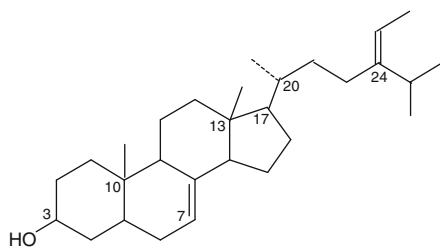
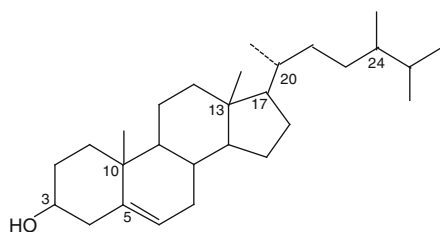
4-Methylsterols

Citrostadienol

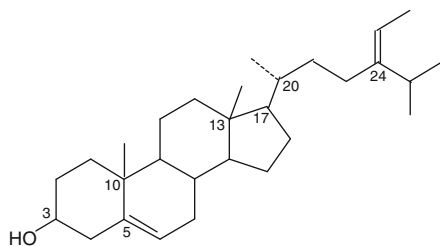


Plastochromanol-8

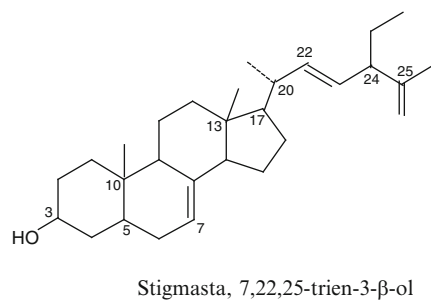
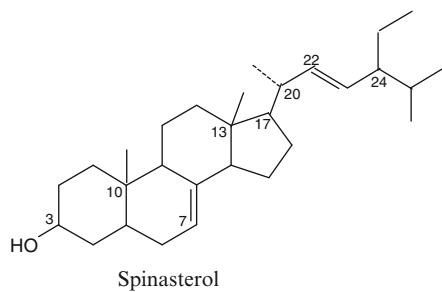
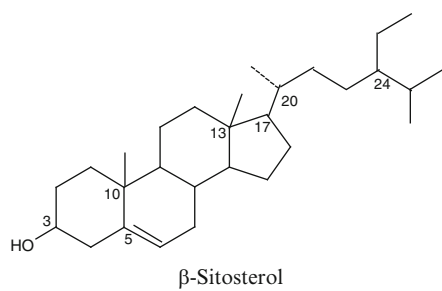
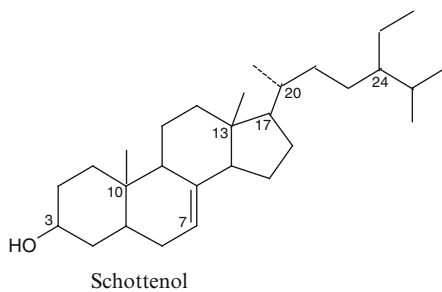
Plastochromanol-8

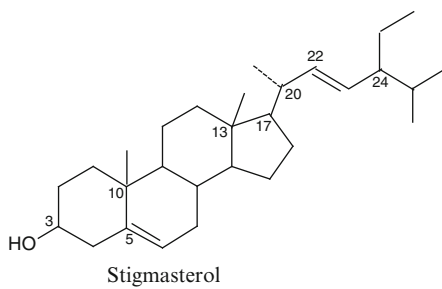
Sterols Δ_7 -Avenasterol

Campesterol

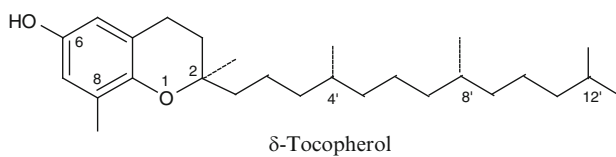
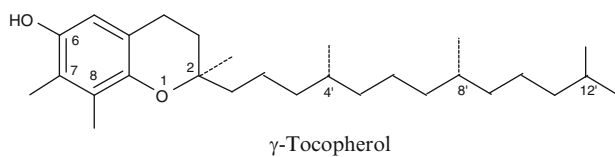
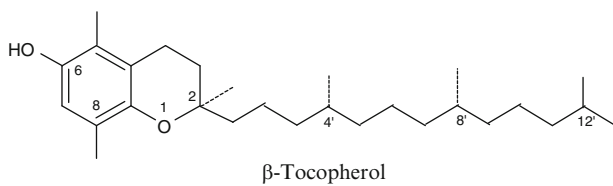
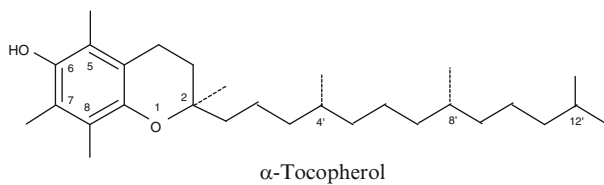


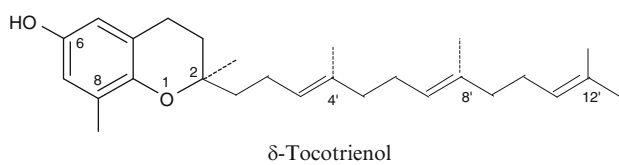
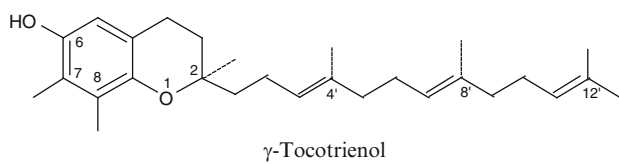
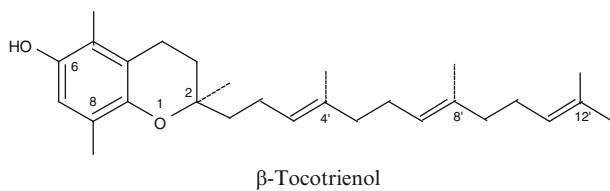
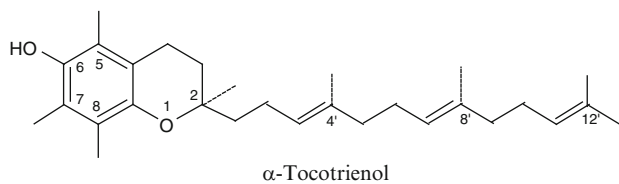
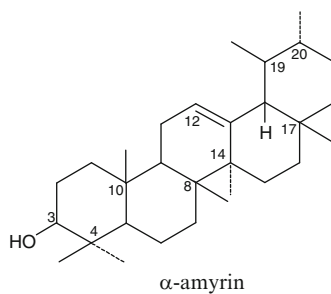
Isofucosterol

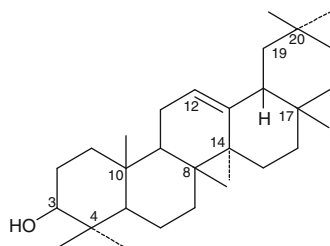
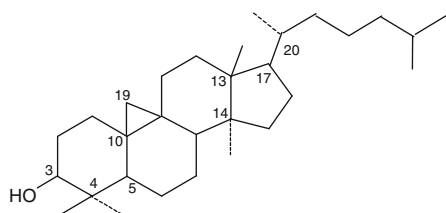




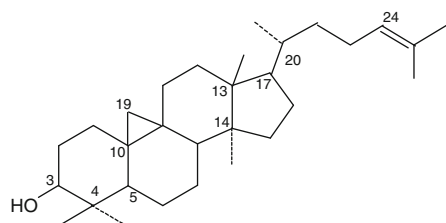
Tocopherols



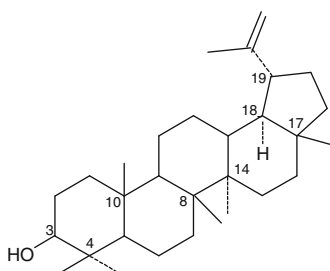
Tocotrienols*Triterpene alcohols*

 β -amyrin

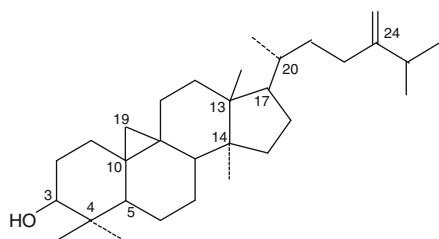
cycloartanol



cycloartenol



lupeol



24-methylenecycloartanol

Chapter 10

Synopsis of Species Names

10.1 Correspondence Between English Names and Latin Names

Common name in English	Latin name
Absinthe	<i>Artemisia absinthium</i> L.
African blackwood	<i>Dalbergia melanoxylon</i> Guill. & Perr.
African elemi	<i>Canarium schweinfurthii</i> Engl.
African locust bean	<i>Parkia bicolor</i> A. Chev. <i>Parkia biglobosa</i> (Jacq.) G. Don
African mahogany	<i>Khaya ivorensis</i> A. Chev.
African oil bean tree	<i>Pentaclethra macrophylla</i> Benth.
African oil palm	<i>Elaeis guineensis</i> Jacq.
African pear	<i>Dacryodes edulis</i> (G. Don) H.J. Lam.
African star chestnut	<i>Sterculia africana</i> (Lour.) Fiori
African walnut	<i>Coula edulis</i> Baill. <i>Lovoa trichilioides</i> Harms
African wild mango	<i>Irvingia gabonensis</i> (Aubry-Lecomte ex O'Rorke) Baill.
African wood-oil nut tree	<i>Ricinodendron heudelotii</i> (Baill.) Pierre ex Pax ssp. <i>africanum</i> (Mull.Arg.) Leonard
Aguaje	<i>Mauritia flexuosa</i> L.f.
Ajowan	<i>Trachyspermum ammi</i> (L.) Sprague
Akee	<i>Blighia sapida</i> K.D. Koenig
Akee apple	<i>Blighia sapida</i> K.D. Koenig
Aleppo pine	<i>Pinus halepensis</i> Mill.
Alexandrian laurel	<i>Calophyllum inophyllum</i> L.
Alfalfa	<i>Medicago sativa</i> L.
Almond	<i>Prunus dulcis</i> (Mill.) D.A. Webb
American bladdernut	<i>Staphylea trifolia</i> L.
American ginseng	<i>Panax quinquefolius</i> L.
American oil palm	<i>Elaeis oleifera</i> (Kunth) Cortés
American stickseed	<i>Hackelia deflexa</i> (Wahlenb.) Opiz var. <i>americana</i> (A. Gray) Fernald & I.M. Johnst.
Amur maple	<i>Acer tataricum</i> L. ssp. <i>ginnala</i> (Maxim.) Wesm.

(continued)

Common name in English	Latin name
Andean lupin	<i>Lupinus mutabilis</i> Sweet
Angled loofah	<i>Luffa acutangula</i> (L.) Roxb.
Anise	<i>Pimpinella anisum</i> L.
Apple	<i>Malus domestica</i> Borkh.
Apricot	<i>Prunus armeniaca</i> L.
Arabica coffee	<i>Coffea arabica</i> L.
Argan tree	<i>Argania spinosa</i> (L.) Skeels
Arolla pine	<i>Pinus cembra</i> L.
Arrow-leaf sida	<i>Sida rhombifolia</i> L.
Artichoke	<i>Cynara cardunculus</i> L. ssp. <i>cardunculus</i>
Asian white birch	<i>Betula platyphylla</i> ssp. <i>mandshurica</i> (Regel) Kitag
Asparagus	<i>Asparagus officinalis</i> L.
Atlas cedar	<i>Cedrus atlantica</i> (Endl.) G. Manetti ex Carrière
Avellano	<i>Gevuina avellana</i> Molina
Avocado	<i>Persea americana</i> Mill.
Azobe	<i>Lophira alata</i> Banks ex C.F. Gaertn.
Babassu	<i>Attalea</i> spp. including <i>A. speciosa</i> Mart.
Bachelor's button	<i>Centaurea cyanus</i> L.
Bala	<i>Sida cordifolia</i> L.
Ballnut	<i>Calophyllum inophyllum</i> L.
Balloon flower	<i>Platycodon grandiflorus</i> (Jacq.) A.DC.
Balloon vine	<i>Cardiospermum halicacabum</i> L.
Baobab	<i>Adansonia digitata</i> L.
Baobab za	<i>Adansonia za</i> Baill.
Barbados nut	<i>Jatropha curcas</i> L.
Basil	<i>Ocimum basilicum</i> L.
Beach morning-glory	<i>Ipomoea pes-caprae</i> (L.) R.Br.
Beech	<i>Fagus sylvatica</i> L.
Beleric	<i>Terminalia bellirica</i> (Gaertn.) Roxb.
Beleric myrobalan	<i>Terminalia bellirica</i> (Gaertn.) Roxb.
Bell pepper	<i>Capsicum annuum</i> L. var. <i>annuum</i>
Bellyache bush	<i>Jatropha gossypifolia</i> L.
Ben oil tree	<i>Moringa oleifera</i> Lam.
Bengal kino	<i>Butea monosperma</i> (Lam.) Taub.
Betoun	<i>Pistacia atlantica</i> Desf.
Biennial wormwood	<i>Artemisia biennis</i> Willd.
Bitter apple	<i>Citrullus colocynthis</i> (L.) Schrad.
Bitter gourd	<i>Momordica charantia</i> L.
Bitter melon	<i>Momordica charantia</i> L.
Bitter squash	<i>Cucurbita digitata</i> A. Gray
Bitternut hickory	<i>Carya cordiformis</i> (Wangenh.) K. Koch
Black cumin	<i>Nigella sativa</i> L.
Black henbane	<i>Hyoscyamus niger</i> L.
Black locust	<i>Robinia pseudoacacia</i> L.
Black mahlab	<i>Monechma ciliatum</i> (Jacq.) Milne-Redhead
Black mustard	<i>Brassica nigra</i> (L.) K. Koch
Black pine	<i>Pinus nigra</i> J.F. Arnold

(continued)

Common name in English	Latin name
Blackberry	<i>Rubus fruticosus</i> L.
Blackcurrant	<i>Ribes nigrum</i> L.
Bladder-mallow	<i>Herissantia crispa</i> (L.) Brizicky
Blazing star	<i>Mentzelia lindleyi</i> Torr. & A. Gray
Blood-twigg dogwood	<i>Cornus sanguinea</i> L.
Blue passionflower	<i>Passiflora caerulea</i> L.
Bluebur	<i>Lappula echinata</i> Gilib.
Boleko nut	<i>Ongokea gore</i> Pierre
Borage	<i>Borrigo officinalis</i> L.
Borneo tallow nut	<i>Shorea stenoptera</i> Burck
Bottle gourd	<i>Lagenaria siceraria</i> (Molina) Stanl.
Boxwood	<i>Buxus sempervirens</i> L.
Brasil nut	<i>Bertholletia excelsa</i> Humb. & Bonpl.
Breadfruit	<i>Artocarpus altilis</i> (Parkinson) Fosberg
Broomstick	<i>Trichilia hirta</i> L.
Brown mustard	<i>Brassica juncea</i> (L.) Czern. ssp. <i>juncea</i>
Buddha belly plant	<i>Jatropha podagrica</i> Hook.
Buffalo gourd	<i>Cucurbita foetidissima</i> Kunth
Bull cottonthistle	<i>Onopordum tauricum</i> Willd.
Bull thistle	<i>Cirsium vulgare</i> (Savi) Ten.
Bullet wood tree	<i>Mimusops elengi</i> L.
Bulrush	<i>Typha latifolia</i> L.
Bungu	<i>Ceratotheca sesamoides</i> Endl.
Bur mallow	<i>Urena lobata</i> L.
Bush plum	<i>Carissa spinarum</i> L.
Bush sorrel	<i>Hibiscus surattensis</i> L.
Butter tree	<i>Madhuca longifolia</i> (L.) J.F. Macbr. <i>Pentadesma butyracea</i> Sabine
Butterfly-flower	<i>Bauhinia monandra</i> Kurz
Butterfly orchid tree	<i>Bauhinia purpurea</i> L.
Butterfly pea	<i>Clitoria ternatea</i> L.
Butternut squash	<i>Cucurbita moschata</i> Duchesne
Cacao	<i>Theobroma cacao</i> L.
Caesarweed	<i>Urena lobata</i> L.
Calabash nutmeg	<i>Monodora myristica</i> (Gaertn.) Dunal
Calabash tree	<i>Crescentia cujete</i> L.
Calamandarin	<i>Citrus microcarpa</i> Bunge
Calamondin	<i>Citrus microcarpa</i> Bunge
California fan palm	<i>Washingtonia filifera</i> (Linden ex Andre) H. Wendl.
Camelina	<i>Camelina sativa</i> (L.) Crantz
Camellia	<i>Camellia japonica</i> L.
Camwood	<i>Baphia nitida</i> Lodd.
Canary Island date palm	<i>Phoenix canariensis</i> Chabaud
Candlenut	<i>Aleurites moluccana</i> (L.) Willd.
Candytuft	<i>Iberis odorata</i> L.
Canola	<i>Brassica napus</i> L. ssp. <i>napus</i>
Cape chestnut	<i>Calodendrum capense</i> (L.f.) Thunb.

(continued)

Common name in English	Latin name
Cape gooseberry	<i>Physalis peruviana</i> L.
Caper	<i>Capparis spinosa</i> L.
Carambola	<i>Averrhoa carambola</i> L.
Carapa	<i>Carapa grandifolia</i> Sprague <i>Carapa guianensis</i> Aubl. <i>Carapa procera</i> DC.
Caraway	<i>Carum carvi</i> L.
Cardoon	<i>Cynara cardunculus</i> L.
Carrot	<i>Daucus carota</i> L.
Cassava	<i>Manihot esculenta</i> Crantz
Cashew	<i>Anacardium occidentale</i> L.
Castor oil plant	<i>Ricinus communis</i> L.
Cauliflower	<i>Brassica cretica</i> Lam.
Ceylon ironwood	<i>Mesua ferrea</i> L.
Ceylon oak	<i>Schleichera oleosa</i> (Lour.) Merr.
Ceylon spinach	<i>Basella alba</i> L.
Champak	<i>Magnolia champaca</i> (L.) Baill. ex Pierre
Chañar	<i>Geoffroea decorticans</i> (Gillies ex Hook. & Arn.) Burkart
Charlock	<i>Sinapis arvensis</i> L.
Chaulmoogra tree	<i>Hydnocarpus kurzii</i> (King) Warb.
Cheeseweed	<i>Malva parviflora</i> L.
Cherry	<i>Prunus cerasus</i> L.
Cherry laurel	<i>Prunus laurocerasus</i> L.
Chia	<i>Salvia hispanica</i> L.
Chicory	<i>Cinchorium intybus</i> L.
Chilean cocopalm	<i>Jubaea chilensis</i> (Molina) Baill.
Chilean hazelnut	<i>Gevuina avellana</i> Molina
Chilean winepalm	<i>Jubaea chilensis</i> (Molina) Baill.
Chinese privet	<i>Ligustrum lucidum</i> W.T. Aiton <i>Ligustrum sinense</i> Lour.
Chinese soapberry	<i>Sapindus saponaria</i> L.
Chinese thuja	<i>Platycladus orientalis</i> (L.) Franco
Chinese wisteria	<i>Wisteria sinensis</i> (Sims) Sweet
Chinese wood-oil tree	<i>Vernicia montana</i> Lour.
Chirauli nut	<i>Buchanania cochinchinensis</i> (Lour.) M.R. Almeida.
Clary sage	<i>Salvia sclarea</i> L.
Coastal wattle	<i>Acacia cyclops</i> G. Don
Cockscomb	<i>Celosia argentea</i> L.
Coconut	<i>Cocos nucifera</i> L.
Coffee	<i>Coffea arabica</i> L.
Colocynth	<i>Citrullus colocynthis</i> (L.) Schrad.
Common cattle	<i>Typha latifolia</i> L.
Common fleabane	<i>Pulicaria dysenterica</i> (L.) Bernh.
Common grape vine	<i>Vitis vinifera</i> L.
Common hemp-nettle	<i>Galeopsis tetrahit</i> L.
Common juniper	<i>Juniperus communis</i> L.
Common laburnum	<i>Laburnum anagyroides</i> Medik.

(continued)

Common name in English	Latin name
Common milkweed	<i>Asclepias syriaca</i> L.
Common ragweed	<i>Ambrosia artemisiifolia</i> var. <i>elatio</i> (L.) Descourt.
Common rose-mallow	<i>Hibiscus moscheutos</i> L.
Common wireweed	<i>Sida acuta</i> Burm. f.
Common wormwood	<i>Artemisia absinthium</i> L.
Confederate rose	<i>Hibiscus mutabilis</i> L.
Conkerberry	<i>Carissa spinarum</i> L.
Coriander	<i>Coriandrum sativum</i> L.
Corkwood	<i>Myrianthus arboreus</i> P. Beauv.
Cornflower	<i>Centaurea cyanus</i> L.
Cotton	<i>Gossypium hirsutum</i> L.
Cotton rosemallow	<i>Hibiscus mutabilis</i> L.
Coyoli palm	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex Mart.
Coyote melon	<i>Cucurbita palmata</i> S. Watson
Crabwood	<i>Carapa guianensis</i> Aubl.
Crambe	<i>Crambe hispanica</i> ssp. <i>abyssinica</i> Hochst. ex R.E.Fr.
Crown flower	<i>Calotropis gigantea</i> (L.) Dryand.
Cuban jute	<i>Sida rhombifolia</i> L.
Cuban royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook
Cucumber	<i>Cucumis sativus</i> L.
Cumin	<i>Cuminum cyminum</i> L.
Cupuaçú	<i>Theobroma grandiflorum</i> (Willd ex Spreng.) K. Schum.
Custard apple	<i>Annona squamosa</i> L.
Cypressvine	<i>Ipomoea quamoclit</i> L.
Dandelion	<i>Taraxacum officinale</i> Weber ex F.H. Wigg.
Desert date	<i>Balanites aegyptiacus</i> (L.) Delile
Dikanut	<i>Irvingia gabonensis</i> (Aubry-Lecomte ex O'Rorke) Baill.
Dill	<i>Anethum graveolens</i> L.
Dragon's head	<i>Lallemantia iberica</i> (M. Bieb.) Fisch. & C. A. Mey.
Dry-zone mahogany	<i>Khaya senegalensis</i> (Desv.) A. Juss.
Dwarf glasswort	<i>Salicornia bigelovii</i> Torr.
Dwarf saltwort	<i>Salicornia bigelovii</i> Torr.
Dyer's woad	<i>Isatis tinctoria</i> L.
Eggplant	<i>Solanum melongena</i> L.
Eglantine rose	<i>Rosa rubiginosa</i> L.
Elder	<i>Sambucus nigra</i> L.
Embic	<i>Phyllanthus emblica</i> L.
English walnut	<i>Juglans regia</i> L.
European hackberry	<i>Celtis australis</i> L.
European larch	<i>Larix decidua</i> Mill.
European nettletree	<i>Celtis australis</i> L.
European plum	<i>Prunus domestica</i> L.
European silver fir	<i>Abies alba</i> Mill.
European stickseed	<i>Lappula echinata</i> Gilib.
European white elm	<i>Ulmus laevis</i> Pall.
European yew	<i>Taxus baccata</i> L.
Evening primrose	<i>Oenothera biennis</i> L.

(continued)

Common name in English	Latin name
Everlasting daisy	<i>Xerochrysum bracteatum</i> (Vent.) Tzvelev
False flax	<i>Camelina sativa</i> (L.) Crantz
False sesame	<i>Ceratotheca sesamoides</i> Endl.
False tungoil tree	<i>Garcia nutans</i> Vahl.
Fendler's bladderpod	<i>Lesquerella fendleri</i> (A. Gray) S. Watson
Fennel	<i>Foeniculum vulgare</i> Mill.
Field bindweed	<i>Convolvulus arvensis</i> L.
Field mustard	<i>Brassica rapa</i> L.
Field pennycress	<i>Thlaspi arvensis</i> L.
Fingerleaf gourd	<i>Cucurbita digitata</i> A. Gray
Fire flame bush	<i>Woodfordia fruticosa</i> (L.) Kurz
Flame of the forest	<i>Butea monosperma</i> (Lam.) Taub.
Flax	<i>Linum usitatissimum</i> L.
Fluted pumpkin	<i>Telfairia occidentalis</i> Hook.f.
Four leaf devilpepper	<i>Rauwolfia tetraphylla</i> L.
Fragrant rosewood	<i>Dalbergia odorifera</i> T.C. Chen.
French peanut	<i>Pachira glabra</i> Pasq.
Gabon nut (tree)	<i>Coula edulis</i> Baill.
Garden balsam	<i>Impatiens balsamina</i> L.
Garden cress	<i>Lepidium sativum</i> L.
Garden nasturtium	<i>Tropaeolum majus</i> L.
Garden rocket	<i>Eruca sativa</i> Mill.
Garlic mustard	<i>Alliaria petiolata</i> (M. Bieb.) Casara & Grande
Gembok-bean	<i>Tylosema esculentum</i> (Burch.) A. Schreib.
Giant milkweed	<i>Calotropis gigantea</i> (L.) Dryand.
Giant umbrella sedge	<i>Cyperus ustulatus</i> A. Rich.
Giant yellow mulberry	<i>Myrianthus arboreus</i> P. Beauv.
Gingerbread plum	<i>Neocarya macrophylla</i> (Sabine) Prance
Ginseng	<i>Panax ginseng</i> C.A. Meyer
Globe amaranth	<i>Gomphrena globosa</i> L.
Globe thistle	<i>Echinops ritro</i> L.
Goat's beard	<i>Tragopogon pratensis</i> L.
Goat's foot	<i>Ipomoea pes-caprae</i> (L.) R.Br.
Gold-of-pleasure	<i>Camelina sativa</i> (L.) Crantz
Golden everlasting	<i>Xerochrysum bracteatum</i> (Vent.) Tzvelev
Golden tickseed	<i>Coreopsis tinctoria</i> L.
Gout plant	<i>Jatropha podagrica</i> Hook.
Granadilla	<i>Passiflora edulis</i> Sims
Grass buttercup	<i>Ranunculus gramineus</i> L.
Green ash	<i>Fraxinus pennsylvanica</i> Marshall
Groundcherry	<i>Physalis pruinosa</i> L.
Groundnut	<i>Arachis hypogaea</i> L.
Guava	<i>Psidium guajava</i> L.
Guindilla	<i>Valenzuela trinervis</i> Bert.
Gumbo	<i>Abelmoschus esculentus</i> (L.) Moench
Hawai'i birdcatching sedge	<i>Uncinia uncinata</i> (L.f.) Kük.
Harmal	<i>Peganum harmala</i> L.

(continued)

Common name in English	Latin name
Hazelnut	<i>Corylus avellana</i> L.
Hem	<i>Cannabis sativa</i> L.
Hemp nettle	<i>Galeopsis tetrahit</i> L.
Highbush cranberry	<i>Viburnum opulus</i> L. var. <i>americanum</i> Aiton
Hiptage	<i>Hiptage benghalensis</i> (L.) Kurz
Holy basil	<i>Ocimum tenuiflorum</i> L.
Honduras mahogany	<i>Swietenia macrophylla</i> King
Horny cucumber	<i>Cucumis metuliferus</i> E. Mey. ex Naudin
Horseradish tree	<i>Moringa oleifera</i> L.
Hubbard squash	<i>Cucurbita maxima</i> Duchesne
Illipé	<i>Shorea stenoptera</i> Burck
Inca peanut	<i>Plukenetia volubilis</i> L.
Indian almond	<i>Terminalia catappa</i> L.
Indian beech tree	<i>Pongamia pinnata</i> (L.) Pierre
Indian butter tree	<i>Diploknema butyracea</i> (Roxb.) H.J. Lam.
Indian caper	<i>Capparis zeylanica</i> L.
Indian gooseberry	<i>Phyllanthus emblica</i> L.
Indian hem	<i>Cannabis sativa</i> L.
Indian kapok	<i>Bombax ceiba</i> L.
Indian lotus	<i>Nelumbo nucifera</i> Gaertn.
Indian mustard	<i>Brassica juncea</i> (L.) Czern. ssp. <i>juncea</i>
Indian rose chesnut	<i>Mesua ferrea</i> L.
Indian wood apple	<i>Limonia acidissima</i> L.
Ivy gourd	<i>Coccinia grandis</i> (L.) Voigt
Ivy-leaved morning glory	<i>Ipomoea hederacea</i> Jacq. <i>Ipomoea hederifolia</i> L.
Japanese Torreya	<i>Torreya nucifera</i> (L.) Siebold & Zucc.
Japanese white birch	<i>Betula platyphylla</i> ssp. <i>mandshurica</i> (Regel) Kitag
Japanese zelvova	<i>Zelvova serrata</i> (Thunb.) Makino
Jelly palm	<i>Butia capitata</i> (Mart.) Becc.
Jerusalem date	<i>Bauhinia monandra</i> Kurz
Joboa	<i>Simmondsia chinensis</i> (Link) C.K. Schneid.
Judas tree	<i>Cercis siliquastrum</i> L.
Kalahari melon	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai
Kamala	<i>Mallotus philippinensis</i> (Lam.) Müll.Arg.
Kapoktree	<i>Ceiba pentendra</i> (L.) Gaertn.
Karanja	<i>Pongamia pinnata</i> (L.) Pierre
Karite nut tree	<i>Vitellaria paradoxa</i> C.F. Gaertn.
Kenaf	<i>Hibiscus cannabinus</i> L.
Kinka-oil	<i>Vernonia anthelmintica</i> (L.) Willd.
Kiwifruit	<i>Actinidia deliciosa</i> (A. Chev.) C.F. Liang & A.R. Ferguson
Kokum	<i>Garcinia indica</i> (Thouars) Choisy
Korean bramble	<i>Rubus coreanus</i> Miq.
Kukuinut tree	<i>Aleurites moluccana</i> (L.) Willd.
Lac tree	<i>Schleichera oleosa</i> (Lour.) Merr.
Lady Doorly's morning-glory	<i>Ipomoea horsfalliae</i> Hook.

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Common name in English	Latin name
Lady of the night	<i>Brunfelsia americana</i> L.
Large sourplum	<i>Ximenia caffra</i> Sond.
Laurel	<i>Laurus nobilis</i> L.
Laurel wood	<i>Calophyllum inophyllum</i> L.
Lebbeck	<i>Albizia lebbeck</i> (L.) Benth.
Lesser mallow	<i>Hibiscus hirtus</i> L.
Lettuce	<i>Lactuca sativa</i> L.
Lincoln's-weed	<i>Diplotaxis tenuifolia</i> (L.) DC.
Lion's-tail	<i>Leonotis nepetifolia</i> (L.) R.Br.
Lobed leaf mallow	<i>Hibiscus lobatus</i> (Murray) Kuntze
London rocket	<i>Sisymbrium irio</i> L.
Loofah	<i>Luffa aegyptiaca</i> Mill.
Luckynut	<i>Thevetia peruviana</i> (Pers.) K. Schum.
Macadamia	<i>Macadamia integrifolia</i> Maiden & Betche <i>Macadamia tetraphylla</i> L.A.S. Johnson
Macadamia nut	<i>Macadamia integrifolia</i> Maiden & Betche <i>Macadamia tetraphylla</i> L.A.S. Johnson
Madagascar periwinkle	<i>Catharanthus roseus</i> (L.) G. Don
Mahaleb cherry	<i>Prunus mahaleb</i> L.
Mahua	<i>Madhuca longifolia</i> (L.) J.F. Macbr.
Maize	<i>Zea mays</i> L.
Makhobely	<i>Cephalaria syriaca</i> (L.) Roem. & Schult.
Malabar spinach	<i>Basella alba</i> L.
Manchurian walnut	<i>Juglans mandshurica</i> Maxim.
Mandarin orange	<i>Citrus reticulata</i> Blanco
Mango	<i>Mangifera indica</i> L.
Manila tamarind	<i>Pithecellobium dulce</i> (Roxb.) Benth.
Manketti	<i>Schinziophyton rautanenii</i> (Schinz) Radcl.-Sm.
Marama bean	<i>Tylosema esculentum</i> (Burch.) A. Schreib.
Marigold	<i>Calendula officinalis</i> L.
Maripa palm	<i>Attalea maripa</i> (Aubl.) Mart.
Marula	<i>Sclerocarya birrea</i> (A. Rich.) Hochst.
Mastic tree	<i>Pistacia lentiscus</i> L.
Meadow salsify	<i>Tragopogon pratensis</i> L.
Meadowfoam	<i>Limnanthes douglasii</i> R.Br.
Mealy sage	<i>Salvia farinacea</i> Benth.
Mediterranean spurge	<i>Euphorbia characias</i> L.
Melon	<i>Cucumis melo</i> L.
Mexican prickly poppy	<i>Argemone mexicana</i> L.
Milk thistle	<i>Silybum marianum</i> (L.) Gaertn.
Milo	<i>Thespesia populnea</i> (L.) Sol. ex Corrêa
Money plant	<i>Lunaria annua</i> ssp. <i>annua</i> L.
Mongongo	<i>Schinziophyton rautanenii</i> (Schinz) Radcl.-Sm.
Morelotia	<i>Morelotia affinis</i> (Brongn.) S.T. Blake
Mountain ebony	<i>Bauhinia variegata</i> L.
Mowra butter tree	<i>Madhuca longifolia</i> var. <i>latifolia</i> (Roxb.) A. Chev.
Mullein	<i>Verbascum thapsus</i> L.

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Common name in English	Latin name
Muriti	<i>Mauritia flexuosa</i> L.f.
Murumuru palm	<i>Astrocaryum murumuru</i> Mart.
Musk lime	<i>Citrus microcarpa</i> Bunge
Musk mallow	<i>Abelmoschus moschatus</i> Medik. ssp. <i>moschatus</i>
Musk thistle	<i>Carduus nutens</i> L. ssp. <i>nutens</i>
Necklace pod	<i>Sophora tomentosa</i> L.
Neem	<i>Azadirachta indica</i> A. Juss.
New Zealand flax	<i>Phormium tenax</i> J. R. Forst. & G. Forst
Nicaraguan cocoashade	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp.
Niger	<i>Guizotia abyssinica</i> (L.f.) Cass.
Northern black wattle	<i>Acacia auriculiformis</i> Benth.
Norway spruce	<i>Picea abies</i> (L.) H. Karst.
Nothapodytes tree	<i>Nothapodytes nimmoniana</i> (J. Graham) Mabb.
Nyala tree	<i>Xanthocercis zambesiaca</i> (Baker) Dumaz-le-Grand
Oiticica	<i>Licania rigida</i> Benth.
Okra	<i>Abelmoschus esculentus</i> (L.) Moench
Olive	<i>Olea europaea</i> L.
Onion	<i>Allium cepa</i> L.
Onionweed	<i>Asphodelus fistulosus</i> L.
Opium poppy	<i>Papaver somniferum</i> L.
Orchid tree	<i>Bauhinia variegata</i> L.
Oriental beech	<i>Fagus orientalis</i> Lipsky
Oyster nuts	<i>Telfairia occidentalis</i> Hook.f.
Papaya	<i>Carica papaya</i> L.
Paprika	<i>Capsicum annuum</i> L. var. <i>annuum</i>
Paradise tree	<i>Simarouba glauca</i> DC.
Parslay	<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill
Patashte	<i>Theobroma bicolor</i> Humb. & Bonpl.
Pataua palm	<i>Oenocarpus bataua</i> Mart. var. <i>bataua</i>
Pawpaw	<i>Asimina triloba</i> (L.) Dunal
Peach	<i>Prunus persica</i> (L.) Stokes
Peach palm	<i>Bactris gasipaes</i> Kunth
Peanut	<i>Arachis hypogaea</i> L.
Pear	<i>Pyrus communis</i> L.
Pecan	<i>Carya illinoensis</i> (Wangenh.) K. Koch
Pekea nut	<i>Caryocar villosum</i> (Aubl.) Pers.
Perilla	<i>Perilla frutescens</i> (L.) Britton
Peruvian cacao	<i>Theobroma bicolor</i> Humb. & Bonpl.
Peruvian pepper tree	<i>Schinus molle</i> L.
Peruvian primrose-willow	<i>Ludwigia peruviana</i> (L.) H. Hara.
Pignut	<i>Hyptis suaveolens</i> (L.) Poit.
Piqui-a	<i>Caryocar villosum</i> (Aubl.) Pers.
Pistachio	<i>Pistacia vera</i> L.
Platycodon	<i>Platycodon grandiflorus</i> (Jacq.) A.DC.
Plum	<i>Prunus domestica</i> L.
Poached eggplant	<i>Limnanthes douglasii</i> R.Br.
Pomegranate	<i>Punica granatum</i> L.

(continued)

Common name in English	Latin name
Pongam oil tree	<i>Pongamia pinnata</i> (L.) Pierre
Portia tree	<i>Thespesia populnea</i> (L.) Sol. ex Corrêa
Pot marigold	<i>Calendula officinalis</i> L.
Prickly lettuce	<i>Lactuca serriola</i> L. var. <i>oleifera</i>
Prickly pear	<i>Opuntia ficus-indica</i> (L.) Mill.
Pumkin	<i>Cucurbita moschata</i> Duchesne <i>Cucurbita pepo</i> L.
Purple loosestrife	<i>Lythrum salicaria</i> L.
Purple passionflower	<i>Passiflora edulis</i> Sims
Purple viper's bugloss	<i>Echium plantagineum</i> L.
Queen palm	<i>Syagrus romanzoffiana</i> (Cham.) Glassman
Queen's delight	<i>Stillingia sylvatica</i> L.
Queen's root	<i>Stillingia sylvatica</i> L.
Queensland hemp	<i>Sida rhombifolia</i> L.
Quick-stick	<i>Gliricidia sepium</i> (Jacq.) Walp.
Quince	<i>Cydonia oblonga</i> Mill.
Radish	<i>Raphanus sativus</i> L.
Rambutan	<i>Nephelium lappaceum</i> L.
Ramie	<i>Bohemeria nivea</i> (L.) Gaudich.
Rape	<i>Brassica napus</i> L. ssp. <i>napus</i>
Raspberry	<i>Rubus idaeus</i> L.
Red ash	<i>Fraxinus pennsylvanica</i> Marshall
Red beadtrees	<i>Adenanthera pavonina</i> L.
Red ironwood	<i>Lophira alata</i> Banks ex C.F. Gaertn.
Red maple	<i>Acer rubrum</i> L.
Red morning glory	<i>Ipomoea cholulensis</i> Kunth
Red oak	<i>Quercus rubra</i> L.
Red silk cotton tree	<i>Bombax ceiba</i> L.
Red ucuuba	<i>Virola sebifera</i> Aubl.
Rice	<i>Oryza sativa</i> L.
Ridge gourd	<i>Luffa acutangula</i> (L.) Roxb.
Robusta coffee	<i>Coffea canephora</i> Pierre ex A. Froehner
Rocket	<i>Eruca sativa</i> Mill.
Rocket larkspur	<i>Consolida ajacis</i> (L.) Schur
Rose-of-Sharon	<i>Hibiscus syriacus</i> L.
Roselle	<i>Hibiscus sabdariffa</i> L.
Rough cocklebur	<i>Xanthium strumarium</i> L.
Royal palm	<i>Roystonea regia</i> (Kunth) O.F. Cook
Rubber tree	<i>Hevea brasiliensis</i> (Willd. ex A. Juss.) Müll.Arg.
Sacha Inchi	<i>Plukenetia volubilis</i> L.
Sacred lotus	<i>Nelumbo nucifera</i> Gaertn.
Safflower	<i>Carthamus tinctorius</i> L.
Sal tree	<i>Shorea robusta</i> Gaertn.
Salad rocket	<i>Eruca sativa</i> Mill.
Sandalwood	<i>Santalum album</i> L.
Sandbox tree	<i>Hura crepitans</i> L.
Sapodilla	<i>Manilkara zapota</i> (L.) Royen

(continued)

Common name in English	Latin name
Sapote	<i>Manilkara zapota</i> (L.) Royen
Sasanqua camellia	<i>Camellia sasanqua</i> Thunb.
Saw palmetto	<i>Serenoa repens</i> (W. Bartram) Small
Schisandra	<i>Schisandra chinensis</i> (Turcz.) Baill.
Schizandra	<i>Schisandra chinensis</i> (Turcz.) Baill. <i>Canarium schweinfurthii</i> Engl.
Scotch thistle	<i>Onopordum acanthium</i> L.
Schweinfurth's olive	<i>Canarium schweinfurthii</i> Engl.
Seabuckthorn	<i>Hippophae rhamnoides</i> L. ssp. <i>rhamnoides</i>
Serpentine wood	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz
Sesame	<i>Sesamum indicum</i> L.
Shea tree	<i>Vitellaria paradoxa</i> C.F. Gaertn.
Siamese chaulmoogra	<i>Hydnocarpus anthelminthicus</i> Pierre ex Laness.
Siberian motherwort	<i>Leonurus sibiricus</i> L.
Sicilian sumac	<i>Rhus coriaria</i> L.
Silk-cottontree	<i>Ceiba pentandra</i> (L.) Gaertn.
Silver buffaloberry	<i>Shepherdia argentea</i> (Pursh) Nutt.
Silver fir	<i>Abies alba</i> Mill.
Single-leaf pinyon	<i>Pinus monophylla</i> Torr. & Frem.
Slender borage	<i>Borago pygmaea</i> (DC.) Chater & Greuter
Slim amaranth	<i>Amaranthus hybridus</i> L.
Small flower willowherb	<i>Epilobium parviflorum</i> Schreb.
Small leaf linden	<i>Tilia cordata</i> Mill.
Snake gourd	<i>Trichosanthes anguina</i> L.
Snowberry	<i>Symphoricarpos albus</i> (L.) S.F. Blake
Sour cherry	<i>Prunus cerasus</i> L.
Southern arrowwood	<i>Viburnum dentatum</i> L.
Soya	<i>Glycine max</i> (L.) Merr.
Soybean	<i>Glycine max</i> (L.) Merr.
Spanish broom	<i>Spartium junceum</i> L.
Spiny bitter gourd	<i>Momordica cochinchinensis</i> Spreng.
Sponge gourd	<i>Luffa aegyptiaca</i> Mill.
Squash	<i>Cucurbita moschata</i> Duchesne
Squirting cucumber	<i>Ecballium elaterium</i> (L.) A. Rich.
St John wort	<i>Hypericum perforatum</i> L.
Star ipomoea	<i>Ipomoea cholulensis</i> Kunth
Starfruit	<i>Averrhoa carambola</i> L.
Sticky nightshade	<i>Solanum sisymbriifolium</i> Lam.
Stillingia	<i>Triadica sebifera</i> (L.) Small
Stonebreaker	<i>Phyllanthus niruri</i> L.
Sunflower	<i>Helianthus annuus</i> L.
Supplejack	<i>Ventilago calyculata</i> Tul.
Surinam cherry	<i>Eugenia uniflora</i> L.
Sweet cherry	<i>Prunus avium</i> (L.) L.
Sweet lemon	<i>Citrus limetta</i> Risso
Sweet lime	<i>Citrus limetta</i> Risso
Sweet orange	<i>Citrus sinensis</i> (L.) Osbeck

(continued)

Common name in English	Latin name
Sweet Sarsaparilla	<i>Smilax glycyphylla</i> Sm.
Sycamore mapple	<i>Acer pseudoplatanus</i> L.
Syrian rue	<i>Peganum harmala</i> L.
Tabacco	<i>Nicotiana tabacum</i> L.
Tacaynut	<i>Caryodendron orinocense</i> H. Karst.
Tallow tree	<i>Pentadesma butyracea</i> Sabine
Tangerine	<i>Citrus reticulata</i> Blanco
Tanner's sumac	<i>Rhus coriaria</i> L.
Tara	<i>Caesalpinia spinosa</i> (Molina) Kuntze
Tarwi	<i>Lupinus mutabilis</i> Sweet
Taurian thistle	<i>Onopordum tauricum</i> Willd.
Tea	<i>Camellia sinensis</i> (L.) Kuntze
Teaplant	<i>Camellia sinensis</i> (L.) Kuntze
Teak	<i>Tectona grandis</i> L.f.
Terebinth	<i>Pistacia terebinthus</i> L.
Three-leaf soapberry	<i>Sapindus trifoliatus</i> L.
Tickweed	<i>Cleome viscosa</i> L.
Tiger cocoa	<i>Theobroma bicolor</i> Humb. & Bonpl.
Tigernut sedge	<i>Cyperus esculentus</i> L.
Tiny flower hibiscus	<i>Hibiscus micranthus</i> L.f.
Toad lily	<i>Tricyrtis affinis</i> Makino
Tobacco	<i>Nicotiana tabacum</i> L.
Tomato	<i>Solanum lycopersicum</i> L. var. <i>lycopersicum</i>
Toothbrush tree	<i>Salvadora persica</i> L.
Torn apple	<i>Datura stramonium</i> L.
Tree tomato	<i>Cyphomandra betacea</i> (Cav.) Sendtn.
Tropical almond	<i>Terminalia catappa</i> L.
Tropical rose mallow	<i>Hibiscus vitifolius</i> L.
Tucum palm	<i>Astrocaryum vulgare</i> Mart.
Tucuma	<i>Astrocaryum aculeatum</i> G. Mey.
Tucuma palm	<i>Astrocaryum vulgare</i> Mart.
Tung tree	<i>Vernicia fordii</i> (Hemsl.) Airy Shaw
Turkish hazelnut	<i>Corylus colurna</i> L.
Turnip rape	<i>Brassica rapa</i> L.
Uccuba	<i>Virola sebifera</i> Aubl.
Velvet mesquite	<i>Prosopis velutina</i> Wooton
Velvetleaf	<i>Abutilon theophrasti</i> Medik.
Vine maple	<i>Acer circinatum</i> Pursh
Viper gourd	<i>Trichosanthes anguina</i> L.
Watermelon	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai var. <i>lanatus</i>
Waxgourd	<i>Benincasa hispida</i> (Thunb. ex Murray) Cogn.
Wayfaring tree	<i>Viburnum lantana</i> L.
West Indian mahogany	<i>Swietenia mahagoni</i> (L.) Jacq.
Western soapberry	<i>Sapindus drummondi</i> Hook. & Arn.
Wheat	<i>Triticum aestivum</i> L. ssp. <i>aestivum</i>
White dammar	<i>Vateria indica</i> L.
White lupin	<i>Lupinus albus</i> L.

(continued)

Common name in English	Latin name
White mullein	<i>Verbascus thapsus</i> L.
White mustard	<i>Sinapis alba</i> L.
White sandalwood	<i>Santalum album</i> L.
White-seed melon	<i>Cucumeropsis mannii</i> Naudin
Wild chesnut	<i>Pachira insignis</i> (Sw.) Savigny.
Wild colocynth	<i>Lagenaria breviflora</i> (Benth.) Roberty
Wild cucumber	<i>Echinocystis lobata</i> Torr. & A. Gray.
Wild melon	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai
Wild mignonette	<i>Reseda lutea</i> L.
Winged bean	<i>Psophocarpus tetragonolobus</i> (L.) DC
Winter squash	<i>Cucurbita maxima</i> Duchesne <i>Cucurbita moschata</i> Duchesne
Woad	<i>Isatis tinctoria</i> L.
Wooly burdock	<i>Arctium tomentosum</i> Mill.
Wych elm	<i>Ulmus glabra</i> Huds.
Yellow nutsedge	<i>Cyperus esculentus</i> L.
Yellow oleander	<i>Thevetia peruviana</i> (Pers.) K. Schum.

10.2 Correspondence Between French Names and Latin Names

Common name in French	Latin name
Abrasin	<i>Vernicia montana</i> Lour.
Abricotier	<i>Prunus armeniaca</i> L.
Absinthe	<i>Artemisia absinthium</i> L.
Abutilon d'Avicenne	<i>Abutilon theophrasti</i> Medik.
Acacia	<i>Robinia pseudoacacia</i> L.
Acajou d'Afrique	<i>Khaya ivorensis</i> A. Chev.
Acajou d'Amérique	<i>Swietenia mahagoni</i> (L.) Jacq.
Acajou du Honduras	<i>Swietenia macrophylla</i> King
Acajou du Sénégal	<i>Khaya senegalensis</i> (Desv.) A. Juss.
Acrocome	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex Mart.
Aguaie	<i>Mauritia flexuosa</i> L. f.
Aiéle	<i>Canarium schweinfurthii</i> Engl.
Ajowan	<i>Trachyspermum ammi</i> (L.) Sprague
Akéé	<i>Blighia sapida</i> K.D. Koenig
Aki	<i>Blighia sapida</i> K.D. Koenig
Alliaire	<i>Alliaria petiolata</i> (M. Bieb.) Casara & Grande
Almondette	<i>Buchanania cochinchinensis</i> (Lour.) M.R. Almeida.
Althéa	<i>Hibiscus syriacus</i> L.
Amandier	<i>Prunus dulcis</i> (Mill.) D.A. Webb
Amarante crête-de-coq	<i>Celosia argentea</i> L.
Amarante hybride	<i>Amaranthus hybridus</i> L.

(continued)

Common name in French	Latin name
Amarantine	<i>Gomphrena globosa</i> L.
Ambrette	<i>Abelmoschus moschatus</i> Medik. ssp. <i>moschatus</i>
Ambroisie annuelle	<i>Ambrosia artemisiifolia</i> var. <i>elatio</i> (L.) Descourt.
Amla	<i>Phyllanthus emblica</i> L.
Anacardier	<i>Anacardium occidentale</i> L.
Andiroba	<i>Carapa guianensis</i> Aubl.
Aneth odorant	<i>Anethum graveolens</i> L.
Anis	<i>Pimpinella anisum</i> L.
Aphyllanthe de Montpellier	<i>Aphyllantes monspeliensis</i> L.
Arachide	<i>Arachis hypogaea</i> L.
Arbre à beurre	<i>Pentadesma butyracea</i> Sabine
Arbre à corail	<i>Adenanthera pavonina</i> L.
Arbre à mastic	<i>Pistacia lentiscus</i> L.
Arbre à pain	<i>Artocarpus altilis</i> (Parkinson) Fosberg
Arbre à pain indigène	<i>Myrianthus arboreus</i> P. Beauv.
Arbre à semelles	<i>Pentaclethra macrophylla</i> Benth.
Arbre à suif	<i>Triadica sebifera</i> (L.) Small
Arbre à tomates	<i>Cyphomandra betacea</i> (Cav.) Sendtn.
Arbre aux orchidées mauves	<i>Bauhinia purpurea</i> L.
Arbre de Judée	<i>Cercis siliquastrum</i> L.
Arbre de Saint Thomas	<i>Bauhinia variegata</i> L.
Arganier	<i>Argania spinosa</i> (L.) Skeels
Argémone mexicaine	<i>Argemone mexicana</i> L.
Argousier	<i>Hippophae rhamnoides</i> L. ssp. <i>rhamnoides</i>
Armoise bisannuelle	<i>Artemisia biennis</i> Willd.
Armoise bleuâtre	<i>Artemisia caerulea</i> L.
Artichaut	<i>Cynara cardunculus</i> L. ssp. <i>cardunculus</i>
Asiminier	<i>Asimina triloba</i> (L.) Dunal
Asperge	<i>Asparagus officinalis</i> L.
Asphodèle fistuleux	<i>Asphodelus fistulosus</i> L.
Aubergine	<i>Solanum melongena</i> L.
Avocat	<i>Persea americana</i> Mill.
Awara	<i>Astrocaryum vulgare</i> Mart.
Azobé	<i>Lophira alata</i> Banks ex C.F. Gaertn.
Babassou	<i>Attalea</i> spp. including <i>A. speciosa</i> Mart.
Badamier	<i>Terminalia catappa</i> L.
Bancoulier	<i>Aleurites moluccana</i> (L.) Willd.
Baobab, baobab africain	<i>Adansonia digitata</i> L.
Baobab de grandidieri	<i>Adansonia grandidieri</i> Baill.
Baobab de Suarez	<i>Adansonia suarezensis</i> H. Perrier
Baobab za	<i>Adansonia za</i> Baill.
Bardane poilue	<i>Arctium tomentosum</i> Mill.
Bardanette	<i>Lappula echinata</i> Gilib.
Basilic	<i>Ocimum basilicum</i> L.
Basilic sacré	<i>Ocimum tenuiflorum</i> L.

(continued)

Common name in French	Latin name
Blé	<i>Triticum aestivum</i> L. ssp. <i>aestivum</i>
Bleuet	<i>Centaurea cyanus</i> L.
Bois amer	<i>Carissa spinarum</i> L. <i>Simarouba glauca</i> DC.
Bois de cam	<i>Baphia nitida</i> Lodd.
Bois de Chine	<i>Vernicia fordii</i> (Hemsl.) Airy Shaw
Bois de condori	<i>Adenanthera pavonina</i> L.
Bois de Sainte Lucie	<i>Prunus mahaleb</i> L.
Boléro	<i>Ongokea gore</i> Pierre
Bouillon blanc	<i>Verbascum thapsus</i> L.
Boule de neige	<i>Viburnum opulus</i> L.
Boungou	<i>Ceratotheca sesamoides</i> Endl.
Bourrache	<i>Borago officinalis</i> L.
Bourrache naine	<i>Borago pygmaea</i> (DC.) Chater & Greuter
Brocoli	<i>Brassica oleracea</i> L. var. <i>botrytis</i> L.
Buis	<i>Buxus sempervirens</i> L.
Buriti	<i>Mauritia flexuosa</i> L.f.
Cacahuète	<i>Arachis hypogaea</i> L.
Cacaoyer	<i>Theobroma cacao</i> L.
Caféier d'Arabie	<i>Coffea arabica</i> L.
Caféier robuste	<i>Coffea canephora</i> Pierre ex A. Froehner
Calamondin	<i>Citrus microcarpa</i> Bunge
Calebasse	<i>Lagenaria siceraria</i> (Molina) Stanl.
Calebasse tigrée	<i>Lagenaria breviflora</i> (Benth.) Roberty
Calebassier	<i>Crescentia cujete</i> L.
Calophyllum	<i>Calophyllum inophyllum</i> L.
Camélia	<i>Camellia japonica</i> L.
Cameline	<i>Camelina sativa</i> (L.) Crantz
Câprier	<i>Capparis spinosa</i> L.
Carambolier	<i>Averrhoa carambola</i> L.
Cardon	<i>Cynara cardunculus</i> L.
Carotte	<i>Daucus carota</i> L.
Carthame	<i>Carthamus tinctorius</i> L.
Carthame des teinturiers	<i>Carthamus tinctorius</i> L.
Carvi	<i>Carum carvi</i> L.
Caryer cordiforme	<i>Carya cordiformis</i> (Wangenh.) K. Koch
Casse-pierre	<i>Phyllanthus niruri</i> L.
Cassissier	<i>Ribes nigrum</i> L.
Cèdre de l'Atlas	<i>Cedrus atlantica</i> (Endl.) G. Manetti ex Carrière
Céphalaire de Syrie	<i>Cephalaria syriaca</i> (L.) Roem. & Schult.
Cerisier	<i>Prunus avium</i> (L.) L.
Cerise de terre	<i>Physalis pruinosa</i> L.
Cerisier de Cayenne	<i>Eugenia uniflora</i> L.
Champaca	<i>Magnolia champaca</i> (L.) Baill. ex Pierre
Chañar	<i>Geoffroea decorticans</i> (Gillies ex Hook. & Arn.) Burkart
Chanvre	<i>Cannabis sativa</i> L.
Chanvre de Madras	<i>Hibiscus cannabinus</i> L.

(continued)

Common name in French	Latin name
Chanvre indien	<i>Cannabis sativa</i> L.
Chardon Marie	<i>Silybum marianum</i> (L.) Gaertn.
Chardon noirissant	<i>Carduus nigrescens</i> Vill.
Chardon penché	<i>Carduus nutens</i> L. ssp. <i>nutens</i>
Chaulmoogra	<i>Hydnocarpus kurzii</i> (King) Warb.
Chêne de Ceylan	<i>Schleichera oleosa</i> (Lour.) Merr.
Chêne rouge	<i>Quercus rubra</i> L.
Cheveux de Vénus	<i>Ipomoea quamoclit</i> L.
Chia	<i>Salvia hispanica</i> L.
Chicorée	<i>Cichorium intybus</i> L.
Chou fleur	<i>Brassica cretica</i> Lam.
Cirse vulgaire	<i>Cirsium vulgare</i> (Savi) Ten.
Citrouille	<i>Cucurbita pepo</i> L.
Cocotier	<i>Cocos nucifera</i> L.
Cocotier du Chili	<i>Jubaea chilensis</i> (Molina) Baill.
Cognassier	<i>Cydonia oblonga</i> Mill.
Coing de Chine	<i>Mimusops elengi</i> L.
Coloquinte	<i>Citrullus colocynthis</i> (L.) Schrad.
Colza	<i>Brassica napus</i> L. ssp. <i>napus</i>
Comou	<i>Oenocarpus bacaba</i> Mart.
Concombre	<i>Cucumis sativus</i> L.
Concombre africain	<i>Cucumis metuliferus</i> E. Mey. ex Naudin
Concombre d'âne	<i>Ecballium elaterium</i> (L.) A. Rich.
Concombre des prophètes	<i>Cucumis prophetarum</i> L.
Concombre grimpant	<i>Echinocystis lobata</i> Torr. & A. Gray.
Coqueret du Pérou	<i>Physalis peruviana</i> L.
Coréopsis des teinturiers	<i>Coreopsis tinctoria</i> Nutt.
Coriandre	<i>Coriandrum sativum</i> L.
Cornouiller sanguin	<i>Cornus sanguinea</i> L.
Cotonnier	<i>Gossypium hirsutum</i> L.
Courge	<i>Cucurbita pepo</i> L.
Courge cannelée	<i>Telfairia occidentalis</i> Hook.f.
Courge creuse	<i>Benincasa hispida</i> (Thunb. ex Murray) Cogn.
Courge écarlate	<i>Coccinia grandis</i> (L.) Voigt
Courge éponge	<i>Luffa aegyptiaca</i> Mill.
Courge musquée	<i>Cucurbita moschata</i> Duchesne
Courge serpent	<i>Trichosanthes anguina</i> L.
Cougette	<i>Cucurbita pepo</i> L.
Coyol	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex Mart.
Crambe d'Abyssinie	<i>Crambe hispanica</i> ssp. <i>abyssinica</i> Hochst. ex R.E.Fr.
Cresson alénois	<i>Lepidium sativum</i> L.
Cumin	<i>Cuminum cyminum</i> L.
Cumin noir	<i>Nigella sativa</i> L.
Cupuaçu	<i>Theobroma grandiflorum</i> (Willd ex Spreng.) K. Schum.
Cytise commun	<i>Laburnum lagyroides</i> Medik.
Datte amère	<i>Balanites aegyptiacus</i> (L.) Delile
Dattier amer	<i>Balanites aegyptiacus</i> (L.) Delile

(continued)

Common name in French	Latin name
Dattier des Canaries	<i>Phoenix canariensis</i> Chabaud
Dattier du désert	<i>Balanites aegyptiacus</i> (L.) Delile
Datura stramoine	<i>Datura stramonium</i> L.
Diplotaxis vulgaire	<i>Diplotaxis tenuifolia</i> (L.) DC.
Ebène du Mozambique	<i>Dalbergia melanoxylon</i> Guill. & Perr.
Echinops	<i>Echinops ritro</i> L.
Elémier d'Afrique	<i>Canarium schweinfurthii</i> Engl.
Encens de mer	<i>Artemisia caerulescens</i> L.
Epicéa commun	<i>Picea abies</i> (L.) H. Karst.
Epilobe à petite fleur	<i>Epilobium parviflorum</i> Schreb.
Epinard de Malabar	<i>Basella alba</i> L.
Erable à feuille de vigne	<i>Acer circinatum</i> Pursh
Erable du fleuve Amour	<i>Acer tataricum</i> L. ssp. <i>ginnala</i> (Maxim.) Wesm.
Erable rouge	<i>Acer rubrum</i> L.
Erable sycomore	<i>Acer pseudoplatanus</i> L.
Erythrine du Sénégal	<i>Erythrina senegalensis</i> DC.
Etoile du matin	<i>Ipomoea hederacea</i> Jacq.
Euphorbe characias	<i>Euphorbia characias</i> L.
Faux arbre à pain	<i>Myrianthus arboreus</i> P. Beauv.
Faux muscadier	<i>Monodora myristica</i> (Gaertn.) Dunal
Faux néré	<i>Parkia bicolor</i> A. Chev.
Faux poivrier	<i>Schinus molle</i> L.
Faux sésame	<i>Ceratotheca sesamoides</i> Endl.
Fenouil	<i>Foeniculum vulgare</i> Mill.
Figuier de Barbarie	<i>Opuntia ficus-indica</i> (L.) Mill.
Framboisier	<i>Rubus idaeus</i> L.
Frêne rouge	<i>Fraxinus pennsylvanica</i> Marshall
Frêne de Pennsylvanie	<i>Fraxinus pennsylvanica</i> Marshall
Fromager	<i>Bombax ceiba</i> L. <i>Ceiba pentandra</i> (L.) Gaertn.
Galéopsis tétrahit	<i>Galeopsis tetrahit</i> L.
Genêt d'Espagne	<i>Spartium junceum</i> L.
Genévrier	<i>Juniperus communis</i> L.
Ginseng	<i>Panax ginseng</i> C.A. Meyer
Ginseng américain	<i>Panax quinquefolius</i> L.
Gliricidia	<i>Gliricidia sepium</i> (Jacq.) Walp.
Glycine de Chine	<i>Wisteria sinensis</i> (Sims) Sweet
Gombo	<i>Abelmoschus esculentus</i> (L.) Moench
Gourde bouteille	<i>Lagenaria siceraria</i> (Molina) Stanl.
Goyavier	<i>Psidium guajava</i> L.
Grande capucine	<i>Tropaeolum majus</i> L.
Grenadier	<i>Punica granatum</i> L.
Grenadille	<i>Passiflora edulis</i> Sims
Griottier	<i>Prunus cerasus</i> L.
Groseiller de Ceylan	<i>Phyllanthus emblica</i> L.
Haricot ailé	<i>Psophocarpus tetragonolobus</i> (L.) DC.
Haricot bâtard	<i>Sophora tomentosa</i> L.

(continued)

Common name in French	Latin name
Herbe à la ouate	<i>Asclepias syriaca</i> L.
Hérisson rouge	<i>Urena lobata</i> L.
Hêtre	<i>Fagus sylvatica</i> L.
Hêtre d'orient	<i>Fagus orientalis</i> Lipsky
Hévéa	<i>Hevea brasiliensis</i> (Willd. ex A. Juss.) Müll.Arg.
Hibiscus des marais	<i>Hibiscus moscheutos</i> L.
If	<i>Taxus baccata</i> L.
Illipé de Bornéo	<i>Shorea stenoptera</i> Burck
Immortelle à bractée	<i>Xerochrysum bracteatum</i> (Vent.) Tzvelev
Impatience	<i>Impatiens balsamina</i> L.
Inca inchi	<i>Plukenetia volubilis</i> L.
Ipomée à feuille de lierre	<i>Ipomoea hederacea</i> Jacq. <i>Ipomoea hederifolia</i> L.
Ipomée à fleur rouge	<i>Ipomoea cholulensis</i> Kunth
Ipomée rouge	<i>Ipomoea quamoclit</i> L.
Jojoba	<i>Simmondsia chinensis</i> (Link) C.K. Schneid.
Jusquame noire	<i>Hyoscyamus niger</i> L.
Kapok rouge	<i>Bombax ceiba</i> L.
Kapokier	<i>Ceiba pentendra</i> (L.) Gaertn.
Karanja	<i>Milletia pinnata</i> (L.) Panigrahi
Karité	<i>Vitellaria paradoxa</i> C.F. Gaertn.
Karkadé	<i>Hibiscus sabdariffa</i> L.
Kiwi	<i>Actinidia deliciosa</i> (A. Chev.) C.F. Liang & A.R. Ferguson
Kokum	<i>Garcinia indica</i> (Thouars) Choisy
Laitue	<i>Lactuca sativa</i> L.
Laitue d'Égypte	<i>Lactuca serriola</i> L. var. <i>oleifera</i>
Laitue du Soudan	<i>Lactuca serriola</i> L. var. <i>oleifera</i>
Lampourde glouteron	<i>Xanthium strumarium</i> L.
Laurier	<i>Laurus nobilis</i> L.
Laurier-cerise	<i>Prunus laurocerasus</i> L.
Laurier jaune	<i>Thevetia peruviana</i> (Pers.) K. Schum.
Laurier sauce	<i>Laurus nobilis</i> L.
Lentisque	<i>Pistacia lentiscus</i> L.
Liane de cerf	<i>Hiptage benghalensis</i> (L.) Kurz
Limette d'Italie	<i>Citrus limetta</i> Risso
Lin	<i>Linum usitatissimum</i> L.
Lin de Nouvelle Zélande	<i>Phormium tenax</i> J. R. Forst. & G. Forst
Lis crapaud	<i>Tricyrtis affinis</i> Makino
Liseron des champs	<i>Convolvulus arvensis</i> L.
Lotus des Indes	<i>Nelumbo nucifera</i> Gaertn.
Lotus sacré	<i>Nelumbo nucifera</i> Gaertn.
Lupin blanc	<i>Lupinus albus</i> L.
Lupin changeant	<i>Lupinus mutabilis</i> Sweet
Luzerne	<i>Medicago sativa</i> L.
Macadamia	<i>Macadamia integrifolia</i> Maiden & Betche <i>Macadamia tetraphylla</i> L.A.S. Johnson

(continued)

Common name in French	Latin name
Macadamier	<i>Macadamia integrifolia</i> Maiden & Betche <i>Macadamia tetraphylla</i> L.A.S. Johnson
Maïs	<i>Zea mays</i> L.
Mandarinier	<i>Citrus reticulata</i> Blanco
Manguier	<i>Mangifera indica</i> L.
Manguier sauvage	<i>Irvingia gabonensis</i> (Aubry-Lecomte ex O'Rorke) Baill.
Manioc	<i>Manihot esculenta</i> Crantz
Margose	<i>Momordica charantia</i> L.
Margosier	<i>Azadirachta indica</i> A. Juss.
Marihuanilla	<i>Leonurus sibiricus</i> L.
Marula	<i>Sclerocarya birrea</i> (A. Rich.) Hochst.
Massette à larges feuilles	<i>Typha latifolia</i> L.
Mauve à petite fleur	<i>Malva parviflora</i> L.
Mélèze commun	<i>Larix decidua</i> Mill.
Melon	<i>Cucumis melo</i> L.
Micocoulier de Provence	<i>Celtis australis</i> L.
Millepertuis	<i>Hypericum perforatum</i> L.
Mocambo	<i>Theobroma bicolor</i> Humb. & Bonpl.
Molène	<i>Verbascum thapsus</i> L.
Monnaie du Pape	<i>Lunaria annua</i> ssp. <i>annua</i> L.
Morelle de Balbis	<i>Solanum sisymbriifolium</i> Lam.
Moringa ailé	<i>Moringa oleifera</i> Lam.
Moutarde blanche	<i>Sinapis alba</i> L.
Moutarde brune	<i>Brassica juncea</i> (L.) Czern. ssp. <i>juncea</i>
Moutarde des champs	<i>Sinapis arvensis</i> L.
Moutarde noire	<i>Brassica nigra</i> (L.) K. Koch
Moutarde orientale	<i>Brassica juncea</i> (L.) Czern. ssp. <i>juncea</i>
Murier sauvage	<i>Rubus fruticosus</i> L.
Myrobalan beleric	<i>Terminalia bellirica</i> (Gaertn.) Roxb.
Navette	<i>Brassica rapa</i> L.
Nectarinier	<i>Prunus persica</i> (L.) Stokes
Neem	<i>Azadirachta indica</i> A. Juss.
Néré	<i>Parkia biglobosa</i> (Jacq.) G. Dom
Nigelle cultivée	<i>Nigella sativa</i> L.
Niger	<i>Guizotia abyssinica</i> (L. f.) Cass.
Njangsa	<i>Ricinodendron heudelotii</i> (Baill.) Pierre ex Pax ssp. <i>africanum</i> (Müll. Arg.) Leonard
Noisetier chilien	<i>Gevuina avellana</i> Molina
Noisetier commun	<i>Corylus avellana</i> L.
Noisetier de Turquie	<i>Corylus colurna</i> L.
Noyer	<i>Juglans regia</i> L.
Noyer de Mandchourie	<i>Juglans mandshurica</i> Maxim.
Noyer du Brésil	<i>Bertholletia excelsa</i> Humb. & Bonpl.
Noyer du Gabon	<i>Lovoa trichilioides</i> Harms
Noyer indigène	<i>Coula edulis</i> Baill.
Oeillette	<i>Papaver somniferum</i> L.
Œuf sur le plat	<i>Limnanthes douglasii</i> R.Br.

(continued)

Common name in French	Latin name
Oignon	<i>Allium cepa</i> L.
Oitica	<i>Licania rigida</i> Benth.
Olivier	<i>Olea europaea</i> L.
Onagre bisannuelle	<i>Oenothera biennis</i> L.
Onopordon faux acanthe	<i>Onopordum acanthium</i> L.
Oranger	<i>Citrus sinensis</i> (L.) Osbeck
Orme blanc	<i>Ulmus glabra</i> Huds.
Orme du Japon	<i>Zelkova serrata</i> (Thunb.) Makino
Orme lisse	<i>Ulmus laevis</i> Pall.
Ortie royale	<i>Galeopsis tetrahit</i> L.
Oseille de Malabar	<i>Hibiscus surattensis</i> L.
Owala	<i>Pentaclethra macrophylla</i> Benth.
Pacancier	<i>Carya illinoensis</i> (Wangenh.) K. Koch
Palmier abricot	<i>Butia capitata</i> (Mart.) Becc.
Palmier à huile	<i>Elaeis guineensis</i> Jacq.
Palmier à huile américain	<i>Elaeis oleifera</i> (Kunth) Cortés
Palmier de Floride	<i>Serenoa repens</i> (W. Bartram) Small
Palmier (jupon) de Californie	<i>Washingtonia filifera</i> (Linden ex Andre) H. Wendl.
Palmier pêche	<i>Bactris gasipaes</i> Kunth
Palmier reine	<i>Syagrus romanzoffiana</i> (Cham.) Glassman
Palmier royal (de Cuba)	<i>Roystonea regia</i> (Kunth) O.F. Cook
Papayer	<i>Carica papaya</i> L.
Paprika	<i>Capsicum annuum</i> L. var. <i>annuum</i>
Passiflore bleue	<i>Passiflora caerulea</i> L.
Pastel	<i>Isatis tinctoria</i> L.
Pastèque	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai var. <i>lanatus</i>
Pastèque de Chine	<i>Benincasa hispida</i> (Thunb. ex Murray) Cogn.
Patate à Durand	<i>Ipomoea pes-caprae</i> (L.) R.Br.
Patawa	<i>Oenocarpus bataua</i> Mart. var. <i>bataua</i>
Patisson	<i>Cucurbita moschata</i> Duchesne
Pavot	<i>Papaver somniferum</i> L.
Pêcher	<i>Prunus persica</i> (L.) Stokes
Périlla	<i>Perilla frutescens</i> (L.) Britton
Persil	<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill
Pervenche de Madagascar	<i>Catharanthus roseus</i> (L.) G. Don
Phyllanthus	<i>Phyllanthus niruri</i> L.
Pied d'alouette d'Ajaj	<i>Consolida ajacis</i> (L.) Schur
Pignon d'Inde	<i>Jatropha curcas</i> L.
Pin à une feuille	<i>Pinus monophylla</i> Torr. & Frem.
Pin cembro	<i>Pinus cembra</i> L.
Pin d'Alep	<i>Pinus halepensis</i> L.
Pin noir	<i>Pinus nigra</i> J.F. Arnold
Pin parasol	<i>Pinus pinea</i> L.
Pin pignon	<i>Pinus pinea</i> L.
Pin sylvestre	<i>Pinus sylvestris</i> L.
Pipangaye côtelée	<i>Luffa acutangula</i> (L.) Roxb.

(continued)

Common name in French	Latin name
Pissenlit	<i>Taraxacum officinale</i> Weber ex F.H. Wigg.
Pistachier cultivé	<i>Pistacia vera</i> L.
Pistachier de l'Atlas	<i>Pistacia atlantica</i> Desf.
Plante bouteille	<i>Jatropha podagrica</i> Hook.
Platicodon	<i>Platycodon grandiflorus</i> (Jacq.) A.DC.
Poirier	<i>Pyrus communis</i> L.
Pois carré	<i>Psophocarpus tetragonolobus</i> (L.) DC
Pois de cœur	<i>Cardiospermum halicacabum</i> L.
Poivron doux	<i>Capsicum annuum</i> L. var. <i>annuum</i>
Pomme cannelle	<i>Annona squamosa</i> L.
Pommier	<i>Malus domestica</i> Borkh.
Pommier de Cayor	<i>Neocarya macrophylla</i> (Sabine) Prance
Pompon soldat	<i>Leonotis nepetifolia</i> (L.) R.Br.
Pongamia	<i>Pongamia pinnata</i> (L.) Pierre
Potiron	<i>Cucurbita maxima</i> Duchesne
Pourghère	<i>Jatropha curcas</i> L.
Prunier	<i>Prunus domestica</i> L.
Pulicaire dysentérique	<i>Pulicaria dysenterica</i> (L.) Bernh.
Racine royale	<i>Stillingia sylvatica</i> L.
Radis	<i>Raphanus sativus</i> L.
Ramboutan	<i>Nephelium lappaceum</i> L.
Ramie de Chine	<i>Bohemeria nivea</i> (L.) Gaudich.
Renoncule à feuille de graminée	<i>Ranunculus gramineus</i> L.
Réséda jaune	<i>Reseda lutea</i> L.
Ricin	<i>Ricinus communis</i> L.
Riz	<i>Oryza sativa</i> L.
Robinier faux-acacia	<i>Robinia pseudoacacia</i> L.
Ronce commune	<i>Rubus fruticosus</i> L.
Roquette	<i>Eruca sativa</i> Mill.
Roquette jaune	<i>Sisymbrium irio</i> L.
Rosier rouillé	<i>Rosa rubiginosa</i> L.
Rue de Syrie	<i>Peganum harmala</i> L.
Sablier	<i>Hura crepitans</i> L.
Sacha Inchi	<i>Plukenetia volubilis</i> L.
Safoutier	<i>Dacryodes edulis</i> (G. Don) H.J. Lam.
Sal	<i>Shorea robusta</i> Gaertn.
Salicaire	<i>Lythrum salicaria</i> L.
Salsifis des près	<i>Tragopogon pratensis</i> L.
Santal	<i>Santalum album</i> L.
Santal blanc	<i>Santalum album</i> L.
Sapin argenté	<i>Abies alba</i> L.
Sapin blanc	<i>Abies alba</i> L.
Sapotier	<i>Manilkara zapota</i> (L.) Royen
Sapotillier	<i>Manilkara zapota</i> (L.) Royen
Sauge farineuse	<i>Salvia farinacea</i> Benth.
Sauge sclarée	<i>Savia sclarea</i> L.

(continued)

Common name in French	Latin name
Savonnier	<i>Sapindus saponaria</i> L.
Schisandra	<i>Schisandra chinensis</i> (Turcz.) Baill.
Schizandra	<i>Schisandra chinensis</i> (Turcz.) Baill.
Sésame	<i>Sesamum indicum</i> L.
Shépherdie argentée	<i>Shepherdia argentea</i> (Pursh) Nutt.
Soja	<i>Glycine max</i> (L.) Merr.
Souchet comestible	<i>Cyperus esculentus</i> L.
Souci	<i>Calendula officinalis</i> L.
Sumac des corroyeurs	<i>Rhus coriaria</i> L.
Sureau	<i>Sambucus nigra</i> L.
Sureau noir	<i>Sambucus nigra</i> L.
Symphorine	<i>Symphoricarpos albus</i> (L.) S.F. Blake
Tabac	<i>Nicotiana tabacum</i> L.
Tabouret des champs	<i>Thlaspi arvensis</i> L.
Tamanu	<i>Calophyllum inophyllum</i> L.
Tamarin de l'Inde	<i>Pithecellobium dulce</i> (Roxb.) Benth.
Tamarin de Manille	<i>Pithecellobium dulce</i> (Roxb.) Benth.
Tara	<i>Caesalpinia spinosa</i> (Molina) Kuntze
Teck	<i>Tectona grandis</i> L.f.
Térébinthe	<i>Pistacia terebinthus</i> L.
Théier	<i>Camellia sinensis</i> (L.) Kuntze
Thévétia du Pérou	<i>Thevetia peruviana</i> (Pers.) K. Schum.
Thuya de Chine	<i>Platycladus orientalis</i> (L.) Franco
Tiama	<i>Entandrophragma angolense</i> (Welw.) C.DC.
Tilleul à petite feuille	<i>Tilia cordata</i> Mill.
Tomate	<i>Solanum lycopersicum</i> L. var. <i>lycopersicum</i>
Torreya du Japon	<i>Torreya nucifera</i> (L.) Siebold & Zucc.
Tournesol	<i>Helianthus annuus</i> L.
Trène luisant	<i>Ligustrum lucidum</i> W.T. Aiton
	<i>Ligustrum sinense</i> Lour.
Tucum	<i>Astrocaryum aculeatum</i> G. Mey.
Vigne	<i>Vitis vinifera</i> L.
Viorne dentée	<i>Viburnum dentatum</i> L.
Viorne lantane	<i>Viburnum lantana</i> L.
Viorne mancienne	<i>Viburnum lantana</i> L.
Viorne obier	<i>Viburnum opulus</i> L.
Vipérine à feuille de plantain	<i>Echium plantagineum</i> L.
Voacanga	<i>Voacanga africana</i> Stapf.

10.3 Correspondence Between the Latin Names Used by the Authors of the Works Listed and Valid Latin Names

Synonym s mentioned in papers or books	Valid Latin name in 2011
<i>Abutilon crispum</i> (L.) Medik	<i>Herissantia crispa</i> (L.) Brizicky
<i>Acacia holosericea</i> A. Cunn.	<i>Acacia mangium</i> Willd.
<i>Achras sapota</i> L.	<i>Manilkara zapota</i> (L.) Royen
<i>Acrocomia lasiospatha</i> Wall.	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex C. Mart.
<i>Acrocomia sclerocarpa</i> Mart.	<i>Acrocomia aculeata</i> (Jacq.) Lodd. ex C. Mart.
<i>Actinidia chinensis</i> Planc. var. <i>delicisosa</i> A. Chev.	<i>Actinidia deliciosa</i> (A. Chev.) C.F. Liang & A.R. Ferguson
<i>Adansonia fony</i> Baill.	<i>Adansonia fony</i> var. <i>rubrostipa</i> (Jum. & H. Perrier) H. Perrier
<i>Adenopus breviflorus</i> Benth.	<i>Lagenaria breviflora</i> (Benth.) Roberty
<i>Aleurites fordii</i> Heml.	<i>Vernicia fordii</i> (Hemsl.) Airy Shaw
<i>Aleurites montanus</i> (Lour.) E.H. Wilson	<i>Vernicia montana</i> Lour.
<i>Alliaria officinalis</i> Andrz. ex M. Bieb.	<i>Alliaria petiolata</i> (M. Bieb.) Casara & Grande
<i>Ambrosia elatior</i> L.	<i>Ambrosia artemisiifolia</i> var. <i>elatior</i> (L.) Descourt.
<i>Amoora rohituka</i> (Roxb.) Wigh & Arn.	<i>Aphanamixis polystachya</i> (Wall.) R. Parker
<i>Amygdalus communis</i> L.	<i>Prunus dulcis</i> (Mill.) D.A. Webb
<i>Antiaris Africana</i> Engl.	<i>Antiaris toxicaria</i> ssp. <i>africana</i> (Engl.) C.C. Berg
<i>Arecastrum romanzoffianum</i> (Cham.) Becc.	<i>Syagrus romanzoffiana</i> (Cham.) Glassman
<i>Argyreia aggregata</i> Arn. ex Choisy	<i>Argyreia osyrensis</i> (Roth) Choisy var. <i>osyrensis</i>
<i>Aristolochia elegans</i> Mast.	<i>Aristolochia littoralis</i> Parodi
<i>Artocarpus communis</i> J.R. Forst. & G. Forst	<i>Artocarpus altilis</i> (Parkinson) Fosberg
<i>Astrocarium tucuma</i> Mart.	<i>Astrocaryum aculeatum</i> G. Mey
<i>Bactris piritu</i> (H. Karst) H. Wendl	<i>Bactris guineensis</i> (L.) H.E. Moore
<i>Basella rubra</i> L.	<i>Basella alba</i> L.
<i>Bassia butyracea</i> Roxb.	<i>Diploknema butyracea</i> (Roxb.) Lam.
<i>Bassia pasquieri</i> Lecomte	<i>Madhuca pasquieri</i> (Dubard) H.J. Lam.
<i>Bauhinia retusa</i> Roxb.	<i>Bauhinia roxburghiana</i> Voigt
<i>Benincasa cerifera</i> Savi	<i>Benincasa hispida</i> (Thunb.) ex Murray Cogn.
<i>Betula platyphylla</i> var. <i>japonica</i> (Miq.) H. Hara	<i>Betula platyphylla</i> ssp. <i>mandshurica</i> (Regel) Kitag
<i>Boehmeria longispica</i> Steud.	<i>Boehmeria japonica</i> (L.f.) Miq.
<i>Bombax glabrum</i> A. Robyns	<i>Pachira glabra</i> Pasq.
<i>Bombax sessile</i> (Benth.) Bakh	<i>Pachira sessilis</i> Benth.
<i>Brassica oleracea</i> var. <i>botrytis</i> L.	<i>Brassica cretica</i> Lam.
<i>Brassica hirta</i> Moench	<i>Sinapis alba</i> L.

(continued)

Synonym s mentioned in papers or books	Valid Latin name in 2011
<i>Brochoneura frenei</i> Heckel	<i>Brochoneura acuminata</i> (Lam.) Warb.
<i>Buchanania lanzan</i> Spreng.	<i>Buchanania cochinchinensis</i> (Lour.) M.R. Almeida.
<i>Butia capitata</i> var. <i>pulposa</i> (Barb. Rodr.) Becc.	<i>Butia capitata</i> (Mart.) Becc.
<i>Butyrospermum parkii</i> (G. Don) Kotschy	<i>Vitellaria paradoxa</i> C.F. Gaertn.
<i>Camellia weiningensis</i> Y.K. Li	<i>Camellia saluenensis</i> Stapf ex Bean
<i>Capparis ovata</i> Desf. var. <i>canescens</i> (Coss.) Heywood	<i>Capparis sicula</i> Duhamel
<i>Carum copticum</i> Benth.	<i>Trachyspermum ammi</i> (L.) Sprague
<i>Celosia pyramidalis</i> Burm.f.	<i>Celosia argentea</i> L.
<i>Celtis sinensis</i> Pers. var. <i>japonica</i> (Planch.) Nakai	<i>Celtis sinensis</i> Pers.
<i>Cerasus vulgaris</i> Mill.	<i>Prunus cerasus</i> L.
<i>Citrullus vulgaris</i> Schrad.	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai including <i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai var. <i>lanatus</i>
<i>Citrus aurantium</i> L. var. <i>dulcis</i> L.	<i>Citrus x sinensis</i> (L.) Osbeck
<i>Coffea robusta</i> L. Linden	<i>Coffea canephora</i> Pierre ex A. Froehner
<i>Crambe abyssinica</i> Hochst. ex R.E. Fr.	<i>Crambe hispanica</i> ssp. <i>abyssinica</i> Hochst. Ex R.E.Fr.
<i>Croton sparsiflorus</i> Morong	<i>Croton bonplandianus</i> Baill.
<i>Cucumeropsis edulis</i> (Hook.f.) Cogn.	<i>Cucumeropsis mannii</i> Naudin
<i>Cydonia vulgaris</i> Pers.	<i>Cydonia oblonga</i> Mill.
<i>Cynara scolymus</i> L.	<i>Cynara cardunculus</i> L. ssp. <i>cardunculus</i>
<i>Cyperus tuberosus</i> Pursh	<i>Cyperus esculentus</i> L.
<i>Delphinium ajacis</i> L.	<i>Consolida ajacis</i> (L.) Schur
<i>Duabanga sonneratioides</i> Buch. Ham.	<i>Duabanga grandiflora</i> (DC.) Walp.
<i>Elaeis melanococca</i> Mart.	<i>Elaeis oleifera</i> (Kunth) Cortés
<i>Embllica officinalis</i> Gaertn.	<i>Phyllanthus emblica</i> L.
<i>Feronia elephantum</i> Corrêa	<i>Limonia acidissima</i> L.
<i>Fraxinus lanceolata</i> Borkh.	<i>Fraxinus pennsylvanica</i> Marshall
<i>Gmelina hystrix</i> Schult. ex Kurz.	<i>Gmelina philippensis</i> Cham.
<i>Gossampinus malabarica</i> DC. Merr.	<i>Bombax ceiba</i> L.
<i>Guizotia oleifera</i> DC.	<i>Guizotia abyssinica</i> (L.f.) Cass.
<i>Hackelia americanum</i> (Gray) Fernald	<i>Hackelia deflexa</i> var. <i>americana</i> (Gray) Fernald & I.M. Johnst.
<i>Helichrysum monstrosum</i> hort.	<i>Xerochrysum bracteatum</i> (Vent.) Tzvelev
<i>Heptapleurum venulosum</i> (Wight & Arn.) Harms	<i>Schefflera venulosa</i> (Wight & Arn.) Harms
<i>Hibiscus abelmoschus</i> L.	<i>Abelmoschus moschatus</i> Medik. ssp. <i>moschatus</i>
<i>Hibiscus esculentus</i> L.	<i>Abelmoschus esculentus</i> (L.) Moench
<i>Hibiscus ficulneus</i> L.	<i>Abelmoschus ficulneus</i> Wight & Arn.
<i>Hibiscus punctatus</i> Dalzell	<i>Hibiscus obtusilobus</i> Garcke
<i>Hibiscus solandra</i> l'Hér.	<i>Hibiscus lobatus</i> (Murray) Kuntze

(continued)

Synonym s mentioned in papers or books	Valid Latin name in 2011
<i>Hiptage madablota</i> Gaertn.	<i>Hiptage benghalensis</i> (L.) Kurz
<i>Hypoxis pusilla</i> Kunth	<i>Hypoxis decumbens</i> L.
<i>Ipomoea biloba</i> Forssk.	<i>Ipomoea pes-caprae</i> (L.) R.Br.
<i>Ipomoea involucrata</i> P. Beauv.	<i>Ipomoea pileata</i> Roxb.
<i>Ipomoea sepiaria</i> J. König ex Roxb.	<i>Ipomoea marginata</i> (Desr.) Verdc.
<i>Jatropha panduraefolia</i> Andrews	<i>Jatropha integerrima</i> Jacq.
<i>Jessenia bataua</i> (Mart.) Burret	<i>Oenocarpus bataua</i> Mart. var. <i>bataua</i>
<i>Jessenia polycarpa</i> H. Karst.	<i>Oenocarpus bataua</i> Mart. var. <i>bataua</i>
<i>Jubaea spectabilis</i> Kunth	<i>Jubaea chilensis</i> (Molina) Baill.
<i>Lactuca scariola</i> L.	<i>Lactuca serriola</i> L. var. <i>oleifera</i>
<i>Lagenaria leucantha</i> (Duchesne ex Lam.) Rusby	<i>Lagenaria siceraria</i> (Molina) Stanl.
<i>Lagenaria vulgaris</i> Ser.	<i>Lagenaria siceraria</i> (Molina) Stanl.
<i>Larix europaea</i> DC.	<i>Larix decidua</i> Mill.
<i>Laurocerasus officinalis</i> Roem.	<i>Prunus laurocerasus</i> L.
<i>Lonchocarpus sepium</i> (Jacq.) DC.	<i>Gliricidia sepium</i> (Jacq.) Walp.
<i>Lophira procera</i> A. Chev.	<i>Lophira alata</i> Banks ex C.F. Gaertn.
<i>Luffa cylindrica</i> (L.) Roem.	<i>Luffa aegyptiaca</i> Mill.
<i>Lupinus albus</i> L. var. <i>albus</i>	<i>Lupinus albus</i> L.
<i>Lupinus termis</i> Forssk.	<i>Lupinus albus</i> L.
<i>Madhuca butyracea</i> (Roxb.) J.F. Macbr.	<i>Diploknema butyracea</i> (Roxb.) Lam.
<i>Madhuca latifolia</i> (Roxb.) J.F. Macbr.	<i>Madhuca longifolia</i> var. <i>latifolia</i> (Roxb.) A. Chev.
<i>Malus pumila</i> Auct.	<i>Malus domestica</i> Borkh.
<i>Manihot utilissima</i> Pohl	<i>Manihot esculenta</i> Crantz
<i>Mappia foetida</i> (Wight) Miers	<i>Nothapodytes nimmoniana</i> (J. Graham) Mabb.
<i>Mauritia vinifera</i> C. Mart.	<i>Mauritia flexuosa</i> L.f.
<i>Maximiliana caribaea</i> Griseb. & H. Wendl.	<i>Attalea maripa</i> (Aubl.) Mart.
<i>Maximiliana maripa</i> (Correa) Drude	<i>Attalea maripa</i> (Aubl.) Mart.
<i>Maximiliana regia</i> Mart.	<i>Attalea maripa</i> (Aubl.) Mart.
<i>Michelia champaca</i> L.	<i>Magnolia champaca</i> (L.) Baill. ex Pierre
<i>Mimusops hexandra</i> Roxb.	<i>Manilkara hexandra</i> (Roxb.) Dubard
<i>Mitracarpus villosus</i> (Sw.) Cham. & Schltld. ex DC.	<i>Mitracarpus hirtus</i> (L.) DC.
<i>Myristica attenuata</i> Wall.	<i>Knema attenuata</i> (Hook. f. & Thoms.) Warb.
<i>Myristica canarica</i> Bedd. ex King	<i>Gymnacranthera canarica</i> (King) Warb.
<i>Nymphaea nelumbo</i> L.	<i>Nelumbo nucifera</i> Gaertn.
<i>Ocimum sanctum</i> L.	<i>Ocimum tenuiflorum</i> L.
<i>Orbignya oleifera</i> Burret	<i>Attalea speciosa</i> Mart.
<i>Pachylobus edulis</i> G. Don	<i>Dacryodes edulis</i> (G. Don) Lam.
<i>Parinari macrophylla</i> Sabine	<i>Neocarya macrophylla</i> (Sabine) Prance
<i>Parinarum laurinum</i> A. Gray	<i>Atuna racemosa</i> Raf.
<i>Persea gratissima</i> C.F. Gaertn.	<i>Persea americana</i> Mill.
<i>Petroselinum sativum</i> Hoffm.	<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill

(continued)

Synonym s mentioned in papers or books	Valid Latin name in 2011
<i>Physalis maxima</i> Mill.	<i>Physalis pruinosa</i> L.
<i>Pindarea fastuosa</i> Barb.Rodr.	<i>Attalea dubia</i> (Mart.) Burret
<i>Pithecolobium dulce</i> (Roxb.) Benth. (synonym non valide)	<i>Pithecellobium dulce</i> (Roxb.) Benth.
<i>Pongamia glabra</i> Vent.	<i>Pongamia pinnata</i> (L.) Pierre
<i>Prunus amygdalus</i> Batsch	<i>Prunus dulcis</i> (Mill.) D.A. Webb
<i>Pyrus malus</i> L.	<i>Malus domestica</i> Borkh.
<i>Quamoclit coccinea</i> (L.) Moench.	<i>Ipomoea cholulensis</i> Kunth
<i>Quamoclit phoenicea</i> (Roxb.) Choisy	<i>Ipomoea hederifolia</i> L.
<i>Ricinodendron africanum</i> Müll.Arg.	<i>Ricinodendron heudelotii</i> Pierre ex Pax ssp. <i>africanum</i> (Müll. Arg.) Leonard
<i>Ricinodendron rautanenii</i> Schinz	<i>Schinziophyton rautanenii</i> (Schinz) Radcl.- Sm.
<i>Sapindus mukurossi</i> Gaertn.	<i>Sapindus saponaria</i> L.
<i>Sapium discolor</i> (Champ. ex Benth.) Müll.Arg.	<i>Triadica cochinchinensis</i> Lour.
<i>Sapium sebiferum</i> (L.) Roxb.	<i>Triadica sebifera</i> (L.) Small
<i>Schleichera trijuga</i> Willd.	<i>Schleichera oleosa</i> (Lour.) Merr.
<i>Sebastiana linguistrina</i> (Michx.) Müll.Arg.	<i>Ditrysinia fruticosa</i> (Bartram) Govaerts & Frodin
<i>Sida veronicifolia</i> Lam.	<i>Sida cordata</i> (Burm. f.) Borss.Waalk.
<i>Soja max</i> (L.) Pepper	<i>Glycine max</i> (L.) Merr.
<i>Sterculia colorata</i> Roxb.	<i>Firmiana colorata</i> (Roxb.) R.Br.
<i>Stillingia sebifera</i> (L.) Michx.	<i>Triadica sebifera</i> (L.) Small
<i>Tetracarpidium conophorum</i> (Müll.Arg.) Hutch. & Dalziel	<i>Plukenetia volubilis</i> L.
<i>Thevetia neriifolia</i> Juss. ex Steud.	<i>Thevetia peruviana</i> (Pers.) K. Schum.
<i>Thuja orientalis</i> L.	<i>Platycladus orientalis</i> (L.) Franco
<i>Vinca rosea</i> L.	<i>Catharanthus roseus</i> (L.) G. Don
<i>Virola venezuelensis</i> Warb.	<i>Virola sebifera</i> Aubl.
<i>Woodfordia floribunda</i> Salisb.	<i>Woodfordia fruticosa</i> (L.) Kurz
<i>Xanthorrhoea hastilis</i> Sm.	<i>Xanthorrhoea resinosa</i> Pers.

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