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Diversity and Distribution of Floral Scent

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Abstract

A list of 1719 chemical compounds identified from headspace samples of floral scent is presented. The list has been compiled from some 270 published papers, including analyses of 991 species of flowering plants and a few gymnosperms, a sample including seed plants from 90 families and 38 orders. The compounds belong to seven major compound classes, of which the aliphatics, the benzenoids and phenylpropanoids, and, among the terpenes, the mono- and sesquiterpenes, occur in most orders of seeds plants. C5-branched compounds, irregular terpenes, nitrogen-containing compounds, and a class of miscellaneous cyclic compounds have been recorded in about two-thirds of the orders. Sulfur-containing compounds occur in a third of the orders, whereas diterpenes have been reported from three orders only. The most common single compounds in floral scent are the monoterpenes limonene, (*E*)-β-ocimene, myrcene, linalool, α-and β-pinene, and the benzenoids benzaldehyde, methyl 2-hydroxybenzoate (methyl salicylate), benzyl alcohol, and 2-phenyl ethanol, which occur in 54–71% of the families investigated so far. The sesquiterpene caryophyllene and the irregular terpene 6-methyl-5-hepten-2-one are also common and occur in more than 50% of the families. Orchidaceae are by far the best investigated family, followed by several families known to have many species with strongly scented flowers, such as Araceae, Arecaceae, Magnoliaceae, and Rosaceae. However, the majority of angiosperm families are still poorly investigated. Relationships between floral scent and pollination, chemistry, evolution, and phylogeny are briefly discussed. It is concluded that floral scent chemistry is of little use for phylogenetic estimates above the genus level, whereas the distribution and combinations of floral scent compounds at species and subspecific levels is a promising field of investigation for the understanding of adaptations and evolutionary processes in angiosperms.

Introduction

In 1993, one of us published a checklist of floral scent constituents collected with headspace techniques (Knudsen et al., 1993). Since then a large number of papers dealing with floral odors in many different groups of seed plants have been published. The number of known compounds present in floral scents has increased from 730 to 1719, and an updated checklist has been requested for a long time. The present review is intended to meet this demand. However, apart from adding to the list of known compounds, we also felt the need to summarize the present knowledge of floral scent in a broader context. Advances in phylogenetic research during the last decade have produced a much better understanding of relationships of angiosperms at the family level and below (e.g., Soltis et al., 1999; Hilu et al., 2003). Consequently, the distribution of various scent compounds is here compared to phylogenies of angiosperms orders based on recent analyses of DNA sequence data. In addition, new techniques and research have provided much needed insight into the evolution of floral scent at lower taxonomic levels and its role in evolutionary processes at the population level, and the chemistry of floral scent in general. A general scheme with references to different kinds of investigations with regard to floral scent is presented in Table I.

The present review is based on a total of 268 papers including data on floral scent composition. Many of these are cited by Knudsen et al. (1993); others were found

Table I

Broad categories of biological and chemical aspects in studies of floral scent (numbers refer to the references in Appendix III).

Environmental conditions, influence on floral scent production 89, 104, 161, 164, 172, 186, 215
Diurnal and nocturnal changes, and circadian rhythmicity in floral scent emission 1, 2, 8, 64, 69, 89, 91, 93, 95, 96, 102, 104, 105, 115, 116, 121, 132, 145, 146, 161, 166, 167, 168, 172, 173, 174, 175, 186, 187, 204, 215, 224
Flower age and post-pollination effects on floral scent emission 8, 64, 84, 152, 161, 164, 168, 172, 174, 196, 198, 199, 205, 213, 214, 219, 222, 223, 224, 231, 241, 244
Variation in floral scent composition within flowers/inflorescences 19, 59, 60, 61, 62, 69, 74, 86, 140, 172, 180, 184, 188, 199, 205, 222, 262
Attraction and behavior of pollinators 22, 23, 24, 27, 30, 59, 68, 83, 90, 91, 94, 129, 133, 145, 147, 149, 185, 187, 188, 197, 202, 205, 210, 213, 214, 223, 224, 226, 229
Attraction of pests/host selection, rust fungi, and defense 3, 4, 25, 55, 69, 70, 75, 152, 156, 182, 185, 217, 220, 226
Pollination syndromes and floral scent butterflies, 5, 117; bats, 21, 94, 125, 142; moths, 113, 115, 116, 117, 125, 127, 131, 141, 169, 175; flies, 26, 48, 116, 117, 129, 130, 133, 134; bees, 116, 117; beetles, 135, 211, 225; hummingbirds, Knudsen et al. (2004); male euglossine bees, 7, 77, 78, 79, 80, 95, 116, 117, 119, 145, 222, 252, 253, 254, 255, 256, 257, 258, 259, 260; wind, 211
Mutualisms and floral scent 18, 82, 83, 84, 205
New natural products for flavors, perfumes, or medicines 6, 14, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 47, 57, 58, 99, 102, 107, 108, 109, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 125, 150, 153, 154, 155, 170, 171, 179, 200, 201, 203, 234, 238, 249, 250, 266, 268
Attached vs. detached flowers, effect on scent 41, 91, 93, 176, 177, 178, 186, 235
Community or environmental studies of floral scent 10, 119
Sampling and analytical techniques 16, 48, 51, 87, 100, 115, 128, 150, 176, 178, 221, 227, 228, 230, 232, 233
Natural history of pollination 65, 66, 92, 129, 138, 169, 189, 190, 191, 192, 193, 194, 195, 206, 207
Characterization of whole composition 46, 71, 106, 126, 248, 251, 265, 267
Reports of selected floral scent compounds 110, 113, 115, 118, 119, 121, 124, 125, 148, 149, 150, 158, 162, 163, 164, 183, 252, 254
Flower color and scent 73, 150, 178, 197
Within species variation in floral scent composition Magnoliaceae, 9; Orobanchaceae, 20; Vitaceae, 42, 47; Fumariaceae, 56, 197; Oleaceae, 57, 58; Rosaceae, 72, 128; Orchidaceae, 13, 30, 80, 116, 117, 118, 180, 204, 243, 253, 257, 258, 259, 260; Araceae, 129; Ericaceae, 136; Arecaceae, 145; Nyctaginaceae, 151; Onagraceae, 218; Apiaceae, 242; Salicaceae, 245; Lamiaceae, 261; Caryophyllaceae, Dötterl et al. (2005)
Among species variation in floral scent composition Magnoliaceae, 11, 240, 264; Orchidaceae, 13,15, 17, 23, 27, 28, 29, 30, 53, 76, 80, 98, 117, 119, 181, 243, 253, 255; Apiaceae, 31, 246; Fumariaceae, 56; Amaryllidaceae, 63; Sterculiaceae, 67; Arecaceae, 68, 137, 143; Moraceae, 82; Ranunculaceae, 85, 208, 209; Myrsinaceae, 103; Araceae, 133, 146, 262; Ericaceae, 136; Theophrastaceae, 139; Lecythidaceae, 144; Nyctaginaceae, 151; Passifloraceae, 157; Winteraceae, 239; Fabaceae, 212; Salicaceae, 245; Rutaceae, 247; Caryophyllaceae, 112; Annonaceae, 111

Table I (continued)

Phenetic and phylogenetic analysis using floral scent 13, 56, 63, 80, 112, 157, 240, Levin et al. (2003), Barkman (2001), Azuma et al. (1999), Williams & Whitten (1999)
Leaf volatiles 11, 49, 50, 70, 87, 105, 131, 156, 208, 219, 235, 261
Horticulture and agriculture 12, 49, 50, 52, 54, 72, 75, 81, 87, 88, 159, 160, 161, 162, 163, 164, 165, 213, 214, 216, 220, 221, 235, 236, 237, 263
Biosynthesis and excretory pathways of floral scent components 64, 229
Heredity of floral scent composition 103, 160, 194, 195, 218

through searches in Biological Abstracts (BA; http://www.biosis.org) and Chemical Abstracts (CA; http://www.cas.org). The last searches in BA and CA were made in October 2002. Some studies that have come to our attention at a later date have also been cited, but are not included in the Appendices.

Only studies in which headspace techniques in a broad sense were used to collect the floral scent are included in the present review. This delimitation was made in order to better reflect the world of scent that flower visitors and pollinators actually encounter, for example, during their search for food or a site for breeding, mating, egg laying, or floral scent collecting. This means that studies using other methods, such as solvent extraction or steam distillation, are not included because the compounds detected may not necessarily be released from intact flowers under natural conditions.

A relational database, SCENTbase, was developed in FileMaker Pro 5.5 to handle all compound, taxon, and reference data, and to generate the lists. In addition, a separate database was created to analyze various properties of the data at different chemical and taxonomic levels, and to export matrices for further phylogenetic analyses. A limited version of SCENTbase is searchable online at http://www2.botany.gu.se/SCENTbase.html.

Collection Methods and Materials

The preferred method to collect floral scent is through dynamic headspace adsorption onto various artificial porous polymers and activated charcoal. This method is usually easy to apply in the field by enclosing flowers or floral structures in glass vials or polyacetate bags, and then creating a stream of air with a battery-operated pump. The samples are extracted by a solvent in the field, or stored until extracted in the laboratory, and then analyzed by coupled gas chromatography/mass spectrometry. Thermal desorption, in which the sample is desorbed directly onto a gas chromatographic column using heat, is less commonly employed. Recently, static headspace adsorption or solid-phase microextraction (SPME) with direct thermal desorption has been employed in studies of floral scents either alone or as a supplement to traditional dynamic headspace sampling. Detailed reviews of collection methods have been published by Raguso and Pellmyr (1998) and Agelopoulus and Pickett (1998). It is important to keep in mind that methodological differences among the reviewed studies may be responsible for inconsistencies in the compiled information. If present, they should only affect the accuracy of interspecific comparisons, which are not the focus of this review.

The total number of investigated species and subspecific taxa is 991, representing 90

Table II
The 10 most collected families ordered according to number of species analyzed.

	No. of species and subspecies	No. genera
Orchidaceae	417	104
Araceae	55	10
Arecaceae	40	18
Magnoliaceae	26	3
Rosaceae	24	8
Cactaceae	21	12
Rutaceae	21	3
Solanaceae	21	8
Caryophyllaceae	20	3
Nyctaginaceae	20	3

families and 38 orders of seeds plants. Two of the orders are gymnosperms, with a total of eight species investigated. Although representatives of most of the orders recognized by the APG II (2003) have been analyzed, the usually broad circumscriptions of these orders and the estimated total number of angiosperm species clearly indicate that the sample is still very small. In addition, the sample is very uneven. Orchidaceae is by far the best-collected family, followed by several families (e.g., Araceae, Arecaceae, Cactaceae, and Nyctaginaceae) with a reasonably large proportion of taxa sampled (Table II). Most families, however, remain poorly sampled or still not investigated with regard to floral scent chemistry.

Chemical Classification

In this checklist, our goal has been to classify floral scent compounds on the basis of their mode of biosynthesis, because this should be of greatest value for making comparisons with phylogenetic hypotheses. Although the broad outlines of biosynthesis are known for most large groups of floral volatiles, the actual routes by which most individual compounds are formed are still uncertain. Thus, it is especially difficult to arrange compounds biosynthetically at lower levels of classification. We divide floral scent constituents into seven major compound classes based on inspection of their structures and knowledge of the major pathways of plant secondary metabolism. These classes are aliphatics, benzenoids and phenylpropanoids, C5-branched compounds, terpenoids (including monoterpenes, sesquiterpenes, diterpenes, and irregular terpenes), nitrogen-containing compounds, sulfur-containing compounds, and a class of miscellaneous cyclic compounds. Within classes, subdivisions have been made primarily on the basis of chain length or skeletal type and secondarily according to functional groups (for details, see the legend of Appendix I). While this classification may not accurately reflect biosynthetic considerations, it does align compounds by their chemical properties and help in locating them in the list.

The accuracy and thoroughness with which individual chemical compounds have been identified varies among studies. Sometimes the precise isomers present were not determined, and often the enantiomeric composition was not resolved. The specific information on isomers and enantiomers reported in the original literature has been preserved in the checklist. However, when these details are not specified, the information is also missing here. It is important to be aware of this problem when comparing distributions of individual compounds among taxa. For example, "lilac alcohol," which is listed under monoterpenes/acyclic/alcohols, may include one or more of the four possible isomers A, B, C, and D.

Plant Names and Classification

No taxonomic evaluations of the usage of names have been made by us. Consequently, a certain taxon may occur under two or more different names. However, since we focus on the distribution of chemical compounds or compound classes at the level of plant family and plant order, such mistakes do not interfere with the general patterns observed.

We follow a recent classification of the angiosperms (APG II, 2003). However, to retain as much information as possible, we have adopted the narrower circumscription options in that work, recognizing Agavaceae, Amaryllidaceae, Fumariaceae, Hemerocallidaceae, Hyacinthaceae, Linnaeaceae, Rhizophoraceae, Ruscaceae, and Valerianaceae as separate families.

The phylogenetic trees are based on those presented by APG II (2003).

Floral Scent at Different Taxonomic Levels

POPULATION-LEVEL VARIATION

Studies of floral scent variation at individual or population levels including more than just a few individuals are still scarce. However, some studies have been made on selected species of Apiaceae (Tollsten & Øvstedal, 1994), Arecaceae (Knudsen, 2002), Caryophyllaceae (Dötterl et al., 2005), Magnoliaceae (Azuma et al., 2001), Mimosaceae (Pettersson & Knudsen, 2001), Orchidaceae (Whitten & Williams, 1992; Moya & Ackerman, 1993; Tollsten & Bergström, 1993), Fumariaceae (Olesen & Knudsen, 1994) and Pyrolaceae (Knudsen, 1994). In general, species relying mainly on one class of pollinator have higher similarity among populations than more generalized species pollinated by several orders of insects (Knudsen, unpubl.). Furthermore, the variation in floral scent composition may be clinal, with similarity among populations being negatively correlated with distance (Knudsen, 2002). However, this picture may be obscured by species with deceptive pollination systems in which variation both within and between populations is extreme, disrupting the associative learning of visiting insects (Moya & Ackerman, 1993). This may also be the case if floral scent types rarely or never influence pollinator behavior and reproductive success. Scent types caused by random genetic drift could then be maintained in natural populations (Azuma et al., 2001).

SPECIES- AND GENUS-LEVEL VARIATION

Many studies have shown that the floral scent composition usually differs among closely related species. This has been shown in works on *Nicotiana* (Raguso et al., 2003), *Narcissus* (Dobson et al., 1997), and *Silene* (Jürgens et al., 2002), as well as on various genera of Arecaceae (Knudsen, 1999a; Knudsen et al., 2001), Lecythidaceae (Knudsen & Mori, 1996), Magnoliaceae (Thien et al., 1975), Nyctaginaceae (Levin et al., 2001), and Orchidaceae (Gregg, 1983; Whitten & Williams, 1992; Kaiser, 1993; Barkman et al., 1997). In addition, floral scent composition may vary as much among genera within a family as among species of a given genus. Thus, unless monospecific, taxa above the species level usually cannot be characterized by a distinct floral scent profile.

FAMILY- AND ORDER-LEVEL VARIATION

Most compound classes are present in most orders of flowering plants (Figs. 1, 2), suggesting that the distribution of floral scent compounds is not phylogenetically constrained, at least not at this broad scale. Monoterpenes are found in all orders, and three,

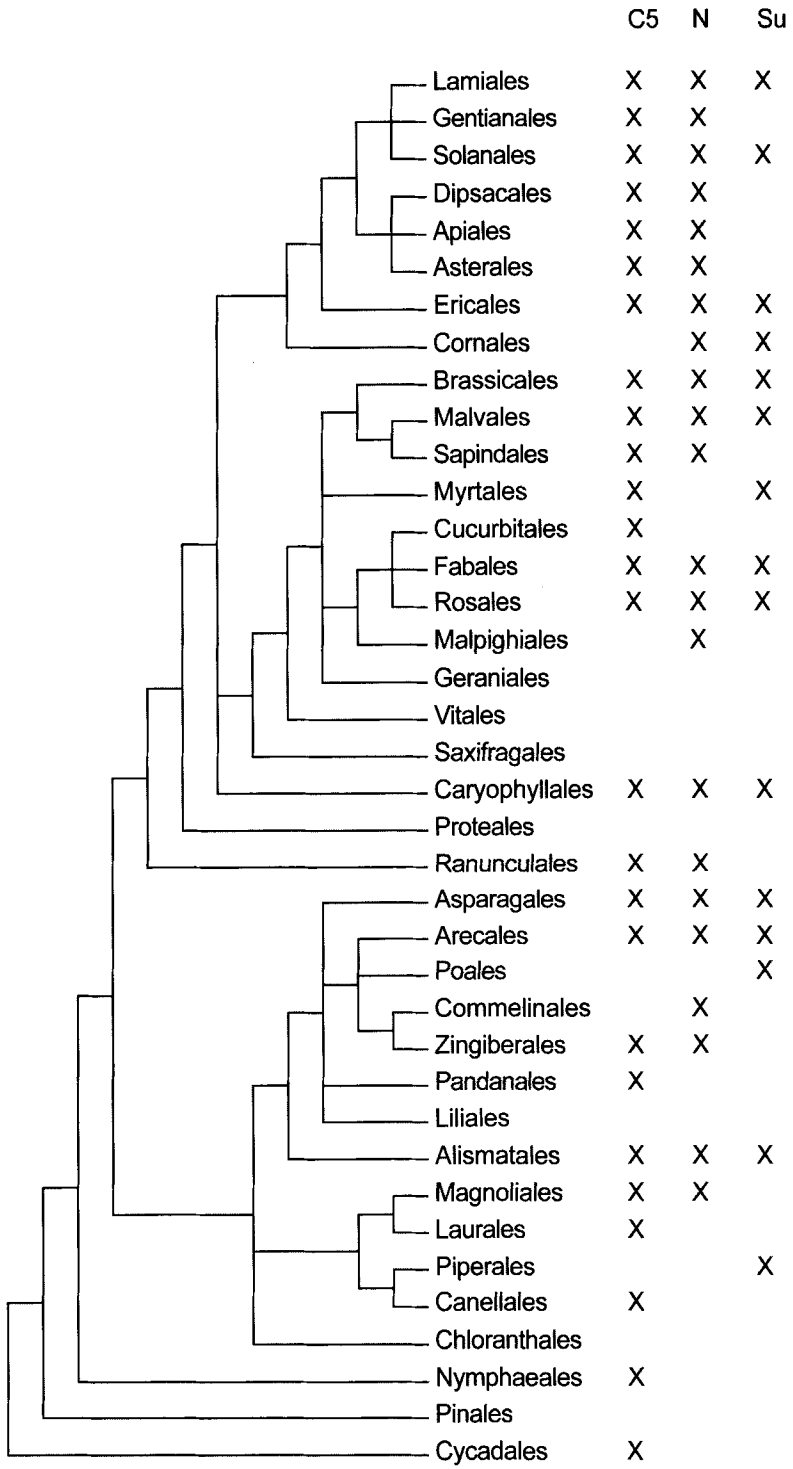

Fig. 1. Order-level distribution of major classes of floral scent compounds. C5, C5-branched chain compounds; N, nitrogen-containing compounds; Su, sulfur-containing compounds.

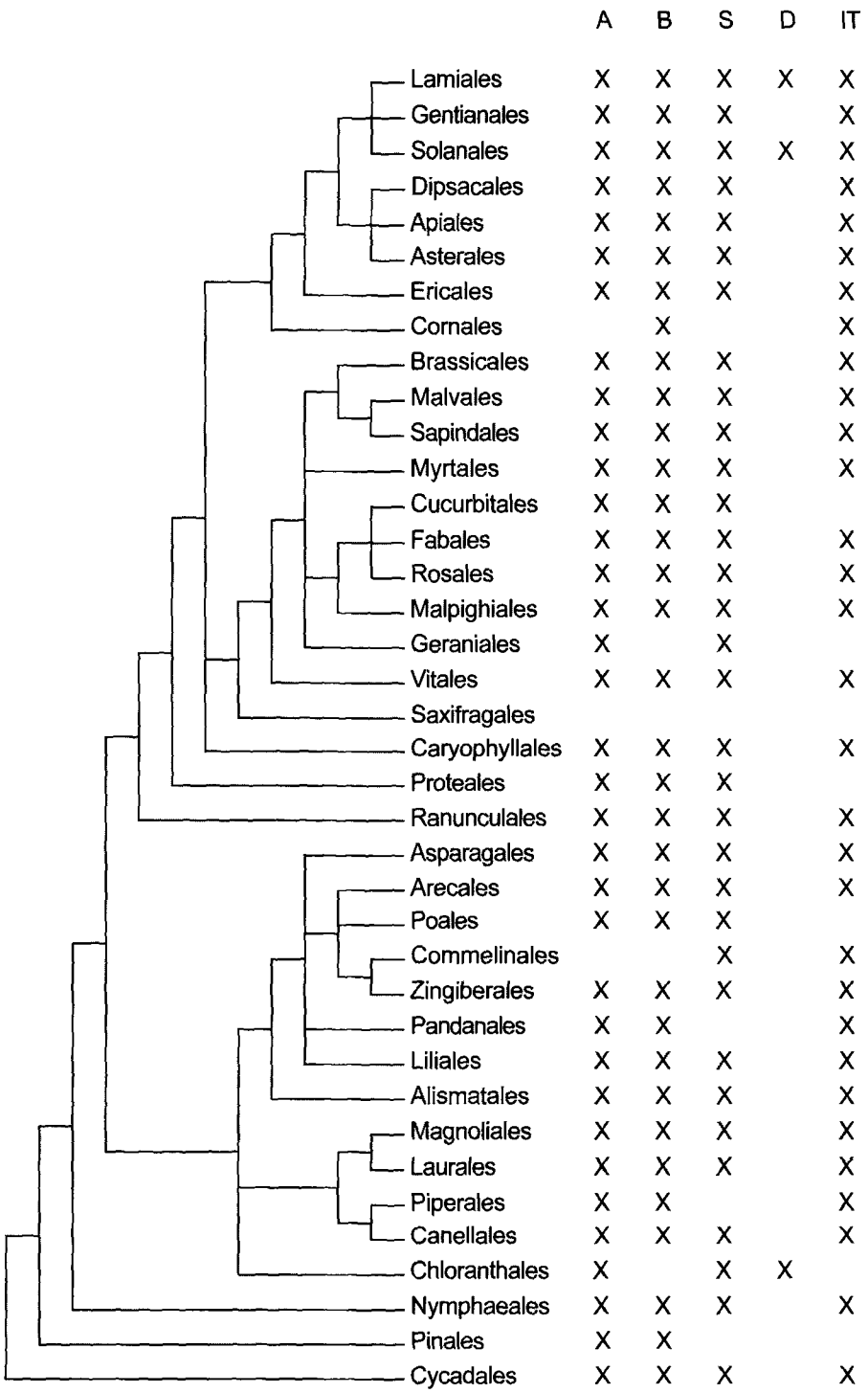

Fig. 2. Order-level distribution of major classes of floral scent compounds. A, aliphatics; B, benzenoids and phenyl propanoids; S, sesquiterpenes; D, diterpenes; IT, irregular terpenes. Monoterpenes occur in all orders and are not listed.

Table III
Floral scent compounds occurring in more than half of the families of seed plants.

Limonene	71%
(*E*)-Ocimene	71%
Myrcene	70%
Linalool	70%
α-Pinene	67%
Benzaldehyde	64%
β-Pinene	59%
Methyl 2-hydroxybenzoate	57%
Benzyl alcohol	56%
2-Phenyl ethanol	54%
Caryophyllene	52%
6-Methyl-5-hepten-2-one	52%

four and six orders out of 38 lack aliphatics, benzenoids and sesquiterpenes respectively. However, in most of the orders lacking these classes only one genus has been investigated and the result thus likely reflects lack of sampling. Diterpenes are rare in floral scents and are only reported from four species belonging to three plant orders, reflecting their low volatility.

C5-branched compounds are lacking in 12 orders, based on information from one or a few genera from each order. The same patterns were found for irregular terpenes and miscellaneous compounds, suggesting low sampling frequency rather than true absence.

Nitrogen- and sulfur-containing compounds are present in 63% and 39% of the plant orders, respectively. However, orders lacking nitrogen-containing compounds are all sampled at low frequency, while orders sampled at both high and low frequency lack sulfur-containing compounds. The latter indicates that the occurrence of volatile sulfur-containing compounds is probably restricted within seed plants.

Twelve compounds occur in more than 50% of the families investigated (Table III), and these should probably, even with investigation of additional taxa, be regarded as the most common compounds in floral scents. Most of these are monoterpenes, that is, limonene (71%), (*E*)-β-ocimene (71%), myrcene (70%), linalool (70%), α-pinene (67%), β-pinene (59%); followed by benzenoids, that is, benzaldehyde (64%), methyl 2-hydroxybenzoate (57%), benzyl alcohol (56%), 2-phenyl ethanol (54%); a sesquiterpene, caryophyllene (52%); and an irregular terpene, 6-methyl-5-hepten-2-one (52%). The widespread distribution of these substances suggests that they may have other roles in flowers in addition to pollinator attraction (see Floral Scent and Evolution).

Floral Scent and Pollination Biology

During the exploration of the function of floral scents in pollination, it is necessary to sort out which chemicals constitute the actual signals and which are historical and/or biosynthetic artifacts (Raguso, 2001). Historical and biosynthetic artifacts may contain important phylogenetic information, either alone or in combination. However, some compounds, such as thio- and isothiocyanates, may be both a signal and a historical artifact.

Sulfur-containing compounds are found mainly in plants pollinated by bats and carrion flies. The latter group of pollinators is restricted mainly to the Araceae and a few

other families of basal angiosperms. Thus, the presence of sulfur-containing compounds may be constrained phylogenetically, or these compounds may have developed across plant orders as a way of attracting a group of pollinators with similar scent preferences, as has been suggested for microbats in the New World tropics (Knudsen & Tollsten, 1995; Helversen et al., 2000).

Floral Scent Chemistry and Biochemistry

The constituents of floral scent comprise a large variety of generally lipophilic plant products with molecular masses less than 300. By definition, all constituents have high enough vapor pressures at atmospheric pressure and normal growth temperatures to allow significant rates of release into the air. The main classes of floral volatiles are the same as those reported to be released from other parts of the plant. Vegetative organs also release many different volatile constituents, especially after herbivore damage (Pichersky & Gershenzon, 2002). However, the overall diversity of vegetative volatiles is less than that found in floral scent. When headspace collections are made from intact plants, it is in fact difficult to readily distinguish between volatiles released from flowers and those released from nearby vegetative organs. Nevertheless, the sites of synthesis and storage of floral volatiles seem to be consistently associated with the floral organs themselves. Several genes and enzymes involved in the biosynthesis of floral scent compounds are expressed locally in the tissues of the petals, stigma, and style (Dudareva & Pichersky, 2000; Kolosova et al., 2001).

In the last few years, the biochemistry and molecular biology of floral scent formation have become major topics of research in several laboratories. Studies have centered around three species, *Antirrhinum majus* (Scrophulariaceae), *Clarkia breweri* (Onagraceae), and *Rosa hybrida* (Rosaceae), whose floral scents are dominated by terpenoid and benzenoid compounds. The biosynthesis of other classes of floral scent compounds has not yet been rigorously examined at the gene and enzyme levels, but the general routes can be inferred from investigations on similar or identical compounds in vegetative tissues.

Among the major categories of floral volatiles listed in Appendix I, the aliphatics are probably biosynthesized predominantly from fatty acids. For example, the abundant C6 and C9 aldehydes and alcohols are formed via lipoxygenase-catalyzed degradations of linolenic and linoleic acids (Hatanaka, 1999). Other compounds arise by oxidation of the double bonds or chain-shortening via β-oxidation.

The class of benzenoids and phenylpropanoids is formed starting from the phenylpropanoid pathway, which begins with the deamination of phenylalanine. Biosynthesis of the benzenoids (C6–C1), the most widespread members of this group in floral scent, thus requires the loss of one or two carbon atoms from a phenylpropanoid precursor (C6–C3). However, the steps of this process are not yet clear (Jarvis et al., 2000). Alternatively, methyl 2-hydroxybenzoate (methyl salicylate) and similar benzenoids could arise from an intermediate of the shikimate pathway prior to phenylalanine (Wildermuth et al., 2001). Several late steps in the formation of benzenoid esters and ethers have been well characterized (Murfitt et al., 2000; D'Auria et al., 2002; Lavid et al., 2002).

The C5-branched compounds are probably derived from the amino acids valine, leucine, and isoleucine, but there is only a little direct evidence to date (Rowan et al., 1996). Although the basic isopentane carbon skeleton of this group is the same as that of the terpenoids, the oxidation patterns present make it very unlikely that any are terpenoid-derived.

The terpenes themselves are formed from C5 isopentanoid building blocks synthe-

sized by the mevalonate or methylerythritol 4-phosphate (MEP) pathways (Gershenzon & Kreis, 1999; Rodriguez-Concepcion & Boronat, 2002). After assembly of the C5 units into prenyl diphosphate precursors, enzymes known as terpene synthases catalyze the formation of the basic terpene skeletons of monoterpenes (C10), sesquiterpenes (C15), or diterpenes (C20) (Bohlmann et al., 1998). The most well-studied enzyme of floral scent biosynthesis, linalool synthase, is a terpene synthase that converts geranyl diphosphate to linalool (Dudareva & Pichersky, 2000). The initial terpene synthase products, such as linalool, can be further modified to form other floral volatiles (Burkhardt & Mosandl, 2003; Shalit et al., 2003). The irregular terpenoids include cleavage products of carotenoids, such as the widespread ionones, and derivatives of smaller terpenoids (Winterhalter & Rouseff, 2002). For example, one member of the latter group, the widely-occurring C11 volatile, (*E*)-4,8-dimethyl-1,3,7-nonatriene, is believed to be formed by oxidative cleavage of a sesquiterpene (C15) precursor (Boland & Gäbler, 1989).

Both the nitrogen- and sulfur-containing floral scent compounds are derived from amino acid metabolism. Indole, the most widely distributed member of these groups, is also one of the few whose biosynthesis is understood in plants. It is formed by direct cleavage of the tryptophan precursor, indole-3-glycerol phosphate. (Frey et al., 2000). The miscellaneous cyclic compounds are collectively of uncertain biosynthetic origin, although some are undoubtedly derivatives of fatty acids or amino acids.

In summary, the constituents of floral scent are drawn from nearly all of the major pathways of plant secondary metabolism. As these pathways are present in all plants, where they make a wide range of pigments, membrane constituents, cell wall components, hormones, and other signaling compounds, it is perhaps not surprising that the principal classes of floral scent compounds are so widely distributed in seed plants.

Floral Scent and Evolution

The primary function of floral scent in flowering plants is to attract and guide pollinators (Dobson, 1994; Raguso, 2001; Metcalf, 1987; Robacker et al., 1988; Williams, 1983). However, additional functions may be ascribed to the presence of volatile chemicals in flowers (reviewed by Pichersky & Gershenzon, 2002), including defense and protection against abiotic stresses. These additional functions may help explain some of the abundance and variety of different constituents detected. The possibility that flowers are chemically well defended against herbivores and pathogens is not surprising. By producing pollen and ovules for the next generation, flowers have a very high fitness value to the plant and must be protected accordingly. In addition, the attraction of insects for pollination could increase the risk of herbivory on floral structures, and floral tissues may therefore require relatively more protection from enemies. Representatives of all of the major classes of floral volatiles have been shown to have toxic or deterrent activity against microbes and herbivores (e.g., De Moraes et al., 2001; Friedman et al., 2002; Hammer et al., 2003). Certain floral volatiles could also have a physiological role of providing resistance to abiotic stress. For example, some of the monoterpenes found in abundance in flowers have also been shown to ameliorate high temperatures and reduce damage caused by oxidative stress (Delfine et al., 2000; Loreto et al., 2004). The most abundant floral sesquiterpene, caryophyllene, is very reactive with ozone (Bonn & Moortgat, 2003).

The defensive and physiological functions of floral volatiles may well predate the origin of the angiosperms (Pellmyr & Thien, 1986, Thien et al., 2000), and floral scent, especially that of pollen, may therefore constitute an ancient trait, already present in

preangiosperms (Dobson & Bergström, 2000). A likely scenario suggests that some insects overcame the repellence of the floral chemicals and that pollination in early angiosperms was based on a meshing of the sexual life cycle of insects with that of plants, in which volatile floral chemicals served as mediating cues for rendezvous and mating sites (the flower) and food (primarily microspores) for pollinating insects. This hypothesis is supported by several observations: (1) floral scent is present in most extant basal angiosperms and in some nonangiospermous seed plants of Gnetales, Cycadales, and Pinales; (2) floral scent compounds similar to many general herbivore repellents are present; (3) all groups of ancient insects involved in pollination share phytophagy on nonangiosperms as an ancestral condition; and (4) a high percentage of flowers function as mating sites in extant basal angiosperms (Thien et al., 2000, 2003; Bernhardt et al., 2003).

In addition, thermogenesis may also have existed in preangiosperms, since this phenomenon occurs in cycads and is particularly common in basal angiosperms (Thien et al., 2000, 2003). Most thermogenic plants are beetle- or fly-pollinated. In beetles, heat produced by the plant may help to regulate body temperature. Because of this, Seymour and Schultze-Motel (1997) suggested that beetle pollination coevolved with thermogenesis and floral scent production in plants. Recently, Seymour et al. (2003) showed that heat is a reward to *Cyclocephala colasi* (Scarabaeidae: Cyclocephalini) beetles visiting *Philodendron solimoesense* (Araceae), the energy requirements being from 2.0 to 4.8 times lower inside the heated floral chamber than outside.

The correlation of high angiosperm diversity and the adoption of biotic pollination is undisputed. However, the mechanism or mechanisms responsible for this diversity are still not understood. Most likely a number of mechanisms, for example, coevolution of insect herbivores and plant chemical defenses and coevolution of seed dispersing animals and plants, have worked concomitantly to produce the diversity of animals and plants that we see today (see Gorelick, 2001, for a review and additional hypotheses).

Pollinators show different scent and color preferences, which may result in a certain degree of flower constancy. In combination with divergence in floral traits related to pollination (scent, color, flowering phenology, reward), these factors have led to reproductive isolation in present-day angiosperms (e.g., Gregg, 1983; Groth et al., 1987; Whitten & Williams, 1992; Dobson et al., 1997; Knudsen 1999a). The selective pressures probably have been especially strong in sympatric, coflowering species (Knudsen, 1999b; Schiestl & Ayasse, 2002). On the other hand, floral scents have converged in chemical composition even across plant orders in species sharing a suite of morphological and phenological characters adapting them to pollination by one particular group of pollinators (pollination syndromes), for example, by moths or bats (Miyake et al., 1998; Levin et al., 2001; Kaiser, 1993; Kaiser & Tollsten, 1995; Knudsen & Tollsten, 1993, 1995; Bestmann et al., 1997; Helversen et al., 2000; Raguso et al., 2003), or production has ceased, as in hummingbird-pollinated species in the neotropics (Knudsen et al., 2004). This contradiction suggests that floral scent evolution is influenced by several factors and that floral scent is best defined as a mosaic product of biosynthetic pathway dynamics, phylogenetic constraints, and balancing selection due to pollinator and florivore attraction (Raguso, 2001).

Floral Scent and Phylogeny

Seed plants are still poorly sampled with regard to floral scent compounds. In addition, the available information is also very uneven, with some groups being well sampled (e.g., 42% of all taxa investigated so far are orchids) and others poorly sampled or

not at all (e.g., Ebenaceae, Marantaceae). Consequently, the present information on the distribution of floral scent compounds is of limited use for broad phylogenetic reconstructions. Nonetheless, during the course of this work a few analyses of orders and families with compound classes classified into broad as well as less-restricted groups were made (with 30 and 68 characters, respectively). For example, aliphatics were classified into groups with 8 or 25 characters based on the number of carbon atoms present. Both analyses resulted in the >25,000 shortest trees producing largely unresolved strict consensus cladograms, corroborating the supposition that floral scent data are of little value for phylogenetic estimates at high taxonomic levels. It is also evident that the few groups that do appear in the consensus cladograms are mere artifacts of the uneven data set. Order and family-level analyses of the same group characters using the APG tree (APG II, 2003) as a constraint exposed high levels of homoplasy, with a majority of the characters having consistency indices between 0.05 and 0.15.

A few studies have used the distribution of floral scent compounds for reconstructing plant phylogenies and to infer the evolutionary history of ecological relationships (Azuma et al., 1997, 1999; Williams & Whitten, 1999; Lindberg et al., 2000; Barkman, 2001; Levin et al., 2003). The outcome of most of these studies is that only the outermost branching pattern is consistent with phylogenetic trees obtained using either morphological or DNA sequence data. This outcome indicates that, in general, floral scent chemicals may be too evolutionarily labile to be useful for phylogenetic inference (Williams & Whitten, 1999; Barkman, 2001). However, this does not exclude the possibility that some floral scent chemicals are patterned phylogenetically at lower taxonomic levels (Levin et al., 2003; Barkman, 2001). Furthermore, all these studies have been based on all identified compounds in the floral scent blends, and it is possible that a selection of compounds may produce alternative interpretations.

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Appendix I: Distribution of Floral Scent Compounds at the Level of Plant Family

Floral scent constituents are ordered according to their inferred biosynthetic origin into seven large groups: aliphatics, benzenoids and phenylpropanoids, C5-branched chain compounds, terpenes (including monoterpenes, sesquiterpenes, diterpenes, and irregular terpenes), nitrogen-containing compounds, sulfur-containing compounds, and miscellaneous cyclic compounds. Each large class is then divided into subclasses according to skeleton type or chain length, and the subclasses are then divided according to functional groups if appropriate. Numbers within square brackets refer to reference numbers in Appendix III.

Aliphatics are straight-chain compounds that have been divided into groups by ascending chain length. Within each length the compounds are ordered into functional groups: alkanes, alkenes, acids, aldehydes, ketones, alcohols, esters (including lactones), and ethers. Among the esters, the parent acid determines which chain length the compounds are listed by.

Benzenoids and phenylpropanoids are classified together with all other compounds that have a benzene ring in their skeleton. They are ordered into groups reflecting the longest carbon chain (ranging from no chain to C7) attached to the benzene ring. Within each skeletal group, compounds are ordered into hydrocarbons, acids, aldehydes, ketones, alcohols, esters, ethers, chlorinated compounds, benzofurans, benzopyrans, and nitrogen-containing compounds.

C5-branched chain compounds have an iso-pentenoid carbon chain as their principal structural element and are subdivided into saturated and unsaturated compounds. These categories are further divided into hydrocarbons, acids, aldehydes, ketones, alcohols, and esters.

Terpenes include all compounds with more than five carbon atoms that appear to have an isoprenoid carbon skeleton. **Monoterpenes** are divided into the following main groups: acyclic, irregular, and cyclic skeletons. The latter group is subdivided into: *p*-menthane, bicyclo[2.2.1], bicyclo[3.1.0], bicyclo[3.1.1], bicyclo[4.1.0], and tricylic skeletons. When appropriate, each of these groups is further divided into hydrocarbons, aldehydes, ketones, alcohols, esters, and ethers. **Sesquiterpenes** are divided into acyclic and cyclic skeletons, and within these two groups into hydrocarbons, aldehydes, ketones, alcohols, esters, and ethers. **Diterpenes** are divided in acyclic and cyclic skeletons. The **irregular terpenes** contain compounds with apocarotenoid skeletons and those with an apparent isoprenoid skeleton but an irregular number of carbon atoms, including C8, C9, C10, C11, C12, C13, C14, C16, and C18. Each of these groups is further subdivided into aldehydes, ketones, alcohols, esters, and ethers, when present.

Nitrogen-containing compounds are ordered according to chain length and, within these groups, into amines, amides, nitro compounds, nitriles, oximes, esters, and cyclic compounds, including indole, imidazole, pyrazine, pyrazole, pyridine, and triazine.

Sulfur-containing compounds are ordered into acyclic, including sulfoxides, sulfides, thiols, thioesters, thiocyanates, and isothiocyanates, and cyclic compounds, including thiofurans and thiazoles.

Miscellaneous cyclic compounds are divided into carbocyclic and heterocyclic compounds. The former group is further divided into monocyclic and bicyclic compounds (bicyclo[3.1.0], bicyclo[3.1.1], bicyclo[4.1.0], bicyclo[4.4.0] (naphthalenes), bicyclo[5.3.0] (azulenes)) and the latter into furans, pyrans, bicyclo[3.2.1], bicyclo[5.1.0], and spiro compounds. When appropriate, each of these groups is ordered by functional group.

Within each functional group compounds are ordered alphabetically disregarding numbers and the following prefixes or combinations of them: (*E*)-, (*Z*)-, *cis*-, *trans*-, α, β, γ, δ, *endo*-, *epi*-, *exo*-, *allo*-, *neo*-, *neoallo*-, *m*-, *o*-, *p*-, di-*tert*-, *ar*-, 1*H*-, *N*-, *N*,*N*-, *S*, 1*S*-, T- and Bis-.

ALIPHATICS

C1

Aldehydes

Formaldehyde

Brassicaceae [221]

Alcohols

Methanol

Brassicaceae [221], Rosaceae [220]

Esters

Cyclohexyl formate

Oleaceae [267]

Diethyl carbonate

Orchidaceae [117]
(*Z*)-3-Hexenyl formate
Orchidaceae [117, 118]
C2
Acids
Acetic acid
Araceae [86, 133, 134], Asteraceae [65], Brassicaceae [221], Calycanthaceae [266], Cyclanthaceae [225], Fabaceae [120], Nelumbonaceae [184], Orchidaceae [8, 77, 106, 117, 203], Rosaceae [12, 61], Rutaceae [247], Winteraceae [239], Zingiberaceae [174]
Aldehydes
Acetaldehyde
Araceae [86, 262], Brassicaceae [221], Hydnoraceae [48], Orchidaceae [75, 201], Rosaceae [220]
Alcohols
Ethanol
Araceae [86, 133, 229], Brassicaceae [221], Magnoliaceae [238], Orchidaceae [27, 75, 201], Rosaceae [219, 220, 228], Rubiaceae [249], Vitaceae [44]
2-(2-Methoxyethoxy)ethanol
Oleaceae [177]
Esters
Butyl acetate
Amaryllidaceae [6], Annonaceae [170], Arecaceae [68, 137], Asteraceae [132], Bromeliaceae [21], Fabaceae [175, 179, 212], Gentianaceae [45], Musaceae [21], Oleaceae [39, 267], Orchidaceae [77, 117], Rosaceae [33, 35, 40, 43, 128], Sapindaceae [46], Sapotaceae [263], Theophrastaceae [139], Winteraceae [210, 239]
Cyclohexyl acetate
Rosaceae [43]
(*E*,*E*)-2,4-Decadienyl acetate
Orchidaceae [77, 116, 117]
(*E*,*Z*)-2,4-Decadienyl acetate
Orchidaceae [77, 116, 117]
(*Z*,*Z*)-3,6-Decadienyl acetate
Orchidaceae [117]
Decenyl acetate
Orchidaceae [29]
(*E*)-4-Decenyl acetate
Orchidaceae [117]
(*Z*)-4-Decenyl acetate
Orchidaceae [77, 117, 120]
Decyl acetate
Caprifoliaceae [102], Fabaceae [49, 156], Orchidaceae [13, 17, 23, 27, 28, 29, 77, 117, 147, 188, 253]
Dodecyl acetate
Fabaceae [49, 156], Orchidaceae [13, 17, 23, 29, 117, 147, 253], Rutaceae [172]
(*E*)-3,4-Epoxy-hexyl acetate
Orchidaceae [118]
(*Z*)-3,4-Epoxy-hexyl acetate
Oleaceae [114], Orchidaceae [118]
Ethyl acetate
Actinidiaceae [237], Annonaceae [170], Araceae [86, 133, 134], Arecaceae [137], Cycadaceae [211], Magnoliaceae [238], Oleaceae [39, 57, 58, 267], Orchidaceae [75, 117], Rosaceae [12, 219, 220], Rubiaceae [249], Winteraceae [210, 239], Vitaceae [44, 47], Zingiberaceae [268]
Heptyl acetate
Orchidaceae [17, 27, 29, 77], Passifloraceae [157]
2-Heptyl acetate
Orchidaceae [75, 117]
Hexadecyl acetate
Orchidaceae [13, 17, 23, 27, 117, 147, 253], Rosaceae [60, 61]
Hexenyl acetate
Dipsacaceae [185]

(*E*)-2-Hexenyl acetate
Actinidiaceae [237], Lamiaceae [5], Nyctaginaceae [151], Oleaceae [52], Rosaceae [33, 115], Sapotaceae [263], Valerianaceae [37]
3-Hexenyl acetate
Asteraceae [59], Oleaceae [171, 267], Ranunculaceae [207, 209], Rosaceae [12, 43, 61], Ruscaceae [171]
(*E*)-3-Hexenyl acetate
Lauraceae [74], Orchidaceae [118], Rosaceae [35]
(*Z*)-3-Hexenyl acetate
Actinidiaceae [237], Annonaceae [111], Apiaceae [242], Asteraceae [5, 34, 37, 65], Berberidaceae [182], Brassicaceae [70, 217], Caprifoliaceae [102, 178], Caryophyllaceae [5, 54, 66, 112], Combretaceae [10], Dipsacaceae [5], Ericaceae [136], Fabaceae [49, 50, 107, 120, 156, 179], Hemerocallidaceae [33], Hyacinthaceae [123], Lamiaceae [5], Lecythidaceae [144], Malvaceae [142], Moraceae [82], Nyctaginaceae [151], Oleaceae [33, 39, 52, 57, 58, 107, 119, 176, 177, 178], Onagraceae [218], Orchidaceae [17, 117, 118, 120, 169], Orobanchaceae [20], Passifloraceae [157], Primulaceae [36], Ranunculaceae [19], Rosaceae [33, 35, 37, 40, 60, 62, 72, 87, 88, 115, 166, 176, 177, 178, 219, 220, 232], Rubiaceae [249], Ruscaceae [232, 233], Rutaceae [247], Salicaceae [245], Sapotaceae [263], Scrophulariaceae [5], Solanaceae [165], Theophrastaceae [139], Valerianaceae [37], Winteraceae [210]
(*Z*)-4-Hexenyl acetate
Caryophyllaceae [5], Oleaceae [51]
Hexyl acetate
Actinidiaceae [237], Amaryllidaceae [6], Apiaceae [31], Asteraceae [37, 132], Berberidaceae [182], Cactaceae [21], Caprifoliaceae [178], Fabaceae [179], Lecythidaceae [144], Oleaceae [119], Orchidaceae [17, 27, 77, 117, 120, 188], Passifloraceae [157], Pinaceae [25], Ranunculaceae [209], Rosaceae [33, 35, 40, 43, 51, 60, 61, 62, 72, 87, 88, 93, 115, 128, 176, 177, 178], Rubiaceae [5, 249], Scrophulariaceae [5], Solanaceae [94], Valerianaceae [37], Winteraceae [210, 239]
Isobutyl acetate, see 2-Methylpropyl acetate
Isopropyl acetate
Passifloraceae [157]
Methyl acetate
Actinidiaceae [237], Oleaceae [39], Orchidaceae [75, 106], Rosaceae [219, 220]
(*E*)-2-Methylcyclopentanol acetate
Rosaceae [51]
2-Methyl-5-(1-methylethenyl)-2-cyclohexenyl acetate
Oleaceae [57, 58]
3-Methylpentyl acetate
Asteraceae [37]
2-Methylpropen-2-yl acetate
Oleaceae [267]
1-Methylpropyl acetate
Araceae [26]
2-Methylpropyl acetate (Isobutyl acetate)
Amaryllidaceae [6], Annonaceae [111], Apiaceae [31], Arecaceae [137], Asteraceae [37], Lecythidaceae [144], Magnoliaceae [11, 238], Oleaceae [52], Orchidaceae [77, 117, 201], Winteraceae [210, 239]
(*Z,Z*)-3,6-Nonadienyl acetate
Orchidaceae [117]
(*Z*)-3-Nonenyl acetate
Orchidaceae [117]
Nonyl acetate
Orchidaceae [17, 27, 29, 117]
2-Nonyl acetate
Orchidaceae [75]
Octadecyl acetate
Orchidaceae [13]
3-Octanyl acetate, see 3-Octyl acetate
Octenyl acetate

Orchidaceae [27, 28, 29]
1-Octen-3-yl acetate
Nyctaginaceae [151]
(*Z*)-3-Octenyl acetate
Orchidaceae [120]
(*Z*)-5-Octenyl acetate
Orchidaceae [117]
Octyl acetate
Apiaceae [31], Hemerocallidaceae [33], Hyacinthaceae [123], Orchidaceae [17, 23, 27, 28, 29, 77, 117, 118, 147, 188], Rosaceae [33, 35], Valerianaceae [37]
3-Octyl acetate
Araceae [86]
2-Pentadecyl acetate
Orchidaceae [117]
Pentyl acetate
Actinidiaceae [237], Annonaceae [170], Orchidaceae [17], Rosaceae [33, 35, 40], Theophrastaceae [139]
2-Pentyl acetate
Amaryllidaceae [21], Bignoniaceae [21], Cycadaceae [211], Orchidaceae [117]
Propyl acetate
Annonaceae [170], Lecythidaceae [144], Magnoliaceae [238], Orchidaceae [117], Winteraceae [210, 239]
2-Propyl acetate
Arecaceae [68], Orchidaceae [75]
Tetradecyl acetate
Orchidaceae [13, 17, 23, 117, 147, 253], Rosaceae [60, 61]
2-Tridecyl acetate
Amaryllidaceae [63], Orchidaceae [75, 117]
Undecyl acetate
Orchidaceae [17]
2-Undecyl acetate
Amaryllidaceae [63], Orchidaceae [75, 117]
Ethers and epoxides
1,1-Diethoxyethane
Calycanthaceae [266], Rosaceae [12]
Diethoxymethane
Rosaceae [12]
Diethyl ether
Araceae [229]
Chloro
Tetrachloroethylene
Rosaceae [12]
C3
Acids
Dimethylpropanoic acid
Brassicaceae [221]
Propanoic acid
Araceae [26, 229], Orchidaceae [27, 117]
Aldehydes
2-Methylpropanal
Rosaceae [12, 220]
2-Methyl-2-propenal
Araceae [229], Hydnoraceae [48], Orchidaceae [8, 201], Rutaceae [247], Zingiberaceae [174]
Propanal
Brassicaceae [221], Hydnoraceae [48]
Ketones
Acetone
Araceae [86, 229], Brassicaceae [221], Orchidaceae [75, 201], Rosaceae [12, 72, 220], Vitaceae [44, 47]
2,2-Dimethoxypropanone
Orchidaceae [106]

1-Methoxy-2-propanone
Araceae [86]
Alcohols
Isobutanol, see 2-Methylpropanol
2-Methylpropanol (Isobutanol)
Actinidiaceae [237], Araceae [86, 262], Asteraceae [37], Lecythidaceae [144], Magnoliaceae [238], Oleaceae [39], Orchidaceae [77, 117], Rosaceae [12, 220], Winteraceae [210, 239]
Propanol
Araceae [133], Rosaceae [12]
2-Propanol
Orchidaceae [201]
Esters
Butyl acrylate, see Butyl 2-propenoate
Butyl 2-methylpropanoate
Annonaceae [111]
Butyl propanoate
Passifloraceae [157]
Butyl 2-propenoate (Butyl acrylate)
Zingiberaceae [268]
Ethyl propanoate
Magnoliaceae [238], Orchidaceae [117]
Ethyl 2-methylpropanoate
Caryophyllaceae [54], Magnoliaceae [11, 238], Rubiaceae [249]
Ethyl 2-methyl-2-propenoate
Magnoliaceae [238]
(*Z*)-3-Hexenyl 2-methylpropanoate
Oleaceae [107], Rubiaceae [249]
(*Z*)-3-Hexenyl propanoate
Annonaceae [111], Asteraceae [37], Nyctaginaceae [151], Oleaceae [107], Rubiaceae [249]
Hexyl 2-methylpropanoate
Rubiaceae [249]
Hexyl propanoate
Asteraceae [37], Passifloraceae [157]
Isobutyl acetate, see 2-Methylpropyl acetate
Isopropyl propanoate
Annonaceae [111]
Methyl 2-hydroxy-2-methylpropanoate
Cactaceae [113]
Methyl isobutanoate, see Methyl 2-methylpropanoate
Methyl 2-methylpropanoate (Methyl isobutanoate)
Araceae [133], Brassicaceae [221], Cycadaceae [211], Nymphaeaceae [14, 135], Orchidaceae [117]
Methyl 2-methylpropenoate
Nymphaeaceae [14, 135]
3-Methylpentyl 2-methylpropanoate
Asteraceae [37]
3-Methylpentyl 2-methyl-2-propenoate
Asteraceae [37]
Methyl propanoate
Rubiaceae [228]
2-Methyl-2-propenyl 2-methyl-2-propenoate
Asteraceae [37]
2-Methylpropyl 2-methylpropanoate
Annonaceae [111], Asteraceae [37], Magnoliaceae [238]
2-Methylpropyl 2-methyl-2-propenoate
Asteraceae [37]
2-Pentyl propanoate
Cycadaceae [211]
Ethers
2-Methylpropyl ethenyl ether
Orchidaceae [201]

C4
- Alkanes
  - Ethylcyclobutane
    - Rosaceae [12]
- Alkenes
  - 2,3-Dimethyl-1,3-butadiene
    - Araceae [86]
  - 2,3-Dimethyl-2-butene
    - Rosaceae [40]
- Acids
  - Butanoic acid
    - Araceae [86], Asteraceae [65], Orchidaceae [77, 116, 117]
- Aldehydes
  - Butanal
    - Araceae [86], Brassicaceae [221], Hydnoraceae [48], Rosaceae [12]
  - 2-Butenal
    - Araceae [229], Rosaceae [12]
  - (*E*)-2-Butenal
    - Hydnoraceae [48]
- Ketones
  - 2,3-Butanedione
    - Araceae [86], Arecaceae [137], Brassicaceae [221], Zingiberaceae [174]
  - 2-Butanone
    - Actinidiaceae [237], Araceae [86, 229], Brassicaceae [221], Fabaceae [179], Oleaceae [39], Orchidaceae [201, 236], Rosaceae [12, 219, 220]
  - 1-Buten-3-one, see 3-Buten-2-one
  - 3-Buten-2-one (1-Buten-3-one)
    - Araceae [229], Calycanthaceae [266], Liliaceae [92], Rutaceae [247], Zingiberaceae [174]
  - 3-Hydroxy-2-butanone
    - Actinidiaceae [237], Araceae [86], Arecaceae [10, 137], Asteraceae [5], Acanthaceae [10], Brassicaceae [221], Fabaceae [50, 120, 156], Malvaceae [142], Oleaceae [57, 58], Orchidaceae [117], Rhizophoraceae [10], Rosaceae [219, 220], Sapotaceae [263], Scrophulariaceae [5], Theophrastaceae [139], Thymelaeaceae [5]
- Alcohols
  - 2,3-Butanediol, see 2,3-Dihydroxybutane
  - Butanol
    - Araceae [86], Gentianaceae [45], Magnoliaceae [238], Oleaceae [39], Orchidaceae [77, 117], Rosaceae [12, 33, 35], Vitaceae [44, 47]
  - 2-Butanol
    - Apiaceae [246], Araceae [86], Brassicaceae [221], Rosaceae [12, 219, 220]
  - 2,3-Dihydroxybutane (2,3-Butanediol)
    - Acanthaceae [10], Fabaceae [50, 156], Orchidaceae [27], Rhizophoraceae [10]
- Esters
  - Butyl butanoate
    - Arecaceae [137], Asteraceae [5], Orchidaceae [117], Violaceae [248]
  - 2-Butyl butanoate
    - Moraceae [121]
  - Ethyl butanoate
    - Araceae [86], Arecaceae [137], Lythraceae [10], Magnoliaceae [11, 238], Orchidaceae [117], Pinaceae [25], Rubiaceae [249]
  - Ethyl 2-butenoate
    - Magnoliaceae [238]
  - Ethyl (*E*)-2-butenoate
    - Arecaceae [137], Orchidaceae [117]
  - Heptyl butanoate
    - Lythraceae [10]
  - 2-Heptyl butanoate
    - Orchidaceae [117]
  - (*Z*)-3,5-Hexadienyl butanoate
    - Orchidaceae [117]
  - 2-Hexenyl butanoate

Lythraceae [10], Nyctaginaceae [151]
(*E*)-2-Hexenyl butanoate
Oleaceae [52]
3-Hexenyl butanoate
Lythraceae [10], Nyctaginaceae [151], Oleaceae [57, 267]
(*Z*)-3-Hexenyl butanoate
Actinidiaceae [237], Berberidaceae [182], Caprifoliaceae [102], Iridaceae [178], Lecythidaceae [144], Oleaceae [39, 52, 58, 107, 119, 177], Orchidaceae [117, 201], Rubiaceae [249]
Hexyl butanoate
Actinidiaceae [237], Apiaceae [31], Lecythidaceae [144], Moraceae [121], Nyctaginaceae [151], Oleaceae [57, 58], Orchidaceae [117], Passifloraceae [157], Rubiaceae [249]
Isobutyl butanoate, see 2-Methylpropyl butanoate
Isopropyl butanoate
Arecaceae [68], Oleaceae [52], Scrophulariaceae [226]
Methyl butanoate
Araceae [86, 129, 133], Fabaceae [216], Lythraceae [10], Moraceae [121], Nymphaeaceae [14, 135], Orchidaceae [106, 117], Pinaceae [25], Rosaceae [43], Rubiaceae [249]
Methyl 2-butenoate
Nymphaeaceae [135], Oleaceae [39]
Methyl (*E*)-2-butenoate (Methyl crotonate)
Arecaceae [137], Nymphaeaceae [14], Orchidaceae [117]
Methyl crotonate, see Methyl (*E*)-2-butenoate
2-Methylhexyl butanoate
Lythraceae [10]
Methyl 3-hydroxybutanoate
Orchidaceae [77]
Methyl 4-methoxybutanoate
Orchidaceae [106]
2-Methylpropyl butanoate (Isobutyl butanoate)
Asteraceae [37], Magnoliaceae [238], Orchidaceae [117]
Octyl butanoate
Apiaceae [31], Orchidaceae [117]
Pentyl butanoate
Passifloraceae [157]
2-Pentyl butanoate
Cycadaceae [211], Orchidaceae [117]
Propyl butanoate
Annonaceae [111]
Ethers
2-Butoxyethanol
Violaceae [248]
2-Methoxybutane
Oleaceae [39]

C5

Alkanes
Pentane
Brassicaceae [221], Orchidaceae [201], Rosaceae [12, 220]
2-Methylpentane
Brassicaceae [221], Rosaceae [12, 220]
3-Methylpentane
Brassicaceae [221], Rosaceae [12]
2,2',3,4-Tetramethylpentane
Oleaceae [267]
2,2,4-Trimethylpentane
Rosaceae [12]
Alkenes
(*E*)-3-Methyl-1,2-pentadiene
Brassicaceae [221]
3-Methyl-1,3-pentadiene
Rosaceae [220]

2-Methyl-1-pentene
Araceae [86], Rosaceae [220]
Acids
4-Methylpentanoic acid
Araceae [134]
(*E*)-3-Methyl-2-pentenoic acid
Asteraceae [65]
(*Z*)-3-Methyl-2-pentenoic acid
Asteraceae [65]
Pentanoic acid
Asteraceae [65], Brassicaceae [217], Orchidaceae [27, 117]
Aldehydes
2-Methyl-4-pentenal
Actinidiaceae [237]
Pentanal
Araceae [229], Bignoniaceae [142], Brassicaceae [221], Meliaceae [250], Orchidaceae [201], Rosaceae [12, 40, 220], Rutaceae [247]
2-Pentenal
Amaryllidaceae [177], Araceae [229]
(*E*)-2-Pentenal
Araceae [86], Orchidaceae [117]
(*Z*)-2-Pentenal
Amaryllidaceae [6]
Ketones
4-Hydroxy-4-methyl-2-pentanone
Calycanthaceae [266], Oleaceae [177]
3-Hydroxy-2-pentanone
Orchidaceae [117]
2-Hydroxy-3-pentanone
Orchidaceae [117]
1-Methoxy-3-methylene-2-pentanone
Actinidiaceae [237], Oleaceae [39]
Methyl isobutenyl ketone, see 4-Methyl-3-penten-2-one
3-Methyl-2-pentanone
Araceae [86, 129, 133, 229], Brassicaceae [221]
4-Methyl-2-pentanone
Cyclanthaceae [225], Orchidaceae [201]
4-Methyl-3-penten-2-one (Methyl isobutenyl ketone)
Annonaceae [111], Fabaceae [121], Liliaceae [92], Orchidaceae [192]
2,3-Pentanedione
Orchidaceae [117]
2-Pentanone
Actinidiaceae [237], Araceae [86, 229], Brassicaceae [221], Cycadaceae [211], Oleaceae [39], Orchidaceae [75], Rosaceae [219]
3-Pentanone
Actinidiaceae [237], Arecaceae [143], Brassicaceae [221], Chloranthaceae [251], Oleaceae [39], Rosaceae [12, 219, 220]
3-Penten-2-one
Araceae [86]
4-Penten-2-one
Fabaceae [153]
Alcohols
3-Methylpentanol
Asteraceae [37], Solanaceae [165, 166]
3-Methyl-2-pentanol
Cycadaceae [211]
4-Methylpentanol
Araceae [86], Solanaceae [165]
4-Methyl-2-pentanol
Liliaceae [92]
3-Methyl-4-pentenol

Araceae [229]
Pentanol
Araceae [86], Cactaceae [125], Orchidaceae [30, 77, 117], Rosaceae [33, 35, 61, 219], Winteraceae [210]
2-Pentanol
Brassicaceae [221], Cycadaceae [211], Orchidaceae [27, 30, 147]
3-Pentanol
Arecaceae [143], Rosaceae [219, 220]
1-Penten-2-ol
Gentianaceae [45]
1-Penten-3-ol
Actinidiaceae [237], Chloranthaceae [251], Gentianaceae [45], Meliaceae [250], Oleaceae [39], Orchidaceae [201]
(*Z*)-3-Pentenol
Orchidaceae [117]
3-Penten-2-ol
Zingiberaceae [174]
4-Pentenol
Araceae [86]
Esters
Butyl pentanoate
Orchidaceae [117]
Dimethyl pentanedioate
Lauraceae [74]
Hexyl pentanoate
Orchidaceae [117]
Methyl 2-acetoxy-3-methylpentanoate
Eupomatiaceae [18]
Methyl 2-acetoxy-4-methylpentanoate
Eupomatiaceae [18]
Methyl 2-hydroxy-3-methylpentanoate
Eupomatiaceae [18], Nymphaeaceae [14], Orchidaceae [117]
Methyl 2-hydroxy-4-methylpentanoate
Eupomatiaceae [18], Orchidaceae [117]
Methyl 2-hydroxy-3-methylpentenoate
Nymphaeaceae [135]
Methyl hydroxypentanoate
Nymphaeaceae [14, 135]
Methyl 2-hydroxypentanoate
Orchidaceae [117]
Methyl 3-methylpentanoate
Solanaceae [165]
Methyl 2-oxo-3-methylpentanoate
Orchidaceae [117]
Methyl pentanoate
Nymphaeaceae [14, 135], Orchidaceae [27, 117]
Methyl 2-pentenoate
Orchidaceae [203]
Methyl 3-pentenoate
Amaryllidaceae [63]
2-Pentyl pentanoate
Cycadaceae [211]
Propyl pentanoate
Arecaceae [68]
C6
Alkanes
3,3-Dimethylhexane
Oleaceae [57, 58]
Hexane
Actinidiaceae [237], Araceae [86], Brassicaceae [221], Rosaceae [12]
2-Methylhexane

Oleaceae [267]
2,3,4-Trimethylhexane
Asteraceae [213]
Alkenes
4,5-Dimethyl-1-hexene
Cucurbitaceae [71]
1-Hexene
Rosaceae [12], Vitaceae [44]
Acids
2-Ethylhexanoic acid
Malvaceae [67]
Hexanoic acid
Araceae [86], Fabaceae [120], Orchidaceae [8, 23, 27, 77, 147], Passifloraceae [157], Rosaceae [12], Rutaceae [247]
Aldehydes
2-Ethylhexanal
Moraceae [82]
2,4-Hexadienal
Araceae [86]
Hexanal
Actinidiaceae [237], Apiaceae [242], Araceae [229], Arecaceae [68, 143], Brassicaceae [221], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [54], Fabaceae [212], Hemerocallidaceae [33], Hydnoraceae [48], Malvaceae [142], Meliaceae [250], Oleaceae [52], Orchidaceae [8, 23, 117, 147, 201, 224, 227], Rhizophoraceae [10], Rosaceae [12, 33, 35, 72, 219, 220], Scrophulariaceae [5], Valerianaceae [37], Verbenaceae [5]
Hexenal
Amaryllidaceae [6], Orchidaceae [23]
2-Hexenal
Nyctaginaceae [151], Rosaceae [33, 35, 219]
(*E*)-2-Hexenal
Actinidiaceae [237], Cactaceae [21], Fabaceae [49, 50, 120, 156, 179], Malvaceae [94], Oleaceae [52, 177], Ranunculaceae [209], Verbenaceae [5]
(*Z*)-2-Hexenal
Caprifoliaceae [102], Orchidaceae [117], Rosaceae [72]
(*Z*)-3-Hexenal
Araceae [86], Cactaceae [125], Fabaceae [179], Orchidaceae [117]
Ketones
2,5-Hexanedione
Orchidaceae [117]
3,4-Hexanedione
Orchidaceae [117]
2-Hexanone
Araceae [229], Cactaceae [125], Caprifoliaceae [102], Fabaceae [50, 156], Orchidaceae [117]
3-Hexanone
Amaryllidaceae [21], Araceae [229], Arecaceae [21, 143], Bignoniaceae [21], Bromeliaceae [21], Cactaceae [125], Orchidaceae [117]
3-Hexen-2-one
Annonaceae [111]
5-Hexen-2-one
Oleaceae [57, 58]
4-Hydroxy-3-hexanone
Orchidaceae [117]
4-Methyl-3-hexanone
Oleaceae [51]
5-Methyl-2-hexanone
Zingiberaceae [174]
5-Methyl-4-hydroxy-2-hexanone
Lauraceae [74]
Alcohols
(*Z*)-3,4-Epoxy-hexanol
Orchidaceae [118]

2-Ethylhexanol
Amaryllidaceae [6], Araceae [229], Fabaceae [104], Malvaceae [67], Moraceae [82], Nelumbonaceae [184], Rosaceae [12, 128], Violaceae [248]
Hexanol
Actinidiaceae [237], Alliaceae [36], Amaryllidaceae [6], Apiaceae [31, 242], Apocynaceae [178], Araceae [86], Arecaceae [68, 137, 143], Berberidaceae [182], Cactaceae [113, 125], Caryophyllaceae [66], Dipsacaceae [5], Fabaceae [50, 62, 120, 156, 179], Hyacinthaceae [123], Lecythidaceae [144], Malvaceae [67, 142], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [119], Orchidaceae [17, 23, 27, 28, 29, 30, 77, 116, 117, 118, 120, 147], Papaveraceae [62], Passifloraceae [157], Pinaceae [25], Ranunculaceae [209], Rosaceae [12, 33, 35, 40, 43, 51, 61, 62, 72, 87, 88, 128, 166, 228], Rubiaceae [5], Rutaceae [119], Scrophulariaceae [5], Solanaceae [165], Theophrastaceae [139], Thymelaeaceae [5], Valerianaceae [5, 37], Winteraceae [210], Vitaceae [44]
2-Hexanol
Cactaceae [125], Caprifoliaceae [102], Cycadaceae [211], Orchidaceae [30], Solanaceae [165]
3-Hexanol
Cactaceae [125]
Hexenol
Oleaceae [267]
1-Hexen-3-ol
Vitaceae [44, 47]
2-Hexenol
Ranunculaceae [209]
(*E*)-2-Hexenol
Actinidiaceae [237], Araceae [86], Asteraceae [37], Cactaceae [125], Dipsacaceae [5], Fabaceae [50, 120], Nyctaginaceae [151], Orchidaceae [117], Rosaceae [33], Valerianaceae [37]
(*Z*)-2-Hexenol
Orchidaceae [117]
3-Hexenol
Annonaceae [111], Asteraceae [59], Calycanthaceae [266], Caryophyllaceae [112], Moraceae [83], Oleaceae [57], Ranunculaceae [209], Rosaceae [43, 61], Ruscaceae [171], Winteraceae [210]
(*E*)-3-Hexenol
Actinidiaceae [237], Arecaceae [137], Fabaceae [156, 179], Lauraceae [74], Orchidaceae [117, 203], Rosaceae [35]
(*Z*)-3-Hexenol
Actinidiaceae [237], Alliaceae [36], Apocynaceae [141], Arecaceae [143], Asteraceae [5, 34, 37, 65], Acanthaceae [10], Berberidaceae [182], Brassicaceae [70, 221], Cactaceae [122, 125], Caprifoliaceae [102], Caryophyllaceae [5, 66, 141], Combretaceae [10], Dipsacaceae [5], Ericaceae [136], Fabaceae [49, 50, 120, 156, 160, 179], Gentianaceae [45], Hemerocallidaceae [33], Hyacinthaceae [123], Lecythidaceae [144], Magnoliaceae [264], Malvaceae [67, 142], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [33, 39, 52, 58, 107, 114, 119, 177], Orchidaceae [17, 23, 77, 116, 117, 118, 120, 141, 169], Orobanchaceae [20], Papaveraceae [62], Passifloraceae [157], Primulaceae [36], Ranunculaceae [19], Rhizophoraceae [10], Rosaceae [33, 35, 37, 62, 87, 88, 128, 166, 219, 220], Rubiaceae [5, 141, 249], Rutaceae [119], Salicaceae [245], Scrophulariaceae [5], Solanaceae [141, 165, 166], Theophrastaceae [139], Valerianaceae [37], Verbenaceae [5], Zingiberaceae [141]
4-Methylhexanol
Solanaceae [165]
Esters
Butyl hexanoate
Lecythidaceae [144], Orchidaceae [117], Passifloraceae [157]
Butyl (*Z*)-3-hexenoate
Orchidaceae [117]
Dimethyl hexanedioate
Lauraceae [74]
Ethyl hexanoate
Annonaceae [111], Fabaceae [126], Magnoliaceae [11, 238], Orchidaceae [117, 203]
Ethyl 3-hexanoate

Annonaceae [111]
2-Heptyl hexanoate
Orchidaceae [117]
3-Hexenyl hexanoate
Nyctaginaceae [151]
(*E*)-3-Hexenyl hexanoate
Passifloraceae [157]
(*Z*)-3-Hexenyl hexanoate
Lecythidaceae [144], Oleaceae [51], Orchidaceae [117]
(*Z*)-3-Hexenyl (*Z*)-3-hexenoate
Oleaceae [119], Orchidaceae [117]
Hexyl hexanoate
Lecythidaceae [144], Orchidaceae [117], Passifloraceae [157]
Methyl 2-ethylhexanoate
Arecaceae [137], Cucurbitaceae [71]
Methyl hexanoate
Fabaceae [216], Lecythidaceae [144], Lythraceae [10], Magnoliaceae [11], Nymphaeaceae [14, 135], Orchidaceae [117], Passifloraceae [157]
Methyl hexenoate
Magnoliaceae [11]
Methyl (*E*)-2-hexenoate
Nymphaeaceae [14, 135]
Methyl (*Z*)-2-hexenoate
Nymphaeaceae [14, 135]
Methyl 3-hexenoate
Oleaceae [39]
Methyl 4-methylhexanoate
Nymphaeaceae [14, 135]
2-Methylpropyl hexanoate
Annonaceae [111]
Pentyl hexanoate
Orchidaceae [117]
2-Pentyl hexanoate
Cycadaceae [211]
Propyl hexanoate
Orchidaceae [117]
2-Propyl hexanoate
Arecaceae [68]

Ethers
1,6-Diacetoxyhexane
Oleaceae [57, 58]

C7

Alkanes
3,4-Dimethylheptane
Zingiberaceae [268]
Heptane
Actinidiaceae [237], Oleaceae [267], Orchidaceae [201], Rosaceae [12]
3-Methylheptane
Oleaceae [267]

Alkenes
2,4-Dimethyl-2,4-heptadiene
Araceae [86]
1-Heptene
Rosaceae [12]
Trimethylheptadiene
Araceae [133]
2,3,6-Trimethyl-1,5-heptadiene
Araceae [129]

Acids
2-Ethylheptanoic acid
Onagraceae [265]

Heptanoic acid
Asteraceae [65], Orchidaceae [23, 27]
Aldehydes
2,3-Dimethyl-5-heptenal
Sapindaceae [46]
2,6-Dimethyl-5-heptenal
Oleaceae [267]
Heptanal
Amaryllidaceae [6], Arecaceae [10, 143], Berberidaceae [215], Brassicaceae [221], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [112], Hydnoraceae [48], Lauraceae [74], Malvaceae [142], Meliaceae [250], Orchidaceae [23, 28, 117, 147, 201, 224], Rosaceae [12, 219, 220]
4-Heptenal
Araceae [229]
Ketones
2,3-Heptandione
Scrophulariaceae [5]
2-Heptanone
Araceae [129, 133, 134], Arecaceae [137, 143], Cactaceae [125], Caprifoliaceae [102], Cycadaceae [211], Ericaceae [136], Fabaceae [50, 138, 156], Lecythidaceae [144], Lythraceae [10], Orchidaceae [28, 29, 75, 116, 117], Rosaceae [12, 60]
3-Heptanone
Araceae [229], Orchidaceae [116], Rosaceae [12], Violaceae [248], Zingiberaceae [268]
2-Hydroxy-3-heptanone
Scrophulariaceae [5]
3-Hydroxy-2-heptanone
Scrophulariaceae [5]
3-Methyl-2-heptanone
Rosaceae [220]
6-Methyl-2-heptanone
Oleaceae [267]
4-Methyl-3-heptanone
Orchidaceae [203]
6-Methyl-3-heptanone
Gentianaceae [45]
Methylheptenone
Orchidaceae [201]
Alcohols
(*E*,*E*)-2,4-Heptadienol
Araceae [86]
Heptanol
Cactaceae [125], Hyacinthaceae [123], Orchidaceae [23, 27, 28, 29, 30, 117, 118, 147], Ranunculaceae [19, 59, 209]
2-Heptanol
Arecaceae [143], Cactaceae [125], Caprifoliaceae [102], Cycadaceae [211], Fabaceae [138], Orchidaceae [23, 28, 29, 117], Rosaceae [60]
3-Heptanol
Orchidaceae [28]
(*Z*)-4-Heptenol
Orchidaceae [117]
2-Methylheptanol
Cactaceae [125]
4-Methyl-2-heptanol
Oleaceae [57, 58]
6-Methylheptanol
Calycanthaceae [266], Solanaceae [165]
Esters
3-Hexenyl heptanoate
Nyctaginaceae [151]
Methyl heptanoate
Orchidaceae [117]

C8
- Alkanes
  - Octane
    - Actinidiaceae [237], Araceae [262], Caprifoliaceae [102], Orchidaceae [27, 201], Rosaceae [12, 40, 219]
- Alkenes
  - 3,4-Dimethyl-2,4,6-octatriene
    - Cucurbitaceae [71]
  - 2,7-Methyloctadiene
    - Nyctaginaceae [151]
  - Octadiene
    - Nyctaginaceae [151]
  - 1,3-Octadiene
    - Araceae [86, 229], Zamiaceae [211]
  - 1,3,6-Octatriene
    - Orchidaceae [180]
  - 1,3,7-Octatriene
    - Araceae [229]
  - 1-Octene
    - Brassicaceae [221], Rosaceae [12]
- Acids
  - Octanoic acid
    - Asteraceae [65], Fabaceae [120], Orchidaceae [8, 23, 27, 28, 77, 147, 192], Rosaceae [12]
- Aldehydes
  - Octanal
    - Amaryllidaceae [6], Apiaceae [242], Araceae [229, 262], Brassicaceae [221], Cactaceae [122, 125], Caprifoliaceae [102], Caryophyllaceae [5, 54, 112], Gentianaceae [5], Hydnoraceae [48], Lauraceae [74], Meliaceae [250], Orchidaceae [8, 23, 28, 77, 117, 118, 120, 147, 176, 201, 224], Papaveraceae [62], Rosaceae [12, 219, 220], Violaceae [248]
  - Octenal
    - Araceae [205]
  - (*E*)-2-Octenal
    - Orchidaceae [117]
  - (*Z*)-2-Octenal
    - Araceae [86]
- Ketones
  - 3,5-Octadien-2-one
    - Araceae [86]
  - 2-Octanone
    - Fabaceae [138], Malvaceae [142], Orchidaceae [27, 117]
  - 3-Octanone
    - Araceae [86, 229], Arecaceae [137], Bignoniaceae [142], Fabaceae [49, 156], Malvaceae [142], Nymphaeaceae [14, 135], Orchidaceae [116, 117]
  - 1-Octen-3-one
    - Araceae [229], Bignoniaceae [142], Malvaceae [142], Orchidaceae [116, 117]
  - (*E*)-3-Octen-2-one
    - Moraceae [82]
- Alcohols
  - Octanol
    - Apiaceae [31], Araceae [229], Berberidaceae [182, 215], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [5], Hyacinthaceae [38], Orchidaceae [17, 23, 27, 28, 29, 30, 117, 118, 147, 148], Ranunculaceae [19, 59, 209], Rosaceae [12], Salicaceae [245], Theophrastaceae [139], Valerianaceae [37], Vitaceae [44]
  - 2-Octanol
    - Arecaceae [143], Fabaceae [138], Orchidaceae [28]
  - 3-Octanol
    - Araceae [86, 229], Nymphaeaceae [14, 135], Orchidaceae [77, 116, 117]
  - 1-Octenol
    - Orchidaceae [28, 29]
  - (*E*)-2-Octenol
    - Orchidaceae [117]

(Z)-2-Octenol
Orchidaceae [117]
(Z)-5-Octenol
Orchidaceae [117, 118]
7-Octenol
Malvaceae [67]
Octen-3-ol
Fabaceae [126]
1-Octen-3-ol
Araceae [86, 229], Bignoniaceae [21, 142], Cactaceae [21, 122], Caryophyllaceae [5], Dipsacaceae [5], Fabaceae [49, 50, 107, 156], Gentianaceae [45], Hyacinthaceae [38, 123], Malvaceae [142], Orchidaceae [116, 117], Polemoniaceae [5, 21], Scrophulariaceae [5], Verbenaceae [5]
7-Octen-4-ol
Nyctaginaceae [151]
Esters
Butyl octanoate
Orchidaceae [117]
Butyl octenoate
Orchidaceae [117]
Ethyl octanoate
Fabaceae [126], Orchidaceae [13, 27, 117]
Ethyl 3-octenoate
Orchidaceae [13]
Hexyl octanoate
Orchidaceae [117]
Methyl 3-methyloctanoate
Orchidaceae [116, 117]
Methyl octanoate
Araceae [129], Eupomatiaceae [18], Magnoliaceae [11, 240, 264], Myrsinaceae [103], Orchidaceae [13, 117], Passifloraceae [157]
Methyl (*E*)-2-octenoate
Nymphaeaceae [14, 135]
Methyl 4-octenoate
Cucurbitaceae [71], Orchidaceae [13]
2-Pentyl octanoate
Cycadaceae [211]

C9
Alkanes
Nonane
Apiaceae [31], Araceae [262], Brassicaceae [105], Caprifoliaceae [102], Gentianaceae [45], Meliaceae [250], Orchidaceae [8, 201, 224], Pittosporaceae [107], Rosaceae [12, 40, 128, 219]
Alkenes
1-Nonene
Asteraceae [36]
Acids
Nonanoic acid
Araceae [86, 229], Asteraceae [65], Fabaceae [120], Malvaceae [67], Onagraceae [265], Orchidaceae [23]
Aldehydes
2,6-Nonadienal
Nyctaginaceae [151]
(*E*,*Z*)-2,6-Nonadienal
Orchidaceae [117]
Nonanal
Amaryllidaceae [6], Apiaceae [242], Araceae [129, 205, 229, 262], Arecaceae [143], Asteraceae [65], Berberidaceae [215], Brassicaceae [221], Cactaceae [122, 125], Caprifoliaceae [102], Caryophyllaceae [54, 66, 112], Cucurbitaceae [71], Dipsacaceae [5], Fabaceae [120], Gentianaceae [5], Hydnoraceae [48], Lauraceae [74], Malvaceae [67], Meliaceae [250], Myrsinaceae [103], Orchidaceae [8, 17, 23, 27, 28, 77, 116, 117, 118,

147, 175, 176, 192, 201, 224], Papaveraceae [62], Primulaceae [5], Ranunculaceae [209], Rosaceae [12, 72, 219, 220], Rutaceae [247], Sapindaceae [46], Sapotaceae [263], Solanaceae [69], Valerianaceae [37], Verbenaceae [5], Violaceae [248], Vitaceae [42, 44, 47]

- 2-Nonenal
  - Nyctaginaceae [151]
- (*E*)-2-Nonenal
  - Cactaceae [113, 125], Orchidaceae [8, 117]

Ketones

- Nonanone
  - Myrsinaceae [103]
- 2-Nonanone
  - Araceae [129, 133], Arecaceae [143], Berberidaceae [215], Brassicaceae [22], Fabaceae [138], Malvaceae [41], Orchidaceae [27, 28, 29, 75, 117, 224], Rosaceae [60]
- 3-Nonanone
  - Araceae [229]

Alcohols

- Nonanol
  - Araceae [262], Brassicaceae [36], Orchidaceae [23, 27, 29, 30, 117, 118, 147]
- 2-Nonanol
  - Araceae [129, 205], Fabaceae [138], Orchidaceae [27, 28, 29, 30, 224]
- 4-Nonenol
  - Araceae [86]
- (*Z*)-3-Nonenol
  - Orchidaceae [117], Solanaceae [121]
- (*E*)-6-Nonenol
  - Malvaceae [67]
- (*Z*)-6-Nonenol
  - Solanaceae [121]
- (*Z,Z*)-3,6-Nonadienol
  - Caprifoliaceae [102], Orchidaceae [117], Solanaceae [121]

Esters

- Methyl nonanoate
  - Orchidaceae [13, 117]

C10

Alkanes

- Decane
  - Apiaceae [31], Araceae [26, 146, 231], Arecaceae [143], Brassicaceae [105], Caprifoliaceae [102], Caryophyllaceae [54], Fabaceae [179, 235], Malvaceae [67], Meliaceae [250], Myrsinaceae [103], Oleaceae [57, 58], Orchidaceae [8, 23, 27, 28, 147, 201, 224], Ranunculaceae [209], Rosaceae [12, 40, 43, 128, 219], Zingiberaceae [268]
- 2,6,8-Trimethyldecane
  - Oleaceae [51]

Alkenes

- 1-Decene
  - Araceae [133], Asteraceae [36]

Acids

- Decanoic acid
  - Araceae [229], Calycanthaceae [266], Caprifoliaceae [102], Orchidaceae [8]
- Decatrienoic acid
  - Orchidaceae [77]
- (*Z*)-4-Decenoic acid
  - Orchidaceae [117]
- (*E*)-3-Methyl-4-decenoic acid
  - Orchidaceae [117]
- (*Z*)-3-Methyl-3-decenoic acid
  - Fabaceae [120]

Aldehydes

- (*E,E*)-2,4-Decadienal
  - Amaryllidaceae [6], Orchidaceae [77, 116, 117, 121, 227]
- (*E,Z*)-2,4-Decadienal

Orchidaceae [77, 116, 117, 121, 227]
2,5-Decadienal
Asteraceae [214]
(*Z*,*Z*)-4,7-Decadienal
Apocynaceae [121], Orchidaceae [118]
Decanal
Apiaceae [242], Araceae [129, 229, 262], Asteraceae [5], Berberidaceae [215], Brassicaceae [221], Cactaceae [122, 125], Caprifoliaceae [102, 175], Caryophyllaceae [5, 54, 66, 112], Dipsacaceae [5], Fabaceae [216], Gentianaceae [5, 45], Hydnoraceae [48], Lauraceae [74], Liliaceae [92], Malvaceae [67], Myrsinaceae [103], Nymphaeaceae [14, 135], Orchidaceae [5, 8, 23, 28, 77, 116, 117, 118, 176, 192, 201, 224], Papaveraceae [62], Primulaceae [5], Rosaceae [12, 43, 72, 219, 220], Rutaceae [247], Solanaceae [69], Violaceae [73]
(*E*,*Z*,*Z*)-2,4,7-Decatrienal
Apocynaceae [121], Orchidaceae [121]
Decenal
Araceae [86]
(*E*)-2 Decenal
Amaryllidaceae [6]
(*Z*)-4-Decenal
Orchidaceae [117]
(*E*)-3-Methyl-4-decenal
Orchidaceae [117]

Ketones
2-Decanone
Arecaceae [137]
4-Decanone
Calycanthaceae [266]
3-Methyl-3-decen-2-one
Oleaceae [51]

Alcohols
(*E*,*E*)-2,4-Decadienol
Orchidaceae [77, 117, 121]
(*E*,*Z*)-2,4-Decadienol
Orchidaceae [77, 117, 120, 121]
(*Z*,*Z*)-4,7-Decadienol
Apocynaceae [121], Orchidaceae [118]
Decanol
Malvaceae [67], Orchidaceae [17, 28, 118], Sapindaceae [46]
2-Decanol
Orchidaceae [29]
(*E*,*Z*,*Z*)-2,4,7-Decatrienol
Apocynaceae [121], Orchidaceae [121]
(*Z*)-3-Decenol
Orchidaceae [117]
(*Z*)-4-Decenol
Orchidaceae [117, 118]
(*Z*)-7-Decenol
Orchidaceae [118]
(*E*)-3-Methyl-4-decenol
Orchidaceae [117]

Esters
Ethyl (*E*,*E*)-2,4-decadienoate
Orchidaceae [117]
Ethyl (*Z*,*E*)-2,4-decadienoate
Orchidaceae [117]
Ethyl decanoate
Orchidaceae [13, 117]
Ethyl 3-decenoate
Orchidaceae [13]
Ethyl (*Z*)-4-decenoate

Orchidaceae [117]
Methyl caprate, see Methyl decanoate
Methyl (*Z*)-cascarillate
Fabaceae [120], Orchidaceae [120]
Methyl decadienoate
Magnoliaceae [240]
Methyl 2,4-decadienoate
Nymphaeaceae [14, 135]
Methyl (*E*,*E*)-2,4-decadienoate
Orchidaceae [116, 117]
Methyl (*E*,*Z*)-2,4-decadienoate
Orchidaceae [116, 117, 120]
Methyl decanoate (Methyl caprate)
Asteraceae [214], Gentianaceae [5], Magnoliaceae [11, 240], Myrsinaceae [103], Nyctaginaceae [151], Orchidaceae [13, 117]
Methyl decatrienoate
Orchidaceae [117]
Methyl decenoate
Magnoliaceae [11, 240]
Methyl 4-decenoate
Orchidaceae [13]
Methyl (*Z*)-4-decenoate
Orchidaceae [116, 117]
Methyl (*Z*)-3-methyl-3-decenoate
Fabaceae [120]
Methyl (*E*)-3-methyl-4-decenoate
Fabaceae [120], Orchidaceae [120]
2-Pentyl decanoate
Cycadaceae [211]

C11
Alkanes
Undecane
Actinidiaceae [237], Araceae [26, 146, 231], Arecaceae [68, 137, 143], Asteraceae [5], Brassicaceae [105], Caprifoliaceae [102], Fabaceae [216], Malvaceae [67], Myrsinaceae [103], Oleaceae [51], Orchidaceae [8, 23, 27, 28, 30, 147, 175, 201, 224], Pittosporaceae [107], Ranunculaceae [209], Rosaceae [12, 33, 35, 51, 220], Rutaceae [172, 247], Sapotaceae [263], Violaceae [248]
Alkenes
Methylundecene
Araceae [206]
(*E*,*E*)-1,3,5-Undecatriene
Cactaceae [21], Orchidaceae [78, 120]
(*E*,*Z*)-1,3,5-Undecatriene
Cactaceae [21], Orchidaceae [78, 117, 120, 121]
Undecene
Apiaceae [31], Orchidaceae [23, 27]
1-Undecene
Asteraceae [36], Brassicaceae [22]
2-Undecene
Araceae [86]
Acids
Undecanoic acid
Hydnoraceae [48]
Aldehydes
Undecanal
Amaryllidaceae [6], Caprifoliaceae [102], Caryophyllaceae [54], Hydnoraceae [48], Lauraceae [74], Orchidaceae [23, 117, 201, 224]
Ketones
2-Undecanone
Araceae [26], Myrsinaceae [103], Orchidaceae [23, 28, 29, 75, 117], Rosaceae [51, 60, 61, 128]

3-Undecanone
Orchidaceae [27]
6-Undecanone
Oleaceae [57, 58], Onagraceae [265]
Alcohols
2-Undecanol
Orchidaceae [28]
Esters
Ethyl undecanoate
Orchidaceae [117]
Methyl undecanoate
Orchidaceae [77]
Ethers and epoxides
(*Z*)-5(6)-Epoxy-(*E*)-1,3-undecadiene
Orchidaceae [121]

C12
Alkanes
Dodecane
Actinidiaceae [237], Araceae [26, 86, 231, 262], Arecaceae [143], Brassicaceae [105], Cactaceae [113], Calycanthaceae [120], Caprifoliaceae [102], Caryophyllaceae [5], Malvaceae [67], Myrsinaceae [103], Nymphaeaceae [14, 135], Oleaceae [51], Orchidaceae [8, 23, 27, 28, 147, 175, 201, 224], Papaveraceae [62], Ranunculaceae [207, 209], Rosaceae [43, 51, 219], Sapotaceae [263], Valerianaceae [37]
6-Methyldodecane
Oleaceae [51]
2,7,10-Trimethyldodecane
Araceae [262]
Alkenes
1-Dodecene
Araceae [86], Brassicaceae [22]
Acids
Dodecanoic acid
Araceae [152], Fabaceae [120], Hydnoraceae [48], Orchidaceae [117]
Aldehydes
Dodecanal
Caprifoliaceae [102], Gentianaceae [5], Orchidaceae [28, 117, 224]
Ketones
Dimethyldodecenone
Araceae [205, 206]
2-Dodecanone (Methyl undecyl ketone)
Orchidaceae [77]
Methyl undecyl ketone, see 2-Dodecanone
Alcohols
(*Z,Z*)-3,6-Dodecadienol
Orchidaceae [118]
Dodecanol
Oleaceae [51], Orchidaceae [8, 13, 17, 30, 117, 118], Rutaceae [172]
(*Z,Z,Z*)-3,6,9-Dodecatrienol
Orchidaceae [117, 118]
2-Dodecenol
Sapindaceae [46]
(*Z*)-6-Dodecenol
Orchidaceae [118]
Esters
Butyl dodecanoate
Orchidaceae [117]
Ethyl dodecanoates
Orchidaceae [13, 117]
Methyl dodecadienoate
Magnoliaceae [240]
Methyl 3,6-dodecadienoate

Orchidaceae [13]
Methyl dodecanoate
Caprifoliaceae [102], Magnoliaceae [11, 240, 264], Orchidaceae [13, 117]
Methyl dodecenoate
Magnoliaceae [11, 240]
C13
Alkanes
2,5-Dimethyltridecane
Oleaceae [51], Rosaceae [51]
Tridecane
Actinidiaceae [237], Araceae [26, 86, 231], Arecaceae [137, 143], Berberidaceae [215], Brassicaceae [105], Cactaceae [113], Caprifoliaceae [102], Dipsacaceae [185], Fabaceae [120, 216], Magnoliaceae [11, 240], Malvaceae [67], Myrsinaceae [103], Nelumbonaceae [184], Orchidaceae [8, 23, 27, 29, 30, 76, 147, 201, 224], Papaveraceae [62], Polemoniaceae [5], Ranunculaceae [209], Rosaceae [51, 60, 128, 219], Sapotaceae [263], Violaceae [73], Zamiaceae [211]
Alkenes
Tridecadiene
Orchidaceae [28, 29]
Tridecene
Araceae [26], Orchidaceae [23, 27, 28, 29, 30, 147]
1-Tridecene
Araceae [86], Lauraceae [74], Nymphaeaceae [14, 135], Vitaceae [44]
2-Tridecene
Lauraceae [74]
6-Tridecene
Malvaceae [67]
Acids
Tridecanoic acid
Hydnoraceae [48]
Aldehydes
(Z,Z)-4,7-Tridecadienal
Orchidaceae [117]
Tridecanal
Araceae [262], Orchidaceae [117, 224]
Ketones
Tridecanone
Orchidaceae [227], Vitaceae [47]
2-Tridecanone
Arecaceae [137], Asteraceae [214], Orchidaceae [28, 75, 117], Rosaceae [51, 60, 61, 128], Vitaceae [44]
Alcohols
Tridecanol
Orchidaceae [227]
2-Tridecenol
Sapindaceae [46]
C14
Alkanes
2-Methyltetradecane
Malvaceae [67]
Tetradecane
Actinidiaceae [237], Amaryllidaceae [6], Annonaceae [111], Araceae [26, 86, 262], Arecaceae [137, 143], Brassicaceae [105], Cactaceae [113, 125], Calycanthaceae [120], Caryophyllaceae [5], Fabaceae [120], Gentianaceae [45], Lauraceae [74], Magnoliaceae [11, 240, 264], Malvaceae [67], Nelumbonaceae [184, 198, 199], Nymphaeaceae [14, 135], Orchidaceae [23, 27, 28, 30, 76, 117, 147, 175, 201, 224], Papaveraceae [62], Polemoniaceae [5], Ranunculaceae [209], Rosaceae [62, 128, 219], Rutaceae [119], Sapotaceae [263], Scrophulariaceae [5], Valerianaceae [33], Violaceae [73], Zamiaceae [211]
Alkenes
Tetradecene
Arecaceae [137], Magnoliaceae [11, 240], Malvaceae [67], Orchidaceae [27, 28, 30]

1-Tetradecene
Araceae [86], Musaceae [21], Nymphaeaceae [14, 135]
Acids
Myristic acid, see Tetradecanoic acid
Tetradecanoic acid (Myristic acid)
Araceae [152, 229], Fabaceae [120], Hydnoraceae [48], Orchidaceae [227], Rutaceae [247]
Aldehydes
Tetradecanal
Araceae [262], Berberidaceae [215], Caprifoliaceae [102], Orchidaceae [117, 224, 253], Rosaceae [60, 61]
Alcohols
1,14-Tetradecanediol
Caryophyllaceae [5]
Tetradecanol
Orchidaceae [30, 117], Rosaceae [128]
(*Z*)-7-Tetradecen-1-ol
Nelumbonaceae [184]
Esters
Ethyl tetradecanoate
Caprifoliaceae [102], Orchidaceae [117]
Isopropyl tetradecanoate, see 2-Propyl tetradecanoate
Methyl tetradecadienoate
Magnoliaceae [240]
Methyl tetradecanoate
Cactaceae [125], Caprifoliaceae [102], Magnoliaceae [11, 240], Orchidaceae [30, 117, 227]
Methyl tetradecenoate
Magnoliaceae [11, 240]
Propyl tetradecanoate
Araceae [152], Orchidaceae [23, 27]
2-Propyl tetradecanoate (Isopropyl tetradecanoate)
Asteraceae [5], Dipsacaceae [5], Orchidaceae [195]

C15
Alkanes
Methylpentadecane
Papaveraceae [62]
Pentadecane
Actinidiaceae [237], Amaryllidaceae [6], Apiaceae [242, 246], Araceae [26, 86, 262], Arecaceae [137, 143], Asteraceae [5], Caprifoliaceae [102], Caryophyllaceae [5], Fabaceae [126, 212, 216], Gentianaceae [45], Geraniaceae [32], Magnoliaceae [11, 240, 264], Malvaceae [67], Myrsinaceae [103], Nelumbonaceae [178, 184, 198, 199], Nymphaeaceae [14, 135, 178], Oleaceae [107], Orchidaceae [16, 23, 27, 28, 29, 30, 117, 147, 201, 224, 253], Papaveraceae [62], Polemoniaceae [5], Ranunculaceae [209], Rosaceae [33, 35, 60, 61, 62, 220], Rubiaceae [5], Rutaceae [119, 172, 247], Sapotaceae [263], Thymelaeaceae [5], Valerianaceae [37], Verbenaceae [5, 101], Violaceae [73], Zamiaceae [211]
Alkenes
Pentadecadiene
Orchidaceae [28, 29]
(*Z*)-1,8-Pentadecadiene
Orchidaceae [117]
Pentadecene
Arecaceae [137, 143], Cucurbitaceae [4], Magnoliaceae [11], Nelumbonaceae [198, 199], Orchidaceae [23, 27, 28, 29, 30, 147], Papaveraceae [62]
1-Pentadecene
Araceae [86], Malvaceae [67], Orchidaceae [117], Vitaceae [42, 44, 47]
Acids
Pentadecanoic acid
Araceae [152], Hydnoraceae [48], Onagraceae [175], Orchidaceae [227]
Ketones
2-Pentadecanone
Arecaceae [137], Caprifoliaceae [102], Fumariaceae [56], Orchidaceae [75, 117], Rosaceae [61, 128]

Alcohols
Pentadecanol
Caprifoliaceae [102], Rosaceae [128]
Esters
Methyl pentadecanoate
Caprifoliaceae [102], Orchidaceae [30, 117]
Methyl 13-methylpentadecanoate
Orchidaceae [180]
Methyl 14-methylpentadecanoate
Orchidaceae [227]

C16
Alkanes
Hexadecane
Actinidiaceae [237], Annonaceae [111], Apiaceae [242, 246], Araceae [26, 86, 129, 262], Arecaceae [137, 143], Berberidaceae [215], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [5], Fabaceae [120, 212], Gentianaceae [5], Magnoliaceae [240], Malvaceae [67], Meliaceae [250], Nymphaeaceae [14, 135], Oleaceae [52], Orchidaceae [8, 23, 27, 28, 29, 30, 117, 147, 201, 224], Papaveraceae [62], Polemoniaceae [5], Primulaceae [5], Ranunculaceae [209], Rosaceae [33, 35, 43, 62, 128], Rubiaceae [5], Sapotaceae [263], Thymelaeaceae [5], Valerianaceae [5], Verbenaceae [5], Zamiaceae [211]
Alkenes
Hexadecadiene
Arecaceae [143]
Hexadecene
Araceae [129], Arecaceae [143], Magnoliaceae [240], Malvaceae [67], Orchidaceae [27, 30], Papaveraceae [62]
1-Hexadecene
Musaceae [21], Nymphaeaceae [14, 135]
Acids
Hexadecanoic acid
Araceae [152, 229], Fabaceae [120], Hydnoraceae [48], Liliaceae [107], Oleaceae [57, 58], Onagraceae [175], Orchidaceae [227], Rosaceae [43], Rutaceae [247], Vitaceae [44]
9-Hexadecanoic acid
Orchidaceae [227]
(Z)-9-Hexadecenoic acid
Hydnoraceae [48]
Aldehydes
Hexadecanal
Caprifoliaceae [102], Orchidaceae [117], Rosaceae [60, 61]
Alcohols
Hexadecanol
Hydnoraceae [48], Orchidaceae [27, 30, 117], Rosaceae [128]
Esters
Ethyl hexadecanoate
Orchidaceae [117, 227]
Methyl hexadecanoate
Cactaceae [125], Fabaceae [107], Liliaceae [107], Magnoliaceae [11], Orchidaceae [30, 117, 141], Rosaceae [37], Vitaceae [44, 47]
Methyl hexadecenoate
Orchidaceae [30]
Propyl hexadecanoate
Orchidaceae [27]
2-Propyl hexadecanoate
Orchidaceae [191]
Ethers
2-Dodecen-1-yl-succinic anhydride
Rosaceae [128]

C17
Alkanes
Heptadecane

Actinidiaceae [237], Araceae [26], Arecaceae [137, 143], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [5], Fabaceae [212, 216], Gentianaceae [5], Liliaceae [107], Myrsinaceae [103], Nelumbonaceae [198, 199], Oleaceae [107], Orchidaceae [16, 23, 27, 28, 29, 30, 117, 147, 201, 224], Papaveraceae [62], Ranunculaceae [207, 209], Rosaceae [33, 35, 51, 62], Rubiaceae [5], Rutaceae [119, 172, 247]

Heptadecane isomer

Caryophyllaceae [5]

Methylheptadecane

Papaveraceae [62]

Alkenes

Heptadecadiene

Arecaceae [137, 143], Magnoliaceae [11, 240], Nymphaeaceae [178], Orchidaceae [27], Papaveraceae [62]

Heptadecene

Arecaceae [137, 143], Liliaceae [107], Magnoliaceae [11, 240], Nelumbonaceae [198, 199], Oleaceae [107, 119], Orchidaceae [23, 27, 30, 147], Papaveraceae [62], Rutaceae [119, 247]

1-Heptadecene

Geraniaceae [32], Nelumbonaceae [184], Orchidaceae [117]

8-Heptadecene

Nelumbonaceae [184]

(*Z*)-8-Heptadecene

Rutaceae [172]

Acids

Heptadecanoic acid

Araceae [152], Hydnoraceae [48]

Aldehydes

(*Z,Z*)-Heptadeca-8,11-dienal

Caprifoliaceae [102]

(*Z,Z,Z*)-Heptadeca-8,11,14-trienal

Caprifoliaceae [102]

Ketones

2-Heptadecanone

Fumariaceae [56], Moraceae [82], Orchidaceae [28, 117], Rosaceae [62]

C18

Alkanes

Octadecane

Actinidiaceae [237], Araceae [26], Arecaceae [137], Caryophyllaceae [5], Orchidaceae [23, 27], Papaveraceae [62], Rubiaceae [5]

Alkenes

Octadecene

Araceae [129], Orchidaceae [27], Papaveraceae [62]

Acids

Octadecanoic acid

Araceae [152], Hydnoraceae [48], Lauraceae [74]

Octadecenoic acid

Araceae [152]

(*Z*)-9-Octadecenoic acid

Lauraceae [74]

Alcohols

Octadecanol

Orchidaceae [30]

Esters

Methyl (*Z,Z*)-9,12-octadecadienoate

Orchidaceae [117]

Methyl octadecenoate

Orchidaceae [30]

C19

Alkanes

Methylnonadecane

Papaveraceae [62]

Nonadecane
Actinidiaceae [237], Araceae [26, 86], Orchidaceae [23, 27, 30, 117, 148, 201], Papaveraceae [62], Ranunculaceae [207, 208, 209], Rosaceae [33, 35], Rutaceae [247], Vitaceae [44]
Alkenes
Nonadecadiene
Papaveraceae [62]
Nonadecatriene
Ranunculaceae [209]
Nonadecene
Arecaceae [137], Orchidaceae [23, 27, 30], Papaveraceae [62], Ranunculaceae [207, 209], Rosaceae [33, 35]
1-Nonadecene
Orchidaceae [117], Vitaceae [44]
Ketones
2-Nonadecanone
Orchidaceae [117]
C20
Alkanes
Eicosane
Actinidiaceae [237], Orchidaceae [23, 117, 201], Papaveraceae [62], Ranunculaceae [209], Rosaceae [33, 35]
Alkenes
Eicosene
Papaveraceae [62]
C21
Alkanes
Heneicosane
Actinidiaceae [237], Oleaceae [52], Orchidaceae [23, 27, 148], Papaveraceae [62], Ranunculaceae [209], Rosaceae [33, 35, 60]
Alkenes
Heneicosene
Papaveraceae [62]
C22
Alkanes
Docosane
Oleaceae [52]
C23
Alkanes
Tricosane
Myrsinaceae [103], Oleaceae [52], Orchidaceae [27, 148]
Alkenes
Tricosene
Orchidaceae [23]
C24
Alkanes
Tetracosane
Myrsinaceae [103]
C25
Alkanes
Pentacosane
Myrsinaceae [103], Oleaceae [52]

BENZENOIDS AND PHENYL PROPANOIDS
C6-C0
Hydrocarbons
Benzene
Orchidaceae [23, 28, 147], Rosaceae [12]
Alcohols
1,2-Benzenediol, see 1,2-Dihydroxybenzene
1,2-Dihydroxybenzene (1,2-Benzenediol)
Orchidaceae [227]

2,6-Dimethoxyphenol, see 1-Hydroxy-2,6-dimethoxybenzene
Guaiacol, see 1-Hydroxy-2-methoxybenzene
Hydroxybenzene (Phenol)
Araceae [152, 229], Caryophyllaceae [54], Myrsinaceae [103], Orchidaceae [106]
1-Hydroxy-2,6-dimethoxybenzene (2,6-Dimethoxyphenol)
Orchidaceae [227]
1-Hydroxy-2-methoxybenzene (Methoxyphenol, Guaiacol)
Arecaceae [137], Caryophyllaceae [112], Eupomatiaceae [18], Orchidaceae [117, 227], Rhizophoraceae [10], Rubiaceae [141]
1-Hydroxy-4-methoxybenzene (4-Methoxyphenol)
Cactaceae [125]
2-Methoxyphenol, see 1-Hydroxy-2-methoxybenzene
4-Methoxyphenol, see 1-Hydroxy-4-methoxybenzene
Phenol, see Hydroxybenzene
2-Phenoxyethanol
Amaryllidaceae [63], Fabaceae [81, 216], Nelumbonaceae [184], Rosaceae [62]
Esters
Phenyl acetate
Caryophyllaceae [112]
Ethers
Anisole, see Methoxybenzene
Dimethoxybenzene
Orchidaceae [29]
1,2-Dimethoxybenzene (Veratrole)
Araceae [134], Arecaceae [137], Caryophyllaceae [112], Fumariaceae [56], Hyacinthaceae [123], Lecythidaceae [144], Magnoliaceae [9, 11], Oleaceae [107, 108], Orchidaceae [77, 117, 120], Primulaceae [5], Ranunculaceae [85], Rhizophoraceae [10], Rubiaceae [5], Zingiberaceae [268]
1,3-Dimethoxybenzene
Theophrastaceae [139]
1,4-Dimethoxybenzene (Hydroquinone dimethyl ether)
Amaryllidaceae [63, 232, 233], Arecaceae [137, 143], Cactaceae [125], Cucurbitaceae [4], Ericaceae [136, 140], Gesneriaceae [77], Hyacinthaceae [38, 123], Nelumbonaceae [178, 184, 198, 199], Oleaceae [33, 51, 107, 150, 171, 178, 232, 233], Orchidaceae [8, 13, 17, 28, 76, 77, 78, 116, 117, 120, 188, 201, 253, 258], Salicaceae [245], Theophrastaceae [139], Violaceae [248]
Diphenyl ether
Oleaceae [107]
Hydroquinone dimethyl ether, see 1,4-Dimethoxybenzene
Methoxybenzene (Anisole)
Araceae [26], Arecaceae [137], Magnoliaceae [9], Nyctaginaceae [151], Orchidaceae [117], Ranunculaceae [19], Rosaceae [40, 62, 72, 219]
4-Methoxybenzene
Zingiberaceae [174]
1,2,3,5-Tetramethoxybenzene
Orchidaceae [117]
Trimethoxybenzene
Magnoliaceae [11]
1,2,3-Trimethoxybenzene
Arecaceae [137]
1,2,4-Trimethoxybenzene
Cucurbitaceae [4], Ericaceae [136, 140], Hyacinthaceae [38, 123], Malvaceae [142], Oleaceae [107, 150], Orchidaceae [8, 117, 201]
1,3,5-Trimethoxybenzene
Cactaceae [125], Ericaceae [136, 140], Oleaceae [107, 108], Orchidaceae [13, 17, 77, 117], Passifloraceae [157]
Veratrole, see 1,2-Dimethoxybenzene
Chloro
Dichlorobenzene
Cucurbitaceae [71]
N-compounds

2-Methoxybenzeneamine
Fumariaceae [56]
1-Methoxy-2-nitrobenzene
Fumariaceae [56]
C6-C1
Hydrocarbons
Dimethylbenzene
Asteraceae [213], Winteraceae [239]
1,2-Dimethylbenzene
Annonaceae [111], Caryophyllaceae [112], Meliaceae [250], Orchidaceae [23, 27, 28, 75, 147], Rosaceae [12]
1,3-Dimethylbenzene
Actinidiaceae [237], Meliaceae [250], Orchidaceae [23, 27, 28, 147], Rosaceae [12]
1,4-Dimethylbenzene
Annonaceae [111], Orchidaceae [23, 27, 28, 75, 147], Rosaceae [12]
Methylbenzene (Toluene)
Actinidiaceae [237], Araceae [86, 146], Meliaceae [250], Orchidaceae [23, 27, 28, 75, 147], Rosaceae [12]
Tetramethylbenzene
Lauraceae [74]
Toluene, see Methylbenzene
Trimethylbenzene
Annonaceae [111], Cucurbitaceae [71], Orchidaceae [147]
1,2,3-Trimethylbenzene
Caryophyllaceae [112]
1,2,4-Trimethylbenzene
Lauraceae [74], Meliaceae [250], Rosaceae [12]
1,3,5-Trimethylbenzene
Lauraceae [74], Rosaceae [12]
Acids
Benzoic acid
Araceae [86], Calycanthaceae [266], Nelumbonaceae [184], Oleaceae [57, 58], Orchidaceae [8], Rutaceae [247]
2-Hydroxymethylbenzoic acid
Oleaceae [58]
Aldehydes
Benzaldehyde
Actinidiaceae [237], Alliaceae [36], Amaryllidaceae [6, 63], Annonaceae [111], Apiaceae [31, 242, 246], Apocynaceae [141, 178, 232, 233], Araceae [86, 133, 146, 258, 262], Arecaceae [137], Asteraceae [5, 37, 55, 59, 65, 132], Berberidaceae [182, 215], Brassicaceae [22, 36, 70, 202, 217, 221], Bromeliaceae [77], Cactaceae [21, 113, 115, 122, 125], Calycanthaceae [120], Caprifoliaceae [102], Caryophyllaceae [5, 66, 112, 141], Cucurbitaceae [175], Dipsacaceae [5], Ericaceae [136, 140], Fabaceae [49, 62, 81, 104, 120, 126, 212, 216], Fumariaceae [56, 197], Gentianaceae [5, 45], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Hydnoraceae [48], Lamiaceae [5], Lecythidaceae [144], Linnaeaceae [90], Magnoliaceae [9, 11, 264], Malvaceae [142], Meliaceae [250], Moraceae [82], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 39, 51, 171, 267], Orchidaceae [2, 5, 8, 13, 17, 27, 28, 29, 77, 78, 115, 116, 117, 118, 120, 141, 169, 176, 180, 195, 201, 204, 236, 241, 243, 244, 253, 254, 258], Papaveraceae [62], Passifloraceae [157], Polemoniaceae [5, 232, 233, 234], Primulaceae [5, 36], Ranunculaceae [208], Rosaceae [12, 33, 35, 37, 43, 62, 72, 87, 88, 128, 219, 220], Rubiaceae [5, 141], Ruscaceae [141, 171], Rutaceae [119, 247], Sapindaceae [46], Sapotaceae [263], Scrophulariaceae [5, 226], Solanaceae [69, 91, 131, 141, 154, 165, 166, 167, 168], Theaceae [200], Theophrastaceae [139], Thymelaeaceae [5, 24], Valerianaceae [37], Verbenaceae [5, 101, 175], Violaceae [73, 248], Zamiaceae [211], Zingiberaceae [141, 174]
1,4-Dicarboxaldehydebenzene
Oleaceae [57]
3,4-Dimethoxybenzaldehyde (Veratralaldehyde)
Hydrangeaceae [108], Onagraceae [218], Orchidaceae [117]
2-Hydroxybenzaldehyde

Apiaceae [246], Cucurbitaceae [71], Fumariaceae [56], Magnoliaceae [9], Nyctaginaceae [151], Orchidaceae [117, 204], Rosaceae [37], Salicaceae [245]

4-Hydroxy-3-methoxybenzaldehyde (Vanillin)

Asteraceae [214], Cactaceae [125], Caryophyllaceae [54], Nyctaginaceae [151], Onagraceae [218], Orchidaceae [77, 117, 120, 141, 244, 253], Passifloraceae [157], Rosaceae [43], Zingiberaceae [141, 174]

Methoxybenzaldehyde

Magnoliaceae [9]

4-Methoxybenzaldehyde

Arecaceae [68], Asteraceae [5], Brassicaceae [70], Caryophyllaceae [5], Fumariaceae [56], Nymphaeaceae [178], Oleaceae [33, 51, 107, 171, 232, 233], Orchidaceae [13, 17, 28, 115, 116, 117, 118], Primulaceae [36], Rosaceae [33, 35, 37, 87, 88, 220], Solanaceae [121], Theophrastaceae [139]

4-Methylbenzaldehyde

Moraceae [83]

3,4-Methylenedioxybenzaldehyde (Piperonal)

Malvaceae [41], Oleaceae [150]

Piperonal, see 3,4-Methylenedioxybenzaldehyde

3,4,5-Trimethoxybenzaldehyde

Orchidaceae [117]

Vanillin, see 4-Hydroxy-3-methoxybenzaldehyde

Veratralaldehyde, see 3,4-Dimethoxybenzaldehyde

Ketones

Benzophenone

Araceae [26, 262]

2,6-Dimethyl-3-methoxymethyl-4-benzoquinone

Orchidaceae [227]

Alcohols

Anisyl alcohol, see Methoxybenzyl alcohol

Benzyl alcohol (Phenylmethanol)

Amaryllidaceae [6, 107], Annonaceae [111], Apocynaceae [121, 141, 173, 232, 233], Araceae [86, 129, 133, 146, 229], Arecaceae [10, 68, 137, 143], Asteraceae [5], Berberidaceae [182, 215], Brassicaceae [22, 186, 202], Cactaceae [113, 115, 122, 125], Calycanthaceae [120, 266], Caprifoliaceae [102, 178], Caryophyllaceae [112, 141], Cucurbitaceae [4], Cyclanthaceae [225], Ericaceae [136, 140], Fabaceae [49, 81, 104, 120, 138, 156, 212, 216], Fumariaceae [56, 197], Gentianaceae [45], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lecythidaceae [144], Linnaeaceae [90], Magnoliaceae [9, 11, 240, 264], Malvaceae [142], Moraceae [82, 84], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135, 178], Oleaceae [33, 39, 52, 114, 176, 178], Orchidaceae [8, 13, 17, 77, 78, 115, 116, 117, 118, 120, 141, 169, 175, 195, 201, 203, 204, 241, 243, 244, 253, 258], Passifloraceae [157], Pittosporaceae [107], Polemoniaceae [232, 233], Primulaceae [36], Ranunculaceae [207, 208, 209], Rosaceae [12, 33, 35, 37, 43, 51, 60, 61, 87, 88, 166, 219, 220], Rubiaceae [121, 141, 249], Ruscaceae [141, 171, 232, 233], Rutaceae [119], Salicaceae [245], Sapotaceae [263], Scrophulariaceae [226], Solanaceae [141, 154, 165, 166, 167, 168, 222], Theaceae [200], Theophrastaceae [139], Thymelaeaceae [24, 234], Valerianaceae [33], Vitaceae [42, 44, 47], Zamiaceae [211], Zingiberaceae [141, 174]

5-Benzyloxy-1-pentanol

Oleaceae [58]

m-Cresol, see 3-Methyl-1-hydroxybenzene

o-Cresol, see 2-Methyl-1-hydroxybenzene

p-Cresol, see 4-Methyl-1-hydroxybenzene

A,α-Dimethyl benzyl alcohol, see 2,6-Dimethylbenzyl alcohol

2,6-Dimethylbenzyl alcohol (A,α-Dimethyl benzyl alcohol)

Moraceae [82]

1-Hydroxy-2,3,5,6-tetramethylbenzene (2,3,5,6-Tetramethylphenol)

Orchidaceae [227]

Methoxybenzyl alcohol (Anisyl alcohol)

Orchidaceae [116]

4-Methoxybenzyl alcohol

Arecaceae [68], Cucurbitaceae [4], Orchidaceae [13, 117, 118], Polemoniaceae [5], Primulaceae [5], Theophrastaceae [139]

2-Methoxy-4-methyl-1-hydroxybenzene (2-Methoxy-4-methylphenol, 4-Methyl-2-methoxy-1-hydroxybenzene)

Amaryllidaceae [177], Araceae [86], Asteraceae [132], Oleaceae [52], Orchidaceae [8]

2-Methoxy-4-methylphenol, see 2-Methoxy-4-methyl-1-hydroxybenzene

Methylhydroxybenzene (Methylphenol)

Asteraceae [132], Caryophyllaceae [54], Oleaceae [171], Orchidaceae [23, 117]

2-Methyl-1-hydroxybenzene (2-Methylphenol, *o*-Cresol)

Apiaceae [31], Araceae [86, 229]

3-Methyl-1-hydroxybenzene (*m*-Cresol)

Araceae [86]

4-Methyl-1-hydroxybenzene (4-Methylphenol, *p*-Cresol)

Amaryllidaceae [63, 177], Apiaceae [246], Araceae [86, 129, 133, 229], Arecaceae [68], Caryophyllaceae [112], Hydnoraceae [48], Oleaceae [52, 114], Orchidaceae [28, 77, 116, 117, 203, 253, 258], Sapotaceae [263], Theophrastaceae [139], Violaceae [248]

4-Methyl-2-methoxy-1-hydroxybenzene, see 2-Methoxy-4-methyl-1-hydroxybenzene

Methylphenol, see Methylhydroxybenzene

2-Methylphenol, see 2-Methyl-1-hydroxybenzene

4-Methylphenol, see 4-Methyl-1-hydroxybenzene

Phenylmethanol, see Benzyl alcohol

2,3,5,6-Tetramethylphenol, see 1-Hydroxy-2,3,5,6-tetramethylbenzene

Esters

Benzyl acetate

Amaryllidaceae [6, 63, 177], Annonaceae [111, 170], Araceae [77, 146, 152, 229, 258], Arecaceae [137], Asteraceae [132], Berberidaceae [215], Brassicaceae [186], Bromeliaceae [77], Cactaceae [113, 122, 125], Calycanthaceae [120, 266], Caryophyllaceae [54, 112, 141], Euphorbiaceae [7], Fabaceae [104, 107, 120, 212], Fumariaceae [197], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [240], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135, 178], Oleaceae [52, 58, 114, 171, 176, 178, 267], Onagraceae [218], Orchidaceae [8, 17, 77, 78, 95, 97, 98, 115, 116, 117, 118, 120, 141, 169, 181, 195, 236, 243, 244, 253, 254, 256, 258, 259], Passifloraceae [157], Pittosporaceae [107], Rosaceae [33, 35, 43, 128, 166], Rubiaceae [121, 141, 249], Ruscaceae [141, 171, 232, 233], Sapotaceae [263], Scrophulariaceae [5], Solanaceae [91, 131, 154, 165, 166, 167, 222], Theophrastaceae [139], Thymelaeaceae [5], Verbenaceae [175], Violaceae [73], Zingiberaceae [141, 174]

Benzyl angelate, see Benzyl (*Z*)-2-methyl-2-butenoate

Benzyl benzoate

Amaryllidaceae [6, 63], Asteraceae [5, 65], Berberidaceae [215], Brassicaceae [36], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [54, 66, 112, 141], Fabaceae [120], Hemerocallidaceae [33], Hyacinthaceae [38, 123, 150], Lecythidaceae [144], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [114], Onagraceae [218], Orchidaceae [13, 77, 116, 117, 118, 141, 175, 180, 187, 195, 241, 243, 244, 253, 254, [258], Passifloraceae [157], Primulaceae [5], Rosaceae [33, 35, 37], Rubiaceae [5, 141], Ruscaceae [141], Sapotaceae [263], Solanaceae [131, 141, 167], Thymelaeaceae [5], Vitaceae [42, 44, 47], Zingiberaceae [141, 174, 268]

Benzyl butanoate

Arecaceae [137], Berberidaceae [215], Nyctaginaceae [151], Nymphaeaceae [14, 135], Orchidaceae [77, 116, 117], Passifloraceae [157], Rubiaceae [249], Sapotaceae [263], Zingiberaceae [174]

Benzyl 2-butenoate (Benzyl crotonate)

Nymphaeaceae [14, 135]

Benzyl crotonate, see Benzyl 2-butenoate

Benzyl formate

Berberidaceae [215], Nymphaeaceae [14, 135], Orchidaceae [116, 117], Sapindaceae [46]

Benzyl heptanoate

Orchidaceae [117]

Benzyl hexanoate

Nymphaeaceae [14, 135], Orchidaceae [117], Passifloraceae [157]

Benzyl 2-hexenoate

Nymphaeaceae [14, 135]
Benzyl (*E*)-2-hexenoate
Orchidaceae [117]
Benzyl (*Z*)-3-hexenoate
Orchidaceae [117]
Benzyl 2-hydroxybenzoate (Benzyl salicylate)
Cactaceae [125], Caryophyllaceae [54], Fabaceae [120], Orchidaceae [77, 116, 117], Rubiaceae [121, 141], Solanaceae [131, 167]
Benzyl 2-methylbutanoate
Berberidaceae [215], Nymphaeaceae [14, 135], Orchidaceae [117], Thymelaeaceae [5], Zingiberaceae [141, 174]
Benzyl 3-methylbutanoate
Cactaceae [113, 125], Caryophyllaceae [5, 66], Fabaceae [216], Lecythidaceae [144], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135], Orchidaceae [116, 117], Rubiaceae [5, 249], Solanaceae [165], Zingiberaceae [141, 268]
Benzyl (*Z*)-2-methyl-2-butenoate (Benzyl angelate)
Nymphaeaceae [14, 135]
Benzyl 4-methylhexanoate
Nymphaeaceae [14, 135]
Benzyl 2-methylpropanoate
Nymphaeaceae [14, 135], Orchidaceae [115, 117], Rubiaceae [249], Thymelaeaceae [5], Zingiberaceae [174]
Benzyl 2-methylpropenoate
Nymphaeaceae [14, 135]
Benzyl octanoate
Orchidaceae [117]
Benzyl pentanoate
Nymphaeaceae [14, 135], Orchidaceae [117], Solanaceae [165]
Benzyl propanoate
Nymphaeaceae [14, 135], Orchidaceae [117], Passifloraceae [157], Rubiaceae [249], Zingiberaceae [141]
Benzyl salicylate, see Benzyl 2-hydroxybenzoate
Benzyl tiglate
Cactaceae [125], Hyacinthaceae [38, 123], Lauraceae [74], Lecythidaceae [144], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [150], Orchidaceae [116, 117], Rubiaceae [121, 249], Sapotaceae [263], Zingiberaceae [141, 174]
Butyl benzoate
Araceae [229], Caryophyllaceae [54], Magnoliaceae [9], Nyctaginaceae [151], Orchidaceae [117, 180]
Cyclohexyl benzoate
Nyctaginaceae [151], Oleaceae [267]
Dibutyl 1,2-benzenedicarboxylate
Onagraceae [265]
Dibutyl-*o*-phthalate
Oleaceae [57]
Diethyl-*o*-phthalate
Oleaceae [57]
(*Z*)-3,4-Epoxy-hexyl benzoate
Oleaceae [114], Orchidaceae [118]
Ethyl benzoate (α-Oxo-ethyl benzoate)
Agavaceae [142], Araceae [86], Arecaceae [68], Berberidaceae [215], Cactaceae [113, 115, 125], Caprifoliaceae [102], Caryophyllaceae [5, 54], Fumariaceae [197], Hyacinthaceae [38, 123], Lecythidaceae [144], Magnoliaceae [9, 11], Nyctaginaceae [151], Oleaceae [39, 57, 58], Orchidaceae [13, 77, 115, 116, 117, 118], Pinaceae [25], Rhizophoraceae [10], Rosaceae [33, 35, 37, 40], Rubiaceae [249], Theophrastaceae [139]
Ethyl 2-hydroxybenzoate (Ethyl salicylate)
Cactaceae [113, 125], Caryophyllaceae [54], Orchidaceae [117], Pinaceae [25]
Ethyl 2-methoxybenzoate
Hyacinthaceae [123], Orchidaceae [117]
Ethyl 4-methoxybenzoate
Fumariaceae [197]

Ethyl salicylate, see Ethyl 2-hydroxybenzoate
Hexenyl benzoate
Oleaceae [114]
(*E*)-3-Hexenyl benzoate
Caryophyllaceae [54]
(*Z*)-3-Hexenyl benzoate
Cactaceae [122, 125], Caprifoliaceae [102, 107], Caryophyllaceae [54, 141], Fabaceae [107, 119], Hydrangeaceae [107], Lecythidaceae [144], Nyctaginaceae [151], Oleaceae [33, 150], Orchidaceae [116, 117, 118], Passifloraceae [157], Rubiaceae [5], Solanaceae [167], Zingiberaceae [141]
Hexyl benzoate
Brassicaceae [36], Caryophyllaceae [54], Nyctaginaceae [151], Oleaceae [33], Orchidaceae [117], Rosaceae [33, 35, 37]
Hexyl 2-hydroxybenzoate
Caryophyllaceae [54]
Isoprenyl benzoate, see 3-Methyl-3-butenyl benzoate
Isopropyl benzoate
Caryophyllaceae [54]
Isopropyl 2-hydroxybenzoate
Nyctaginaceae [151]
2-Methoxybenzyl acetate
Amaryllidaceae [6], Hyacinthaceae [123]
4-Methoxybenzyl acetate
Araceae [77, 152, 258], Nymphaeaceae [178], Orchidaceae [77, 78, 116, 117, 118, 258], Theophrastaceae [139]
4-Methoxybenzyl butanoate
Orchidaceae [117]
4-Methoxybenzyl hexanoate
Orchidaceae [117]
Methyl anisate, see Methyl methoxybenzoate
Methyl benzoate
Amaryllidaceae [6, 63, 175], Annonaceae [111, 170], Apocynaceae [2, 141, 173, 178], Araceae [77, 133, 146, 229], Arecaceae [10, 137, 143], Asteraceae [5, 37], Berberidaceae [215], Brassicaceae [36], Cactaceae [113, 115, 122, 125], Caprifoliaceae [102], Caryophyllaceae [5, 54, 112, 141], Ericaceae [140], Eupomatiaceae [18], Fabaceae [107, 119, 126, 216], Fumariaceae [56, 197], Hemerocallidaceae [33], Hyacinthaceae [38, 123, 150], Lecythidaceae [121, 144], Lythraceae [10], Magnoliaceae [9, 11, 264], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [39, 52, 267], Onagraceae [175], Orchidaceae [8, 13, 76, 77, 78, 96, 97, 98, 100, 115, 116, 117, 118, 120, 121, 141, 180, 181, 187, 194, 195, 241, 243, 244, 253, 255, 258, 259], Passifloraceae [157], Pinaceae [25], Polemoniaceae [5], Ranunculaceae [85], Rhizophoraceae [10], Rosaceae [33, 35, 37, 128, 196, 220], Rubiaceae [5, 121, 141, 249], Ruscaceae [141], Rutaceae [119], Sapotaceae [263], Scrophulariaceae [64], Solanaceae [121, 131, 141, 154, 165, 166, 167, 168], Theaceae [200], Valerianaceae [37], Verbenaceae [5, 101, 175], Zingiberaceae [141, 174, 268]
2-Methylbenzyl acetate
Myrsinaceae [103]
(*E*)-2-Methyl-2-butenyl benzoate
Orchidaceae [117]
3-Methyl-2-butenyl benzoate (Prenyl benzoate)
Amaryllidaceae [63], Orchidaceae [117]
3-Methyl-3-butenyl benzoate (Isoprenyl benzoate)
Amaryllidaceae [63], Orchidaceae [117]
2-Methylbutyl benzoate
Orchidaceae [117], Zingiberaceae [174]
3-Methylbutyl benzoate
Cactaceae [125], Caryophyllaceae [54], Magnoliaceae [11], Nymphaeaceae [14, 135], Orchidaceae [117], Primulaceae [5], Rubiaceae [5], Zingiberaceae [141, 174, 268]
3-Methylbutyl 2-hydroxybenzoate
Magnoliaceae [11], Orchidaceae [117]
Methyl 3,5-dimethylbenzoate

Oleaceae [51]
Methyl 2-hydroxybenzoate (Methyl salicylate)
Agavaceae [178], Amaryllidaceae [175], Apiaceae [31, 242, 246], Apocynaceae [1, 141, 232, 233], Araceae [77, 129], Arecaceae [137, 143], Asteraceae [5, 55], Berberidaceae [182, 215], Brassicaceae [22], Bromeliaceae [77], Cactaceae [113, 115, 122, 125], Calycanthaceae [120, 266], Caprifoliaceae [102], Caryophyllaceae [5, 54, 66, 112, 141], Combretaceae [10], Dipsacaceae [5, 185], Eupomatiaceae [18], Fabaceae [49, 120, 156, 216], Fumariaceae [56, 197], Gesneriaceae [77], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [9, 11], Malvaceae [142], Moraceae [83], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [39, 57, 267], Onagraceae [218], Orchidaceae [13, 76, 77, 78, 97, 98, 116, 117, 120, 141, 181, 195, 236, 241, 243, 244, 253, 255, 256, 258, 259], Passifloraceae [157], Pinaceae [25], Polemoniaceae [5], Primulaceae [36], Ranunculaceae [19, 85], Rhizophoraceae [10], Rosaceae [12, 33, 35, 87, 88, 128, 220], Rubiaceae [5, 121, 141, 249], Ruscaceae [141], Rutaceae [119, 247], Salicaceae [245], Sapotaceae [263], Solanaceae [131, 141, 165, 167, 168], Theaceae [200], Theophrastaceae [139], Verbenaceae [5, 175], Violaceae [73], Zamiaceae [211], Zingiberaceae [141, 174]
Methyl 3-hydroxybenzoate
Orchidaceae [192]
Methyl 4-hydroxybenzoate
Orchidaceae [117, 227]
Methyl 4-hydroxy-3-methoxybenzoate
Orchidaceae [117, 227]
Methyl methoxybenzoate (Methyl anisate)
Myrsinaceae [103], Sapotaceae [263]
Methyl 2-methoxybenzoate
Asteraceae [5, 55], Caryophyllaceae [141], Hyacinthaceae [38, 123], Lecythidaceae [144], Oleaceae [108], Orchidaceae [117], Rubiaceae [5], Zingiberaceae [141]
Methyl 4-methoxybenzoate
Ericaceae [140], Fumariaceae [197], Orchidaceae [117], Rosaceae [220], Theophrastaceae [139]
Methyl 2-methylbenzoate
Orchidaceae [117]
2-Methylpropyl benzoate
Caryophyllaceae [54], Magnoliaceae [11], Nyctaginaceae [151], Orchidaceae [117], Zingiberaceae [268]
2-Methylpropyl 2-hydroxybenzoate
Magnoliaceae [11]
Methyl salicylate, see Methyl 2-hydroxybenzoate
α-Oxo-ethyl benzoate, see Ethyl benzoate
Pentyl benzoate
Asteraceae [214], Caryophyllaceae [54], Nyctaginaceae [151], Rosaceae [220]
Pentyl 2-hydroxybenzoate
Caryophyllaceae [54]
Phenylethyl 2-hydroxybenzoate
Orchidaceae [117]
2-Phenylethyl 2-hydroxybenzoate
Orchidaceae [117]
Prenyl benzoate, see 3-Methyl-2-butenyl benzoate
Propyl benzoate
Magnoliaceae [11], Nyctaginaceae [151], Orchidaceae [117]
Ethers
Benzyl methyl ether
Arecaceae [68, 143], Cactaceae [125], Hyacinthaceae [123], Nyctaginaceae [151], Oleaceae [107, 178, 232, 233], Orchidaceae [117], Rosaceae [72]
1,2-Dimethoxy (methyl) benzene
Oleaceae [107]
1,2-Dimethoxy-4-methylbenzene (3,4-Dimethoxytoluene)
Malvaceae [142], Orchidaceae [8], Valerianaceae [37]
1,3-Dimethoxy-5-methylbenzene (3,5-Dimethoxy-1-methylbenzene, 3,5-Dimethoxytoluene)
Amaryllidaceae [63, 177, 232, 233], Berberidaceae [215], Lecythidaceae [144], Orchidaceae

[117, 201], Rosaceae [33, 35, 72, 93, 176, 177, 178, 183], Solanaceae [121], Theophrastaceae [139]
1,4-Dimethoxy-5-methylbenzene (2,5-Dimethoxytoluene, 2,5-Dimethoxy-1-methylbenzene)
Ericaceae [136]
2,6-Dimethoxy-1-methylbenzene (2,6-Dimethoxytoluene)
Rosaceae [128]
3,4-Dimethoxytoluene, see 1,2-Dimethoxy-4-methylbenzene
3,5-Dimethoxy-1-methylbenzene, see 1,3-Dimethoxy-5-methylbenzene
2,5-Dimethoxytoluene, see 1,4-Dimethoxy-5-methylbenzene
2,6-Dimethoxytoluene, see 2,6-Dimethoxy-1-methylbenzene
3,5-Dimethoxytoluene, see 1,3-Dimethoxy-5-methylbenzene
4-Hydroxy-3-methoxybenzyl ethyl ether
Orchidaceae [117]
2-Methoxybenzyl methyl ether
Oleaceae [150]
4-Methoxybenzyl methyl ether
Orchidaceae [117]
Methoxymethylbenzene (Methylanisol)
Apiaceae [31], Oleaceae [171], Rosaceae [40], Rubiaceae [5]
1-Methoxy-4-methylbenzene (4-Methylanisole, 4-Methylphenyl methyl ether)
Amaryllidaceae [63, 177], Annonaceae [170], Apocynaceae [141], Araceae [133], Arecaceae [68, 143], Caryophyllaceae [54], Hyacinthaceae [38, 123], Lecythidaceae [144], Magnoliaceae [9], Malvaceae [142], Oleaceae [33, 150], Orchidaceae [13, 17, 27, 77, 106, 117, 120, 258], Rosaceae [72], Rubiaceae [5], Sapotaceae [263], Valerianaceae [37], Violaceae [248]
Methylanisol, see Methoxymethylbenzene
4-Methylanisole, see 1-Methoxy-4-methylbenzene
4-Methylphenyl methyl ether, see 1-Methoxy-4-methylbenzene
1,2,3-Trimethoxy-5-methylbenzene
Amaryllidaceae [63]

N-compounds

Aminobenzaldehyde
Orchidaceae [13]
2-Aminobenzaldehyde
Agavaceae [108], Apiaceae [31], Cactaceae [125], Cucurbitaceae [71], Fabaceae [107, 108, 126], Fumariaceae [56, 197], Hydrangeaceae [107, 108], Liliaceae [108], Magnoliaceae [9], Orchidaceae [117, 120, 141], Pittosporaceae [107, 108], Ranunculaceae [85], Rutaceae [108, 119, 247]
Benzyl cyanide
Magnoliaceae [9]
Carbamoylbenzoate
Oleaceae [267]
Diethyltoluamide
Arecaceae [137]
2-*N*-Dimethylaminobenzaldehyde
Orchidaceae [120]
N-(1,1-Dimethylethyl)-4-methylbenzamide
Malvaceae [67]
Ethyl 2-aminobenzoate (Ethyl anthranilate)
Orchidaceae [13]
2-Formamidobenzaldehyde
Hydrangeaceae [108]
Methoxy methyl benzeneamine isomer
Fumariaceae [56]
2-*N*-Methylaminobenzaldehyde
Fumariaceae [197], Orchidaceae [13, 76, 77, 78, 117, 120]
Methyl 2-aminobenzoate (Methyl anthranilate)
Agavaceae [108, 178], Apiaceae [31], Arecaceae [137], Asteraceae [5], Berberidaceae [215], Cactaceae [125], Cucurbitaceae [71], Fabaceae [107, 108, 119, 126], Fumariaceae [197], Lecythidaceae [144], Nyctaginaceae [151], Oleaceae [39, 114, 267], Orchidaceae [115, 116, 117, 120, 141], Passifloraceae [157], Ranunculaceae [85], Rhizophoraceae [10], Rubiaceae [141], Rutaceae [2, 108, 119, 247], Solanaceae [121]

Methyl 2-amino-3-methoxybenzoate
Arecaceae [137]
N-Methylaniline
Annonaceae [111]
Methyl anthranilate, see Methyl 2-aminobenzoate
Methyl *N*-formylanthranilate, see Methyl *N*-methylaminobenzoate
Methyl *N*-methylaminobenzoate (Methyl *N*-formylanthranilate, Methyl *N*-methylanthranilate)
Orchidaceae [117], Rutaceae [247]
Methyl 2-*N*-methylaminobenzoate
Hyacinthaceae [38], Orchidaceae [120]
Methyl *N*-methylanthranilate, see Methyl *N*-methylaminobenzoate
1-Methyl-4-nitrobenzene
Orchidaceae [180]
2-Nitro-4-methylphenol
Araceae [133]
N-Phenyl formamide
Dipsacaceae [5]

C6-C2

Hydrocarbons
1,2-Diethylbenzene
Oleaceae [51]
1,3-Diethylbenzene
Oleaceae [51]
1,4-Diethylbenzene
Annonaceae [111]
Dimethyl styrene
Orchidaceae [254]
α-*p*-Dimethylstyrene
Orchidaceae [243]
Ethenylbenzene
Arecaceae [137], Caryophyllaceae [112], Ericaceae [136]
1-Ethenyl-4-ethylbenzene
Rosaceae [40]
Ethylbenzene
Actinidiaceae [237], Annonaceae [111], Meliaceae [250], Orchidaceae [23, 27, 75], Rosaceae [12]
Ethylmethylbenzene
Meliaceae [250], Orchidaceae [147]
1-Ethyl-2-methylbenzene
Annonaceae [111]
1-Ethyl-3-methylbenzene
Rosaceae [12]
1-Ethyl-4-methylbenzene
Rosaceae [12]
Isopropylbenzene
Orchidaceae [201]
(1-Methylethenyl)benzene
Moraceae [82]
α-Methylstyrene
Rosaceae [12]
Styrene
Caryophyllaceae [54], Moraceae [82], Orchidaceae [117], Rosaceae [12], Scrophulariaceae [5], Violaceae [248]
Styrene dimer
Orchidaceae [180]
Triethylbenzene
Asteraceae [213]

Acids
Phenylacetic acid
Asteraceae [65]

Aldehydes
Ethylbenzaldehyde

Araceae [26], Oleaceae [57, 58]
2-Hydroxy-2-phenylacetaldehyde (Phenylglyoxal)
Orchidaceae [77, 116, 117]
Phenylacetaldehyde
Amaryllidaceae [6, 63], Apiaceae [246], Arecaceae [137], Asteraceae [5, 55], Berberidaceae [215], Brassicaceae [22, 36, 70, 186, 202, 221], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [5, 112], Cucurbitaceae [175], Dipsacaceae [5], Ericaceae [140], Fabaceae [119, 212, 216], Fumariaceae [56], Hyacinthaceae [38], Lamiaceae [5], Liliaceae [107], Linnaeaceae [90], Lythraceae [10], Magnoliaceae [11], Nyctaginaceae [151], Oleaceae [33, 51, 108, 150], Orchidaceae [5, 13, 23, 116, 117, 141, 147, 236], Orobanchaceae [20], Passifloraceae [157], Polemoniaceae [5, 232, 233, 234], Rosaceae [62], Scrophulariaceae [5], Solanaceae [91, 154]
Phenylglyoxal, see 2-Hydroxy-2-phenylacetaldehyde
Ketones
Acetophenone
Araceae [26, 86, 134], Asteraceae [5], Calycanthaceae [120], Caprifoliaceae [102], Fabaceae [50, 156], Hydrangeaceae [107, 108], Magnoliaceae [9, 11, 240], Oleaceae [33], Orchidaceae [8, 29, 117, 192], Primulaceae [36], Solanaceae [69], Theaceae [200], Violaceae [248], Zingiberaceae [174]
2,4-Dimethylacetophenone (2,4-Dimethylphenylethanone)
Oleaceae [57, 58]
2,4-Dimethylphenylethanone, see 2,4-Dimethylacetophenone
4-Ethylacetophenone (1-(4-Ethylphenyl)ethanone)
Fabaceae [104], Rosaceae [220]
1-(Ethylphenyl)ethanone
Orchidaceae [27]
1-(4-Ethylphenyl)ethanone, see 4-Ethylacetophenone
α-Hydroxyacetophenone
Orchidaceae [77, 116, 117]
4-Hydroxyacetophenone
Araceae [26]
4-Methoxyacetophenone
Ericaceae [136], Orchidaceae [117]
4-Methylacetophenone
Oleaceae [150], Orchidaceae [117]
1,1(1,4-Phenylene)-bisethanone
Oleaceae [58]
Alcohols
p-Cymol
Ruscaceae [171]
ar-Ethylbenzyl alcohol
Orchidaceae [180]
2-Methoxy-β-phenylpropanol
Amaryllidaceae [6]
2-Methoxy-2-phenylethanol (*o*-Methoxy-β-phenylethyl alcohol)
Amaryllidaceae [6]
3-Methoxy-2-phenylethanol (3-Methoxyphenylethyl alcohol)
Oleaceae [177]
o-Methoxy-β-phenylethyl alcohol, see 2-Methoxy-2-phenylethanol
3-Methoxyphenylethyl alcohol, see 3-Methoxy-2-phenylethanol
4-Methoxyphenylethyl alcohol, see 4-Methoxy-2-phenylethanol
4-Methoxyphenylethanol, see 4-Methoxy-2-phenylethanol
4-Methoxy-2-phenylethanol (4-Methoxyphenylethanol, 4-Methoxyphenylethyl alcohol, 2-(4-Methoxyphenyl) ethanol)
Annonaceae [111], Araceae [134], Hyacinthaceae [38, 123], Orchidaceae [13, 117, 120]
Phenylethanol
Rosaceae [12], Rutaceae [247]
1-Phenylethanol
Fabaceae [50, 156]
2-Phenylethanol
Actinidiaceae [237], Amaryllidaceae [6, 63], Annonaceae [111], Apiaceae [31, 246], Apocy-

naceae [232, 233], Araceae [26, 86, 134, 146], Arecaceae [10, 137, 143], Asteraceae [5, 55, 65], Acanthaceae [10], Berberidaceae [182, 215], Brassicaceae [22, 36, 70, 186, 202, 217], Cactaceae [122, 125], Caprifoliaceae [102], Caryophyllaceae [5, 112, 141], Cucurbitaceae [4], Dipsacaceae [5], Fabaceae [49, 50, 104, 107, 119, 126, 138, 156, 212], Fumariaceae [197], Gentianaceae [5], Hyacinthaceae [38, 123], Lamiaceae [5], Lauraceae [74], Lecythidaceae [121, 144], Liliaceae [107], Linnaeaceae [90], Lythraceae [10], Magnoliaceae [11], Malvaceae [41, 142], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 51, 52], Orchidaceae [5, 8, 13, 17, 29, 77, 78, 98, 106, 115, 116, 117, 120, 141, 169, 180, 204, 253, 258], Passifloraceae [157], Polemoniaceae [5, 232, 233, 234], Primulaceae [36], Ranunculaceae [19, 59, 85], Rosaceae [33, 35, 43, 51, 60, 61, 62, 72, 87, 88, 93, 115, 128, 155, 166, 176, 177, 178, 183, 196, 228, 232], Rubiaceae [5, 141], Rutaceae [119], Salicaceae [245], Sapotaceae [263], Scrophulariaceae [5], Solanaceae [131, 154, 165, 167], Theaceae [200], Theophrastaceae [139], Thymelaeaceae [5, 234], Violaceae [73], Vitaceae [42, 44, 47], Zingiberaceae [141, 174]

Esters

2-Methoxyphenylethyl acetate
Amaryllidaceae [6]

2-Methoxyphenylisopropyl acetate (2-Methoxy-β-phenylpropyl acetate)
Amaryllidaceae [6]

2-Methoxy-β-phenylpropyl acetate, see 2-Methoxyphenylisopropyl acetate

2-Methylpropyl phenylacetate
Berberidaceae [215]

3-Methylbutyl 2-phenylacetate
Passifloraceae [157]

4-Methoxyphenylethyl acetate
Orchidaceae [78, 117]

Methoxyphenylethyl acetate
Orchidaceae [77]

Methyl 2-hydroxy-2-phenylacetate (Methyl 2-hydroxy-2-phenylethanoate)
Eupomatiaceae [18]

Methyl 2-hydroxy-2-phenylethanoate, see Methyl 2-hydroxy-2-phenylacetate

Methyl 4-methoxyphenylacetate (Methyl 4-methoxyphenylethanoate)
Orchidaceae [117]

Methyl 4-methoxyphenylethanoate, see Methyl 4-methoxyphenylacetate

Methyl phenylacetate (Methyl phenylethanoate)
Brassicaceae [36], Magnoliaceae [11], Orchidaceae [116, 117, 120], Primulaceae [36]

Methyl 2-phenylacetate
Passifloraceae [157]

Methyl phenylethanoate, see Methyl phenylacetate

Phenylethyl acetate
Actinidiaceae [237], Amaryllidaceae [6], Brassicaceae [186], Bromeliaceae [77], Fabaceae [104, 107], Hyacinthaceae [123, 150], Nyctaginaceae [151], Oleaceae [52], Orchidaceae [13, 77, 78, 117, 120, 253], Rosaceae [33, 40, 72, 177, 178, 196]

1-Phenylethyl acetate
Araceae [134]

2-Phenylethyl acetate
Amaryllidaceae [63], Annonaceae [111], Arecaceae [68, 137, 143], Brassicaceae [36], Caryophyllaceae [54], Dipsacaceae [5], Fabaceae [126, 212], Gentianaceae [45], Hyacinthaceae [38], Lamiaceae [5], Lecythidaceae [144], Magnoliaceae [11], Malvaceae [41], Orchidaceae [8, 17, 98, 106, 116, 117, 141, 181, 188, 236, 258], Passifloraceae [157], Rosaceae [35, 43, 60, 61, 62, 93, 128, 232], Ruscaceae [141], Sapotaceae [263]

Phenylethyl benzoate
Hyacinthaceae [123, 150], Nyctaginaceae [151], Orchidaceae [116, 117]

2-Phenylethyl benzoate
Hyacinthaceae [38], Malvaceae [41], Orchidaceae [116, 117], Rubiaceae [141], Sapotaceae [263], Zingiberaceae [141]

Phenylethyl butanoate
Fabaceae [107, 119]

2-Phenylethyl butanoate
Lecythidaceae [144], Orchidaceae [117], Sapotaceae [263]

Phenylethyl formate

Orchidaceae [77, 117]
2-Phenylethyl formate
Arecaceae [137], Hyacinthaceae [38], Orchidaceae [117], Passifloraceae [157]
2-Phenylethyl hexanoate
Lecythidaceae [144]
Phenylethyl 2-methylbutanoate
Nymphaeaceae [14, 135]
Phenylethyl 2-methylpropanoate
Rosaceae [33]
2-Phenylethyl 2-methylpropanoate
Caryophyllaceae [5], Passifloraceae [157], Rosaceae [35], Sapotaceae [263]
Phenylethyl 3-methylbutanoate
Orchidaceae [117]
2-Phenylethyl 3-methylbutanoate
Caryophyllaceae [5], Polemoniaceae [5], Sapotaceae [263]
2-Phenylethyl pentanoate
Lecythidaceae [144]
Phenylethyl tiglate
Orchidaceae [117]
2-Phenylethyl tiglate
Sapotaceae [263]
Ethers
4-Ethenylanisole, see 4-Methoxy-1-ethenylbenzene
4-Ethenyl-1-methoxybenzene, see 4-Methoxy-1-ethenylbenzene
1-Ethoxyethylbenzene
Oleaceae [57, 58]
4-Methoxy-1-ethenylbenzene (4-Ethenylanisole, 4-Ethenyl-1-methoxybenzene)
Araceae [152], Arecaceae [143], Orchidaceae [117, 118, 120], Passifloraceae [157], Rosaceae [33, 35, 72]
2-Phenylethyl methyl ether
Rosaceae [62], Salicaceae [245]
Benzofurans
7,7-Dimethyl-4,5,6,7-tetrahydro-1(3H)-isobenzofuranone
Orchidaceae [120]
N-compounds
Benzonitrile
Fabaceae [179], Hemerocallidaceae [33], Rosaceae [37]
1-Nitro-2-phenylethane (2-Phenylnitroethane)
Apocynaceae [2, 173, 178], Brassicaceae [36], Cactaceae [122, 125], Caprifoliaceae [107], Fabaceae [107, 212], Hemerocallidaceae [33], Lecythidaceae [121], Orchidaceae [117], Primulaceae [36], Rutaceae [119]
Phenylacetaldoxime
Brassicaceae [36], Cactaceae [125], Caprifoliaceae [102, 107], Fabaceae [107], Magnoliaceae [115], Orchidaceae [115, 116, 117], Rubiaceae [115], Ruscaceae [115, 232, 233], Rutaceae [115, 119, 247], Zingiberaceae [115, 141]
Phenylacetaldoxime-*O*-methyl ether
Cactaceae [125], Rubiaceae [109], Rutaceae [119]
Phenylacetonitrile, see 2-Phenylacetonitrile
2-Phenylacetonitrile (Phenylacetonitrile)
Amaryllidaceae [6, 177], Apiaceae [31], Brassicaceae [36, 202], Cactaceae [113, 125], Caprifoliaceae [102, 107], Fabaceae [107, 212], Hemerocallidaceae [33], Lecythidaceae [121, 144], Magnoliaceae [264], Malvaceae [142], Nyctaginaceae [151], Orchidaceae [77, 115, 116, 117, 169], Orobanchaceae [20], Primulaceae [36], Rubiaceae [141], Ruscaceae [171, 232, 233], Rutaceae [119, 247], Zingiberaceae [141, 174]
Phenylethylamine hydrochloride
Orchidaceae [180]
2-Phenylnitroethane, see 1-Nitro-2-phenylethane
C6-C3
Hydrocarbons
Anethole, see 1-Methoxy-4-(prop-1-enyl)benzene

1-Isopropenyl-4-methylbenzene (4-Isopropenyl-1-methylbenzene)
Araceae [229], Asteraceae [34], Dipsacaceae [185], Malvaceae [41], Orchidaceae [117, 258], Primulaceae [36], Rosaceae [33]
4-Isopropenyl-1-methylbenzene, see 1-Isopropenyl-4-methylbenzene
1-Methyl-4-(1-methylethyl)benzene
Cucurbitaceae [71]
4-Propenylanisole, see 1-Methoxy-4-(prop-1-enyl)benzene
Aldehydes
Cinnamic aldehyde (Zimtaldehyde)
Apiaceae [246], Apocynaceae [141], Caryophyllaceae [141], Fabaceae [81, 120], Magnoliaceae [264], Myrsinaceae [103], Nymphaeaceae [14, 135], Oleaceae [57, 58], Orchidaceae [77, 96, 117, 175, 195, 241, 243, 244, 258], Rosaceae [43]
(*E*)-Cinnamic aldehyde
Berberidaceae [215], Cactaceae [122], Caryophyllaceae [112], Ericaceae [136, 140], Oleaceae [33], Orchidaceae [13, 117, 253], Polemoniaceae [5], Rubiaceae [5], Scrophulariaceae [5], Solanaceae [167], Theophrastaceae [139], Thymelaeaceae [5]
(*Z*)-Cinnamic aldehyde
Berberidaceae [215], Ericaceae [136, 140], Orchidaceae [13, 117, 253], Rubiaceae [5], Scrophulariaceae [5], Theophrastaceae [139], Thymelaeaceae [5]
Cumin aldehyde, see 4-Isopropylbenzaldehyde
4-Isopropenylbenzaldehyde
Rosaceae [33, 35]
4-Isopropylbenzaldehyde (Cumin aldehyde)
Orchidaceae [117]
4-Methoxycinnamic aldehyde
Theophrastaceae [139]
Phenylpropanal
Berberidaceae [215], Ericaceae [136]
3-Phenylpropanal
Orchidaceae [117]
Zimtaldehyde, see Cinnamic aldehyde
Ketones
1-Phenyl-1-hydroxypropan-2-one
Oleaceae [108]
1-Phenyl-1,2-propandione
Orchidaceae [117]
Phenyl-2-propanone
Oleaceae [267]
Propiophenone
Berberidaceae [215]
Propiovanillone
Asteraceae [214]
p-Tolyl-2-propanone
Araceae [86]
Vanillyl methylketone
Nyctaginaceae [151]
Alcohols
Allyl benzoate, see 3-Prop-1-enyl benzoate
Chavicol, see 3-(4-Hydroxyphenyl)prop-1-ene
Cinnamic alcohol (Styralyl alcohol)
Amaryllidaceae [6], Apocynaceae [141], Araceae [86], Caryophyllaceae [141], Ericaceae [140], Fabaceae [81], Hemerocallidaceae [33], Magnoliaceae [240], Orchidaceae [53, 77, 115, 116, 141, 195, 241, 243, 244, 253, 258], Polemoniaceae [5], Primulaceae [5], Rosaceae [43], Rubiaceae [5], Ruscaceae [141, 232, 233], Scrophulariaceae [5], Thymelaeaceae [5, 234]
(*E*)-Cinnamic alcohol
Berberidaceae [215], Cactaceae [125], Calycanthaceae [120], Cucurbitaceae [4], Ericaceae [136], Fabaceae [120], Hyacinthaceae [38, 123], Magnoliaceae [264], Myrsinaceae [103], Oleaceae [33], Orchidaceae [77, 116, 117, 118], Primulaceae [36], Sapotaceae [263], Solanaceae [167], Theophrastaceae [139]

(*Z*)-Cinnamic alcohol
Ericaceae [136], Hyacinthaceae [38, 123], Magnoliaceae [264], Myrsinaceae [103], Orchidaceae [117]
Cuminol, see 4-Isopropylbenzyl alcohol
Cuminyl alcohol, see 4-Isopropylbenzyl alcohol
2,6-Dimethoxy-4-(2-propenyl)-1-hydroxybenzene (2,6-Dimethoxy-4-(2-propenyl)-phenol)
Rhizophoraceae [10]
2,6-Dimethoxy-4-(2-propenyl)-phenol, see 2,6-Dimethoxy-4-(2-propenyl)-1-hydroxybenzene
2,6-Dimethyl-4-(2-propenyl)-1-hydroxybenzene (2,6-Dimethyl-4-(2-propenyl)-phenol)
Oleaceae [51]
2,6-Dimethyl-4-(2-propenyl)-phenol, see 2,6-Dimethyl-4-(2-propenyl)-1-hydroxybenzene
1-Hydroxy-2,6-dimethoxy-4-(1-propenyl)benzene
Sapotaceae [263]
2-Hydroxy-1-isopropyl-4-methylbenzene
Orchidaceae [117]
3-(4-Hydroxyphenyl)prop-1-ene (Chavicol)
Fabaceae [107], Orchidaceae [77, 78, 117, 120]
Isochavicol
Orchidaceae [117]
4-Isopropylbenzyl alcohol (Cuminol, Cuminyl alcohol)
Araceae [229], Oleaceae [33]
4-Methoxycinnamic alcohol
Orchidaceae [116, 117]
4-Methoxyphenylpropanol
Ericaceae [136], Theophrastaceae [139]
1-Methoxy-*p*-tolyl-2-propanol
Araceae [86]
2-Methoxy-*p*-tolyl-1-propanol
Araceae [86]
Phenylpropanol
Polemoniaceae [5]
2-Phenyl-2-propanol
Orchidaceae [23]
3-Phenylpropanol
Amaryllidaceae [6], Berberidaceae [215], Caryophyllaceae [141], Ericaceae [136, 140], Fabaceae [120], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lecythidaceae [144], Myrsinaceae [103], Orchidaceae [117, 244, 253], Solanaceae [167], Theophrastaceae [139]
(*E*)-4-(1-Propenyl)-1-hydroxybenzene ((*E*)-4-(1-Propen-1-yl)phenol)
Apocynaceae [108], Fabaceae [107], Oleaceae [108]
(*Z*)-4-(1-Propenyl)-1-hydroxybenzene ((*Z*)-4-(1-Propen-1-yl)phenol)
Apocynaceae [108], Fabaceae [107], Oleaceae [108]
(*E*)-4-(1-Propen-1-yl)phenol, see (*E*)-4-(1-Propenyl)-1-hydroxybenzene
(*Z*)-4-(1-Propen-1-yl)phenol, see (*Z*)-4-(1-Propenyl)-1-hydroxybenzene
Styralyl alcohol, see Cinnamic alcohol
p-Tolyl-1,2-propanediol
Araceae [86]

Esters
Cinnamic acetate
Amaryllidaceae [6], Caryophyllaceae [141], Ericaceae [140], Fabaceae [81], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Orchidaceae [77, 78, 116, 195, 236, 241, 243, 244, 253, 258], Ruscaceae [141]
(*E*)-Cinnamic acetate
Calycanthaceae [120], Ericaceae [136], Fabaceae [120], Orchidaceae [77, 116, 117, 120], Sapotaceae [263], Solanaceae [167], Theophrastaceae [139]
(*Z*)-Cinnamic acetate
Ericaceae [136], Orchidaceae [117], Rubiaceae [5]
Cinnamic butanoate
Orchidaceae [117]
Coumarin
Malvaceae [41], Orchidaceae [117]

Ethyl 3-phenyl-2-propenoate, see Ethyl cinnamate
Ethyl 3-phenylpropanoate
Araceae [86], Fumariaceae [197]
Ethyl cinnamate
Arecaceae [137], Fumariaceae [197], Rosaceae [51]
Ethyl (*E*)-cinnamate
Orchidaceae [117], Theophrastaceae [139]
Ethyl (*Z*)-cinnamate
Theophrastaceae [139]
Eugenyl acetate
Caryophyllaceae [54], Nyctaginaceae [151]
4-Methoxycinnamic acetate
Orchidaceae [117, 118, 120]
Methyl cinnamate
Amaryllidaceae [6, 63], Berberidaceae [215], Fabaceae [50, 156], Fumariaceae [197], Orchidaceae [28, 97, 98, 254, 256, 257, 258]
Methyl (*E*)-cinnamate
Fabaceae [120], Oleaceae [52], Orchidaceae [77, 78, 116, 117, 120, 253], Passifloraceae [157], Sapotaceae [263], Theophrastaceae [139]
Methyl (*Z*)-cinnamate
Orchidaceae [78, 117, 253], Passifloraceae [157], Theophrastaceae [139]
Methyl 4-methoxycinnamate
Orchidaceae [258, 260]
Methyl (*E*)-4-methoxycinnamate
Orchidaceae [78, 117, 120]
Methyl (*Z*)-4-methoxycinnamate
Orchidaceae [78, 117, 120]
Methyl 4-methoxyphenylpropanoate
Orchidaceae [117, 120]
Methyl 3-phenyl-2-hydroxypropanoate
Fumariaceae [197], Orchidaceae [117], Passifloraceae [157]
Methyl 3-phenylpropanoate
Fumariaceae [197], Orchidaceae [117]
Methyl 3-phenyl-2-propenoate, see Methyl cinnamate
Phenylpropyl acetate
Ericaceae [140], Hyacinthaceae [123], Orchidaceae [258], Rubiaceae [5]
γ-Phenylpropyl acetate, see 3-Phenylpropyl acetate
3-Phenylpropyl acetate (γ-Phenylpropyl acetate)
Amaryllidaceae [6, 63], Berberidaceae [215], Caryophyllaceae [141], Ericaceae [136], Fabaceae [120], Orchidaceae [117], Ruscaceae [141], Theophrastaceae [139]
Phenylpropyl butanoate
Orchidaceae [117]
3-Prop-1-enyl benzoate (Allyl benzoate)
Nyctaginaceae [151]

Ethers
4-Allyl-1,2-dimethoxybenzene, see Methyleugenol
Anethole, see 1-Methoxy-4-(prop-1-enyl)benzene
(*E*)-Anethole, see (*E*)-1-Methoxy-4-(prop-1-enyl)benzene
(*Z*)-Anethole, see (*Z*)-1-Methoxy-4-(prop-1-enyl)benzene
Dillapiole
Apiaceae [242]
1,2-Dimethoxy-4-(2-propenyl)-benzene, see Methyleugenol
Elemicin
Arecaceae [68, 143], Hyacinthaceae [38, 123], Lecythidaceae [144], Oleaceae [33, 232, 233], Orchidaceae [53, 116, 117], Passifloraceae [157]
(*E*)-Elemicin
Orchidaceae [77]
Estragole, see 1-Methoxy-4-(prop-2-enyl)benzene
Eugenol (2-Methoxy-4-(2-propenyl)-1-hydroxybenzene)
Apocynaceae [178], Araceae [77, 133, 258], Arecaceae [137, 145], Asteraceae [214], Acanthaceae [10], Caprifoliaceae [102], Caryophyllaceae [54], Fabaceae [81, 119], Hy-

acinthaceae [38, 123], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [264], Malvaceae [142], Nyctaginaceae [151], Oleaceae [52, 114], Onagraceae [218], Orchidaceae [8, 13, 77, 78, 97, 116, 117, 120, 141, 195, 241, 243, 244, 253, 258], Passifloraceae [157], Polemoniaceae [5], Rhizophoraceae [10], Rosaceae [43, 51, 60, 61, 128], Rubiaceae [121, 141], Sapotaceae [263], Solanaceae [165], Theophrastaceae [139], Zingiberaceae [141, 174]

(*E*)-Isoelemicin
Orchidaceae [117], Passifloraceae [157]

(*Z*)-Isoelemicin
Passifloraceae [157]

(*E*)-Isoeugenol
Caryophyllaceae [54], Lecythidaceae [121], Oleaceae [52], Orchidaceae [78, 117], Zingiberaceae [174]

Methoxyeugenol, see Methyleugenol

6-Methoxyeugenol
Orchidaceae [117]

1-Methoxy-4-(prop-1-enyl)benzene (4-Propenylanisole, Anethole)
Araceae [86], Fabaceae [81], Magnoliaceae [11, 264], Orchidaceae [77, 117]

(*E*)-1-Methoxy-4-(prop-1-enyl)benzene ((*E*)-Anethole)
Araceae [152], Fabaceae [107], Ranunculaceae [85]

(*Z*)-1-Methoxy-4-(prop-1-enyl)benzene ((*Z*)-Anethole)
Araceae [152], Fabaceae [107], Ranunculaceae [85]

1-Methoxy-4-(prop-2-enyl)benzene (Estragole, Methylchavicol)
Amaryllidaceae [63], Araceae [77], Cactaceae [125], Fabaceae [81], Hyacinthaceae [123], Lamiaceae [261], Magnoliaceae [9, 11], Oleaceae [33, 150], Orchidaceae [77, 117, 120], Rosaceae [72], Sapotaceae [263]

Methylchavicol, see 1-Methoxy-4-(prop-2-enyl)benzene

(*E*)-Methylisoeugenol
Arecaceae [137], Fabaceae [107], Lecythidaceae [144], Passifloraceae [157], Zingiberaceae [141, 174]

Isoelemicin
Orchidaceae [258]

Isoeugenol
Fabaceae [107, 108], Nyctaginaceae [151], Onagraceae [218], Orchidaceae [141, 195, 243, 244], Passifloraceae [157], Ranunculaceae [85], Zingiberaceae [141]

(*Z*)-Isoeugenol
Caryophyllaceae [54], Oleaceae [52], Orchidaceae [117], Zingiberaceae [174]

Methoxyeugenol, see Methyleugenol

Methyleugenol (1,2-Dimethoxy-4-(2-propenyl)-benzene, 4-Allyl-1,2-dimethoxybenzene, Methoxyeugenol)
Amaryllidaceae [6, 63], Araceae [152], Arecaceae [137, 143, 145], Fabaceae [81, 104], Hyacinthaceae [38, 123], Lamiaceae [261], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [9], Malvaceae [142], Oleaceae [33, 150], Onagraceae [218], Orchidaceae [116, 117, 258], Passifloraceae [157], Polemoniaceae [233], Primulaceae [36], Rhizophoraceae [10], Rosaceae [51, 60, 61, 72, 128], Valerianaceae [37], Zingiberaceae [268]

Methylisoeugenol
Amaryllidaceae [6], Arecaceae [143, 145], Fabaceae [81], Onagraceae [218], Orchidaceae [77, 117], Polemoniaceae [233]

(*Z*)-Methylisoeugenol
Arecaceae [137], Passifloraceae [157], Zingiberaceae [174]

Benzopyrans

6,7-Dimethoxy-4*H*-1-benzopyran
Fabaceae [110]

6-Methoxy-4*H*-1-benzopyran-7-ol
Fabaceae [110]

6-Pentyl-α-pyrone
Orchidaceae [120]

C6-C4

Hydrocarbons

Butylbenzene
Moraceae [82]

4-Isoprenyl-1-methylbenzene, see 4-(3-Methyl-3-butenyl)-1-methylbenzene
4-(3-Methyl-3-butenyl)-1-methylbenzene (4-Isoprenyl-1-methylbenzene)
Rosaceae [35]
Ketones
Gingerone, see 3-Methoxy-4-hydroxyphenyl-2-butanone
3-Hydroxy-4-phenyl-2-butanone
Orchidaceae [117], Sapotaceae [263]
4-Hydroxyphenyl-2-butanone
Orchidaceae [117]
3-Methoxy-4-hydroxyphenyl-2-butanone (Gingerone)
Orchidaceae [117]
1-Phenyl-2,3-butandione (1-Phenylbutane-2,3-dione)
Oleaceae [108], Sapotaceae [263]
1-Phenylbutane-2,3-dione, see 1-Phenyl-2,3-butandione
4-Phenyl-2-butanone
Orchidaceae [75, 116, 117], Solanaceae [69]
4-Phenyl-3-buten-2-one
Orchidaceae [13]
Alcohols
2,6-di-*tert*-Butyl-4-methyl-1-hydroxybenzene (2,6-di-*tert*-Butyl-4-methylphenol)
2,6-di-*tert*-Butyl-4-methylphenol, see 2,6-di-*tert*-Butyl-4-methyl-1-hydroxybenzene
Calycanthaceae [266], Malvaceae [67], Onagraceae [265]
Ethers
2,4-di-*tert*-Butylanisole, see 2,4-di-*tert*-Butyl-1-methoxybenzene
2,4-di-*tert*-Butyl-1-methoxybenzene (2,4-di-*tert*-Butylanisole)
Oleaceae [51]
C6-C5
Alcohols
5-Phenylmethoxypentanol
Oleaceae [57]
C6-C7
Hydrocarbons
1-Heptenylbenzene
Asteraceae [213]

C5-BRANCHED CHAIN COMPOUNDS

Saturated
Hydrocarbons
2-Methylbutane
Rosaceae [220]
Acids
2-Methylbutanoic acid
Orchidaceae [116, 117]
3-Methylbutanoic acid
Araceae [86], Asteraceae [65, 132], Cyclanthaceae [225], Orchidaceae [77, 116], Theophrastaceae [139]
Aldehydes
2-Methylbutanal
Brassicaceae [221], Meliaceae [250], Orchidaceae [117], Rosaceae [12, 219, 220], Zingiberaceae [268]
3-Methylbutanal
Brassicaceae [221], Cactaceae [125], Fabaceae [179, 212, 216], Meliaceae [250], Orchidaceae [116, 117], Rosaceae [12, 219, 220], Sapindaceae [46], Zingiberaceae [174]
Ketones
3-Methyl-2-butanone
Araceae [86, 129, 133, 229], Brassicaceae [221], Oleaceae [57, 58], Rosaceae [219, 220]
Alcohols
2-Methylbutanol
Araceae [262], Arecaceae [10, 137], Fabaceae [49, 179], Hemerocallidaceae [33], Orchidaceae [117], Rosaceae [219, 220], Winteraceae [210, 239]
3-Methylbutanol

Actinidiaceae [237], Apocynaceae [1, 233], Araceae [262], Arecaceae [10, 137], Cactaceae [125], Calycanthaceae [266], Cucurbitaceae [71], Cycadaceae [211], Fabaceae [49, 153, 156, 179, 212, 216], Lecythidaceae [144], Magnoliaceae [238], Malvaceae [142], Nymphaeaceae [14, 135], Oleaceae [39], Orchidaceae [77, 116, 117], Orobanchaceae [141], Polemoniaceae [5], Ranunculaceae [207, 208, 209], Rosaceae [12, 33, 35, 37, 61, 62, 219, 220], Scrophulariaceae [5], Solanaceae [141], Theophrastaceae [139], Thymelaeaceae [24], Winteraceae [210], Zingiberaceae [174]

Esters

Butyl 2-methylbutanoate
Orchidaceae [117]

Butyl 3-methylbutanoate
Asteraceae [37]

Ethyl 2-methylbutanoate
Annonaceae [111], Apiaceae [31], Arecaceae [137], Asteraceae [37], Cycadaceae [211], Magnoliaceae [238], Orchidaceae [77, 117], Rubiaceae [249]

Ethyl 3-methylbutanoate
Annonaceae [111], Araceae [86], Arecaceae [137], Asteraceae [37], Cycadaceae [211], Magnoliaceae [238]

Hexenyl 2-methylbutanoate
Lythraceae [10]

(Z)-3-Hexenyl 2-methylbutanoate
Fabaceae [120], Nyctaginaceae [151], Orchidaceae [117]

Hexenyl 3-methylbutanoate
Hemerocallidaceae [33]

(Z)-3-Hexenyl 3-methylbutanoate
Asteraceae [34], Brassicaceae [217], Cactaceae [125], Nyctaginaceae [151], Oleaceae [107], Ranunculaceae [19], Rubiaceae [249]

Hexyl 2-methylbutanoate
Lecythidaceae [144], Orchidaceae [117]

Hexyl 3-methylbutanoate
Rubiaceae [249]

Methyl (2R)-2-acetoxy-3-methylbutanoate
Eupomatiaceae [18]

2-Methylbutyl acetate
Fabaceae [179], Orchidaceae [117], Winteraceae [210, 239]

3-Methylbutyl acetate
Actinidiaceae [237], Amaryllidaceae [6, 63], Annonaceae [111], Apiaceae [31], Araceae [134, 146], Arecaceae [137], Asteraceae [37, 132], Caryophyllaceae [141], Fabaceae [175, 179, 212, 216], Lecythidaceae [144], Magnoliaceae [238], Orchidaceae [77, 116, 117], Rosaceae [33, 35, 72], Theophrastaceae [139], Winteraceae [210], Zingiberaceae [174, 268]

2-Methylbutyl butanoate
Arecaceae [68], Moraceae [121], Orchidaceae [117]

3-Methylbutyl butanoate
Nymphaeaceae [14, 135], Orchidaceae [117]

2-Methylbutyl hexanoate
Orchidaceae [117]

3-Methylbutyl hexanoate
Nymphaeaceae [14, 135]

2-Methylbutyl 2-methylbutanoate
Asteraceae [37]

3-Methylbutyl 3-methylbutanoate
Annonaceae [111], Cactaceae [125], Caryophyllaceae [5], Cycadaceae [211], Hemerocallidaceae [33], Orchidaceae [117], Valerianaceae [37]

2-Methylbutyl 2-methylpropanoate
Asteraceae [37]

3-Methylbutyl 2-methylpropanoate
Asteraceae [37]

3-Methylbutyl 2-methylprop-2-enoate
Asteraceae [37]

3-Methylbutyl pentanoate

Rosaceae [33, 35]
3-Methylbutyl propanoate
Annonaceae [111]
Methyl 2-hydroxy-3-methylbutanoate
Cactaceae [125], Eupomatiaceae [18]
Methyl 2-methylbutanoate
Amaryllidaceae [63], Araceae [129, 133], Arecaceae [137], Brassicaceae [221], Cycadaceae [211], Eupomatiaceae [18], Fabaceae [212], Lythraceae [10], Magnoliaceae [11], Nymphaeaceae [14, 135], Oleaceae [39], Orchidaceae [117, 203], Rubiaceae [249]
Methyl 3-methylbutanoate
Cactaceae [125], Cycadaceae [211], Nymphaeaceae [14, 135], Orchidaceae [117], Rubiaceae [249], Zingiberaceae [268]
3-Methylpentyl 3-methylbutanoate
Asteraceae [37]
2-Methylpropyl 2-methylbutanoate
Annonaceae [111], Asteraceae [37]
2-Methylpropyl 3-methylbutanoate
Annonaceae [111]
Propyl 2-methylbutanoate
Asteraceae [37]
2-Propyl 3-methylbutanoate
Arecaceae [68]

Unsaturated
Hydrocarbons
2-Methyl-1,3-butadiene
Araceae [86], Brassicaceae [221], Rosaceae [12]
Aldehydes
2-Methylbutenal
Sapindaceae [46]
2-Methyl-2-butenal
Brassicaceae [221], Hemerocallidaceae [33]
(*E*)-2-Methyl-2-butenal
Cactaceae [125], Orchidaceae [117]
3-Methyl-2-butenal (Prenal)
Arecaceae [143], Rutaceae [247], Zingiberaceae [174]
Prenal, see 3-Methyl-2-butenal
Ketones
3-Methyl-3-buten-2-one
Zingiberaceae [174]
Alcohols
Isoprenol, see 3-Methyl-3-butenol
2-Methyl-2-butenol
Amaryllidaceae [6], Oleaceae [39]
(*E*)-2-Methyl-2-butenol
Orchidaceae [77, 117]
2-Methyl-3-buten-2-ol
Amaryllidaceae [63], Araceae [229], Brassicaceae [221], Fabaceae [212], Oleaceae [39], Orchidaceae [117], Zingiberaceae [174]
3-Methyl-2-butenol (Prenol)
Araceae [86], Arecaceae [143], Berberidaceae [182], Cactaceae [125], Fabaceae [216], Orchidaceae [117]
3-Methyl-3-butenol (Isoprenol)
Amaryllidaceae [63], Cactaceae [125], Fabaceae [212, 216], Oleaceae [39], Orchidaceae [117]
Prenol, see 3-Methyl-2-butenol
Esters
Butyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
Butyl tiglate
Orchidaceae [117]
(*E*)-2(3)-Epoxy-2-methylbutyl tiglate
Orchidaceae [117]

Ethyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
Ethyl tiglate
Annonaceae [111], Arecaceae [137], Nymphaeaceae [14, 135], Rubiaceae [249]
Geranyl tiglate
Orchidaceae [117]
Heptyl tiglate
Orchidaceae [117]
(*Z*)-3-Hexenyl (*Z*)-2-methyl-2-butenoate
Orchidaceae [117]
Hexenyl tiglate
Caprifoliaceae [175]
(*Z*)-3-Hexenyl tiglate
Caprifoliaceae [102, 107], Nyctaginaceae [151], Orchidaceae [117, 203], Rubiaceae [249]
Hexyl tiglate
Orchidaceae [117], Rubiaceae [249]
Isoprenyl acetate, see 3-Methyl-3-butenyl acetate
Isoprenyl hexanoate, see 3-Methyl-3-butenyl hexanoate
Methyl angelate, see Methyl (*Z*)-2-methyl-2-butenoate
2-Methyl-2-butenyl acetate
Asteraceae [37], Hyacinthaceae [123]
(*E*)-2-Methyl-2-butenyl acetate
Orchidaceae [77, 117]
3-Methyl-2-butenyl acetate (Prenyl acetate)
Annonaceae [111], Apiaceae [31], Berberidaceae [182], Fabaceae [216], Orchidaceae [117]
3-Methyl-3-butenyl acetate (Isoprenyl acetate)
Amaryllidaceae [63], Orchidaceae [117]
(*E*)-2-Methyl-2-butenyl butanoate
Orchidaceae [117]
(*E*)-2-Methyl-2-butenyl hexanoate
Orchidaceae [117]
3-Methyl-2-butenyl hexanoate (Prenyl hexanoate)
Orchidaceae [117]
3-Methyl-3-butenyl hexanoate (Isoprenyl hexanoate)
Orchidaceae [117]
(*E*)-2-Methyl-2-butenyl isobutanoate
Orchidaceae [77]
(*E*)-2-Methyl-2-butenyl 2-methylbutanoate
Orchidaceae [77, 117]
3-Methyl-2-butenyl 3-methylbutanoate (Prenyl 3-methylbutanoate)
Orchidaceae [117]
3-Methyl-2-butenyl octanoate (Prenyl octanoate)
Orchidaceae [117]
(*E*)-2-Methyl-2-butenyl propanoate
Orchidaceae [117]
(*E*)-2-Methyl-2-butenyl tiglate
Caprifoliaceae [107], Orchidaceae [77, 117]
2-Methylbutyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
3-Methylbutyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
2-Methylbutyl tiglate
Orchidaceae [117]
3-Methylbutyl tiglate
Hyacinthaceae [123], Nymphaeaceae [14, 135], Orchidaceae [117]
Methyl (*Z*)-2-methyl-2-butenoate (Methyl angelate)
Magnoliaceae [11], Nymphaeaceae [14, 135]
Methyl 3-methyl-2-butenoate
Amaryllidaceae [63], Arecaceae [137], Asteraceae [213], Cycadaceae [211]
3-Methylpentyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]

2-Methyl-2-propenyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
2-Methyl-2-propenyl tiglate
Asteraceae [37]
2-Methylpropyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
2-Methylpropyl tiglate
Nyctaginaceae [151]
Methyl tiglate
Asteraceae [37], Caryophyllaceae [54], Magnoliaceae [11], Nymphaeaceae [14, 135], Orchidaceae [117], Rubiaceae [249]
Pentyl 2-methyl-2-butenoate
Orchidaceae [203]
Pentyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
Pentyl tiglate
Orchidaceae [117]
Prenyl acetate, see 3-Methyl-2-butenyl acetate
Prenyl hexanoate, see 3-Methyl-2-butenyl hexanoate
Prenyl 3-methylbutanoate, see 3-Methyl-2-butenyl 3-methylbutanoate
Prenyl octanoate, see 3-Methyl-2-butenyl octanoate
Propyl (*Z*)-2-methyl-2-butenoate
Asteraceae [37]
Propyl tiglate
Orchidaceae [117]

TERPENES

MONOTERPENES
Acyclic
Hydrocarbons
β-Citronellene
Araceae [86, 129]
Cosmene, see (*E*,*Z*)-2,6-Dimethyl-1,3,5,7-octatetraene
Dehydroocimene
Amaryllidaceae [232, 233]
2,6-Dimethyl-2(3)epoxyocta-5(*E*),7-dien-4-one, see (*E*)-2(3)-Epoxy-2,6-dimethyl-5,7-octadien-4-one
Dimethyloctadiene
Araceae [133]
2,7-Dimethyl-3,5-octadiene
Oleaceae [57, 58]
3,7-Dimethyl-1,6-octadiene
Araceae [229]
3,7-Dimethyl-1,3,6-octatriene, see Ocimene
(*E*)-2,6-Dimethyl-1,3,5,7-octatetraene
Lauraceae [74]
(*E*,*E*)-2,6-Dimethyl-1,3,5,7-octatetraene
Asteraceae [37], Caryophyllaceae [66], Hemerocallidaceae [33], Hyacinthaceae [38], Orchidaceae [77, 116, 117]
(*E*,*Z*)-2,6-Dimethyl-1,3,5,7-octatetraene (Cosmene)
Asteraceae [37], Hemerocallidaceae [33], Hyacinthaceae [38], Orchidaceae [77, 117, 253]
(*Z*,*E*)-2,6-Dimethyl-1,3,5,7-octatetraene
Cactaceae [122], Hyacinthaceae [123, 150]
3,7-Dimethyloctatriene
Orchidaceae [204], Winteraceae [239]
3,7-Dimethyl-1,3,7-octatriene
Rosaceae [12]
Isocitronellene
Nyctaginaceae [151]
2-Methyl-6-methylene-1,3,7-octatriene

Arecaceae [143]

Myrcene

Actinidiaceae [237], Alliaceae [193], Amaryllidaceae [6, 21, 63, 175], Annonaceae [111], Apiaceae [31, 217, 242, 246], Apocynaceae [141], Araceae [77, 86, 129, 133, 146, 229, 252], Arecaceae [68, 137, 143, 145], Asteraceae [34, 36, 37, 59, 65, 132], Berberidaceae [182], Bignoniaceae [21, 142], Brassicaceae [70, 105, 186, 221], Bromeliaceae [21], Cactaceae [125, 142], Calycanthaceae [120, 266], Caprifoliaceae [102], Caricaceae [141], Caryophyllaceae [54, 66, 112], Chloranthaceae [251], Cucurbitaceae [71], Cyclanthaceae [225], Dipsacaceae [5, 185], Euphorbiaceae [7], Fabaceae [21, 49, 62, 81, 138, 156, 159, 160, 179, 193, 212, 216, 235], Gesneriaceae [77], Grossulariaceae [89], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lamiaceae [261], Lauraceae [74], Lecythidaceae [121, 144], Liliaceae [92], Magnoliaceae [9, 11, 240, 264], Malvaceae [41, 142], Moraceae [82], Musaceae [21], Myrsinaceae [103], Nelumbonaceae [184, 198, 199], Nyctaginaceae [151], Oleaceae [33, 51, 57, 58, 119], Onagraceae [218], Orchidaceae [17, 23, 27, 28, 29, 76, 77, 78, 80, 96, 98, 116, 117, 120, 147, 169, 189, 190, 191, 192, 193, 195, 201, 203, 204, 236, 252, 253, 255, 258, 259], Passifloraceae [157], Pinaceae [25], Pittosporaceae [107], Polemoniaceae [5, 21, 217], Primulaceae [5, 36], Ranunculaceae [85, 207, 208, 209], Rosaceae [12, 33, 35, 40, 43, 51, 72, 128, 196, 219, 220, 228], Rubiaceae [141, 249], Ruscaceae [171], Rutaceae [119, 159, 172, 247], Salicaceae [245], Scrophulariaceae [64], Solanaceae [141, 165, 166, 167, 168, 222], Theophrastaceae [139], Thymelaeaceae [5], Valerianaceae [37], Verbenaceae [5], Winteraceae [210, 239], Violaceae [73], Zamiaceae [211], Zingiberaceae [141, 174]

α-Ocimene

Calycanthaceae [266], Fabaceae [153], Rubiaceae [249]

allo-Ocimene

Apiaceae [31], Araceae [229], Arecaceae [137], Fabaceae [179], Lauraceae [74], Moraceae [82], Nyctaginaceae [151], Orchidaceae [17, 180], Rubiaceae [5], Rutaceae [247], Verbenaceae [5]

(*E*)-*allo*-Ocimene

Arecaceae [143], Cactaceae [125], Zingiberaceae [174]

(*Z*)-*allo*-Ocimene

Zingiberaceae [174]

(*E,Z*)-*allo*-Ocimene

Berberidaceae [215]

neoallo-Ocimene

Araceae [229], Lauraceae [74]

(*E,E*)-*neoallo*-Ocimene (see also *neoallo*-Ocimene)

Berberidaceae [215]

Ocimene (3,7-Dimethyl-1,3,6-octatriene)

Amaryllidaceae [175], Araceae [134], Fabaceae [160, 161, 162, 163, 164, 175], Moraceae [82, 84], Oleaceae [171, 267], Orchidaceae [15, 76, 80, 95, 96, 98, 254, 255, 258, 260], Ranunculaceae [190], Rubiaceae [249], Ruscaceae [171], Rutaceae [247], Solanaceae [79], Verbenaceae [101]

(*E*)-Ocimene ((*E*)-β-Ocimene, see also Ocimene)

Actinidiaceae [237], Alliaceae [193], Amaryllidaceae [6, 63, 177, 232, 233], Apiaceae [31, 217, 246], Apocynaceae [141], Araceae [229], Arecaceae [68, 137, 143, 145], Asteraceae [5, 59, 132], Acanthaceae [10], Berberidaceae [215], Bignoniaceae [21, 142], Brassicaceae [70, 186, 221], Bromeliaceae [77], Cactaceae [113, 115, 122, 125], Calycanthaceae [120], Caprifoliaceae [102], Caricaceae [141], Caryophyllaceae [5, 66, 112, 141], Chloranthaceae [251], Combretaceae [10], Commelianaceae [121], Cucurbitaceae [71], Dipsacaceae [5], Fabaceae [21, 49, 50, 62, 81, 107, 120, 121, 138, 156, 179, 193, 212, 216, 235], Fumariaceae [56], Gentianaceae [45], Geraniaceae [32], Grossulariaceae [89], Hemerocallidaceae [33], Hyacinthaceae [38, 123, 150], Lamiaceae [5], Lauraceae [74], Lecythidaceae [121, 144], Lythraceae [10], Magnoliaceae [9, 11, 264], Malvaceae [41, 142], Moraceae [83], Nyctaginaceae [151], Oleaceae [33, 57, 58, 107, 150, 176, 178, 232, 233], Onagraceae [218], Orchidaceae [5, 8, 13, 17, 23, 27, 28, 77, 78, 116, 117, 118, 120, 121, 169, 191, 192, 193, 195, 201, 203, 236, 241, 243, 244, 253], Papaveraceae [62], Passifloraceae [157], Pittosporaceae [107], Polemoniaceae [5, 21], Primulaceae [36], Ranunculaceae [19, 59, 85, 207, 208, 209, 217], Rhizophoraceae [10], Rosaceae [40, 61, 72, 87, 88, 219, 220, 228], Rubiaceae [5, 121, 141], Ruscaceae [141, 232, 233], Rutaceae [119], Salicaceae [245], Sapotaceae [263], Scrophulariaceae [5, 64, 226], Solanaceae [121, 131,

141, 165, 166, 222], Theophrastaceae [139], Thymelaeaceae [5, 24, 234], Valerianaceae [5], Verbenaceae [5], Winteraceae [210, 239], Violaceae [73], Zamiaceae [211], Zingiberaceae [141, 174]

(*Z*)-Ocimene ((*Z*)-β-Ocimene)

Actinidiaceae [237], Alliaceae [193], Amaryllidaceae [6, 63, 232, 233], Apiaceae [31, 217, 246], Apocynaceae [141], Araceae [26, 86, 229], Arecaceae [68, 137, 143, 145], Asteraceae [5, 132], Acanthaceae [10], Berberidaceae [182, 215], Bignoniaceae [142], Brassicaceae [186], Cactaceae [125], Calycanthaceae [120], Caricaceae [141], Caryophyllaceae [141], Chloranthaceae [251], Cucurbitaceae [71], Dipsacaceae [5], Fabaceae [21, 50, 62, 81, 138, 156, 179, 193, 212, 216, 235], Grossulariaceae [89], Hemerocallidaceae [33], Hyacinthaceae [38, 123, 150], Lecythidaceae [121, 144], Magnoliaceae [9, 11, 264], Malvaceae [142], Nyctaginaceae [151], Oleaceae [33, 57, 58, 150, 176, 178], Orchidaceae [13, 17, 23, 27, 77, 78, 117, 118, 120, 191, 192, 193, 195, 201, 203, 236, 244, 253], Passifloraceae [157], Polemoniaceae [5, 21], Ranunculaceae [19, 85, 208, 217], Rosaceae [87, 88, 219, 220], Rubiaceae [5, 141], Rutaceae [172], Salicaceae [245], Scrophulariaceae [5, 226], Solanaceae [121, 141], Thymelaeaceae [5, 24], Valerianaceae [5], Verbenaceae [5], Winteraceae [239], Zamiaceae [211], Zingiberaceae [141, 174]

(*Z*)-β-Ocimene, see (*Z*)-Ocimene

Aldehydes

(*E*)-Citral, see Geranial

(*Z*)-Citral, see Neral

Citronellal

Arecaceae [137], Berberidaceae [215], Caprifoliaceae [102], Fabaceae [216], Gentianaceae [45], Myrsinaceae [103], Orchidaceae [23, 29, 77, 80, 117, 141, 147, 181, 255, 256, 258, 259], Passifloraceae [157], Rosaceae [51, 228], Rubiaceae [141], Ruscaceae [171], Rutaceae [119], Solanaceae [141], Violaceae [248], Zingiberaceae [268]

6(7)-Epoxyneral

Orchidaceae [117]

Geranial ((*E*)-Citral)

Apiaceae [246], Araceae [86, 133], Arecaceae [137], Cactaceae [125], Caprifoliaceae [102], Commelianaceae [121], Ericaceae [140], Lamiaceae [261], Lecythidaceae [121, 144], Magnoliaceae [11], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [178], Orchidaceae [28, 29, 77, 116, 117, 141, 180, 195, 241, 243, 244], Passifloraceae [157], Ranunculaceae [208, 209], Rosaceae [33, 35, 40, 43, 51, 60, 61, 72, 93, 128, 228], Rubiaceae [5], Rutaceae [247], Solanaceae [141], Thymelaeaceae [5]

Lilac aldehydes

Amaryllidaceae [63, 107], Apiaceae [246], Araceae [86], Caryophyllaceae [141], Oleaceae [33, 107, 178, 232, 233], Orchidaceae [13, 116, 117, 204, 241, 243, 244], Salicaceae [245]

Lilac aldehyde A (see also Lilac aldehydes)

Apocynaceae [121], Asteraceae [5], Caryophyllaceae [112], Lamiaceae [5], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5], Violaceae [73]

Lilac aldehyde B (see also Lilac aldehydes)

Apocynaceae [121], Berberidaceae [182], Caryophyllaceae [112], Lamiaceae [5], Orchidaceae [117], Polemoniaceae [5], Primulaceae [5], Rubiaceae [5], Violaceae [73]

Lilac aldehyde C (see also Lilac aldehydes)

Apocynaceae [121], Asteraceae [5], Berberidaceae [182], Lamiaceae [5], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Lilac aldehyde D (see also Lilac aldehydes)

Apocynaceae [121], Asteraceae [5], Caryophyllaceae [112], Lamiaceae [5], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Neral (*cis*-Citral)

Araceae [86], Cactaceae [125], Caprifoliaceae [102], Commelianaceae [121], Ericaceae [140], Fabaceae [216], Lamiaceae [261], Lecythidaceae [121, 144], Magnoliaceae [11], Nyctaginaceae [151], Orchidaceae [28, 77, 116, 117, 141, 180, 195, 241, 243, 244], Passifloraceae [157], Ranunculaceae [208, 209], Rosaceae [33, 35, 43, 60, 61, 93, 128], Rutaceae [247], Solanaceae [141], Verbenaceae [5]

Ketones

(*E*)-2(3)-Epoxy-2,6-dimethyl-5,7-octadien-4-one (2,6-Dimethyl-2(3)epoxyocta-5(*E*),7-dien-4-one)

Orchidaceae [117, 120]

Ipsdienone (2-methyl-6-methylene-2,7-octadien-4-one)
Amaryllidaceae [63], Arecaceae [137, 143, 145], Caryophyllaceae [5], Orchidaceae [78, 117, 120]
Ipsenone (2-methyl-6-methylene-7-octen-4-one)
Arecaceae [137, 145]
5-Ketolinalool
Adoxaceae [108], Fabaceae [108], Oleaceae [108], Simaroubaceae [108]
2-Methyl-6-methylene-1,7-octadien-2-one
Actinidiaceae [237]
2-Methyl-6-methylene-1,7-octadien-3-one
Asteraceae [213], Chloranthaceae [251], Cucurbitaceae [71], Moraceae [83], Rutaceae [247]
2-methyl-6-methylene-2,7-octadien-4-one, see Ipsdienone
2-methyl-6-methylene-7-octen-4-one, see Ipsenone
Ocimenone
Arecaceae [137]
Alcohols
Amitinol (2-Methyl-6-methylene-3,7-octadien-2-ol)
Arecaceae [145], Rutaceae [247]
β-Citronellol, see Citronellol
Citronellol (β-Citronellol)
Araceae [86, 129, 133, 229], Berberidaceae [215], Cactaceae [125], Commelianaceae [121], Ericaceae [140], Fabaceae [216], Gentianaceae [45], Lecythidaceae [144], Myrsinaceae [103], Oleaceae [57, 58], Orchidaceae [8, 13, 23, 29, 76, 77, 97, 116, 117, 141, 147, 243, 255, 256, 258], Passifloraceae [157], Ranunculaceae [208], Rosaceae [33, 35, 40, 51, 60, 61, 72, 93, 115, 128, 155, 178, 183, 196, 228, 232], Rubiaceae [141], Ruscaceae [171], Rutaceae [119, 247], Solanaceae [141]
2,6-Dimethyl-1,7-octadien-3,6-diol
Arecaceae [137], Rutaceae [247], Thymelaeaceae [24], Zingiberaceae [174]
(*E*)-2,6-Dimethyl-5,7-octadien-2,3-diol
Orchidaceae [117]
2,6-Dimethyl-3,7-octadien-2,6-diol
Amaryllidaceae [63], Arecaceae [137], Berberidaceae [182], Fabaceae [121], Passifloraceae [157], Rubiaceae [5], Rutaceae [247], Simaroubaceae [108], Thymelaeaceae [5, 24], Zingiberaceae [174]
2,6-Dimethyl-1,7-octadien-3-ol
Araceae [86, 229]
2,6-Dimethyl-3,7-octadien-2-ol
Araceae [229]
3,7-Dimethyl-1,6-octadien-3,4-diol
Orchidaceae [117]
3,7-Dimethyl-1,6-octadien-3-ol, see Linalool
(*E*)-3,7-Dimethyl-2,6-octadien-1-ol, see Geraniol
(*Z*)-3,7-Dimethyl-2,6-octadien-1-ol, see Nerol
2,6-Dimethyl-1,3,7-octatrien-6-ol, see Hotrienol
2,6-Dimethyl-1,5,7-octatrien-3-ol
Rutaceae [247], Zingiberaceae [174]
2,6-Dimethyl-3,5,7-octatrien-2-ol, see Ocimenol
(*E*)-2,6-Dimethyl-3,5,7-octatrien-2-ol, see (*E*)-Ocimenol
(*Z*)-2,6-Dimethyl-3,5,7-octatrien-2-ol, see (*Z*)-Ocimenol
3,7-Dimethyl-1,5,7-octatrien-3-ol
Zingiberaceae [174]
2(3)-Epoxygeraniol
Orchidaceae [120]
Geraniol ((*E*)-Geraniol, (*E*)-3,7-Dimethyl-2,6-octadien-1-ol)
Amaryllidaceae [6], Araceae [26, 86, 133], Arecaceae [137], Berberidaceae [215], Cactaceae [125], Caprifoliaceae [102], Dipsacaceae [185], Ericaceae [140], Fabaceae [81, 126, 216], Gentianaceae [45], Iridaceae [178], Lecythidaceae [121, 144], Magnoliaceae [11, 264], Malvaceae [41], Myrsinaceae [103], Oleaceae [39, 177, 178], Orchidaceae [8, 28, 29, 53, 77, 78, 115, 116, 117, 118, 141, 169, 195, 241, 243, 244, 254, 256, 258, 259], Passifloraceae [157], Primulaceae [36], Ranunculaceae [207, 208, 209], Rosaceae [33, 35, 40, 43, 51, 60, 61, 72, 93, 115, 128, 155, 178, 183, 196, 228, 232], Rubiaceae [141], Ruscaceae

[171, 232, 233], Rutaceae [119, 247], Sapindaceae [46], Scrophulariaceae [226], Solanaceae [141], Thymelaeaceae [5], Verbenaceae [5], Vitaceae [42, 44, 47], Zingiberaceae [174]

Hotrienol (2,6-Dimethyl-1,3,7-octatrien-6-ol)
Adoxaceae [108], Arecaceae [137], Oleaceae [108], Orchidaceae [77, 117], Rutaceae [172, 247], Simaroubaceae [108]

5-Hydroxylinalool
Adoxaceae [108], Fabaceae [107], Oleaceae [108], Orchidaceae [117], Simaroubaceae [108]

Ipsdienol (2-methyl-6-methylene-2,7-octadien-4-ol)
Amaryllidaceae [63], Araceae [252], Arecaceae [137, 143, 145], Orchidaceae [77, 78, 117, 120, 252, 253, 254, 258], Solanaceae [222]

Ipsenol (2-methyl-6-methylene-7-octen-4-ol)
Arecaceae [137]

(*E*)-Isogeraniol
Cactaceae [125]

(*Z*)-Isogeraniol
Cactaceae [125]

γ-Isogeraniol
Cactaceae [125]

Lilac alcohols
Amaryllidaceae [63, 107], Apiaceae [246], Caryophyllaceae [141], Oleaceae [33, 107, 171, 178, 232, 233], Orchidaceae [13, 116, 117, 194, 195, 204, 241, 243, 244], Polemoniaceae [233, 234], Salicaceae [245]

Lilac alcohol A (see also Lilac alcohols)
Apocynaceae [121], Berberidaceae [182], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Lilac alcohol B (see also Lilac alcohols)
Apocynaceae [121], Berberidaceae [182], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Lilac alcohol C (see also Lilac alcohols)
Apocynaceae [121], Berberidaceae [182], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Lilac alcohol D (see also Lilac alcohols)
Apocynaceae [121], Berberidaceae [182], Orchidaceae [117], Polemoniaceae [5], Rubiaceae [5]

Linalool (3,7-Dimethyl-1,6-octadien-3-ol)
Alliaceae [193], Amaryllidaceae [6, 21, 63, 175, 177], Annonaceae [170], Apiaceae [31, 246], Apocynaceae [1, 2, 121, 141, 173, 232, 233], Araceae [86, 146, 205], Arecaceae [10, 68, 137, 143, 145], Asteraceae [5, 65, 132], Berberidaceae [182, 215], Brassicaceae [22, 36, 70, 105, 142, 186, 217, 221], Cactaceae [21, 113, 115, 122, 125], Calycanthaceae [120, 266], Caprifoliaceae [102, 107, 175, 178], Caricaceae [141], Caryophyllaceae [5, 54, 112], Combretaceae [10], Commelianaceae [121], Cucurbitaceae [71, 175], Dipsacaceae [5], Fabaceae [62, 81, 107, 119, 120, 121, 126, 138, 153, 159, 175, 179, 193, 212, 216], Fumariaceae [197], Gentianaceae [45], Hemerocallidaceae [33], Hyacinthaceae [123, 150], Iridaceae [150, 178], Lamiaceae [261], Lauraceae [74], Lecythidaceae [121, 144], Liliaceae [92, 107], Lythraceae [10], Magnoliaceae [9, 11, 240, 264], Malvaceae [41, 94, 142], Moraceae [82, 83, 84], Myrsinaceae [103], Nelumbonaceae [184, 198, 199], Nyctaginaceae [151], Oleaceae [33, 39, 51, 52, 57, 58, 108, 114, 150, 176, 178, 267], Onagraceae [127, 175, 218, 265], Orchidaceae [5, 8, 13, 17, 28, 29, 30, 53, 75, 77, 78, 80, 97, 98, 100, 115, 116, 117, 118, 120, 121, 141, 169, 181, 188, 191, 192, 193, 194, 195, 201, 204, 241, 243, 244, 253, 255, 258, 259, 260], Passifloraceae [157], Pittosporaceae [107], Polemoniaceae [5, 217, 232, 233, 234], Primulaceae [36, 190], Ranunculaceae [19, 85, 207, 208, 209], Rhizophoraceae [10], Rosaceae [12, 33, 35, 37, 40, 43, 51, 128, 166, 219, 228], Rubiaceae [5, 141, 249], Ruscaceae [171], Rutaceae [2, 119, 159, 173, 247], Salicaceae [245], Sapotaceae [263], Simaroubaceae [108], Solanaceae [94, 141, 154, 165, 166], Theaceae [200], Theophrastaceae [139], Thymelaeaceae [5, 24, 234], Valerianaceae [37], Verbenaceae [5, 101, 175], Winteraceae [210, 239], Violaceae [73], Vitaceae [42, 44, 47], Zamiaceae [211], Zingiberaceae [141, 174, 268]

3-Methylene-7-methyl-1,6-octadien-4-ol, see 2-Methyl-6-methylene-2,7-octadien-5-ol

3-Methylene-7-methyl-1,7-octadien-6-ol, see 2-Methyl-6-methylene-1,7-octadien-3-ol

2-Methyl-6-methylene-1,7-octadien-3-ol (3-Methylene-7-methyl-1,7-octadien-6-ol)

Araceae [86], Rutaceae [247]
2-methyl-6-methylene-2,7-octadien-4-ol, see Ipsdienol
2-methyl-6-methylene-7-octen-4-ol, see Ipsenol
2-Methyl-6-methylene-2,7-octadien-5-ol (3-Methylene-7-methyl-1,6-octadien-4-ol)
Zingiberaceae [174]
2-Methyl-6-methylene-3,7-octadien-2-ol, see Amitinol
Myrcenol
Zingiberaceae [268]
Nerol ((*Z*)-Geraniol, (*Z*)-3,7-Dimethyl-2,6-octadien-1-ol)
Annonaceae [111], Araceae [146], Arecaceae [137], Brassicaceae [217], Cactaceae [125], Commelianaceae [121], Ericaceae [140], Fabaceae [81, 216], Iridaceae [178], Lecythidaceae [121, 144], Magnoliaceae [11, 264], Malvaceae [41], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [39], Orchidaceae [8, 13, 28, 76, 77, 98, 117, 141, 195, 243, 254, 258], Papaveraceae [62], Passifloraceae [157], Primulaceae [36], Ranunculaceae [207, 208, 209], Rosaceae [33, 35, 40, 51, 60, 61, 72, 93, 178, 228], Rubiaceae [141], Ruscaceae [171], Rutaceae [247], Solanaceae [141], Thymelaeaceae [5], Verbenaceae [5]
Ocimenols (2,6-Dimethyl-3,5,7-octatrien-2-ol)
Adoxaceae [115], Agavaceae [115], Amaryllidaceae [232, 233], Apocynaceae [115], Araceae [86], Cactaceae [115], Ericaceae [115], Fabaceae [115, 138], Hyacinthaceae [115, 150], Iridaceae [115, 150], Liliaceae [115], Magnoliaceae [108, 115], Malvaceae [115], Myrsinaceae [115], Oleaceae [115], Orchidaceae [115, 253], Passifloraceae [157], Resedaceae [115], Rutaceae [115], Solanaceae [115], Thymelaeaceae [115], Zingiberaceae [115]
(*E*)-Ocimenol ((*E*)-2,6-Dimethyl-3,5,7-octatrien-2-ol, see also Ocimenols)
Amaryllidaceae [63], Apocynaceae [141], Arecaceae [68, 137, 143, 145], Asteraceae [37], Cactaceae [113, 115, 122], Caryophyllaceae [66, 141], Fabaceae [62], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lecythidaceae [144], Malvaceae [142], Orchidaceae [77, 116, 117], Rubiaceae [5, 141], Solanaceae [141], Verbenaceae [5], Zingiberaceae [141]
(*Z*)-Ocimenol ((*Z*)-2,6-Dimethyl-3,5,7-octatrien-2-ol, see also Ocimenols)
Amaryllidaceae [63], Apocynaceae [141], Arecaceae [137, 143], Asteraceae [37], Cactaceae [113, 115], Caryophyllaceae [66, 141], Hemerocallidaceae [33], Hyacinthaceae [38, 123], Lecythidaceae [144], Malvaceae [142], Orchidaceae [77, 117], Rubiaceae [5], Solanaceae [141], Thymelaeaceae [5], Zingiberaceae [141]

Esters
Citronellyl acetate
Amaryllidaceae [6], Berberidaceae [215], Cactaceae [125], Myrsinaceae [103], Orchidaceae [8, 13, 29, 117], Passifloraceae [157], Ranunculaceae [208, 209], Rosaceae [33, 35, 40, 51, 60, 61, 72, 128, 155, 228, 232], Ruscaceae [171, 232, 233]
Citronellyl butanoate
Orchidaceae [117]
Citronellyl formate
Berberidaceae [215], Rosaceae [228]
Citronellyl hexanoate
Orchidaceae [117]
Citronellyl pentanoate
Orchidaceae [117]
3,7-Dimethyl-2,3-dihydroxy-6-octen-1-yl acetate
Orchidaceae [120]
3,7-Dimethyl-7-hydroxyocta-1,5-dien-3-yl acetate
Rutaceae [247]
3,7-Dimethyl-2-oxo-6-octen-1-yl acetate
Orchidaceae [120]
2(3)-Epoxygeranyl acetate (6(7)-Epoxygeranyl acetate)
Orchidaceae [77, 78, 117, 120]
6(7)-Epoxygeranyl acetate, see 2(3)-Epoxygeranyl acetate
Ethyl 3,7-dimethyl-6-octenoate
Orchidaceae [117]
Geranyl acetate
Amaryllidaceae [6], Apiaceae [31], Cactaceae [125], Fabaceae [81, 216], Lecythidaceae [121, 144], Lythraceae [10], Magnoliaceae [11], Malvaceae [41], Oleaceae [33], Orchidaceae [8, 77, 78, 116, 117, 120, 141], Passifloraceae [157], Ranunculaceae [207, 208, 209], Rosaceae [33, 35, 40, 43, 51, 60, 61, 72, 128, 228, 232], Ruscaceae [171], Solanaceae [141]

Geranyl butanoate
Orchidaceae [77], Passifloraceae [157]
Geranyl formate
Passifloraceae [157], Rosaceae [51, 228]
Geranyl propanoate
Asteraceae [5], Rosaceae [228]
Ipsdienyl acetate
Arecaceae [145], Orchidaceae [117, 120]
Lilac acetates
Amaryllidaceae [63], Caryophyllaceae [141], Orchidaceae [117, 241, 243]
Lilac acid methyl ester
Orchidaceae [117]
Linalyl acetate
Amaryllidaceae [6], Araceae [86], Cactaceae [113, 125], Caryophyllaceae [5, 54], Lauraceae [74], Musaceae [21], Orchidaceae [117], Passifloraceae [157], Polemoniaceae [21], Rosaceae [40], Rutaceae [247], Violaceae [248]
Methyl citronellate
Myrsinaceae [103], Orchidaceae [13]
Methyl 2,7-dimethyl-6-octenoate
Orchidaceae [117]
Methyl geranate
Araceae [86], Arecaceae [137], Berberidaceae [215], Ericaceae [140], Orchidaceae [77, 117, 120, 180], Passifloraceae [157], Ranunculaceae [207, 208, 209], Rosaceae [40, 93], Verbenaceae [5], Zamiaceae [211]
Methyl (*E*)-geranate
Rosaceae [33, 35]
Methyl (*Z*)-geranate, see Methyl nerylate
Methyl nerylate (Methyl (*Z*)-geranate)
Berberidaceae [215], Magnoliaceae [11], Rosaceae [33, 35]
Myrcenyl acetate
Arecaceae [145]
Neryl acetate
Cactaceae [125], Cucurbitaceae [71], Fabaceae [81, 216], Lecythidaceae [121, 144], Orchidaceae [8, 77, 117], Ranunculaceae [207, 208, 209], Rosaceae [33, 35, 40, 60, 61, 72, 128], Ruscaceae [171]
Neryl 2-methylbutanoate
Fabaceae [49, 156]

Ethers and epoxides
Acetaldehyde citronellylethyl acetal
Orchidaceae [117]
2(3)-Epoxy-citral
50 Orchidaceae [117]
3(4)-Epoxy-3,7-dimethyl-1,6-octadiene (5(6)-Epoxy-2,6-dimethyl-2,7-octadiene)
Solanaceae [121]
(*E*)-3(4)-Epoxy-3,7-dimethyl-1,6-octadiene ((*E*)-5(6)-Epoxy-2,6-dimethyl-2,7-octadiene)
Cactaceae [125], Calycanthaceae [120], Lecythidaceae [121], Orchidaceae [77, 117]
(*Z*)-3(4)-Epoxy-3,7-dimethyl-1,6-octadiene
Calycanthaceae [120]
(*E*)-5(6)-Epoxy-2,6-dimethyl-2,7-octadiene, see (*E*)-3(4)-Epoxy-3,7-dimethyl-1,6-octadiene
5(6)-Epoxy-2,6-dimethyl-2,7-octadiene, see 3(4)-Epoxy-3,7-dimethyl-1,6-octadiene
Epoxylinalool
Cucurbitaceae [71]
Epoxy rose furan
Arecaceae [143], Cactaceae [125]
Epoxy tagetone
Solanaceae [165]
Geranyl methyl ether
Magnoliaceae [11]
cis-Linalool-6,7-epoxide, see (*Z*)-6(7)-Linalool epoxide
6(7)-Linalool epoxide (Linalool-6,7-oxides)
Rutaceae [247]
(*E*)-6(7)-Linalool epoxide (see also 6(7)-Linalool epoxide)

Linalyl methyl ether
Cactaceae [113, 125]
4-Methyl-6-(2'-methyl-1'-propenyl)-3,6-dihydro-2*H*-pyran, see Rose oxide
Myrcene epoxide, see Myrcene oxide
Myrcene oxide (Myrcene epoxide)
Amaryllidaceae [63], Arecaceae [137, 143, 145], Orchidaceae [77, 78, 117], Rutaceae [247], Solanaceae [222]
Nerol oxide
Orchidaceae [117], Rosaceae [33, 35]
Neryl methyl ether
Magnoliaceae [11]
Ocimene epoxide, see Ocimene oxide
(*E*)-Ocimene epoxide, see (*E*)-Ocimene oxide
2(3)-Ocimene epoxide, see Ocimene oxide
(*E*)-2(3)-Ocimene epoxide, see (*E*)-Ocimene oxide
Ocimene oxide (2(3)-Ocimene epoxide, Ocimene epoxide)
Fabaceae [62], Rutaceae [247]
(*E*)-Ocimene oxide ((*E*)-2(3)-Ocimene epoxide, (*E*)-Ocimene epoxide, (*E*)-6,7-Ocimene oxide, see also Ocimene oxide)
Amaryllidaceae [63, 232, 233], Apiaceae [246], Apocynaceae [141], Arecaceae [137, 143], Cactaceae [125], Caryophyllaceae [66, 141], Hemerocallidaceae [33], Lecythidaceae [144], Orchidaceae [77, 116, 117, 120, 121], Polemoniaceae [5], Ranunculaceae [19], Solanaceae [121], Valerianaceae [5], Verbenaceae [5], Zingiberaceae [141, 174]
(*Z*)-Ocimene oxide ((*Z*)-Ocimene epoxide, (*Z*)-6,7-Ocimene oxide, see also Ocimene oxide)
Arecaceae [137, 143], Hemerocallidaceae [33], Valerianaceae [5], Zingiberaceae [174]
(*Z*)-6,7-Ocimene oxide, see (*Z*)-Ocimene oxide
(*E*)-6,7-Ocimene oxide, see (*E*)-Ocimene oxide
Rose furan
Cactaceae [125]
Rose oxide (4-Methyl-6-(2'-methyl-1'-propenyl)-3,6-dihydro-2*H*-pyran)
Cactaceae [125], Orchidaceae [117], Rosaceae [72, 178, 196, 228, 232], Ruscaceae [171]
(*E*)-Rose oxide ((*E*)-4-Methyl-6-(2'-methyl-1'-propenyl)-3,6-dihydro-2*H*-pyran, see also Rose oxide)
Berberidaceae [215], Gentianaceae [45], Malvaceae [41], Rosaceae [33, 35, 51]
(*Z*)-Rose oxide ((*Z*)-4-Methyl-6-(2'-methyl-1'-propenyl)-3,6-dihydro-2*H*-pyran, see also rose oxide)
Berberidaceae [215], Cactaceae [113], Gentianaceae [45], Myrsinaceae [103], Rosaceae [33, 35, 51]
2,6,6-Trimethyl-2-vinyl-4-acetoxytetrahydropyran, see Linalool oxide acetate (pyranoid)

Irregular
Ketones
Artemisia ketone
Asteraceae [34, 37]

Alcohols
Artemisia alcohol
Asteraceae [34, 37]
(*E*)-Chrysanthemol
Asteraceae [34]
Lavandulol
Asteraceae [37], Lecythidaceae [144], Orchidaceae [117], Polemoniaceae [5], Sapotaceae [263], Scrophulariaceae [5], Theophrastaceae [139], Thymelaeaceae [5], Valerianaceae [37]
Yomogi alcohol
Asteraceae [34]

Esters
Lavandulyl acetate
Asteraceae [5, 37], Lecythidaceae [144], Malvaceae [142], Orchidaceae [117], Primulaceae [5],, Theophrastaceae [139]
Lavandulyl 2-methylbutanoate
Valerianaceae [37]
Lavandulyl 3-methylbutanoate

Valerianaceae [37]
Lavandulyl pentanoate
Valerianaceae [37]
Lavandulyl propanoate
Asteraceae [5]
Methyl chrysantemate
Orchidaceae [23]

p-menthane skeleton
Hydrocarbons
Cymene
Apiaceae [217], Moraceae [82]
o-Cymene
Araceae [129], Asteraceae [132]
p-Cymene
Annonaceae [111], Apiaceae [31, 242], Apocynaceae [141], Araceae [86, 229], Arecaceae [143], Asteraceae [5, 34, 37], Berberidaceae [182], Brassicaceae [22], Cactaceae [113, 125], Calycanthaceae [266], Caryophyllaceae [5, 54], Cycadaceae [211], Dipsacaceae [185], Fabaceae [126, 212], Gentianaceae [45], Geraniaceae [32], Hemerocallidaceae [33], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [264], Malvaceae [41], Meliaceae [250], Musaceae [21], Nelumbonaceae [184], Oleaceae [177], Orchidaceae [23, 27, 77, 117, 120, 201, 254, 258], Primulaceae [5, 36], Rosaceae [33, 35, 37, 43, 228], Rutaceae [247], Solanaceae [141], Theophrastaceae [139], Zamiaceae [211]
p-Cymenene
Araceae [86], Lauraceae [74]
Limonene
Actinidiaceae [237], Agavaceae [142, 178], Alliaceae [36], Amaryllidaceae [6, 21, 63], Annonaceae [111], Apiaceae [31, 242, 246], Apocynaceae [141], Araceae [77, 86, 129, 133, 134, 146, 205, 229], Arecaceae [21, 68, 137, 143], Asteraceae [34, 36, 37, 59, 65, 132, 213], Berberidaceae [182, 215], Bignoniaceae [21, 142], Brassicaceae [22, 70, 105, 186, 217, 221], Bromeliaceae [21, 77], Cactaceae [21, 113, 115, 122, 125], Calycanthaceae [120, 266], Caprifoliaceae [102], Caryophyllaceae [5, 54, 66, 112, 141], Chloranthaceae [251], Cucurbitaceae [71], Cyclanthaceae [225], Dipsacaceae [5], Euphorbiaceae [7, 254], Fabaceae [21, 49, 62, 138, 156, 159, 160, 193, 212, 235], Fumariaceae [197], Gentianaceae [45], Geraniaceae [32], Gesneriaceae [77], Grossulariaceae [89], Hemerocallidaceae [33], Hyacinthaceae [38], Lamiaceae [261], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [9, 11, 240, 264], Malvaceae [41, 94, 142], Moraceae [82, 84], Musaceae [21], Myrsinaceae [103], Nelumbonaceae [184, 198, 199], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 51, 57, 58, 119, 150, 267], Onagraceae [218], Orchidaceae [8, 13, 17, 23, 27, 28, 29, 75, 76, 77, 78, 80, 95, 96, 106, 116, 117, 120, 141, 147, 169, 180, 189, 190, 191, 192, 193, 195, 201, 204, 224, 253, 254, 258], Pinaceae [25], Polemoniaceae [5, 21, 217], Primulaceae [36, 190], Ranunculaceae [85, 208, 209, 217], Rosaceae [12, 33, 35, 37, 40, 43, 51, 72, 87, 88, 128, 196, 219, 220, 228], Rubiaceae [5, 141, 249], Ruscaceae [141, 171], Rutaceae [2, 119, 159, 172, 247], Salicaceae [245], Sapindaceae [46], Solanaceae [94, 121, 131, 141, 165, 166, 167, 168, 222], Theophrastaceae [139], Valerianaceae [37], Verbenaceae [5], Winteraceae [210, 239], Violaceae [73, 248], Vitaceae [42, 44, 47], Zamiaceae [211], Zingiberaceae [141, 174]
Menthatriene
Nyctaginaceae [151], Rubiaceae [5], Thymelaeaceae [5]
p-Menthatriene
Fabaceae [81]
p-Mentha-1,3,8-triene
Araceae [86]
p-Mentha-1(7),2,8-triene
Araceae [86], Arecaceae [143]
p-Mentha-1(7),3,8-triene
Araceae [86]
Perillene
Amaryllidaceae [21], Araceae [86], Bignoniaceae [21], Brassicaceae [70], Cactaceae [125], Fabaceae [21, 104], Magnoliaceae [11, 264], Orchidaceae [117, 191, 201], Rosaceae [33, 35, 43, 166], Zingiberaceae [268]

Phellandrene
Nyctaginaceae [151]
α-Phellandrene (see also Phellandrene)
Apiaceae [242], Araceae [86, 229], Asteraceae [36, 132], Caryophyllaceae [5, 112, 141], Chloranthaceae [251], Fabaceae [212], Geraniaceae [32], Lauraceae [74], Lecythidaceae [144], Malvaceae [41], Orchidaceae [77, 78, 95, 117, 181, 203, 254, 258], Rosaceae [219], Ruscaceae [171], Verbenaceae [5], Winteraceae [239]
β-Phellandrene (see also Phellandrene)
Apiaceae [31, 242, 246], Araceae [86, 229], Arecaceae [143], Asteraceae [34, 59], Brassicaceae [142], Caryophyllaceae [5], Chloranthaceae [251], Fabaceae [212], Geraniaceae [32], Grossulariaceae [89], Lecythidaceae [144], Magnoliaceae [11, 240], Malvaceae [41, 142], Moraceae [82], Orchidaceae [17, 23, 28, 77, 78, 117, 191, 192, 201, 203], Pinaceae [25], Polemoniaceae [5], Primulaceae [5], Rosaceae [33, 35], Ruscaceae [171], Rutaceae [247], Solanaceae [121], Verbenaceae [5], Winteraceae [239], Zamiaceae [211]
α-Terpinene
Araceae [26, 86, 229], Arecaceae [137, 143], Asteraceae [36], Brassicaceae [22], Fabaceae [138, 212], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [264], Nelumbonaceae [184, 198, 199], Nyctaginaceae [151], Orchidaceae [28, 77, 100, 117, 180, 191, 258], Rosaceae [51, 228], Ruscaceae [171], Zamiaceae [211]
β-Terpinene
Cucurbitaceae [71], Nyctaginaceae [151]
γ-Terpinene
Amaryllidaceae [21], Apiaceae [31], Araceae [86, 146], Arecaceae [143], Berberidaceae [215], Bignoniaceae [21], Cactaceae [125], Calycanthaceae [120], Caprifoliaceae [102], Cucurbitaceae [71], Dipsacaceae [185], Fabaceae [21, 212], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [240], Malvaceae [41], Moraceae [82], Musaceae [21], Nelumbonaceae [184, 198, 199], Orchidaceae [117, 180, 189, 191, 203], Rosaceae [12], Ruscaceae [171], Rutaceae [2, 119], Theophrastaceae [139], Zamiaceae [211]
Terpinolene
Amaryllidaceae [6], Araceae [129, 133, 229], Arecaceae [137, 143], Asteraceae [34, 36], Bignoniaceae [142], Calycanthaceae [120], Ericaceae [136], Fabaceae [21, 138, 212], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [11, 240], Malvaceae [41], Nelumbonaceae [184, 198, 199], Orchidaceae [77, 117, 120, 258], Pinaceae [25], Primulaceae [5], Rosaceae [12, 43, 228], Rubiaceae [5], Ruscaceae [171], Solanaceae [131], Thymelaeaceae [5], Winteraceae [239], Violaceae [73], Zamiaceae [211], Zingiberaceae [174]
α-Terpinolene
Apiaceae [31], Araceae [86, 146], Nyctaginaceae [151], Polemoniaceae [217]

Aldehydes
p-Mentha-1,3-diene-7-al
Araceae [229]
p-Menth-1-en-7-al
Orchidaceae [117]
Perillaldehyde
Araceae [229]
Phellandral
Araceae [229]

Ketones
Carvenone, see Carvone
Carvone (Carvenone)
Araceae [146, 229], Caryophyllaceae [54, 112], Euphorbiaceae [7], Gesneriaceae [77], Oleaceae [57, 58], Orchidaceae [77, 97, 98, 117, 254, 256, 258]
Carvotanacetone
Orchidaceae [117]
Dihydrocarvone
Araceae [86, 146], Orchidaceae [77, 117, 254, 258]
(*E*)-Dihydrocarvone (see also Dihydrocarvone)
Araceae [146], Cucurbitaceae [71]
(*Z*)-Dihydrocarvone (see also Dihydrocarvone)
Araceae [146]
Dill ether

Araceae [86], Calycanthaceae [120]
Eucarvone
Nyctaginaceae [151]
5-Hydroxy-*p*-mentha-6-ene-2-one
Araceae [229]
4-Hydroxy-3-methyl-6-(1-methylethyl)-2-cyclohexen-1-one
Araceae [229]
Isomenthone
Orchidaceae [117]
Menthone
Araceae [229], Caryophyllaceae [54], Gentianaceae [45], Oleaceae [57, 58], Orchidaceae [117]
3-Methyl-6-(-1-methylethyl)-2-cyclohexen-1-one, see Piperitone
Piperitenone, see Piperitone
Piperitone (Piperitenone, 3-Methyl-6-(-1-methylethyl)-2-cyclohexen-1-one)
Araceae [86, 229], Lauraceae [74], Nyctaginaceae [151], Orchidaceae [117], Polemoniaceae [5]
(+)-Pulegone
Lamiaceae [261], Malvaceae [41]
Alcohols
Carvacrol
Araceae [229], Caryophyllaceae [5], Lauraceae [74], Orchidaceae [117], Primulaceae [5]
Carveol
Nyctaginaceae [151]
(*E*)-Carveol (see also Carveol)
Asteraceae [214], Malvaceae [41]
L-Carveol (see also Carveol)
Annonaceae [111]
(*Z*)-Carveol (see also Carveol)
Araceae [86], Caryophyllaceae [112]
p-Cymenol-(8), see *p*-Cymen-8-ol
p-Cymen-8-ol (*p*-Cymenol-(8))
Araceae [86, 229], Oleaceae [33], Orchidaceae [117, 243], Zamiaceae [211]
5-Hydroxycineole
Araceae [146]
endo-2-Hydroxycineole
Apocynaceae [232, 233]
exo-2-Hydroxycineole
Fabaceae [212]
(*E*)-2-Hydroxy-1,8-cineole
Orchidaceae [117]
Isomenthol
Orchidaceae [117]
p-Mentha-1,8-dien-4-ol
Araceae [229]
p-Mentha-1,3-dien-8-ol
Orchidaceae [117]
p-Mentha-1,5-dienol-(8)
Hemerocallidaceae [33]
p-Mentha-1(7),2-dienol-(8)
Hemerocallidaceae [33]
(*E*)-*p*-Mentha-1,7-dien-3-ol
Orchidaceae [117]
(*E*)-*p*-Mentha-2,8-dien-1-ol
Araceae [86]
(*Z*)-*p*-Mentha-2,8-dien-1-ol
Araceae [86]
p-Menth-6-en-3,8-diol
Zingiberaceae [174]
(*E*)-Menthenol
Arecaceae [143]

p-Menth-1(7)-en-8-ol
Zingiberaceae [174]
Menthol
Gentianaceae [45], Lauraceae [74], Magnoliaceae [264], Myrsinaceae [103], Oleaceae [57, 58], Orchidaceae [117], Passifloraceae [157], Rosaceae [43]
Perilla alcohol
Orchidaceae [117]
α-Phellandren-8-ol
Araceae [86]
β-Phellandren-8-ol
Araceae [86]
(*E*)-Piperitol
Araceae [229]
(*Z*)-Piperitol
Araceae [86, 229]
Terpinen-4-ol (4-Terpineol)
Amaryllidaceae [6], Araceae [86, 129], Caprifoliaceae [102], Dipsacaceae [185], Fabaceae [138, 212], Lauraceae [74], Lecythidaceae [144], Nelumbonaceae [178, 184, 198, 199], Nyctaginaceae [151], Orchidaceae [77, 116, 117, 191, 258], Rosaceae [33, 35, 228], Rutaceae [119], Zingiberaceae [268]
α-Terpineol
Agavaceae [178], Amaryllidaceae [6, 107], Araceae [77, 86, 146], Arecaceae [137], Asteraceae [37], Berberidaceae [215], Brassicaceae [186], Cactaceae [122, 125], Calycanthaceae [120], Caprifoliaceae [102], Caricaceae [141], Caryophyllaceae [5, 54, 112, 141], Cucurbitaceae [71], Dipsacaceae [5], Ericaceae [136], Fabaceae [126, 138, 212], Fumariaceae [56], Iridaceae [150, 178], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [11, 240], Myrsinaceae [103], Nelumbonaceae [178, 184, 198, 199], Oleaceae [33, 39, 57, 58], Orchidaceae [77, 96, 116, 117, 141, 192, 201, 253, 255], Primulaceae [36], Rosaceae [228], Rutaceae [2, 119, 247], Solanaceae [131, 141, 165, 166, 167], Theophrastaceae [139], Violaceae [73], Zamiaceae [211], Zingiberaceae [141, 174]
δ-Terpineol
Orchidaceae [117]
γ-Terpineol
Amaryllidaceae [6]
4-Terpineol, see Terpinen-4-ol
Terpin-1-ol hydrate
Oleaceae [39]
Thymol
Araceae [229], Lauraceae [74], Oleaceae [33, 51], Rosaceae [43]

Esters

Perillyl acetate
Asteraceae [214]
Terpinen-4-yl acetate, see 4-Terpinenyl acetate
4-Terpinenyl acetate (Terpinen-4-yl acetate)
Orchidaceae [117]
α-Terpinyl acetate
Caprifoliaceae [102], Caryophyllaceae [5], Lauraceae [74]

Ethers and epoxides

Ascaridol
Araceae [86], Asteraceae [214]
Carvacrol methyl ether
Lauraceae [74]
(*E*)-((*E*)-Carveol) epoxide
Orchidaceae [117, 120]
Carvone epoxide, see Carvone oxide
Carvone oxide (Carvone epoxide)
Euphorbiaceae [7]
(*E*)-Carvone oxide (*trans*-Carvone epoxide, see also Carvone oxide)
Euphorbiaceae [7, 254], Gesneriaceae [77], Orchidaceae [77, 117, 120, 158, 254]
(*Z*)-Carvone epoxide (see also Carvone oxide)
Orchidaceae [117, 120]

Cineole
Rosaceae [128]
1,4-Cineole (see also Cineole)
Caryophyllaceae [54], Oleaceae [33]
1,8-Cineole (see also Cineole)
Actinidiaceae [237], Amaryllidaceae [6, 21, 63], Annonaceae [111], Apocynaceae [1, 121, 141], Araceae [77, 146, 152], Arecaceae [68, 137, 143], Asteraceae [34, 37], Bignoniaceae [21], Brassicaceae [22, 70, 105, 186], Bromeliaceae [21, 77], Calycanthaceae [120], Caprifoliaceae [102], Caryophyllaceae [54, 112], Cucurbitaceae [71], Dipsacaceae [5, 185], Euphorbiaceae [254], Fabaceae [212], Gentianaceae [5, 45], Geraniaceae [32], Gesneriaceae [77], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [240, 264], Malvaceae [142], Meliaceae [250], Moraceae [82, 83], Nelumbonaceae [184, 198, 199], Oleaceae [33], Orchidaceae [76, 77, 78, 95, 96, 97, 98, 106, 116, 117, 120, 181, 192, 201, 224, 253, 254, 255, 256, 258, 259], Polemoniaceae [217], Rosaceae [33, 35], Rutaceae [119, 247], Salicaceae [245], Sapindaceae [46], Solanaceae [131, 141, 165, 166, 167, 168, 222], Valerianaceae [5], Violaceae [73], Zingiberaceae [141, 174]
Limonene diepoxide
Nyctaginaceae [151]
(*E*)-Limonene epoxide, see (*E*)-Limonene oxide
(*Z*)-Limonene epoxide, see (*Z*)-Limonene oxide
Limonene oxides
Araceae [229], Orchidaceae [77, 78]
(*E*)-Limonene oxide ((*E*)-Limonene epoxide, (*E*)-Limonene-1,2-oxide, see also Limonene oxides)
Araceae [86], Euphorbiaceae [95], Orchidaceae [95, 117, 253], Violaceae [248]
(*Z*)-Limonene oxide ((*Z*)-Limonene epoxide, (*Z*)-Limonene-1,2-oxide, see also Limonene oxides)
Araceae [86], Orchidaceae [95, 117], Violaceae [248]
(*E*)-Limonene-1,2-oxide, see (*E*)-Limonene oxide
(*Z*)-Limonene-1,2-oxide, see (*Z*)-Limonene oxide
Menthofuran
Araceae [86]
Piperitone oxide
Araceae [86]
Terpinolene epoxide
Araceae [229]
α-Terpinyl methyl ether
Berberidaceae [215]
Thymol methyl ether
Lauraceae [74]
Bicyclo[2.2.1]
Hydrocarbons
Camphene
Amaryllidaceae [63], Apiaceae [31, 242, 246], Araceae [86, 229], Asteraceae [34, 37, 99], Berberidaceae [215], Caryophyllaceae [54], Chloranthaceae [251], Euphorbiaceae [7, 254], Fabaceae [21], Gentianaceae [45], Lauraceae [74], Malvaceae [41, 142], Moraceae [82], Musaceae [21], Nyctaginaceae [151], Oleaceae [33, 51, 150], Orchidaceae [117, 254, 258], Ranunculaceae [85], Rosaceae [12, 33, 35, 40, 128, 219, 220, 228], Rutaceae [172], Salicaceae [245], Sapindaceae [46], Winteraceae [210, 239], Zingiberaceae [174]
α-Camphene (see also Camphene)
Lamiaceae [261]
α-Fenchene
Apiaceae [31], Araceae [86], Oleaceae [33], Orchidaceae [180]
Santene
Nyctaginaceae [151]
Ketones
Camphor
Amaryllidaceae [21, 63], Arecaceae [21], Asteraceae [34, 99], Bromeliaceae [21], Caryophyllaceae [54, 112], Gentianaceae [45], Hydnoraceae [48], Lauraceae [74], Malvaceae [41], Meliaceae [250], Musaceae [21], Oleaceae [150], Orchidaceae [224], Polemoniaceae [217], Rosaceae [12, 35, 37, 40], Zingiberaceae [268]

- Fenchone
  - Araceae [86, 229], Magnoliaceae [264], Orchidaceae [117]
- Alcohols
  - Borneol
    - Amaryllidaceae [63], Araceae [86], Asteraceae [34], Calycanthaceae [120], Lauraceae [74], Oleaceae [33], Orchidaceae [27], Pinaceae [25], Primulaceae [36], Rosaceae [43]
  - Fenchol
    - Araceae [86], Fabaceae [212], Myrsinaceae [103]
  - Isoborneol
    - Amaryllidaceae [63]
- Esters
  - Bornyl acetate
    - Amaryllidaceae [6], Araceae [86], Asteraceae [214], Bignoniaceae [21], Calycanthaceae [120], Gentianaceae [45], Lamiaceae [261], Musaceae [21], Oleaceae [171], Orchidaceae [30, 117], Pinaceae [25], Rosaceae [43]
  - Fenchyl acetate
    - Araceae [86, 229], Caryophyllaceae [112]
  - Isobornyl acetate
    - Araceae [229], Caryophyllaceae [54], Lauraceae [74], Orchidaceae [117]
- Ethers and epoxides
  - Camphene epoxide 1
    - Amaryllidaceae [63]
  - Camphene epoxide 2
    - Amaryllidaceae [63]

Bicyclo[3.1.0]

- Hydrocarbons
  - Sabinene
    - Agavaceae [142], Amaryllidaceae [6, 21], Annonaceae [111], Apiaceae [31, 217, 242, 246], Apocynaceae [121, 141, 232, 233], Araceae [86, 129, 133, 146, 229], Arecaceae [137, 143], Asteraceae [34, 36, 37], Berberidaceae [215], Bignoniaceae [142], Brassicaceae [70, 105, 142, 186], Calycanthaceae [120], Caprifoliaceae [102], Chloranthaceae [251], Cucurbitaceae [71], Cycadaceae [211], Dipsacaceae [5], Fabaceae [62, 81, 138, 212, 216], Geraniaceae [32], Gesneriaceae [77], Grossulariaceae [89], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [9, 11, 264], Malvaceae [41, 142], Moraceae [82, 83], Myrsinaceae [103], Nelumbonaceae [178, 184, 198, 199], Nyctaginaceae [151], Oleaceae [33, 119], Orchidaceae [17, 77, 78, 117, 120, 147, 192, 195, 201, 253], Primulaceae [5], Ranunculaceae [85], Rosaceae [33, 35, 228], Rubiaceae [141], Rutaceae [119, 247], Salicaceae [245], Solanaceae [141, 165, 166, 167, 168], Theophrastaceae [139], Verbenaceae [5], Violaceae [73], Zingiberaceae [141, 174]
  - α-Thujene
    - Agavaceae [142], Araceae [77, 86], Arecaceae [137, 143], Berberidaceae [215], Bignoniaceae [21, 142], Brassicaceae [105, 142, 221], Calycanthaceae [120], Chloranthaceae [251], Cucurbitaceae [71], Fabaceae [21, 81, 126, 212, 216], Lauraceae [74], Lecythidaceae [144], Malvaceae [142], Moraceae [82], Musaceae [21], Orchidaceae [77, 117, 201, 253], Primulaceae [5], Solanaceae [131, 165, 166], Verbenaceae [5], Zingiberaceae [268]
  - β-Thujene
    - Calycanthaceae [266], Oleaceae [51]
- Ketones
  - Sabina ketone
    - Calycanthaceae [266]
  - 3-Thujen-2-one
    - Lauraceae [74]
  - α-Thujone
    - Cucurbitaceae [71], Fabaceae [126]
- Alcohols
  - Sabinene hydrate
    - Asteraceae [213], Orchidaceae [116], Rosaceae [51]
  - (*E*)-Sabinene hydrate (*trans*-4-Thujanol, *trans*-Thujanol, see also Sabinene hydrate)
    - Araceae [86, 129], Arecaceae [137], Calycanthaceae [120], Caprifoliaceae [102], Lauraceae [74], Orchidaceae [30, 117], Passifloraceae [157], Rosaceae [33, 35], Rutaceae [119], Solanaceae [131], Theophrastaceae [139], Verbenaceae [5]

(*Z*)-Sabinene hydrate (*cis*-4-Thujanol, see also Sabinene hydrate)
Araceae [86, 146], Arecaceae [137], Cucurbitaceae [71], Lauraceae [74], Theophrastaceae [139], Violaceae [73]
Sabinol
Araceae [86]
trans-Thujanol, see (*E*)-Sabinene hydrate
cis-4-Thujanol, see (*Z*)-Sabinene hydrate
trans-4-Thujanol, see (*E*)-Sabinene hydrate
Thujol
Nyctaginaceae [151]
Thujylalcohol
Orchidaceae [254]
Bicyclo[3.1.1]
Hydrocarbons
α-Pinene
Agavaceae [142], Alliaceae [36], Amaryllidaceae [6, 21, 63], Annonaceae [111], Apiaceae [31, 242, 246], Apocynaceae [1], Araceae [86, 129, 133, 146, 205, 229], Arecaceae [21, 137, 143], Asteraceae [5, 34, 36, 37, 59, 65, 99], Berberidaceae [182], Bignoniaceae [21, 142], Brassicaceae [22, 70, 105, 142, 186, 217, 221], Bromeliaceae [21], Calycanthaceae [120], Caprifoliaceae [102], Caryophyllaceae [5, 54, 66, 112], Chloranthaceae [251], Cucurbitaceae [71], Dipsacaceae [5, 185], Euphorbiaceae [7, 254], Fabaceae [21, 81, 126, 138, 212, 216, 235], Fumariaceae [197], Gentianaceae [45], Geraniaceae [32], Gesneriaceae [77], Grossulariaceae [89], Hemerocallidaceae [33], Lamiaceae [261], Lauraceae [74], Lecythidaceae [144], Liliaceae [92], Magnoliaceae [9, 11, 240], Malvaceae [94, 142], Meliaceae [250], Moraceae [82, 83], Musaceae [21], Nelumbonaceae [184], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 51, 119, 150], Onagraceae [218], Orchidaceae [5, 17, 23, 27, 28, 29, 76, 77, 78, 80, 95, 96, 97, 98, 116, 117, 120, 141, 147, 169, 180, 181, 189, 190, 192, 195, 201, 204, 224, 244, 253, 254, 255, 256, 258, 259], Orobanchaceae [20], Passifloraceae [157], Pinaceae [25], Pittosporaceae [107], Polemoniaceae [21, 217], Primulaceae [36], Ranunculaceae [85, 209], Rosaceae [12, 33, 35, 40, 43, 128, 219, 220, 228], Rutaceae [2, 119, 172], Salicaceae [245], Sapindaceae [46], Scrophulariaceae [226], Solanaceae [94, 131, 222], Valerianaceae [37], Verbenaceae [5], Winteraceae [210, 239], Violaceae [73], Zamiaceae [211]
β-Pinene
Agavaceae [142], Alliaceae [36], Amaryllidaceae [6, 63], Annonaceae [111], Apiaceae [31, 217, 242, 246], Apocynaceae [1], Araceae [77, 86, 129, 133, 146, 205, 229], Arecaceae [137, 143], Asteraceae [34, 36, 37, 59, 65], Bignoniaceae [21, 142], Brassicaceae [70, 105, 142, 186], Bromeliaceae [21], Calycanthaceae [120], Caryophyllaceae [54, 112], Chloranthaceae [251], Cucurbitaceae [71], Dipsacaceae [5], Euphorbiaceae [7], Fabaceae [21, 138, 212], Gentianaceae [45], Geraniaceae [32], Gesneriaceae [77], Grossulariaceae [89], Hemerocallidaceae [33], Lauraceae [74], Lecythidaceae [144], Liliaceae [92], Magnoliaceae [11, 238, 240, 264], Malvaceae [142], Meliaceae [250], Moraceae [82], Musaceae [21], Myrsinaceae [103], Nelumbonaceae [184], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 119, 150, 267], Orchidaceae [13, 17, 23, 27, 28, 29, 76, 77, 78, 80, 95, 96, 97, 98, 116, 117, 120, 147, 180, 192, 201, 203, 204, 253, 255, 256, 258, 259], Pinaceae [25], Polemoniaceae [5, 21], Primulaceae [5, 36], Ranunculaceae [85, 209], Rosaceae [12, 33, 35, 40, 72, 128, 196], Rutaceae [2, 119, 172], Salicaceae [245], Sapindaceae [46], Solanaceae [131, 165, 222], Theophrastaceae [139], Valerianaceae [37], Verbenaceae [5], Winteraceae [210, 239], Violaceae [73], Zamiaceae [211]
Verbenene
Araceae [86]
Aldehydes
(*E*)-Myrtanal
Hydrangeaceae [108]
(*Z*)-Myrtanal
Hydrangeaceae [108], Orchidaceae [117]
Myrtenal
Hydrangeaceae [108], Magnoliaceae [108], Orchidaceae [117]
Ketones
Chrysanthenone

Dipsacaceae [5], Magnoliaceae [108]
Isopinocamphone
Chloranthaceae [251], Lauraceae [74], Magnoliaceae [11, 108, 240]
3-Methylnopinone
Dipsacaceae [185]
Nopinone
Hydrangeaceae [108]
Pinocamphone
Calycanthaceae [266]
Pinocarvone
Amaryllidaceae [63], Araceae [229], Asteraceae [37], Oleaceae [33]
3,6,6-Trimethyl-bicyclo[3.1.1]heptan-2-one
Dipsacaceae [5], Primulaceae [5]
4,6,6-Trimethyl-bicyclo[3.1.1]hept-3-enone, see Verbenone
(*Z*)-Verbanone
Magnoliaceae [108]
Verbenone (4,6,6-Trimethyl-bicyclo[3.1.1]hept-3-enone)
Araceae [262], Asteraceae [214], Dipsacaceae [5, 185], Lecythidaceae [144], Magnoliaceae [11, 108, 240, 264], Nyctaginaceae [151], Oleaceae [57, 58], Orchidaceae [5, 27, 116, 117, 204], Polemoniaceae [217], Scrophulariaceae [5]
Alcohols
(*E*)-Myrtanol
Orchidaceae [117]
(*Z*)-Myrtanol
Orchidaceae [117]
Myrtenol
Araceae [229], Asteraceae [37], Hydrangeaceae [108], Lecythidaceae [144], Magnoliaceae [108], Oleaceae [33], Orchidaceae [117]
3-Pinen-2-ol
Orchidaceae [28]
(*E*)-Pinocarveol
Asteraceae [37], Lecythidaceae [144], Orchidaceae [117]
(*Z*)-Pinocarveol
Orchidaceae [117]
(*E*)-Verbenol
Araceae [86], Magnoliaceae [108], Orchidaceae [117]
(*Z*)-Verbenol
Orchidaceae [117]
Esters
Myrtenyl 2-methylbutanoate
Asteraceae [37]
Myrtenyl 2-methylpropanoate
Asteraceae [37]
Ethers and epoxides
α-Pinene epoxides, see α-Pinene oxide
α-Pinene oxide (α-Pinene epoxide)
Nyctaginaceae [151], Orchidaceae [253]
(*E*)-Verbenone epoxide
Orchidaceae [117]
Bicyclo[4.1.0]
Hydrocarbons
δ-Carene, see 3-Carene
δ-3-Carene, see 3-Carene
2-Carene
Nyctaginaceae [151]
3-Carene (δ-3-Carene, δ-Carene)
Amaryllidaceae [21], Apiaceae [31, 217, 242, 246], Araceae [26, 86, 205], Asteraceae [59], Brassicaceae [105, 221], Caryophyllaceae [5, 54], Fabaceae [126], Gentianaceae [45], Grossulariaceae [89], Lauraceae [74], Lecythidaceae [144], Malvaceae [41], Moraceae [82], Orchidaceae [17, 23, 27, 77, 180, 191, 192, 195, 258], Pinaceae [25], Primulaceae [5], Ranunculaceae [208, 209], Rosaceae [43, 220], Winteraceae [210, 239], Zingiber-

aceae [268], Amaryllidaceae [21], Araceae [86], Brassicaceae [221], Caryophyllaceae [54], Malvaceae [41], Moraceae [82]

Alcohols

(+)-(*E*)-3,7,7-Trimethylbicyclo[4.1.0]heptan-5-ol

Oleaceae [51]

Tricyclic

Hydrocarbons

Tricyclene

Fabaceae [21], Orchidaceae [192], Violaceae [73]

SESQUITERPENES

Acyclic

Hydrocarbons

Farnesene

Rosaceae [128]

α-Farnesene (see also Farnesene)

Actinidiaceae [237], Amaryllidaceae [63], Apiaceae [31, 246], Apocynaceae [141, 173, 178], Araceae [77, 133], Acanthaceae [10], Brassicaceae [70, 105], Cactaceae [122], Caprifoliaceae [102, 107], Caricaceae [141], Caryophyllaceae [112, 141], Chloranthaceae [251], Combretaceae [10], Fabaceae [62, 81, 107, 179], Geraniaceae [32], Hyacinthaceae [123, 150], Lecythidaceae [144], Liliaceae [92], Lythraceae [10], Magnoliaceae [9, 11, 240], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [51, 114], Orchidaceae [13, 17, 23, 27, 28, 30, 77, 141, 180, 188, 191, 203, 236, 253], Orobanchaceae [141], Primulaceae [190], Ranunculaceae [19, 207, 208, 209], Rhizophoraceae [10], Rosaceae [60, 62, 176, 177, 178, 219, 220], Rubiaceae [141, 249], Rutaceae [247], Salicaceae [245], Solanaceae [131, 154], Winteraceae [239], Vitaceae [42, 44, 47], Zingiberaceae [141]

(*E*)-α-Farnesene (see also α-Farnesene)

Lauraceae [74], Meliaceae [250], Orchidaceae [77, 117], Passifloraceae [157]

(*Z*)-α-Farnesene (see also α-Farnesene)

Arecaceae [68, 143], Lauraceae [74], Meliaceae [250], Orchidaceae [77, 117], Passifloraceae [157]

(*E,E*)-α-Farnesene (see also α-Farnesene)

Amaryllidaceae [232, 233], Arecaceae [137, 143, 145], Asteraceae [5], Berberidaceae [182], Brassicaceae [22, 36], Cactaceae [113, 125], Hyacinthaceae [38], Lauraceae [74], Lecythidaceae [144], Moraceae [83], Orchidaceae [77, 116, 117, 120, 201], Passifloraceae [157], Primulaceae [36], Rubiaceae [5], Rutaceae [119], Sapotaceae [263], Scrophulariaceae [5, 226], Solanaceae [167], Thymelaeaceae [5], Valerianaceae [37], Verbenaceae [5], Zingiberaceae [174]

(*E,Z*)-α-Farnesene (see also α-Farnesene)

Arecaceae [137]

(*Z,E*)-α-Farnesene (see also α-Farnesene)

Arecaceae [145], Asteraceae [5], Brassicaceae [36], Cactaceae [113, 115, 125], Hyacinthaceae [38], Orchidaceae [116], Rubiaceae [5], Scrophulariaceae [5], Thymelaeaceae [5], Valerianaceae [37]

(*Z,Z*)-α-Farnesene (see also α-Farnesene)

Fabaceae [126]

β-Farnesene

Araceae [86], Cactaceae [113, 122], Fabaceae [49], Malvaceae [41], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [51, 267], Orchidaceae [77, 191, 201], Rosaceae [40], Rubiaceae [249], Rutaceae [247], Vitaceae [42, 44, 47]

(*E*)-β-Farnesene (see also β-Farnesene)

Apiaceae [31], Arecaceae [137, 143, 145], Asteraceae [5, 37], Berberidaceae [215], Cactaceae [125], Caprifoliaceae [102], Fabaceae [62, 120, 156], Geraniaceae [32], Hyacinthaceae [38], Lecythidaceae [144], Orchidaceae [17, 23, 27, 77, 116, 117, 118, 120, 192], Passifloraceae [157], Polemoniaceae [5], Solanaceae [165, 167], Valerianaceae [37], Verbenaceae [5], Violaceae [73]

(*Z*)-β-Farnesene (see also β-Farnesene)

Araceae [86], Chloranthaceae [251], Fabaceae [126], Geraniaceae [32], Lecythidaceae [144], Meliaceae [250], Orchidaceae [78]

3,7,11-Trimethyl-1,3,6,11-dodecatetraene

Zingiberaceae [268]

3,7,11-Trimethyl-1,6,10-dodecatriene
Araceae [86]
Aldehydes
(*E*)-2(3)-Dihydrofarnesal
Arecaceae [119], Commelianaceae [121], Orchidaceae [119], Rutaceae [119]
Farnesal
Zingiberaceae [174]
(*E*,*E*)-Farnesal (see also Farnesal)
Cactaceae [125], Fabaceae [120], Orchidaceae [116, 117], Rutaceae [119]
(*Z*,*E*)-Farnesal (see also Farnesal)
Cactaceae [125], Orchidaceae [117]
(*E*)-β-Sinensal
Arecaceae [120]
(*Z*)-β-Sinensal
Arecaceae [120]
Alcohols
Dihydrofarnesol
Orchidaceae [23]
2,3-Dihydrofarnesol (see also Dihydrofarnesol)
Myrsinaceae [103], Ruscaceae [232, 233]
(*E*)-2(3)-Dihydrofarnesol
Commelianaceae [121], Orchidaceae [117, 120], Rutaceae [119]
Farnesol
Malvaceae [41], Nyctaginaceae [151], Orchidaceae [120], Rosaceae [128], Ruscaceae [232, 233]
(*E*,*E*)-Farnesol (see also Farnesol)
Apocynaceae [141], Cactaceae [125], Caprifoliaceae [102], Fabaceae [120], Lecythidaceae [121, 144], Myrsinaceae [103], Oleaceae [52, 267], Orchidaceae [29, 77, 116, 117, 118, 141, 169, 201], Orobanchaceae [141], Passifloraceae [157], Polemoniaceae [5], Primulaceae [5], Rubiaceae [141], Rutaceae [119], Scrophulariaceae [5], Solanaceae [131], Theophrastaceae [139]
(*E*,*Z*)-Farnesol (see also Farnesol)
Solanaceae [131]
(*Z*,*E*)-Farnesol (see also Farnesol)
Cactaceae [125], Lecythidaceae [144], Myrsinaceae [103], Orchidaceae [8, 77, 117, 141], Rutaceae [119], Solanaceae [131]
(*Z*,*Z*)-Farnesol (see also Farnesol)
Apocynaceae [141], Lecythidaceae [144], Orchidaceae [141], Orobanchaceae [141], Theophrastaceae [139]
Nerolidol
Amaryllidaceae [175], Apocynaceae [141], Cactaceae [113, 115], Caprifoliaceae [107, 175], Chloranthaceae [251], Cucurbitaceae [4], Fabaceae [107, 119], Gentianaceae [45], Lecythidaceae [144], Malvaceae [41], Nyctaginaceae [151], Orchidaceae [13, 78, 116, 201], Orobanchaceae [141], Rubiaceae [141], Rutaceae [2, 119, 173, 247], Sapotaceae [263], Solanaceae [141, 165], Vitaceae [42, 44, 47], Zingiberaceae [141]
(*E*)-Nerolidol (see also Nerolidol)
Araceae [86], Arecaceae [137, 145], Berberidaceae [182], Cactaceae [125], Caprifoliaceae [102], Fabaceae [126], Hemerocallidaceae [33], Orchidaceae [8, 77, 116, 117, 120, 169], Passifloraceae [157], Polemoniaceae [5], Rubiaceae [5], Solanaceae [131], Verbenaceae [5]
(*Z*)-Nerolidol (see also Nerolidol)
Polemoniaceae [5]
(*E*)-β-Sinensol
Arecaceae [120]
Esters
(*E*)-2(3)-Dihydrofarnesyl acetate
Orchidaceae [117]
Farnesyl acetate
Lecythidaceae [144], Malvaceae [41]
(*E*)-Farnesyl acetate (see also Farnesyl acetate)
Caprifoliaceae [102]

(*E*,*E*)-Farnesyl acetate (see also Farnesyl acetate)
Fabaceae [120], Oleaceae [52], Orchidaceae [117, 118, 120], Passifloraceae [157]
(*Z*,*E*)-Farnesyl acetate (see also Farnesyl acetate)
Orchidaceae [117]
Farnesyl hexanoate
Orchidaceae [223]
Farnesyl octanoate
Orchidaceae [29]
Methyl (*E*,*E*)-3,7,11-trimethyl-2,6,10-dodecatrienoate
Orchidaceae [116, 117]
Ethers and epoxides
Dendrolasin
Calycanthaceae [120], Moraceae [83], Orchidaceae [191], Zingiberaceae [268]
(*E*,*E*)-2(3)-Epoxy-2,6,10-trimethyl-6,9,11-dodecatriene, see (*E*,*E*)-α-Farnesene epoxide
(*E*,*E*)-α-Farnesene epoxide ((*E*,*E*)-2(3)-Epoxy-2,6,10-trimethyl-6,9,11-dodecatriene)
Orchidaceae [78, 117, 120]
(*Z*)-α-Farnesene epoxide
Orchidaceae [120]
(*E*)-β-Farnesene epoxide
Arecaceae [145]
Nerolidyl methyl ether
Cactaceae [113, 115, 125]
Cyclic
Hydrocarbons
Albene
Asteraceae [36]
α-Amorphene
Araceae [86]
Aristolene
Araceae [86], Nyctaginaceae [151]
Aromadendrene
Araceae [86, 129], Geraniaceae [32]
allo-Aromadendrene
Araceae [86, 129, 229], Arecaceae [68, 137, 143], Asteraceae [34], Chloranthaceae [251], Fabaceae [62, 104], Geraniaceae [32], Lecythidaceae [144], Malvaceae [142], Meliaceae [250], Moraceae [83], Orchidaceae [77, 117], Polemoniaceae [5], Rosaceae [51]
α-Bergamotene
Apiaceae [31], Geraniaceae [32], Nyctaginaceae [151], Orchidaceae [77, 117, 190, 191, 192, 201], Ranunculaceae [59]
(*E*)-α-Bergamotene (see also α-Bergamotene)
Araceae [86], Arecaceae [137], Cactaceae [125], Fabaceae [62, 138, 216], Lecythidaceae [144], Moraceae [83], Orchidaceae [77, 78, 117, 120], Ranunculaceae [19], Rubiaceae [5], Solanaceae [131], Violaceae [73]
(*Z*)-α-Bergamotene (see also α-Bergamotene)
Fabaceae [216], Geraniaceae [32], Lecythidaceae [144], Orchidaceae [253], Ranunculaceae [19], Verbenaceae [5]
α-(*E*)-β-Bergamotene
Geraniaceae [32]
(*Z*)-α-*cis*-Bergamotene
Araceae [129]
Bicyclogermacrene
Araceae [86, 133], Arecaceae [143], Asteraceae [34, 37], Cactaceae [125], Geraniaceae [32], Lauraceae [74], Magnoliaceae [11], Moraceae [83], Oleaceae [114], Orchidaceae [117], Rutaceae [172]
Bicyclosesquiphellandrene
Fabaceae [216]
β-Bisabolene
Amaryllidaceae [63], Arecaceae [137], Oleaceae [51], Orchidaceae [77, 116, 117, 120, 180, 190, 201, 253], Vitaceae [42, 44, 47]
Bourbonene
Rosaceae [72]

β-Bourbonene
Apiaceae [242], Arecaceae [137], Asteraceae [5], Caprifoliaceae [102], Caryophyllaceae [112], Dipsacaceae [5], Fabaceae [104], Gentianaceae [5], Geraniaceae [32], Lecythidaceae [144], Malvaceae [41], Nyctaginaceae [151], Oleaceae [150], Orchidaceae [117], Passifloraceae [157], Rosaceae [219, 220], Rubiaceae [5], Verbenaceae [5]
β-Bourbonene isomer
Rubiaceae [5]
Cadalene
Orchidaceae [201], Rosaceae [37]
Cadina-1,4-diene
Araceae [86],, Meliaceae [250]
Cadinene
Moraceae [82], Orchidaceae [148, 149], Ranunculaceae [59], Rosaceae [219, 220]
α-Cadinene (see also Cadinene)
Araceae [86]
β-Cadinene (see also Cadinene)
Nyctaginaceae [151]
δ-Cadinene (see also Cadinene)
Annonaceae [111], Araceae [86, 129], Arecaceae [68, 143], Bignoniaceae [21], Caprifoliaceae [102], Caryophyllaceae [112], Fabaceae [104, 138], Gentianaceae [5], Geraniaceae [32], Lamiaceae [261], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [240], Moraceae [83], Nelumbonaceae [184], Orchidaceae [117], Passifloraceae [157], Polemoniaceae [5], Rosaceae [51], Rubiaceae [5], Verbenaceae [5]
γ-Cadinene (see also Cadinene)
Annonaceae [111], Apiaceae [31], Araceae [86], Arecaceae [137], Caryophyllaceae [112], Geraniaceae [32], Magnoliaceae [240, 264], Malvaceae [41], Nyctaginaceae [151], Oleaceae [267], Orchidaceae [23, 27, 28, 147], Rosaceae [40], Verbenaceae [5], Vitaceae [42, 44, 47]
(*E*)-γ-Cadinene (see also Cadinene)
Lauraceae [74]
(*Z*)-γ-Cadinene (see also Cadinene)
Lauraceae [74]
α-Calacorene
Araceae [86], Fabaceae [138]
Calamenene
Araceae [86, 229], Nyctaginaceae [151]
1*S*-*cis*-Calamenene (see also Calamenene)
Arecaceae [137], Lecythidaceae [144], Rubiaceae [5], Verbenaceae [5]
Calarene, see β-Gurjunene
Caryophyllene (β-Caryophyllene)
Annonaceae [111], Apiaceae [31, 242], Apocynaceae [141], Araceae [26, 86, 129, 229], Arecaceae [10, 68, 137, 143], Asteraceae [5, 37, 59, 132], Bignoniaceae [21], Brassicaceae [36, 70, 217], Cactaceae [125], Calycanthaceae [120, 266], Caricaceae [141], Caryophyllaceae [5, 54, 66, 112], Chloranthaceae [251], Ericaceae [136], Fabaceae [21, 49, 50, 62, 81, 104, 107, 121, 126, 156, 193, 216], Gentianaceae [45], Geraniaceae [32], Hyacinthaceae [38], Lamiaceae [261], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [11, 264], Malvaceae [142], Moraceae [82, 83], Myrsinaceae [103], Nelumbonaceae [198, 199], Nyctaginaceae [151], Oleaceae [33, 52, 267], Orchidaceae [2, 13, 17, 23, 27, 28, 29, 77, 80, 100, 116, 117, 147, 187, 190, 192, 193, 195, 201, 244, 253, 258], Papaveraceae [62], Passifloraceae [157], Polemoniaceae [5, 21, 142], Primulaceae [36], Ranunculaceae [19, 85], Rosaceae [33, 35, 40, 51, 62, 72, 128, 219, 220], Rubiaceae [5, 141, 228], Rutaceae [119, 172, 247], Salicaceae [245], Sapindaceae [46], Solanaceae [165, 166, 167, 168], Theophrastaceae [139], Valerianaceae [5], Verbenaceae [5], Winteraceae [239], Vitaceae [42, 44, 47], Zamiaceae [211], Zingiberaceae [141]
α-Caryophyllene, see Humulene
β-Caryophyllene, see Caryophyllene
(*E*)-Caryophyllene ((*E*)-β-Caryophyllene)
Nelumbonaceae [184], Rosaceae [93]
(*Z*)-Caryophyllene
Moraceae [82], Oleaceae [267]
(*E*)-β-Caryophyllene, see (*E*)-Caryophyllene

α-Cedrene
Brassicaceae [70], Caryophyllaceae [54], Orchidaceae [192], Verbenaceae [5], Zingiberaceae [268]
β-Cedrene
Arecaceae [137], Asteraceae [5], Caryophyllaceae [112], Magnoliaceae [240], Rubiaceae [5], Solanaceae [131]
Chamigrene
Nyctaginaceae [151]
Clovene
Moraceae [82]
Copaene
Rubiaceae [141]
α-Copaene (see also Copaene)
Apiaceae [31, 246], Araceae [86, 129, 229], Arecaceae [21, 68, 137, 143], Asteraceae [5], Bignoniaceae [21], Bromeliaceae [21], Cactaceae [125], Caprifoliaceae [102], Caryophyllaceae [112], Chloranthaceae [251], Fabaceae [49, 62, 138, 156], Gentianaceae [5], Lauraceae [74], Lecythidaceae [144], Malvaceae [41, 142], Moraceae [82, 83], Musaceae [21], Myrsinaceae [103], Nyctaginaceae [151], Orchidaceae [17, 23, 27, 29, 77, 116, 117, 147, 148, 149], Passifloraceae [157], Polemoniaceae [5], Rosaceae [33, 35, 40, 62, 219, 220], Rubiaceae [5], Verbenaceae [5]
β-Copaene (see also Copaene)
Annonaceae [111], Calycanthaceae [266], Moraceae [83], Orchidaceae [117]
Cubebene
Moraceae [82]
α-Cubebene (see also Cubebene)
Apocynaceae [121], Araceae [86, 229], Arecaceae [68, 143], Cactaceae [125], Fabaceae [62, 120], Magnoliaceae [264], Moraceae [83], Myrsinaceae [103], Nyctaginaceae [151], Orchidaceae [117], Polemoniaceae [5], Rosaceae [40, 72], Theophrastaceae [139], Verbenaceae [5, 175]
β-Cubebene (see also Cubebene)
Apiaceae [31], Araceae [229], Arecaceae [68, 137, 143], Cactaceae [125], Fabaceae [62, 104, 216], Geraniaceae [32], Lauraceae [74], Lecythidaceae [144], Magnoliaceae [240], Moraceae [83], Nelumbonaceae [184], Nyctaginaceae [151], Orchidaceae [117], Passifloraceae [157], Polemoniaceae [5], Rosaceae [40, 93, 220], Verbenaceae [5]
ar-Curcumene
Asteraceae [34], Geraniaceae [32], Orchidaceae [77], Verbenaceae [5]
α-Curcumene
Apiaceae [246], Fabaceae [62], Orchidaceae [201]
T-Curcumene
Asteraceae [34]
Cyclosativene
Apiaceae [31], Moraceae [82, 83], Orchidaceae [23, 27, 28, 29, 30]
Cyperene
Arecaceae [137]
α-Elemene
Rosaceae [176, 177, 178]
β-Elemene
Apiaceae [31], Araceae [86], Arecaceae [137], Asteraceae [37], Brassicaceae [70], Cactaceae [125], Calycanthaceae [120], Caprifoliaceae [102], Fabaceae [62, 107], Lauraceae [74], Magnoliaceae [240, 264], Malvaceae [41], Moraceae [82], Myrsinaceae [103], Nyctaginaceae [151], Orchidaceae [117], Rutaceae [247], Solanaceae [131], Verbenaceae [5]
γ-Elemene
Apiaceae [31], Chloranthaceae [251], Fabaceae [62, 138], Magnoliaceae [264], Polemoniaceae [5], Rubiaceae [5], Verbenaceae [5]
δ-Elemene
Araceae [86], Geraniaceae [32], Lauraceae [74], Nyctaginaceae [151], Verbenaceae [5]
Germacrene A
Magnoliaceae [264], Moraceae [83], Orchidaceae [116, 117]
Germacrene B
Araceae [129], Arecaceae [137], Geraniaceae [32], Lecythidaceae [144], Nelumbonaceae [184], Passifloraceae [157]
Germacrene D

Apiaceae [242], Apocynaceae [121], Araceae [86, 129, 229], Arecaceae [68, 137, 143], Asteraceae [5, 34, 36], Cactaceae [125], Calycanthaceae [120], Caprifoliaceae [102, 107, 150, 175], Caricaceae [141], Caryophyllaceae [5], Fabaceae [62, 138], Geraniaceae [32], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [264], Malvaceae [41], Moraceae [83], Nelumbonaceae [184], Nyctaginaceae [151], Oleaceae [114], Orchidaceae [77, 116, 117, 121], Passifloraceae [157], Polemoniaceae [5, 233], Primulaceae [36], Ranunculaceae [19], Rosaceae [33, 35, 72, 87, 88, 115, 228], Rubiaceae [5, 121, 141], Scrophulariaceae [5], Solanaceae [222], Verbenaceae [5]

6,9-Guaiadiene
Geraniaceae [32]

α-Guaiene
Araceae [86, 129], Chloranthaceae [251], Lauraceae [74], Rubiaceae [249], Vitaceae [42, 44, 47]

δ-Guaiene
Nyctaginaceae [151], Vitaceae [42, 44, 47]

α-Gurjunene
Araceae [86, 129], Arecaceae [137], Asteraceae [5], Fabaceae [179], Lecythidaceae [144], Nyctaginaceae [151], Orchidaceae [117]

β-Gurjunene (Calarene)
Araceae [86], Caprifoliaceae [102], Chloranthaceae [251], Meliaceae [250], Passifloraceae [157], Polemoniaceae [5], Solanaceae [165]

γ-Gurjunene
Annonaceae [111], Arecaceae [137], Asteraceae [5], Magnoliaceae [240]

β-Himachalene
Orchidaceae [192]

Humulene (α-Caryophyllene, α-Humulene)
Annonaceae [111], Apiaceae [242], Araceae [26, 86, 129, 229], Arecaceae [10, 68, 143], Asteraceae [37], Cactaceae [125], Calycanthaceae [120], Caricaceae [141], Caryophyllaceae [54, 66, 112], Chloranthaceae [251], Cucurbitaceae [71], Fabaceae [21, 62, 81, 121, 216], Geraniaceae [32], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [11, 264], Moraceae [82, 83], Myrsinaceae [103], Nelumbonaceae [184], Nyctaginaceae [151], Oleaceae [267], Orchidaceae [13, 17, 28, 77, 116, 117, 147], Papaveraceae [62], Passifloraceae [157], Polemoniaceae [5], Ranunculaceae [85], Rosaceae [33, 35, 43, 176, 178], Rubiaceae [5], Rutaceae [172], Solanaceae [165], Theophrastaceae [139], Verbenaceae [5], Winteraceae [239], Vitaceae [42, 44, 47], Zamiaceae [211]

α-Humulene, see Humulene

Isocaryophyllene
Araceae [86], Lecythidaceae [121], Orchidaceae [77, 117], Rosaceae [177]

Junipene
Araceae [86], Nyctaginaceae [151]

Ledene, see Viridiflorene

Lepidozene
Moraceae [82]

Longicyclene
Orchidaceae [148, 149]

Longifolene
Amaryllidaceae [21, 63], Araceae [129], Musaceae [21], Rosaceae [51]

Longipinene
Asteraceae [34]

(*Z*)-Muurola-4(14),5-diene
Lauraceae [74]

Muurolene isomer
Orchidaceae [23, 147]

α-Muurolene
Annonaceae [111], Apiaceae [31], Araceae [86], Caryophyllaceae [112], Geraniaceae [32], Lecythidaceae [144], Moraceae [83], Nyctaginaceae [151], Rosaceae [33, 35, 87, 219, 220], Rubiaceae [5], Verbenaceae [5]

γ-Muurolene
Annonaceae [111], Araceae [86, 229], Arecaceae [137], Caryophyllaceae [112], Fabaceae [49, 156], Geraniaceae [32], Lauraceae [74], Lecythidaceae [144], Rosaceae [72], Rubiaceae [5, 249]

β-Patchoulene

Lauraceae [74]
α-Santalene
Asteraceae [36], Caryophyllaceae [54], Chloranthaceae [251], Orchidaceae [23, 27, 120]
β-Santalene
Asteraceae [36], Orchidaceae [27, 28, 29, 120]
epi-β-Santalene
Asteraceae [36]
α-Selinene
Arecaceae [137], Orchidaceae [117]
β-Selinene
Araceae [86], Arecaceae [137], Asteraceae [37], Nyctaginaceae [151], Orchidaceae [190], Polemoniaceae [5], Ranunculaceae [19], Theophrastaceae [139], Vitaceae [42, 44, 47]
δ-Selinene
Vitaceae [42, 44, 47]
β-Sesquiphellandrene
Arecaceae [137, 145], Fabaceae [138, 216], Geraniaceae [32]
Thujopsene
Fabaceae [104], Orchidaceae [201], Verbenaceae [5]
Valencene
Annonaceae [111], Orchidaceae [77], Vitaceae [42, 44, 47]
Viridiflorene (Ledene)
Araceae [86, 129], Lecythidaceae [144]
α-Ylangene
Arecaceae [137], Fabaceae [62, 138], Lauraceae [74], Lecythidaceae [144]
Zingiberene
Orchidaceae [201]
α-Zingiberene (see also Zingiberene)
Geraniaceae [32], Verbenaceae [5]
Aldehydes
(Z)-α-*trans*-Bergamotenal
Orchidaceae [117]
Ketones
Germacrone
Nyctaginaceae [151]
Longiverbenone
Asteraceae [34]
Alcohols
(Z)-α-*trans*-Bergamotol
Orchidaceae [117]
β-Bisabolol
Fumariaceae [56]
α-Cadinol
Oleaceae [114], Zingiberaceae [174]
δ-Cadinol
Asteraceae [214], Nyctaginaceae [151]
T-Cadinol
Oleaceae [114], Primulaceae [5], Verbenaceae [5]
Carotol
Nyctaginaceae [151]
Caryophylladienol
Lecythidaceae [121]
Caryophyll-5-en-2-α-ol
Lecythidaceae [121], Orchidaceae [116, 117]
Cubenol
Orchidaceae [23, 28, 147]
Elemol
Caprifoliaceae [102], Myrsinaceae [103], Passifloraceae [157], Rosaceae [51]
a,β-Eudesmol
Nyctaginaceae [151]
β-Eudesmol
Myrsinaceae [103]

Germacra-1,6-dien-5-ol
Asteraceae [36], Lecythidaceae [144], Oleaceae [114], Passifloraceae [157]
Germacra-1(10),5-dien-4-ol, see Germacrene-D-4-ol
Germacrene-D-4-ol (Germacra-1(10),5-dien-4-ol)
Asteraceae [65], Cactaceae [125], Lauraceae [74], Orchidaceae [77, 117], Polemoniaceae [5]
Guaiol
Nyctaginaceae [151]
T-Muurolol
Fabaceae [138], Oleaceae [114], Orchidaceae [23, 28, 147]
Sesqui-1,8-cineole
Orchidaceae [120]
Spathulenol
Nyctaginaceae [151], Orchidaceae [117]
Teresantalol
Magnoliaceae [240]
Esters
Nerolidol epoxyacetate
Nyctaginaceae [151]
Ethers and epoxides
Aromadendrene epoxide
Nyctaginaceae [151]
Bisabolol oxide A
Asteraceae [37]
Bisabolol oxide B
Asteraceae [37]
Caryophyllan-2,6-α-oxide
Lecythidaceae [121]
Caryophyllene β-epoxide, see Caryophyllene oxide
Caryophyllene epoxide, see Caryophyllene oxide
Caryophyllene oxide (Caryophyllene β-epoxide, Caryophyllene epoxide)
Apiaceae [242], Araceae [86, 229], Arecaceae [137, 143], Asteraceae [34], Caryophyllaceae [54, 66], Fabaceae [62, 121], Gentianaceae [45], Lauraceae [74], Lecythidaceae [121, 144], Magnoliaceae [11], Malvaceae [142], Nelumbonaceae [184], Nyctaginaceae [151], Orchidaceae [28, 77, 116, 117], Rubiaceae [5], Rutaceae [247], Solanaceae [165], Verbenaceae [5], Vitaceae [42, 44, 47]
Humulene epoxide
Arecaceae [143], Orchidaceae [116, 117]

DITERPENES

Acyclic
Hydrocarbons
neo-Phytadiene
Solanaceae [165]
Alcohols
Geranyl linalool
Oleaceae [114]
Isophytol
Oleaceae [114]
Phytol
Oleaceae [114]
Cyclic
Hydrocarbons
Cembrene
Solanaceae [165]
Sandaracopimaradiene
Chloranthaceae [251]

IRREGULAR TERPENES

Monoterpenes, sesquiterpenes, and diterpenes are listed under these specific headings. The following class contains terpenes whose skeletons fall outside of these three main groups.

Apocarotenoid
Aldehydes
β-Cyclocitral, see 2,6,6-Trimethyl-1-cyclohexene-1-carboxaldehyde
Safranal, see 2,6,6-Trimethyl-1,3-cyclohexadiene-1-carboxaldehyde
2,6,6-Trimethyl-1,3-cyclohexadiene-1-carboxaldehyde (Safranal)
Iridaceae [150], Scrophulariaceae [5]
1,3,4-Trimethyl-3-cyclohexene-1-carboxaldehyde
Theophrastaceae [139]
2,6,6-Trimethyl-1-cyclohexene-1-carboxaldehyde (β-Cyclocitral)
Araceae [86], Iridaceae [150, 178], Scrophulariaceae [226], Theophrastaceae [139]
Ketones
Cyclic-β-Ionone
Lecythidaceae [121], Orchidaceae [117], Rutaceae [172]
Damascenone
Orchidaceae [117]
β-Damascenone
Oleaceae [177, 178], Rosaceae [232]
(*E*)-β-Damascone
Cyclanthaceae [225]
(*Z*)-β-Damascone
Cyclanthaceae [225]
8,9-Dehydro-4,5-dihydrotheaspirone
Asteraceae [214]
2,3-Dihydro-3,5-dihydroxy-6-methyl-4*H*-pyrene-4-one
Orchidaceae [227]
Dihydro-β-ionone
Arecaceae [10, 143], Cactaceae [125], Commelianaceae [121], Iridaceae [178], Lecythidaceae [121], Oleaceae [57, 58, 177], Orchidaceae [17, 77, 116, 117, 120], Rosaceae [33, 35, 93, 176, 178], Verbenaceae [5], Violaceae [248]
Dihydrooxoisophorone
Orchidaceae [5], Polemoniaceae [5], Scrophulariaceae [5]
7(11)-Epoxymegastigma-5(7),6(11)-dien-9-one
Orchidaceae [117, 120]
7(11)-Epoxymegastigma-5(6)-en-9-one
Orchidaceae [15, 77, 117, 120]
5(6)-Epoxy-2,2,6-trimethylcyclohexan-1,4-dione
Orchidaceae [117]
3-Hydroxy-7(*E*)-megastigmen-9-one
Orchidaceae [77, 116]
3-Hydroxy-2-methyl-4-pyrone (Maltol)
Orchidaceae [227]
α-Ionone
Arecaceae [10], Cactaceae [125], Fabaceae [120], Malvaceae [142], Nyctaginaceae [151], Oleaceae [57, 58], Orchidaceae [117], Violaceae [248]
β-Ionone
Amaryllidaceae [63], Araceae [86, 229], Arecaceae [10], Cactaceae [125], Fabaceae [120], Iridaceae [178], Lecythidaceae [121], Malvaceae [142], Oleaceae [57, 58, 119, 177, 178], Orchidaceae [17, 27, 77, 78, 115, 116, 117, 120], Passifloraceae [157], Rosaceae [33, 35, 43, 72], Rutaceae [172], Scrophulariaceae [5]
β-Ionone epoxide
Orchidaceae [116, 117]
β-Ionone-5(6)-epoxide
Orchidaceae [120]
Isophorone
Primulaceae [5], Rosaceae [128]
α-Isophorone (3,5,5-Trimethyl-2-cyclohexen-1-one)
Iridaceae [150], Primulaceae [5]
β-Isophorone
Iridaceae [150]
Maltol, see 3-Hydroxy-2-methyl-4-pyrone
7(*E*)-Megastigmen-3,9-dione (3-Oxo-7(*E*)-megastigmen-9-one)

Orchidaceae [77, 116]
4-Oxo-β-ionone
Iridaceae [178], Oleaceae [57, 58, 177, 178]
Oxoisophorone
Combretaceae [10], Scrophulariaceae [226]
4-Oxoisophorone (2,6,6-Trimethyl-2-cyclohexen-1,4-dione)
Apiaceae [242, 246], Asteraceae [5], Dipsacaceae [5], Iridaceae [150], Orchidaceae [5, 117], Polemoniaceae [5], Scrophulariaceae [5], Theophrastaceae [139]
Oxoisophorone oxide
Scrophulariaceae [5]
3-Oxo-7(*E*)-megastigmen-9-one, see 7(*E*)-Megastigmen-3,9-dione
(*E*,*E*)-Pseudoionone
Orchidaceae [117]
(*E*,*Z*)-Pseudoionone
Orchidaceae [117]
retro-γ-Ionone
Orchidaceae [117]
(*Z*)-retro-γ-Ionone
Lecythidaceae [121]
2,2,6-Trimethyl-1,4-cyclohexanedione
Orchidaceae [117], Scrophulariaceae [226], Theophrastaceae [139]
2,6,6-Trimethyl-2-cyclohexen-1,4-dione, see 4-Oxoisophorone
3,5,5-Trimethyl-2-cyclohexen-1-one, see α-Isophorone
2,2,6-Trimethyl-6-hydroxycyclohexanone
Oleaceae [171]
6,10,14-Trimethyl-2-pentadecanone
Orchidaceae [117]

Alcohols
Dihydro-β-ionol
Arecaceae [10], Oleaceae [177, 178], Rosaceae [33, 35, 177, 178]
6,10-Dimethyl-5,9-undecadien-2-ol
Orchidaceae [117]
(*E*)-6,10-Dimethyl-5,9-undecadien-2-ol
Commelianaceae [121], Winteraceae [239]
(*Z*)-6,10-Dimethyl-5,9-undecadien-2-ol
Winteraceae [239]
Ionol
Orchidaceae [77]
α-Ionol
Violaceae [248]
β-Ionol
Violaceae [248]
4-Oxo-β-ionol
Iridaceae [178]

Esters
Dihydroactinidiolide
Amaryllidaceae [107], Arecaceae [10], Onagraceae [265], Orchidaceae [116, 117]
6,10-Dimethyl-5,9-undecadien-2-yl acetate
Orchidaceae [117]
(*E*)-6,10-Dimethyl-5,9-undecadien-2-yl acetate
Winteraceae [239]
(*Z*)-6,10-Dimethyl-5,9-undecadien-2-yl acetate
Winteraceae [239]

Ethers
cis-Theaspirane
Rosaceae [33, 35]
trans-Theaspirane
Rosaceae [33, 35]

Unknown
Edulan II
Orchidaceae [117]

C8
Ketones
6-Methyl-3,5-heptadien-2-one
Oleaceae [57, 58], Orchidaceae [117], Rutaceae [247], Zingiberaceae [174]
6-Methylheptan-2,4-dione
Cyclanthaceae [225]
5-Methyl-5-hepten-2-one
Araceae [229]
6-Methyl-5-hepten-2-one
Actinidiaceae [237], Amaryllidaceae [21], Apiaceae [242, 246], Apocynaceae [141], Araceae [86, 129, 133, 229], Arecaceae [10, 137, 143], Asteraceae [37], Berberidaceae [215], Bignoniaceae [142], Cactaceae [122, 125], Caprifoliaceae [102], Caricaceae [141], Caryophyllaceae [5, 54, 66, 112, 141], Commelianaceae [121], Ericaceae [136, 140], Fabaceae [62, 120, 212], Gentianaceae [5, 45], Hemerocallidaceae [33], Hydnoraceae [48], Lauraceae [74], Lecythidaceae [144], Malvaceae [67, 142], Myrsinaceae [103], Nyctaginaceae [151], Oleaceae [33, 39, 51, 52, 57, 58, 176, 178, 267], Orchidaceae [8, 23, 30, 77, 117, 120, 141, 147, 203, 224, 241, 243, 244], Papaveraceae [62], Passifloraceae [157], Polemoniaceae [5, 21], Primulaceae [5, 36], Ranunculaceae [208, 209], Rosaceae [12, 33, 35, 60, 61, 219, 220], Rubiaceae [5, 141], Ruscaceae [141], Rutaceae [247], Salicaceae [245], Scrophulariaceae [5], Solanaceae [141], Theophrastaceae [139], Thymelaeaceae [5], Valerianaceae [5], Verbenaceae [5], Winteraceae [210, 239], Violaceae [248], Vitaceae [42, 44, 47], Zamiaceae [211], Zingiberaceae [141, 174]
Alcohols
6-Methyl-5-hepten-2-ol
Arecaceae [137], Cactaceae [125], Malvaceae [142], Orchidaceae [117], Winteraceae [210, 239]
6-Methyl-6-hepten-3-ol
Araceae [262]
Esters
6-Methyl-5-hepten-2-yl acetate
Orchidaceae [117], Winteraceae [210, 239]
C9
Ketones
Crypton (4-Isopropyl-2-cyclohexen-1-one)
Araceae [229]
3,3-Dimethylbicyclo[2.2.1]heptan-2-one
Fabaceae [212]
4-Isopropyl-2-cyclohexen-1-one, see Crypton
C10
Ketones
4,7(*endo*)-Dimethylbicyclo[3.2.1]oct-3-en-6-one
Calycanthaceae [120]
4,7(*exo*)-Dimethylbicyclo[3.2.1]oct-3-en-6-one
Calycanthaceae [120]
4-Methylene-7(*endo*)-methylbicyclo[3.2.1]octan-6-one
Calycanthaceae [120]
4-Methylene-7(*exo*)-methylbicyclo[3.2.1]octan-6-one
Calycanthaceae [120]
Alcohols
4,7(*endo*)-Dimethylbicyclo[3.2.1]oct-3-en-6(*endo*)-ol
Calycanthaceae [120]
4,7(*endo*)-Dimethylbicyclo[3.2.1]oct-3-en-6(*exo*)-ol
Calycanthaceae [120]
4,7(*exo*)-Dimethylbicyclo[3.2.1]oct-3-en-6(*endo*)-ol
Calycanthaceae [120]
4,7(*exo*)-Dimethylbicyclo[3.2.1]oct-3-en-6(*exo*)-ol
Calycanthaceae [120]
C11
Hydrocarbons
4,8-Dimethyl-1,3,7-nonatriene
Nyctaginaceae [151], Rosaceae [33, 35]

(*E*)-4,8-Dimethyl-1,3,7-nonatriene
Apocynaceae [115, 141], Arecaceae [68, 137, 143], Asteraceae [5], Berberidaceae [182], Cactaceae [21, 113, 115, 125], Caryophyllaceae [5], Combretaceae [10], Cyclanthaceae [225], Fabaceae [62, 115, 120, 179], Hydrangeaceae [115], Lamiaceae [5], Lecythidaceae [144], Liliaceae [115], Lythraceae [10], Magnoliaceae [9, 11, 115], Malvaceae [142], Oleaceae [115, 119], Orchidaceae [115, 117, 120], Orobanchaceae [141], Passifloraceae [157], Polemoniaceae [5], Rhizophoraceae [10], Rosaceae [72, 219, 220], Rubiaceae [5, 141], Ruscaceae [115], Rutaceae [119], Scrophulariaceae [5], Solanaceae [121, 141], Theophrastaceae [139], Thymelaeaceae [115], Verbenaceae [5, 101], Zingiberaceae [141]
(*Z*)-4,8-Dimethyl-1,3,7-nonatriene
Arecaceae [143], Asteraceae [5], Cactaceae [113, 115, 125], Magnoliaceae [9, 11], Orchidaceae [117], Rubiaceae [5], Theophrastaceae [139]
Ketones
(*E*)-Cyclanthone ((*E*)-2,6-Dimethyl-6,8-nonadien-4-one)
Cyclanthaceae [225]
(*Z*)-Cyclanthone
Cyclanthaceae [225]
(*E*)-6(7)-Epoxy-2,6-dimethyl-8-nonen-4-one
Cyclanthaceae [225]
(*Z*)-6(7)-Epoxy-2,6-dimethyl-8-nonen-4-one
Cyclanthaceae [225]
Alcohols
(*E*)-2,6-Dimethyl-6,8-nonadien-4-ol
Cyclanthaceae [225]
(*E*)-2,6-Dimethyl-6,8-nonadien-4-one, see (*E*)-Cyclanthone
(*E*)-2,6-Dimethyl-3,6,8-nonatrien-2-ol
Cactaceae [113, 115, 125]
Ethers and epoxides
(*E*)-2(3)-Epoxy-2,6-dimethyl-6,8-nonadiene
Cactaceae [113, 115, 125], Orchidaceae [117], Solanaceae [121]

C12
Hydrocarbons
Decahydro-1,6-dimethylnaphthalene
Asteraceae [213]
Alcohols
Dehydrogeosmin
Cactaceae [122, 125], Moraceae [121]
Geosmin
Cactaceae [122, 125], Moraceae [121, 125]

C13
Ketones
Geranylacetone
Actinidiaceae [237], Amaryllidaceae [21], Apocynaceae [141], Araceae [129, 229], Arecaceae [10], Asteraceae [214], Bignoniaceae [21], Cactaceae [122], Caprifoliaceae [102], Caryophyllaceae [5, 66, 141], Ericaceae [136], Hydnoraceae [48], Lecythidaceae [144], Malvaceae [67, 94], Myrsinaceae [103], Nyctaginaceae [151], Nymphaeaceae [14, 135], Oleaceae [33, 51], Orchidaceae [8, 30, 77, 201, 224], Orobanchaceae [141], Passifloraceae [157], Ranunculaceae [208], Rosaceae [60, 61, 176, 177, 178], Rubiaceae [5, 141], Rutaceae [119, 247], Sapotaceae [263], Scrophulariaceae [5], Solanaceae [94], Theophrastaceae [139], Verbenaceae [5], Winteraceae [239], Vitaceae [42, 44, 47]
(*E*)-Geranylacetone
Apiaceae [242], Berberidaceae [182, 215], Cactaceae [125], Commelianaceae [121], Oleaceae [119], Orchidaceae [77, 78, 117, 118, 120], Solanaceae [121]
(*Z*)-Geranylacetone
Orchidaceae [117]
Nerylacetone
Rubiaceae [141]
Alcohols
(*E*)-6-10-Dimethyl-5,9-tridecadien-2-ol
Solanaceae [121]
Esters

C14
Hydrocarbons
Decahydrotetramethylnaphthalene
Asteraceae [213]
Ethyldecahydrodimethylnaphthalene
Asteraceae [213]
(*E*)-2,6,10-Trimethyl-2,6-undecadiene
Rutaceae [119]
Esters
Methyl (*E*)-2,6,10-trimethyl-5,9-undecadienoate
Orchidaceae [116, 117]
C16
Hydrocarbons
(*E,E*)-4,8,12-Trimethyl-1,3,7,11-tridecatetraene
Apocynaceae [2, 115, 141], Arecaceae [68, 137, 143], Cactaceae [113, 115, 125], Caricaceae [141], Fabaceae [115, 138], Hydrangeaceae [115], Lecythidaceae [144], Liliaceae [115], Magnoliaceae [115], Oleaceae [115], Orchidaceae [115, 116, 117, 121, 141], Orobanchaceae [141], Passifloraceae [157], Polemoniaceae [5], Rubiaceae [5, 141], Ruscaceae [115], Thymelaeaceae [115], Valerianaceae [5], Verbenaceae [5, 101], Zingiberaceae [141, 174]
(*Z,E*)-4,8,12-Trimethyl-1,3,7,11-tridecatetraene
Arecaceae [137], Cactaceae [113, 115, 125], Caricaceae [141], Lecythidaceae [144], Orchidaceae [116, 117, 118], Polemoniaceae [5], Rubiaceae [5], Solanaceae [141], Valerianaceae [5], Zingiberaceae [174]
(*Z,Z*)-4,8,12-Trimethyl-1,3,7,11-tridecatetraene
Passifloraceae [157]
Alcohols
1,5,5,8-Tetramethyl-12-oxabicyclo[9.1.0]dodeca-3,7-diene
Nyctaginaceae [151]
Esters
Methyl (*E,E*)-4,8,12-trimethyl-3,7,11-tridecatrienoate
Orchidaceae [116, 117]
Ethers and epoxides
(*E,E*)-11(12)-Epoxy-4,8,12-trimethyl-1,3,7-tridecatriene
Orchidaceae [115, 117]
C18
Ketones
Hexahydrofarnesylacetone
Fabaceae [107]

NITROGEN CONTAINING COMPOUNDS
Ammonia
Ammonia
Ammonia
Araceae [230]
C1
Amines
Dimethylamine
Araceae [230]
N,N-Dimethylmethanamine
Rosaceae [220]
Methylamine
Araceae [230]
Trimethylamine
Araceae [134, 230]
Amides
N,N-Dimethyl formamide
Orchidaceae [117]
N-Methyl formamide
Orchidaceae [117]

C2
- Amines
  - 2-Aminoethanol
    - Araceae [230]
  - Diethylamine
    - Araceae [230]
  - Ethylamine
    - Araceae [230]
  - *N*-Methyleneethanamine
    - Brassicaceae [221], Oleaceae [39], Rosaceae [219, 220]
- Amides
  - Acetamide
    - Araceae [26], Orchidaceae [117]
  - *N*,*N*-Dimethyl acetamide
    - Orchidaceae [117]
  - *N*-Methyl acetamide
    - Orchidaceae [117]

C3
- Amines
  - 2-Methylpropylamine
    - Araceae [230]
  - 1,2-Propanediamine
    - Araceae [230]
- Nitro compounds
  - 1-Nitro-2-methylpropane
    - Zingiberaceae [124]
- Nitriles
  - Isobutylnitrile, see 2-Methylpropylnitrile
  - 2-Methylpropylnitrile (Isobutylnitrile)
    - Brassicaceae [142], Orchidaceae [191], Zingiberaceae [174]
- Oximes
  - Isobutylaldoxime, see 2-Methylpropylaldoxime
  - 2-Methylpropylaldoxime (Isobutylaldoxime)
    - Caprifoliaceae [115], Rubiaceae [115], Rutaceae [119], Solanaceae [115], Zingiberaceae [115, 124, 174]

C4
- Amines
  - Agmatine
    - Araceae [230]
  - 3-Methylbutylamine
    - Araceae [230]
  - Putrescine
    - Araceae [230]
- Nitro compounds
  - 2-Methyl-1-nitrobutane, see 1-Nitro-2-methylbutane
  - 3-Methyl-1-nitrobutane, see 1-Nitro-3-methylbutane
  - 1-Nitro-2-methylbutane (2-Methyl-1-nitrobutane)
    - Caprifoliaceae [124, 150], Rubiaceae [121]
  - 1-Nitro-3-methylbutane (3-Methyl-1-nitrobutane)
    - Caprifoliaceae [124, 150], Orchidaceae [117], Zingiberaceae [124]
- Nitriles
  - 3-Methyl-2-butenylnitrile
    - Caprifoliaceae [124]
  - 2-Methylbutylnitrile
    - Asteraceae [5], Brassicaceae [142], Caprifoliaceae [124, 150], Fabaceae [121, 179], Orchidaceae [117], Rubiaceae [5, 109], Rutaceae [124], Zingiberaceae [124, 141, 174]
  - 3-Methylbutylnitrile
    - Caprifoliaceae [124], Fabaceae [179], Lecythidaceae [144], Malvaceae [142], Orchidaceae [116, 117], Polemoniaceae [5], Rubiaceae [5], Solanaceae [141], Zingiberaceae [124, 141, 174]

- Oximes
  - Isobutyraldoxime-*O*-methyl ether
    - Fabaceae [121]
  - 2-Methylbutylaldoxime
    - Caprifoliaceae [107, 115, 124, 150], Caryophyllaceae [112], Fabaceae [121], Magnoliaceae [115], Orchidaceae [115, 116, 117, 121], Rubiaceae [109, 115, 121], Rutaceae [115, 119], Solanaceae [115], Zingiberaceae [115, 124, 174]
  - (*E*)-2-Methylbutylaldoxime
    - Fabaceae [179]
  - (*Z*)-2-Methylbutylaldoxime
    - Fabaceae [179]
  - 2-Methylbutyraldoxime-*O*-methyl ether
    - Apocynaceae [121], Cucurbitaceae [121], Fabaceae [121], Rubiaceae [118, 121], Salicaceae [118, 121], Solanaceae [118, 121], Zingiberaceae [118]
  - 3-Methylbutylaldoxime
    - Apiaceae [31], Caprifoliaceae [115, 124], Caryophyllaceae [112, 141], Magnoliaceae [115], Malvaceae [142], Orchidaceae [115, 116, 117, 121, 141], Polemoniaceae [5], Rubiaceae [5, 115, 121], Solanaceae [115, 141], Zingiberaceae [115, 124, 141, 174]
  - (*Z*)-3-Methylbutylaldoxime
    - Fabaceae [179]
  - (*E*)-3-Methylbutylaldoxime
    - Fabaceae [179]
  - 3-Methylbutyraldoxime-*O*-methyl ether
    - Caprifoliaceae [121], Cucurbitaceae [121], Rubiaceae [118], Salicaceae [118], Solanaceae [118, 121], Zingiberaceae [118, 121]
- Esters
  - Methyl 2-amino-3-methylbutanoate (Valine methylester)
    - Adoxaceae [108]
  - Valine methylester, see Methyl 2-amino-3-methylbutanoate

C5

- Amines
  - Cadaverine, see Pentamethylenediamine
  - Pentamethylenediamine (Cadaverine)
    - Araceae [230]
- Nitriles
  - 4-Methylpentylnitrile
    - Caprifoliaceae [124]
- Esters
  - Isoleucine methylester, see Methyl 2-amino-3-methylpentanoate
  - Methyl 2-amino-3-methylpentanoate (Isoleucine methylester)
    - Adoxaceae [108]

C6

- Amines
  - 1,6-Hexanediamine
    - Araceae [230]
- Oximes
  - C6-Ketoxime
    - Rosaceae [220]

Cyclic

- Imidazole
  - Histamine (4-Imidazole ethylamine)
    - Araceae [230]
  - 1*H*-Imidazole
    - Araceae [152]
  - 4-Imidazole ethylamine, see Histamine
- Indole
  - Indole
    - Amaryllidaceae [6, 63, 177], Annonaceae [111], Apocynaceae [141], Araceae [26, 86, 129, 133, 134, 229], Arecaceae [137, 143, 145], Berberidaceae [215], Brassicaceae [36, 202, 217], Cactaceae [125], Calycanthaceae [120, 266], Caprifoliaceae [102, 107, 175, 178], Caryophyllaceae [141], Commelianaceae [121], Cucurbitaceae [3, 4, 71], Fabaceae [107,

119], Hemerocallidaceae [33], Hyacinthaceae [38], Hydrangeaceae [107, 108], Lecythidaceae [121, 144], Malvaceae [41], Nyctaginaceae [151], Oleaceae [33, 39, 52, 107, 114, 150, 176, 178, 267], Orchidaceae [13, 17, 75, 115, 116, 117, 118, 120, 141, 169, 180, 253, 258], Passifloraceae [157], Pittosporaceae [107], Rhizophoraceae [10], Rubiaceae [5, 141, 249], Ruscaceae [141, 171], Rutaceae [2, 119, 247], Solanaceae [131], Valerianaceae [5], Zingiberaceae [141, 174, 268]

- *N*-Methylindole
  - Orchidaceae [23]
- 3-Methylindole, see Skatole
- Skatole (3-Methylindole)
  - Araceae [26, 133, 230]

Pyrazine

- 2,5-Dimethylpyrazine
  - Apiaceae [31], Araceae [26]
- Ethyldimethylpyrazine
  - Iridaceae [178]
- 2-Ethyl-3,5-dimethylpyrazine
  - Oleaceae [176, 178]
- Ethyltrimethylpyrazine
  - Iridaceae [178]
- 2-Methoxy-3-*sec*-butylpyrazine (2-Methoxy-3-isobutylpyrazine)
  - Arecaceae [68, 143], Orchidaceae [117]
- 2-Methoxy-3-isobutylpyrazine, see 2-Methoxy-3-*sec*-butylpyrazine
- Tetramethylpyrazine
  - Theophrastaceae [139]
- Trimethylpyrazine
  - Theophrastaceae [139]

Pyrazole

- Pyrazole
  - Araceae [86]

Pyridine

- Actinidine
  - Araceae [26]
- Nicotinaldehyde
  - Fumariaceae [56]
- Methyl nicotinate
  - Cactaceae [113, 115, 125], Fabaceae [107], Magnoliaceae [11], Nyctaginaceae [151], Orchidaceae [117, 169], Rosaceae [220]
- 3-Pyridincarboxaldehyde
  - Apiaceae [242], Rosaceae [220]
- Nicotine
  - Solanaceae [69]

Triazine

- 1,3,5-Tributylhexahydro-1,3,5-triazine
  - Calycanthaceae [266]

SULFUR-CONTAINING COMPOUNDS

Acyclic

Sulfoxides

- Dimethyl sulfoxide
  - Onagraceae [265]

Isothiocyanate

- *S*-Butyl isothiocyanate
  - Brassicaceae [142]
- Cyclohexene isothiocyanate
  - Rosaceae [12]
- Isopropyl isothiocyanate
  - Brassicaceae [142]

Sulfides

- Carbon disulfide
  - Hydnoraceae [48], Orchidaceae [75]

Dimethyl disulfide
Araceae [26, 86, 130, 134, 231], Arecaceae [21, 137], Bignoniaceae [21, 142], Brassicaceae [142, 221], Bromeliaceae [21], Cactaceae [125], Fabaceae [21], Hydnoraceae [48], Malvaceae [94], Orchidaceae [117], Polemoniaceae [21], Solanaceae [94]
Dimethyl disulfide monosulfone
Cactaceae [125]
Dimethyl sulfide
Araceae [26, 229, 262]
Dimethyl tetrasulfide
Araceae [26, 134], Arecaceae [21], Bignoniaceae [21, 142], Cactaceae [125, 142], Fabaceae [21], Malvaceae [94], Polemoniaceae [21]
Dimethyl trisulfide
Agavaceae [142], Alliaceae [36], Araceae [26, 130, 134, 229, 231], Arecaceae [21, 137], Bignoniaceae [21, 142], Brassicaceae [142, 221], Cactaceae [125, 142], Fabaceae [21], Hydnoraceae [48], Malvaceae [94, 142], Polemoniaceae [21, 142], Solanaceae [94]
(*E*)-Diprop-1-enyl disulfide
Alliaceae [36]
(*Z*)-Diprop-1-enyl disulfide
Alliaceae [36]
Diprop-2-enyl disulfide
Alliaceae [36]
Diprop-2-enyl sulfide
Alliaceae [36]
2,4-Dithiapentane
Arecaceae [21, 137], Bignoniaceae [21, 142], Brassicaceae [142], Fabaceae [21], Lythraceae [10], Malvaceae [94]
Bis-(1-Methylethyl)-disulfide
Araceae [262]
Methyl (methylthio)methyl disulfide
Hydnoraceae [48]
Methyl (*E*)-prop-1-enyl disulfide
Alliaceae [36]
Methyl (*Z*)-prop-1-enyl disulfide
Alliaceae [36]
Methyl prop-2-enyl disulfide
Alliaceae [36]
Methyl prop-2-enyl trisulfide
Alliaceae [36]
Methyl propyl disulfide
Alliaceae [36]
1,3,5,6,8-Pentathianonane
Bignoniaceae [21]
2,3,5,6,8-Pentathianonane
Arecaceae [21], Bignoniaceae [142]
Propyl prop-2-enyl disulfide
Alliaceae [36]
2,3,4,6-Tetrathiaheptane
Arecaceae [21], Bignoniaceae [21, 142]
2,3,5,7-Tetrathiaoctane
Bignoniaceae [142]
2,4,5,7-Tetrathiaoctane
Arecaceae [137], Bignoniaceae [21], Cactaceae [125]
2,3,5-Trithiahexane
Arecaceae [137], Bignoniaceae [21, 142], Cactaceae [125], Fabaceae [21]
Thiocyanates
Thiocyanate octadecanal
Brassicaceae [217]
Thioesters
Dimethyltrithio carbonate
Bignoniaceae [21]
Methyl thioacetate

- Cactaceae [125]
- *S*-Methyl thioacetate
  - Hydnoraceae [48], Orchidaceae [201]
- Thiols
  - 2-Aminobenzene thiol
    - Orchidaceae [13]
  - 4-Mercapto-4-methylpentan-2-one
    - Fabaceae [121]
  - Methanethiol
    - Araceae [86]
  - 2-Thiapropane-1-thiol
    - Arecaceae [21, 137]
- Cyclic
  - Thiofurans
  - Thiophene
    - Rosaceae [12]
  - 1,2,4-Trithiolane
    - Arecaceae [137]
- Thiazoles
  - Benzothiazole
    - Brassicaceae [36], Cactaceae [113], Hydrangeaceae [107], Myrsinaceae [103], Onagraceae [265], Rosaceae [12, 40]
  - Benzothiazolone
    - Amaryllidaceae [107]

MISCELLANEOUS CYCLIC COMPOUNDS

- Carbocyclic
  - Monocyclic
    - Alkanes
      - Butylcyclohexane
        - Meliaceae [250]
      - Cyclohexane
        - Araceae [229], Rosaceae [12]
      - Cyclotetradecane
        - Rosaceae [51]
      - Methylcyclohexane
        - Rosaceae [12]
      - Methylcyclopentane
        - Asteraceae [213]
    - Alkenes
      - 1,3,5-Cycloheptatriene
        - Geraniaceae [32]
      - 1,5-Cycloundecadiene
        - Nyctaginaceae [151]
      - 1-Formylcyclohexene
        - Araceae [86]
      - 3-Methylcyclopentene
        - Oleaceae [267]
    - Ketones
      - Cyclohexanone
        - Araceae [86, 152, 229], Arecaceae [21], Brassicaceae [221], Bromeliaceae [21], Musaceae [21]
      - 2-Cyclohexen-1-one
        - Rosaceae [128]
      - Jasmone
        - Cactaceae [125], Caprifoliaceae [107, 178], Hydrangeaceae [107], Magnoliaceae [240], Nelumbonaceae [178], Oleaceae [107, 114, 119, 176, 178], Orchidaceae [116, 117], Rutaceae [247], Solanaceae [121, 165, 166], Thymelaeaceae [234]
      - *cis*-Jasmone
        - Actinidiaceae [237], Annonaceae [111], Arecaceae [137], Caprifoliaceae [102], Magnoliaceae [264], Nelumbonaceae [184], Nyctaginaceae [151], Thymelaeaceae [5], Zingiberaceae [141, 174]

trans-Jasmone
Caprifoliaceae [102], Thymelaeaceae [5], Zingiberaceae [174]
4-Methylcyclohexanone
Orchidaceae [201]
1-Methyl-1-cyclohexen-4-one
Cactaceae [113, 125]
2-Methylcyclopentanone
Fabaceae [104]
3-Methyl-2-cyclopenten-1-one
Orchidaceae [117]
Alcohols
Cyclohexane ethanol
Araceae [86]
Cyclohexanol
Araceae [86, 229]
3-Cyclohexene-1-methanol
Araceae [86], Oleaceae [57, 58]
2-Ethylcyclobutanol
Rosaceae [40]
Esters
Butyrolactone, see γ-Butyrolactone
γ-Butyrolactone (Butyrolactone)
Araceae [86], Nyctaginaceae [151], Oleaceae [177], Orchidaceae [117], Primulaceae [36], Sapindaceae [46]
γ-Caprolactone, see γ-Decalactone
(*Z*,*Z*)-2,6-Decadien-5-olide
Orchidaceae [120, 121]
δ-Decalactone (Decan-4-olide)
Asteraceae [132], Caprifoliaceae [107], Orchidaceae [77, 117, 121, 169]
γ-Decalactone (γ-Caprolactone)
Nyctaginaceae [151], Oleaceae [57, 58, 177], Orchidaceae [117, 118]
Decan-4-olide, see δ-Decalactone
(*Z*)-2-Decen-5-olide
Orchidaceae [120, 121]
(*Z*)-7-Decen-4-olide (*cis*-Jasmin lactone, Jasmin lactone)
Agavaceae [178], Caprifoliaceae [102, 107], Oleaceae [52, 177, 178], Orchidaceae [117, 118, 169], Rubiaceae [249], Zingiberaceae [174]
7-Decen-5-olide
Nyctaginaceae [151]
4,4-Dimethylbut-2-enolide, see 4-Methyl-2-penten-4-olide
(*Z*)-2,6-Dodecadien-5-olide
Orchidaceae [120, 121]
δ-Dodecalactone
Agavaceae [178], Orchidaceae [117]
γ-Dodecalactone
Amaryllidaceae [6]
(*Z*)-2-Dodecen-5-olide
Orchidaceae [120, 121]
γ-Hexalactone
Orchidaceae [117]
Jasmin lactone, see (*Z*)-7-Decen-4-olide
cis-Jasmin lactone, see (*Z*)-7-Decen-4-olide
Methyl *cis*-(*Z*)-dehydrojasmonate
Orchidaceae [116, 117]
Methyl *trans*-(*Z*)-dehydrojasmonate
Orchidaceae [116, 117]
Methyl epijasmonate, see Methyl *cis*-(*Z*)-jasmonate
(*Z*)-Methyl epijasmonate
Rutaceae [172]
Methyl jasmonate
Araceae [86], Chloranthaceae [251], Oleaceae [114, 176, 178], Orchidaceae [176, 201], Zingiberaceae [174]

cis-Methyl jasmonate, see Methyl *cis*-jasmonate
Methyl *cis*-jasmonate (*cis*-Methyl jasmonate)
Caprifoliaceae [102, 107], Chloranthaceae [251], Oleaceae [107], Orchidaceae [201], Rutaceae [172]
Methyl *cis*-(*Z*)-jasmonate (Methyl epijasmonate)
Caprifoliaceae [102], Fabaceae [120], Oleaceae [119], Orchidaceae [77, 116, 117, 176], Zingiberaceae [174]
Methyl *trans*-(*Z*)-jasmonate
Fabaceae [120], Oleaceae [119], Orchidaceae [77, 116, 117]
Methyl *trans*-jasmonate (*trans*-Methyl jasmonate)
Caprifoliaceae [102, 107], Oleaceae [107]
trans-Methyl jasmonate, see Methyl *trans*-jasmonate
(*Z*)-3-Methyl-4-decanolide
Orchidaceae [116, 117]
(*Z*)-4-Methyl-5-decanolide
Orchidaceae [116, 117]
4-Methyl-5-hexen-4-olide (2-Methyl-2-vinyl-5-oxo-tetrahydrolactone (furan), 4-Methyl-4-vinylbutyrolactone, 4-Methyl-5-hexen-1,4-olide, γ-Vinyl-γ-valerolactone)
Arecaceae [143], Nyctaginaceae [151], Thymelaeaceae [5], Zamiaceae [211], Zingiberaceae [174]
4-Methyl-5-hexen-1,4-olide, see 4-Methyl-5-hexen-4-olide
4-Methyl-2-pentenolide, see 4-Methyl-2-penten-4-olide
4-Methyl-2-penten-4-olide (4,4-Dimethylbut-2-enolide, 4-Methyl-2-pentenolide)
Cactaceae [125], Nyctaginaceae [151], Orchidaceae [117]
4-Methyl-4-vinylbutyrolactone, see 4-Methyl-5-hexen-4-olide
2-Methyl-2-vinyl-5-oxo-tetrahydrolactone (furan), see 4-Methyl-5-hexen-4-olide
δ-Nonalactone
Nyctaginaceae [151]
δ-Octalactone
Nyctaginaceae [151], Orchidaceae [169]
γ-Octalactone
Orchidaceae [117]
(*Z*)-2,6-Undecadien-5-olide
Orchidaceae [120]
(*Z,Z*)-2,6-Undecadien-5-olide
Orchidaceae [121]
γ-Vinyl-γ-valerolactone, see 4-Methyl-5-hexen-4-olide
Ethers
1-Methyl-4-methoxy-1-cyclohexene
Cactaceae [113, 115, 125]
Bicyclic
Bicyclo[3.1.0]
Ketones
1,5-di-*tert*-Butyl-3,3-dimethylbicyclo[3.1.0]hexan-2-one
Onagraceae [265]
Bicyclo[3.1.1]
Ketones
6,6-Dimethylbicyclo[3.1.1]heptan-2-one
Fabaceae [212]
Alcohols
2-Methanolbicyclo[3.1.1]hept-2-ene
Fabaceae [212]
Bicyclo[4.1.0]
Hydrocarbons
Bicyclo[4.1.0]heptane
Orchidaceae [180]
Bicyclo[4.4.0] (Naphthalenes)
Hydrocarbons
Naphthalene
Annonaceae [111], Berberidaceae [215], Calycanthaceae [266], Lauraceae [74], Orchidaceae [28], Violaceae [248]
Ketones
1,4-Dihydro-1-(2H)-naphthalenone

Asteraceae [213]
3,4-Dihydro-1-(2H)-naphthalenone
Asteraceae [213], Oleaceae [57, 58]
Bicyclo[5.3.0] (Azulenes)
Hydrocarbons
Azulene
Araceae [129]
Heterocyclic
Ethers
1,4-Diethylene dioxide (1,4-Dioxane)
Rosaceae [40]
1,4-Dioxane, see 1,4-Diethylene dioxide
1,3-Dioxolane, see Glycol methylene ether
Glycol methylene ether (1,3-Dioxolane)
Calycanthaceae [266]
Furan
Furans
(*E*)-2-Acetyl-5-methyl-5-ethenyl-tetrahydrofuran (*trans*-2-Acetyl-5-vinyl-5-methyltetrahydrofuran)
Orchidaceae [117]
(*Z*)-2-Acetyl-5-methyl-5-ethenyl-tetrahydrofuran
Orchidaceae [117]
trans-2-Acetyl-5-vinyl-5-methyltetrahydrofuran, see (*E*)-2-Acetyl-5-methyl-5-ethenyl-tetrahydrofuran
2-Butylfuran
Araceae [86]
2,5-Dihydrofuran
Araceae [86]
3-(4,8-Dimethyl-3,7-nonadienyl)furan
Asteraceae [213]
(*E*)-2-Ethyl-3-acetoxy-tetrahydrofuran
Oleaceae [114], Orchidaceae [118]
2-Ethylfuran
Rosaceae [12, 219]
5-Methyl-5-ethenyl-2-isopropenyltetrahydrofuran (2-Methyl-5-isopropenyl-2-ethenyltetrahydrofuran)
Rutaceae [247]
2-Methylfuran
Araceae [229], Rosaceae [220]
3-Methylfuran
Rosaceae [12], Zingiberaceae [174]
2-Methyl-5-isopropenyl-2-ethenyltetrahydrofuran, see 5-Methyl-5-ethenyl-2-isopropenyl-tetrahydrofuran
2-Pentylfuran
Orchidaceae [227], Rosaceae [219]
2-Propylfuran
Araceae [86]
Aldehydes
2-Furancarboxyaldehyde
Rosaceae [12]
Furfural
Orchidaceae [227]
5-Hydroxy-2-furancarboxaldehyde
Orchidaceae [106]
5-Hydroxymethyl-2-furancarboxaldehyde (5-Hydroxymethyl-furfural)
Orchidaceae [227], Sapindaceae [46]
5-Hydroxymethyl-furfural, see 5-Hydroxymethyl-2-furancarboxaldehyde
1-(5-Methyl-5-ethenyl-tetrahydrofuran-2-yl)ethanal
Orchidaceae [243]
5-Methylfurfural
Orchidaceae [227]

Ketones
2-Acetyldihydro-2(3H)furanone
Orchidaceae [106]
2,3-Dihydro-4-hydroxy-2,5-dimethyl-3-furanone, see 2,5-Dimethyl-4-hydroxy-2,3-dihydro-3-furanone
2,5-Dimethyl-4-hydroxy-2,3-dihydro-3-furanone (2,3-Dihydro-4-hydroxy-2,5-dimethyl-3-furanone)
Orchidaceae [227]
5-Ethenyldihydro-5-methyl-2(3H)-furanone, see 5-Methyl-5-ethenyldihydro-2(3H)-furanone
5-Ethenyl-5-methyl-2(3H)-furanone, see 5-Methyl-5-ethenyldihydro-2(3H)-furanone
(*E*)-2-Ethyl-3-benzoyloxo-tetrahydrofuran
Oleaceae [114]
5-(3-Furyl)-2-methyl-1-penten-3-one
Rutaceae [247]
5-Methylene-2(5H)-furanone (Protoanemonin)
Ranunculaceae [19]
5-Methyl-5-ethenyldihydro-2(3H)-furanone (5-Ethenyl-5-methyl-2(3H)-furanone, 5-Ethenyldihydro-5-methyl-2(3H)-furanone)
Arecaceae [137], Caryophyllaceae [141], Oleaceae [39, 51], Orchidaceae [243]
5-Methyl-2-furanone
Orchidaceae [227]
Protoanemonin, see 5-Methylene-2(5H)-furanone
Alcohols
2-Furanmethanol
Orchidaceae [106, 227]
5-Methyl-5-ethenyl-2-hydroxytetrahydrofuran
Apiaceae [246], Orchidaceae [241, 243]

Pyran
Pyrans
2-Ethenyltetrahydro-2,6,6-trimethyl-2*H*-pyran, see 2,2,6-Trimethyl-6-ethenyltetrahydro-2*H*-pyran
2,2,6-Trimethyl-6-ethenyltetrahydro-2*H*-pyran (2-Ethenyltetrahydro-2,6,6-trimethyl-2*H*-pyran)
Oleaceae [39]
Aldehydes
3,4-Dihydro-2,5-dimethyl-2*H*-pyran-2-carboxaldehyde, see 2,5-Dimethyl-3,4-dihydro-2*H*-pyran-2-carboxaldehyde
2,5-Dimethyl-3,4-dihydro-2*H*-pyran-2-carboxaldehyde (3,4-Dihydro-2,5-dimethyl-2*H*-pyran-2-carboxaldehyde)
Onagraceae [265]
Ketones
6-Ethenyltetrahydro-2,2,6-trimethyl-2*H*-pyran-3(4*H*)-one, see 2,2,6-Trimethyl-6-ethenyltetrahydro-2*H*-pyran-3(4*H*)-one
4-Methyl-6-isobutyl-2-pyranone
Cyclanthaceae [225]
3-Oxo-2,2,6-trimethyl-6-ethenyltetrahydropyran, see 2,2,6-Trimethyl-6-ethenyltetrahydro-3-pyranone
Pyranone
Verbenaceae [101]
2,2,6-Trimethyl-6-ethenyl-4,5-dihydro-3-pyranone
Arecaceae [137, 143], Orchidaceae [77, 117], Thymelaeaceae [24]
2,2,6-Trimethyl-6-ethenyltetrahydro-2*H*-pyran-3(4*H*)-one (6-Ethenyltetrahydro-2,2,6-trimethyl-2*H*-pyran-3(4H)-one)
Asteraceae [5], Polemoniaceae [5], Primulaceae [5], Rubiaceae [5], Verbenaceae [5]
2,2,6-Trimethyl-6-ethenyltetrahydro-3-pyranone (3-Oxo-2,2,6-trimethyl-6-ethenyltetrahydropyran)
Asteraceae [132], Fabaceae [121]
Alcohols
Pyranol
Verbenaceae [101]

Bicyclo[3.2.1]
(-)-*endo*-Brevicomin, see (-)-*endo*-7-Ethyl-5-methyl-6,8-dioxabicyclo[3.2.1]octane

(-)-*endo*-7-Ethyl-5-methyl-6,8-dioxabicyclo[3.2.1]octane ((-)-*endo*-Brevicomin)
Orchidaceae [224]
1-Methyl-6-ethyl-2,7,8-trioxabicyclo[3.2.1]octane
Oleaceae [114]
1-Methyl-6(*exo*)-ethyl-2,7,8-trioxabicyclo[3.2.1]octane
Orchidaceae [118]
4,5,7-Trimethyl-6,8-dioxabicyclo[3.2.1]octane
Araceae [205]
Trimethyl-6,8-dioxabicyclo[3.2.1]octane
Araceae [205, 206]
Bicyclo[5.1.0]
8-Oxa-bicyclo[5.1.0]octane
Araceae [262]
Spiro
Chalcogran A
Orchidaceae [117]
Chalcogran B
Orchidaceae [117]
(*E*)-Chalcogran
Hydrangeaceae [115], Rubiaceae [121], Ruscaceae [115], Solanaceae [121]
(*Z*)-Chalcogran
Rubiaceae [121], Ruscaceae [115], Solanaceae [121]
8,8-Dimethyl-4-methylene-1-oxospiro[2.5]oct-5-ene
Oleaceae [57, 58]
(*E*)-7-Methyl-1,6-dioxaspiro[4.5]decane
Arecaceae [137, 143], Asteraceae [5], Fabaceae [212], Hydrangeaceae [115], Lecythidaceae [144], Malvaceae [142], Moraceae [121], Orchidaceae [117], Passifloraceae [157], Rubiaceae [5, 121, 141], Ruscaceae [115], Rutaceae [119], Solanaceae [121]
(*Z*)-7-Methyl-1,6-dioxaspiro[4.5]decane
Moraceae [121], Orchidaceae [117], Rubiaceae [121], Ruscaceae [115], Solanaceae [121]
Spiro[4.5]dec-1-ene
Zingiberaceae [268]

Appendix II: List of taxa

Taxonomic names are cited as they appear in the reviewed papers, and only obvious orthographic mistakes have been corrected. No taxonomic evaluations of the usage of names have been made, and no author names have been added if such are lacking in the original papers. Numbers within square brackets refer to reference numbers in Appendix III.

ALISMATALES
Araceae
Amorphophallus albispathus Hett. [133, 134]
A. albus Liu & Wei. [133, 134]
A. annulifer Hett. [133, 134]
A. arnautovii Hett. [133, 134]
A. brachyphyllus Hett. [133, 134]
A. bulbifer Blume [133, 134]
A. cicatricifer Hett. [133, 134]
A. eichleri (Engl.) N. E. Br. [133, 134]
A. elatus Hook. f. [133, 134]
A. fallax (syn. Pseudodracontium fallax Serebr.) [133, 134]
A. glossophyllus Hett. [133, 134]
A. haematospadix Hook. f. [133, 134]
A. konjac K. Koch [133, 134]
A. lacourii (Lind. & André) N. E. Br. (syn. *Pseudodracontium lacourii* (Lind. & André) N. E. Br.) [133, 134]
A. margaritifer (Roxb.) Kunth [133, 134]
A. maximus (Engl.) N. E. Br. [133, 134]
A. opertus Hett. [133]
A. paeoniifolius (Dennst.) Nicolson [133, 134]
A. prainii Hook. f. [133, 134]
A. sagittarius van Steenis [133, 134]
A. titanum (Becc.) Becc. ex Arcang. [133, 134]
A. zenkeri N. E. Br. [133]
Anthurium antioquiense [146]
A. armeniense [146]
A. fragrantissimum [146]
A. lindennum [146]
A. ochranthum C. Koch [146, 252]
A. roseospadix [146]
Arisaema ciliatum [262]
A. erubescens [262]
A. lobatum [262]
A. speciosum [262]

A. tortuosum [262]
Arum apulum (Carano) P.C. Boyce [133]
A. creticum Boiss. & Held. [133]
A. cyrenaicum Hruby [133]
A. dioscoridis Sibth. & Sm. [133, 230]
A. idaeum Coust. & Gandoger [133]
A. italicum Mill. [133, 230]
A. maculatum L. [129, 133]
A. nigrum Schott [133]
A. palaestinum Boiss. [133]
A. purpureospathum P.C. Boyce [133]
A. rupicola Boiss. [133]
Dracunculus vulgaris Schott [230]
Helicodiceros muscivorus (L. f.) Engl. [130]
Hydrosme rivieri (Durieu) Engl. [230, 231]
Peltandra virginica Kunth [205, 206]
Sauromatum guttatum Schott [26, 86, 229, 230]
Spathiphyllum cannaefolium (Dryand.) Schott [77, 152]
S. floribundum [152, 258]
S. ortgiesii Regel [77]
S. walisii Regel [77]

APIALES
Apiaceae
Aegopodium podagraria [31]
Angelica archangelica L. ssp. *archangelica* [246]
A. archangelica L. ssp. *litoralis* (Fr.) Thell [246]
A. silvestris L. [246]
Anthriscus sylvestris [31]
Carum carvi [31]
Conopodium majus (Gouan) Loret [242]
Heracleum sibiricum [31]
Laserpitium latifolium [31]
Pastinaca sativa [31]
Pseudocymopterus montanus [217]
Pittosporaceae
Pittosporum tobira Ait. [107, 108]

ARECALES
Arecaceae
Aiphanes minima (Gaertn.) Burret [143]
Ammandra decasperma [68]
Aphandra natalia [68]
Asterogyne martiana (H. Wendl.) H. Wendl. ex Hemsl. [137]
Bactris gasipaes H.B.K. [143]
Calyptrogyne costatifrons (L.H. Bailey) Nevers [137]
C. ghiesbreghtiana (Linden & H. Wendl.) H. Wendl. [21, 94, 137]
Ceroxylon alpinum Bonpl. ex DC. [143]
Chamaedorea linearis (R. & P.) Mart. [143]
C. tepejilote Lieb. [118, 119, 120]
Chelyocarpus ulei Dammer [143]
Geonoma brongniartii Mart. [137]
G. congesta H. Wendl. [137]
G. cuneata H. Wendl. ex Spruce var. *cuneata* [137]
G. cuneata H. Wendl. ex Spruce var. *procumbens* (H. Wendl. ex Spruce) Skov [137]
G. cuneata H. Wendl. ex Spruce var. *sodiroi* (Dammer ex Burret) Skov [137]
G. irena Borchs. [137]
G. longepedunculata Burret [137]
G. macrostachys Mart. var. *macrostachys* [137, 143, 145]
G. maxima (Poit.) Kunth [137]
G. orbignyana Mart. [137]
G. poeppigiana Mart. [137]
G. polyandra Skov [137, 143]
G. stricta (Poit.) Kunth var. *stricta* [137]
G. stricta (Poit.) Kunth var. *piscicauda* (Dammer) Hend. [137]
G. tenuissima H.E. Moore [137]
G. triglochin Burret [137, 143]
G. undata Klotsch. [137, 143]
Geonoma sp. [137]
Iriartea deltoidea R. & P. [143]
Mauritia flexuosa L. f. [143]
Nypa fruticans (Thunb.) Wurmb. [10]
Pholidostachys synanthera (Mart.) H.E. Moore [137]
Phytelephas aequatorialis Spruce [68]
P. macrocarpa R. & P. ssp. *tenuicaulis* Barfod [68]
P. seemannii O.F. Cook [68]
Prestoea schultzeana (Burret) H.E. Moore [143]
Welfia regia H. Wendl. ex André [137]
Wettinia kalbreyeri (Burret) R. Bernal [143]
W. maynensis Spruce [143]

ASPARAGALES
Agavaceae
Agave americana L. [142]
Polianthes tuberosa L. [108, 115, 178]
Alliaceae
Allium schoenoprasum L. [193]
A. ursinum [36]
Amaryllidaceae
Crinum asiaticum var. *japonicum* [175]
Hippeastrum calyptratum [21, 79, 94]
Narcissus assoanus Dufour ssp. *assoanus* [63]
N. assoanus Dufour ssp. *praelongus* A. Barra & G. Lopez [63]
N. bugei (Fernandez-Casas) Fernandez-Casas [63]
N. bulbocodium L. [63]
N. cuatrecasasii Fernandez-Casas, Lainz & Ruiz Rejon [63]
N. gaditanus Boiss & Reuter [63]
N. jonquilla L. [63]
N. papyraceus Ker-Gawler [63]
N. poeticus L. [107]
N. pseudonarcissus L. [232, 233]
N. serotinus L. [63]

O. sphecodes Mill. ssp. *provincialis* Nelson [29]
O. splendida Gölz & Reinhard [29]
O. tenthredinifera Willd. [23, 147, 148, 149]
Orchis mascula L. [192]
O. morio L. [193]
Paphinia grandiflora Barb. Rodr. [77, 259]
Peristeria cerina Lindl. [77]
P. elata Hook. [77, 106, 117]
P. guttata Knowl & Westc. [77]
Pescatorea cerina [117]
P. dayana Rchb. f. [77, 117]
P. klabochorum Rchb. f. [77]
P. lehmannii Rchb. f. [77, 117]
P. wallisii Rchb. f. [77]
Phalaenopsis bellina (Rchb. f.) Christenson [53]
P. equestris Rehb. f. [8]
P. schilleriana Rehb. f. [8]
P. veitchiana [8]
P. violacea [53, 117]
Platanthera bifolia (L.) Rich. [117, 194, 195, 241, 243, 244]
P. bifolia × *chlorantha* [194]
P. chlorantha (Cust.) Reichb. [117, 187, 194, 195, 243]
P. mandarinorum [175]
P. stricta Lindl. [204]
Plectrelminthus caudatus [117]
Polycycnis gratiosa Endres & Rchb. f. [77, 97]
Polystachya campyloglossa [117]
P. cultriformis [117]
P. fallax [117]
P. mazumbaiensis [117]
Rangaeris amaniensis [117]
Rhynchostylis coelestis [117]
Rodriguezia refracta [116, 117, 121]
Sievekingia fimbriata Rchb. f. [77]
S. herrenhusiana Jenny [77]
S. reichenbachiana Rolfe [259]
S. rhonhofiae Mansf. [77]
S. suavis Rchb. f. [77]
Sievekingia sp. [97]
Stanhopea anfracta Rolfe [97, 252, 253, 258]
S. annulata Mansf. [77, 97, 253, 258]
S. avicula Dressler [253]
S. candida Barb. Rodr. [97, 253, 258]
S. carchiensis Dodson [253]
S. cirrhata Lindley [97]
S. connata Klotzch [97, 253]
S. costaricensis Rchb. f. [97, 253, 258]
S. costaricensis × *ecornuta* [97]
S. dodsoniana Salazar [253]
S. ecornuta Lemaire [97, 253, 258]
S. embreei Dodson [77, 253, 257, 258]
S. florida Rchb. f. [97, 253]
S. frymirei Dodson [253]
S. gibbosa Rchb. f. [253, 258]
S. grandiflora (Lindley ex. Lodd.) Lindley [77, 97, 253]
S. graveolens Lindley [97, 253]
S. guttulata Lindley [97]
S. impressa Rolfe [77, 253, 258]
S. inodora Lodd. ex Lindley [253]
S. jenischiana Kramer ex Reichb. f. [117, 253]
S. martiana Lindley [253]
S. nigripes Rolfe [253]
S. oculata (Lodd.) Lindley [97, 117, 253, 258]
S. panamensis N.H. Williams & Whitten [253, 258]
S. peruviana Rolfe [253]
S. pozoi Dodson & D.E. Bennett [253]
S. pulla Rchb. f. [95, 97, 253, 258]
S. radiosa Lemaire [253]
S. reichenbachiana Roezl. ex. Reichb. f. [97, 253]
S. reichenbachiana × *tricornis* [97]
S. ruckeri Lindley [253, 258]
S. saccata Bateman [97, 253]
S. tigrina Bateman ex Lindley [97, 117, 253, 258]
S. tricornis Lindley [97, 253]
S. wardii C. Lood ex Lindley [97, 253, 258]
S. warscewicziana Klotzch [253]
S. xytriophora Reichb. f. [253]
Stanhopea sp. [95, 97]
Stenia palorae Dodson [77]
Trevoria lehmannii Rolfe [77]
Trichocentrum tigrinum [117]
Trichoglottis philippinensis [117]
Trichopilia suavis [258]
Trixspermum arachnites [117]
Vanda coerulescens [117]
V. denisoniana [117]
V. tessellata [117]
Vandofinetia sp. [100]
Vanilla planifolia [150]
V. pompona [258]
Zygopetalum crinitum Lodd. [77, 117]
Z. mackayi [236, 258]

Ruscaceae
Convallaria majalis L. [113, 115, 171, 232, 233]
Dracaena fragrans [113, 115]
Sansevieria cylindrica Bojer [141]

ASTERALES

Asteraceae
Anthemis nobilis L. [37]
Centaurea scabiosa L. [5]
Cichorium intybus L. [59]
Cirsium arvense (L.) Scop. [5, 55]
Eupatorium cannabinum L. [5]
Helianthus annuus L. [213, 214]
Inula salicina L. [5]
Leontopodium alpinum [65]
Matricaria recutita L. [33, 36, 37]

Petasites albus [36]
Santolina chamaecyparissus [34, 37]
Senecio articulatus Sch. Bip. [132]
Tanacetum vulgare L. [99]

BRASSICALES
Brassicaceae
Arabis demissa [217]
A. drummondii [217]
A. holboellii [217]
Brassica napus [22, 36, 70, 105]
B. napus spp. *oleifera* [70, 221]
B. rapa [202]
Cleome anomala Kunth [142]
Hesperis matronalis L. [186]
Thlaspi montanus [217]
Caricaceae
Carica papaya L. [141]
Resedaceae
Reseda odorata [115]

CANELLALES
Winteraceae
Belliolum sp. [210]
Bubbia pauciflora (Bak. f.) Dandy [210]
Bubbia sp. [210]
Exospermum stipitatum (Baillon) v. Tieghem [210, 239]
Zygogynum baillonii v. Tieghem [210, 239]
Z. bicolor v. Tieghem [210, 239]
Z. mackeei Vink [210]
Z. pomiferum (v. Tieghem) Vink [210]
Z. viellardii Baillon [210]

CARYOPHYLLALES
Cactaceae
Discocactus cristallophilus Diers & E. Steves Pereira [125]
D. silicicola Buining & Brederoo [125]
Dolichothele longimamma (DC.) Br. & R. [115, 121, 122, 125]
Echinopsis coronata Card. [121, 125]
E. mamillosa Gurke [121, 125]
Espostoa blossfeldiorum (Werd.) F. Buxb. [125]
Harrisia adscendens Britton & Rose [125]
Hylocereus polyrhizus Britton & Rose [125]
H. venezuelensis Britton & Rose [125]
Pereskia aculeata Mill. [121, 125]
Pilosocereus arrabidae (Lem.) Byles & Rowley [125]
P. catingicola (Gurke) Byles & Rowley [125]
P. pachycladus F. Ritter [125]
P. tweedyanus (Britton & Rose) Byles & Rowley [142]
Rebutia marsoneri Werd. [122, 125]
R. narvaecense (Card.) Donald [121, 125]
Selenicereus grandiflorus Britton & Rose [125]
S. hamatus Britton & Rose [113, 115, 125]
Sulcorebutia kruegeri (Card.) Ritt. [121, 122, 125]
Weberocereus biolleyi [21]
W. tunilla [21, 94]
Caryophyllaceae
Agrostemma githago L. [5]
Dianthus armeria L. [5]
D. caryophyllus [54]
D. deltoides L. [5]
D. glacialis Haenke [66]
Silene chlorantha (Willd.) Ehrh. [112]
S. dichotoma Ehrh. ssp. *racemosa* (Otth) Graeb. [112]
S. flos-cuculi (L.) Greuter & Burdet [5]
S. italica (L.) Pers. [112]
S. latifolia Poiret ssp. alba (Mill.) Greut. and Burd. [112]
S. maritima With. [141]
S. nutans L. [112, 141]
S. otites (L.) Wib. [112]
S. saxifraga L. [112]
S. sericea All. [112]
S. subconica Friv. [112]
S. succulenta Forssk. [112]
S. vallesia L. [112]
S. viscosa (L.) Pers. [112]
S. vulgaris (Moench) Garcke [112, 141]
Nyctaginaceae
Acleisanthes acutifolia Standl. [151]
A. crassifolia A. Gray [151]
A. longiflora A. Gray [151]
A. obtusa (Choisy) Standl. [151]
A. wrightii (A. Gray) Benth. & Hook. [151]
Mirabilis alipes (S. Watson) Pilz [151]
M. bigelovii A. Gray [151]
M. greenei S. Watson [151]
M. jalapa L. [151]
M. longiflora L. [151]
M. macfarlanei Constance & Rollins [151]
M. multiflora (Torrey) A. Gray [151]
M. pudica Barneby [151]
M. triflora Benth. [151]
Selinocarpus angustifolius Torrey [151]
S. chenopodioides A. Gray [151]
S. lanceolatus Wooton [151]
S. parvifolius (Torrey) Stanley [151]
S. purpusianus Heimerl. [151]
S. undulatus Fowler & Turner [151]

CHLORANTHALES
Chloranthaceae
Chloranthus spicatus [251]

COMMELINALES
Commelinaceae
Cochliostema odoratissima [121]

CORNALES
Hydrangeaceae
Philadelphus coronarius L. [107, 108, 113, 115]

CUCURBITALES
- Cucurbitaceae
  - *Cucurbita maxima* Duchesne [3, 4]
  - *C. pepo* L. [4]
  - *Curcumis melo* [121, 261]
  - *Luffa acutangula* [71]
  - *Momordica charantia* [71]
  - *Trichosanthes kirilowii* [175]

CYCADALES
- Cycadaceae
  - *Cycas rumphii* [211]
- Zamiaceae
  - *Encephalartos altensteinii* [211]
  - *Macrozamia moorei* [211]
  - *Zamia furfuracea* [211]
  - *Z. pumila* [211]

DIPSACALES
- Adoxaceae
  - *Sambucus nigra* L. [108, 115]
- Caprifoliaceae
  - *Lonicera americana* [178]
  - *L. caprifolium* L. [107, 113, 115, 121]
  - *L. japonica* Thunb. [102, 113, 115, 124, 150, 175]
  - *L. periclymenum* [113, 115, 124, 150]
- Dipsacaceae
  - *Knautia arvensis* (L.) Coulter [5, 185]
  - *Scabiosa columbaria* L. [5]
- Linnaeaceae
  - *Abelia grandiflora* André [90]
- Valerianaceae
  - *Centranthus ruber* (L.) DC [5]
  - *Valeriana officinalis* [33, 37]

ERICALES
- Actinidiaceae
  - *Actinidia chinensis* Planch. [237]
- Ericaceae
  - *Moneses uniflora* (L.) A. Gray [140]
  - *Pyrola grandiflora* Radius [136]
  - *P. media* Sw. [140]
  - *P. norvegica* G. Knaben [136, 140]
  - *P. rotundifolia* L. ssp. *rotundifolia* [136, 140]
  - *P. rotundifolia* L. ssp. *maritima* (Kenyon) E.F. Warburg [136]
  - *Rhododendron flavum* [115]
- Lecythidaceae
  - *Corythophora amapaensis* Pires ex. Mori & Prance [144]
  - *Couratari stellata* A.C. Smith [144]
  - *Couroupita guianensis* Aublet [121, 144]
  - *Eschweilera coriacea* (A.P. de Candolle) Mori [144]
  - *E. pedicellata* (Richard) Mori [144]
  - *Grias neuberthii* Macbr. [144]
  - *G. peruviana* Miers [144]
  - *Gustavia longifolia* Poeppig ex. Berg [144]
  - *G. serrata* Mori [144]
  - *Lecythis confertiflora* (A.C. Smith) Mori [144]
  - *L. persistens* Sagot ssp. *persistens* [121]
  - *L. persistens* Aublet ssp. *aurantiaca* Mori [144]
  - *L. pisonis* Cambess. [144]
- Myrsinaceae
  - *Cyclamen persicum* Mill. [103]
  - *C. persicum* × *purpurescens* [103]
  - *C. purpurescens* Mill. [103, 115]
- Polemoniaceae
  - *Cobaea scandens* Cav. [21, 94, 142]
  - *Phlox bryoides* [217]
  - *P. drummondii* Hook. [5]
  - *P. paniculata* L. [5, 232, 233]
  - *Phlox* sp. [234]
- Primulaceae
  - *Primula farinosa* L. [5]
  - *P. veris* L. [36, 190]
- Sapotaceae
  - *Mimusops elengi* L. [263]
- Theaceae
  - *Camellia japonica* L. [200]
  - *C. sasanqua* Thunb. [200]
  - *C. vernalis* [200]
- Theophrastaceae
  - *Clavija euerganea* Macbr. [139]
  - *C. repanda* Ståhl [139]
  - *Deherainia smaragdina* (Planch. ex Linden) Decne. ssp. *smaragdina* [139]
  - *Jacquinia keyensis* Mez [139]
  - *J. macrocarpa* Cav. [139]
  - *J. sprucei* Mez [139]
  - *Theophrasta americana* L. [139]

FABALES
- Fabaceae
  - *Acacia karroo* Hayne [120]
  - *Albizia julibrissin* Durazz. [153, 175, 179]
  - *Anthyllis vulneraria* L. [193]
  - *Bauhinia ungulata* [21, 94]
  - *Browneopsis disepala* (Little) Klitgaard [138]
  - *Coronilla emerus* L. [107, 108]
  - *Dioclea reflexa* [121]
  - *Inga marginata* [121]
  - *Lathyrus odoratus* [216]
  - *Lupinus polyphyllus* Lindley [62]
  - *Medicago sativa* L. [49, 156, 159, 160, 161, 162, 163, 164]
  - *Parkia biglobosa* Jacq. [212]
  - *Robinia pseudoacacia* L. [107, 108, 113, 115, 126]
  - *Spartium junceum* L. [107, 108, 113, 115, 119]
  - *Trifolium pratense* L. [50, 156]
  - *T. repens* L. [104]
  - *Vicia faba* L. [81, 235]
  - *Wistaria sinensis* L. [107, 108, 110]

GENTIANALES
- Apocynaceae
  - *Carissa macrocarpa* [121]
  - *Cerbera odollam* [121]

M. virginiana L. [11, 240]
Michelia alba [115]
M. champaca [115]
M. compressa [11, 264]
M. figo [11, 238]

MALPIGHIALES
Euphorbiaceae
Dalechampia magnoliifolia (Scheidw.) Baillon [7]
D. spathulata (Scheidw.) Baillon [7, 95, 254]
Passifloraceae
Passiflora adenopoda DC. [157]
P. biflora Lam. [157]
P. foetida L. [157]
P. ligularis Juss. [157]
P. maliformis L. [157]
P. nitida H.B.K. [157]
P. riparia Mart. [157]
P. triloba R. & P. [157]
Rhizophoraceae
Bruguiera gymnorrhiza (L.) Lamk. [10]
Kandelia candel (L.) Druce [10]
Rhizophora stylosa Griff. [10]
Salicaceae
Salix caprea L. [118, 121, 245]
S. cinerea L. [245]
S. repens L. [245]
Violaceae
Viola etrusca Erben [73]
V. odorata L. [248]

MALVALES
Malvaceae
Ceiba pentandra [94]
C. trischistandra (A. Gray) Bakh. [142]
Ochroma pyramidalis (Cav.) Urb. [94, 142]
Theobroma cacao L. [67]
Tilia cordata Mill. [41, 115]
T. flores Mill [41]
T. platyphyllos Scop. [41, 115]
Thymelaeaceae
Daphne cneorum [115]
D. japonica [115]
D. mezereum L. [5, 24, 115, 234]

MYRTALES
Combretaceae
Lumnitzera racemosa Willd. [10]
Lythraceae
Pemphis acidula Forst. [10]
Sonneratia alba J. Smith [10]
Onagraceae
Clarkia breweri (Gray) Greene [218]
C. concinna (Fischer & Meyer) Greene [218]
Oenothera biennis [127]
O. glazioviana [127]
O. odorata Jacq. [265]
O. stricta [175]

NYMPHAEALES
Nymphaeaceae
Nymphaea sp. [178]
Victoria amazonica [14]
V. amazonica × *cruziana* [135]

PANDANALES
Cyclanthaceae
Cyclanthus bipartitus Poit. [225]

PINALES
Pinaceae
Larix sibirica [25]
Picea abies [25]
Pinus sylvestris [25]

PIPERALES
Hydnoraceae
Hydnora africana Thunb. [48]

POALES
Bromeliaceae
Tillandsia crocata (E. Morren) Baker [77]
Vriesea gladioliflora [21, 94]

PROTEALES
Nelumbonaceae
Nelumbo lutea [198]
N. lutea × *nucifera* [198]
N. nucifera Gaertn. [178, 184, 198, 199]
N. pentapetala Fernald [199]

RANUNCULALES
Berberidaceae
Berberis vulgaris [182]
Mahonia japonica [215]
Fumariaceae
Corydalis cava [197]
Hypecoum duriaei Pomel [56]
H. procumbens L. ssp. *procumbens* [56]
H. procumbens L. ssp. *atropunctatum* Å. E. Dahl [56]
H. procumbens L. ssp. *fragrantissimum* Å. E. Dahl [56]
H. pseudograndiflorum Petr. [56]
H. torulosum Å. E. Dahl [56]
Papaveraceae
Papaver rhoeas L. [62]
Ranunculaceae
Actaea asiatica [208]
A. asiatica × *rubra* [208]
A. erythrocarpa Fisch. [207, 209]
A. pachypoda [207, 208]
A. rubra [207, 208]
A. spicata L. [208, 209]
Anemone patens [217]
Cimicifuga japonica [85]
C. racemosa [85]
C. rubifolia [85]
C. simplex [85]
Pulsatilla vulgaris Mill. [190]

Appendix III: List of references from which the data included in appendices I and II are extracted.

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