Definition: **jasmine** from *Philip's Encyclopedia*

Any evergreen or deciduous shrub or vine of the genus *Jasminum*, common in the Mediterranean. It produces fragrant yellow, pink, or white flowers, and an oil that is used in perfumes. Height: to 6.5m (20ft). Family Oleaceae.

**Summary Article: Jasmine: Jasminum sambac**
From *Encyclopedia of Herbs and Spices*

**Taxonomy**

https://search.credoreference.com/content/topic/jasmine
Name currently accepted: *Jasminum sambac*

Authority: (L.) Aiton

Taxonomic serial no.: 32970 (ITIS, 2016a)


Common names: Asian jasmine, Arabian jasmine, sacred jasmine, sambac jasmine, Xambac.

Regional/vernacular names: **Arabic**: phul, **Chinese**: mo li hua; **Dutch**: arabische jasmijn; **French**: jasmin d’arabie; **German**: arabischer jasmine, arabischer jasmine; **Greek**: fouli; **Hawaiian**: pikake; **Hindi**: bel, mogra, motia; **Indonesia**: melati putih; **Italian**: gesimino d’arabia, mugherine; **Japanese**: matsurika; **Polish**: jaśmin wielkolistny, jaśminek wielkolistny; jaśminek wielkolistny; **Portuguese**: bogarim, jasmim; **Spanish**: jazmín de arabia, jazmín; **Swedish**: arabisk jasmine; **Thai**: malila; **Turkish**: ful; **Urdu**: Yasmeen, motiya; **Vietnamese**: hoa nhai (Lim, 2014; Anon., 2015a,b).

*Other important species*: In addition to *Jasminum sambac*, there are other species that are used widely in the production of jasmine oils. They include (ITIS, 2016b):

- *Jasminum gandiflorum* L. (Spanish jasmine, royal jasmine, Catalanian jasmine)
- *Jasminum multiflorum* (Burm. f) Andrews (Winter jasmine, Indian jasmine, downy jasmine, star jasmine)
- *Jasminum officinale* L. (Common jasmine, white jasmine, poet’s jasmine, jessamine)
- *Jasminum humile* L. (Yellow jasmine, Italian jasmine)

**Introduction**

Jasmine flowers exhale a bewitching fragrance that is intensely floral and warm; the fragrance is so perfect that jasmine is known both as the king and queen of flowers. According to the Hindu mythology, jasmine originated from the palm of goddess Parvathi, and it is one of the five arrows of Kamdeva, the Hindu god of love. Jasmine is believed to have originated in the sub-Himalayan region and subsequently spread to most tropical and subtropical regions; as people everywhere got enamoured of its fragrance, it was described by all in superlative terms. Jasmine is associated with many cultural and religious traditions (Ali, 2011; Anon., 2015c).

https://search.credoreference.com/content/topic/jasmine
The genus *Jasminum* has about 200 species: the more important ones from a fragrance point of view are *Jasminum sambac*, *Jasminum multiflorum*, *Jasminum grandiflorum* and *Jasminum officinale*. In perfumery and the fragrance industry, jasmine oil is one of the most valuable. *J. officinale* is cultivated commercially in France for the production of oil. *J. grandiflorum* is grown widely in tropical and subtropical regions for the distillation of oil. *J. sambac* is more popular in South-east Asia for commercial oil production. However, *J. sambac* is the one more commonly used in flavouring food materials and tea, being the flavouring of the famous Chinese jasmine tea, for example. *J. sambac* is the national flower of the Philippines and one of the national flowers of Indonesia, and *J. officinale* is the national flower of Pakistan. *Jasminum humile* has yellow flowers, known as yellow jasmine or Italian jasmine (Rahajoe et al., 1999; Pearlstine, 2012; Noonan, 2013). Some varieties have become very famous, such as ‘Belle of India’ (double, semi-double flowers), ‘Maid of Orleans’ (single five-petalled flower) and ‘Grand Duke of Tuscany’ (cluster of flowers, central double, lateral semi-double) (Anon., 2009).

**Botanical Notes**

The species description given here is adapted from the Flora of China (Chang et al., 1996) and from the PROSEA database (Rahajoe et al., 1999). Jasmine (*J. sambac*) is a scandent shrubby climber, with terete sparsely pubescent branchlets. Leaves are opposite and simple, and the petiole is 2–6 mm, minutely hairy. The leaf blade is orbicular to elliptic or obovate, glabrous except for the tufted hairs at vein axils abaxially, both ends blunt. Flowers are in terminal cymes 3–5 flowered, bracts subulate. Flowers are bisexual, regular, usually heterodistyous and very fragrant; the calyx is short, funnel- or bell-shaped with 4–10 linear lobes. The calyx is either glabrous or sparsely hairy, lobes are 8–9, linear. The corolla is white, tube is 0.7–1.5 cm, lobes are oblong to sub-orbicular, 5–9 mm broad, imbricate in bud. Stamens are inserted on the corolla tube, two, included or almost so, with short filaments; anthers are large, ovoid or oblong, connective apiculate. The ovary is superior, two-locular with two ovules per cell, the style is filiform and the stigma oblong, two-lobed. Fruit is a two-lobed berry with two seeds, or one gets aborted to make the fruit single seeded. Fruit set is very poor. Chromosome numbers reported are 2n = 26, 39 (Chang et al., 1996; Rahajoe, et al., 1999; IPCN, 2015).

Jasmine is propagated through vegetative means using stem or root cuttings. Better rooting is noticed in hardwood cuttings. Layering is also practised. Flowering is from May to September in India; in certain regions with evenly distributed rainfall, (like Java and Thailand) flowering is more or less throughout the year with the highest production in November–December, whereas in Malaysia, jasmine flowers throughout the year but fewer flowers are produced in the rainy season (Rahajoe et al., 1999).

In India, four morphotypes are recognized. They are: (i) *motiya bela* (double flowers, rounded petals, globular buds); (ii) *bela* (double flower, elongated petals and buds); (iii) *hazara bela* (single flowers); and (iv) *mungra* (multi-whorled flowers, large, rounded buds measuring 2–2.5 cm in diameter) (Sabharwal et al., 2013). Of the three famous cultivars mentioned above, Belle of India is the most fragrant and most popular.

**Chemical Notes**

Jasmine flowers are solvent extracted to produce the jasmine concrete, which on alcohol extraction gives jasmine absolute. The absolute on analysis yields a large number of constituents contributing to the exquisite fragrance of the jasmine flower. Liang-feng et al. (2015), using the latest analytical techniques, identified 37 compounds from the essential oil. The constituents are: ethyl acetate...
3-methyl cyclopentene (0.13%), 2-methyl hexane (0.09%), 2,2,3,4-tetramethyl pentane (0.07%), n-heptane (0.03%), phenyl-2-propanone (0.05%), 2-methyl butane (0.03%), 3-methyl heptane (0.02%), butyl acetate (0.12%), 2-methyl propen-2-yl acetate (0.04%), n-hexen-1-ol (1.06%), 6-methyl-2-heptanone (0.18%), 6-methyl 5-hepten-2-one (0.12%), carvamyl benzoate (0.42%), β-pinene (0.53%), 3-hexencyl acetate (13.80%), limonene (0.12%), benzaldehyde (1.13%), ocimene (0.06%), methyl benzoate (6.27%), linalool (25.01%), trans-linalool oxide (0.32%), benzyl acetate (23.71%), 3-hexenyl butate (1.72%), methyl salicylate (2.55%), cyclohexyl formate (0.10%), indole (1.83%), 2,6-dimethyl 5-heptenal (0.05%), methyl anthranilate (1.56%), 2,6-dimethyl heptenal (0.53%), β-caryophyllene (0.32%), β-farnesene (0.10%), humulene (0.21%), γ-cadinene (0.62%), cis-caryophyllene (13.67%), trans-farnesol (0.35%) and cyclohexyl benzoate (3.37%). Ito et al. (2002) analysed jasmine from China and identified 66 compounds in the oil. The major flavour-contributing compounds and their flavour qualities are: linalool (floral), methyl anthranilate (grape-like), 4-hexanolide (sweet), 4-nonanolide (sweet), (E)-2-hexenyl hexanoate (green) and 4-hydroxy-2,5-dimethyl-3 (2H)-furanone (sweet).

Younis et al. (2011) analysed the oil composition of jasmine buds and after flower opening and found that most key components registered an upward rise in concentration (% concentration in bud/opened flower respectively): benzyl alcohol (4.51, 5.26), benzylaldehyde (1.34, 3.29), linalool (1.43, 2.31), 2-phenyl ethyl acetate (2.73, 3.01), geranion (3.86, 6.26), eugenol (5.98, 9.8), farnesol (8.91, 8.31), citrinyl acetate (3.56, 3.57), nerol (0.0, 0.39), geranion acetate (2.79, 4.98), neryl acetate (0.0, 1.9), phenyl-ethylalcohol (12.98, 14.11) and citronellol (17.98, 19.37).

The essential oil of *J. grandiflorum*, a major source of jasmine oil from India known as chameli, contains: 3-hexanal, 2-vinylpyridine, indole, myrcene, linalool, geranion alcohol, α-terpenol, β-terpenol, linalyl acetate, nerolidol, phytol, isophytol, farnesol, eugenol, benzyl alcohol, methyl benzoate, benzyl cyanide, benzyl acetate, methyl dihydrojasmonate, methyl anilate, cis-jasmine, methyl N-methylanthranilate, vanillin, cis-3-hexenylbenzoate, methylpalmitate, methyl linoleate, 8,9-dihydrojasminin and 9-deoxyjasminigenin (Rastogi and Mehrotra, 1979, 1989).

Commercial jasmine oil contains methyl jasmonate, jasminoside, jasminol, jasminolactone, multiforin, olueropin, benzyl benzoate, linalool, linalyl acetate, benzyl alcohol, indole, jasmon, methyl anthranilate, p-cresol, geranion, racemic (5-pent-2-enyl)-5,1-pentanolide, nerol, α-terpineol, d and dl-linalool, α-jasmolactone, farnesol, nerolidol and eugenol (Sandeep and Paarakh, 2009).

**Functional Properties**

Jasmine flowers possess activities such as anti-acne, suppression of puerperal lactation, an autonomous nervous stimulating effect (as in aromatherapy), vasodilating effect, spasmolytic activity and sedative effect. On all these properties only preliminary information is available. Jasmine flower oil exhibited a strong cytotoxic effect on human prostate carcinoma cell (PC-3) and to a lesser extent on human lung carcinoma (A549) and human breast cancer (MCF-7) cell lines. The ethanol extract of the flower inhibited the growth of acne-causing *Propionibacterium*. (Harisaranraj et al., 2010; Zu et al., 2010).

It is a folk tradition to apply jasmine flowers to the breasts to suppress lactation. A study conducted to substantiate this local practice showed that jasmine flowers brought about a significant reduction in serum prolactin, comparable to that of the control drug used (bromocriptine). Moreover, jasmine flower therapy is inexpensive and harmless (Abraham et al., 1979; Shrivastav et al., 1988; Khan and Abourashed, 2010).

https://search.credoreference.com/content/topic/jasmine
Jasmine oil massage resulted in a stimulating effect on autonomous parameters (blood pressure, pulse rate, blood oxygen saturation, breathing rate, temperature, etc.) and the workers concluded that jasmine oil has the ability to relieve depression and create an uplifting mood in humans (Hongratanaworakit, 2010; Kunhachan, 2012). Another trial indicated, however, that breathing the jasmine aroma led to a decrease in heart rate, and resulted in a significant sedative effect on autonomous nerve activity and mood states. Similar effects were produced by linalool, one of the components of jasmine oil (Kuroda et al., 2005). The intraperitoneal injection of an ethanolic extract of jasmine was shown to have an anti-inflammatory effect on an acute inflammation model in mice. The same extract was also orally active when administered to rats with chronic inflammation (Ata and Alkof, 1998; Khan and Abourashed, 2010).

Uses

Medicinal uses

Jasmine leaf and root (mainly that of the common jasmine) are used in Indian traditional medicine (Ayurveda). The root is considered an emmenagogue and blood purifier, whereas the leaf is antibacterial and it is indicated against indolent breast tumours. Jasmine flowers are considered hypotensive and a lactifuge (Khare, 2007; Anon., 2017a). Duke (2015) lists the ethnomedical uses of jasmine, which include: abdominal pain, headache, anti-emmenagogue, conjunctivitis, decongestant, dysentery, fever, skin ailments and venereal diseases. Jasmine is also a traditional medicine in countries like the Philippines, Indonesia and Malaysia. The major uses indicated are: in fever and coughs (leaf decoction), ulcers (pound flower/leaves), reddening and swelling in the eye (decoction of dried flowers as eye wash), sprain (root), lactifuge (bruised leaves or flowers), etc. In India, jasmine root is a traditional remedy for skin ailments. In Baghdad, a root paste mixed with opium is used for gangrenous ulcers. In Jordan, an infusion is used in ulcerations, dermatosis and fevers. A decoction of the roots or an infusion of the flowers is employed in pulmonary catarrh, bronchitis, and also asthma in Indonesia and Malaysia (Rahajoe et al., 1999; Anon., 2009, 2010b). In China, jasmine flowers, leaves and roots are all made use of in traditional treatment, but for different purposes. Flowers of common jasmine (J. officinale) are used to treat hepatitis, pain resulting from liver cirrhosis, and abdominal pain due to dysentery, whereas flowers of J. sambac are used to treat conjunctivitis, skin ulcers and tumours, as well as abdominal pain due to dysentery. Jasmine root is used to treat headaches, insomnia and pain resulting from dislocated joints and broken bones; it is reported to have anaesthetic properties. The oil is rubbed on the lower abdomen of women in labour to aid easy delivery (Khan and Abourashed, 2010; Noonan, 2013). Patricia Davis advises the use of jasmine in childbirth to relieve pain and strengthen contractions (Davis, 2005; Anon., 2017b).

Aromatherapy: Jasmine has a relaxing effect on the nerves. It is a powerful anti-depressant of a stimulating nature, which makes it one of the best oils to help in depression and lethargy. It is a mood elevator and confidence builder. It is also extremely beneficial to the skin and is of particular use to dry and sensitive skins. Jennie Harding advises the use of jasmine for sexual disorders, including frigidity and nervousness (Harding, 2008). Patricia Davis writes that jasmine is a well-known aphrodisiac and anti-depressant and is therefore beneficial to many sexual problems that can arise from fear, depression, anxiety and tension (Davis, 2005). Some studies indicated that jasmine promotes beta rhythms in the brain, those associated with mental alertness (Noonan, 2013).

Culinary uses

https://search.credoreference.com/content/topic/jasmine
Jasmine flowers can be used in the kitchen in many ways. One of the most useful ways is using the flowers in a refrigerator to absorb any foul odours. Jasmine is most often used to add a fragrance to rice and has become one of the most often used types of rice by culinary schools and homes across the globe. Chinese jasmine tea (known in Chinese as *pinyin* and *molihua cha*) is perhaps the most famous jasmine recipe. Jasmine tea is a tea scented with the aroma from jasmine blossoms. Typically, jasmine tea is made out of green tea but white tea, as well as black tea, can also be used. Special techniques have been developed for making jasmine tea from tea powder and jasmine blossoms. Jasmine tea is the local tea beverage of the Fuzhou province of China and jasmine is the municipal flower of that city (Campbell, 1995; Anon., 2015c; Goodwin, 2015).

The jasmine flower is used in many recipes, especially in Oriental cuisines; a great many recipes are available from a variety of sources. The following is a random selection of jasmine recipes: jasmine syrup (this fragrant syrup can be added to hot tea, iced tea or in any other recipe that asks for jasmine flavour), jasmine gin fizz, jasmine tea and peach sorbet, jasmine white wine poached pears, crispy tilapia in jasmine curry sauce, jasmine ice cream, jasmine sour martini, spicy orange chicken with jasmine flavouring, dessert sushi, jasmine–lychee cheesecake, Chinese jasmine rice (basmati rice uniquely flavoured with jasmine flowers), jasmine cup cakes, stir-fried eggs with jasmine flowers, salmon with jasmine flavoured sashmi, and apple and jasmine jam (Lamborn, 2013; Anon., 2014, 2015d,e; Ramachandrani, 2015).

**Other uses**

Jasmine is widely used in the manufacture of fragrances, perfumes, body sprays and various toiletry items; there are innumerable brands of perfumes containing jasmine oil (Pearlstine, 2012; Noonan, 2013).

Jasmine flower is associated with many cultural and religious beliefs and events. The flower is used for offering to deities in temples and jasmine garlands are used as wedding garlands. Jasmine garlands are used to adorn hair by women in India, the Philippines and many other countries. Jasmines are also used widely for decorative purposes, especially during weddings; the wedding stage is often lavishly decorated with jasmines especially in India. In Thailand, jasmine is used as the symbol of mother.

**Safety Issues**

Jasmine and its oil are safe and not associated with any safety issues. There are no cases of toxicity or adverse effects reported from the use of jasmine either as a food additive or as herbal medicine. There are many other plants (other than the species of *Jasminum* mentioned here) known as jasmines, however, such as the night jasmine, tree jasmine, etc. that might be toxic.

**References**


**APA**

Chicago

© P N Ravindran, 2017
APA

Chicago

Harvard

MLA