



## Formulation and Study of Organic Perfume

<sup>1</sup>Yogesh Jagannath Musale, <sup>2</sup>Prasad Laxman Gorde, <sup>3</sup>Ravindra Santosh Jadhav, <sup>4</sup>Pankaj Dattatray Pawar, <sup>5</sup>Mahesh Rajendra Gore, <sup>6</sup>Shankar Sayaji Bhadange, <sup>7</sup>Iswari Santosh Rajale

<sup>1,2,3,4,5,6,7</sup>Matoshri Miratai Aher College of Pharmacy

### ABSTRACT

**Perfume** extraction is the extraction of aromatic compounds from raw materials, using methods such as distillation, maceration and steam distillation were used to extract essential oil from jasmine flowers and orange peel. In this **paper** we will study about manufacturing of **perfume** from extracted jasmine and orange oil. This study focuses on minimizing the irritations of the skin.

### Introduction :

The use of perfumes goes back thousands of years. The Egyptians used plants, gums, and resins in religious rites. As the years went by, scented substances were used to enhance body attractiveness and to make homes and public places more pleasant. Fragrances are considered normal components of our everyday lives. Many people feel the need to wear a fragrance in order to feel good: this is probably because there is a connection between scent and emotion as well as between scent and memory; moreover, studies have shown that some fragrances can alter moods and even alleviate anxiety and stress. Perfumes can be defined as substances that emit and diffuse a pleasant and fragrant odor. They consist of manmade mixtures of aromatic chemicals and essential oils. Until the nineteenth century perfumes were usually composed of natural aromatic oil

**Perfume** is a mixture of [fragrant essential oils](#) or [aroma compounds](#) (fragrances), [fixatives](#) and [solvents](#), usually in liquid form, used to give the human body, animals, food, objects, and living-spaces an agreeable [scent](#). Perfumes can be defined as substances that emit and diffuse a pleasant and fragrant odor. They consist of manmade mixtures of aromatic chemicals and essential oils. The 1939 [Nobel Laureate](#) for Chemistry, [Leopold Ruzicka](#) stated in 1945 that "right from the earliest days of scientific chemistry up to the present time, perfumes have substantially contributed to the development of [organic chemistry](#) as regards methods, systematic classification, and theory."

Modern perfumery began in the late 19th century with the commercial synthesis of aroma compounds such as [vanillin](#) or [coumarin](#), which allowed for the composition of perfumes with smells previously unattainable solely from natural aromatics.

### History :

The word *perfume* derives from the Latin *perfumare*, meaning "to smoke through". Perfumery, as the art of making perfumes, began in ancient [Mesopotamia](#), [Egypt](#), the [Indus Valley civilization](#) and possibly [Ancient China](#). It was further refined by the [Romans](#) and the Muslims.

On the [Indian subcontinent](#), perfume and perfumery existed in the [Indus civilization](#) (3300 BC – 1300 BC).

In 2003, archaeologists uncovered what are believed to be the world's oldest surviving perfumes in [Pyrgos, Cyprus](#). The perfumes date back more than 4,000 years. They were discovered in an ancient perfumery, a 300-square-meter (3,230 sq ft) factory housing at least 60 stills, mixing bowls, funnels, and perfume bottles. In ancient times people used [herbs](#) and [spices](#), such as [almond](#), [coriander](#), [myrtle](#), [conifer resin](#), and [bergamot](#), as well as [flowers](#). [In May 2018, an ancient perfume "Rodo" (Rose) was recreated for the Greek National Archaeological Museum's anniversary show "Countless Aspects of Beauty", allowing visitors to approach antiquity through their olfaction receptors.

In the 9th century the [Arab chemist Al-Kindi](#) (Alkindus) wrote the *Book of the Chemistry of Perfume and Distillations*, which contained more than a hundred recipes for fragrant [oils](#), [salves](#), aromatic waters, and substitutes or imitations of costly drugs. The book also described 107 methods and recipes for perfume-making and perfume-making equipment, such as the [alembic](#) .

The Persian chemist Ibn Sina (also known as [Avicenna](#)) introduced the process of extracting oils from flowers by means of [distillation](#), the procedure most commonly used today. He first experimented with the [rose](#). Until his discovery, liquid perfumes consisted of mixtures of oil and crushed herbs or petals, which made a strong blend. [Rose water](#) was more delicate, and immediately became popular. Both the raw ingredients and the distillation technology significantly influenced western perfumery and scientific development

By the 18th century the [Grasse](#) region of France, [Sicily](#), and [Calabria](#) (in Italy) were growing aromatic plants to provide the growing perfume industry with raw materials. Even today, Italy and France remain the center of European perfume design and [trade](#).

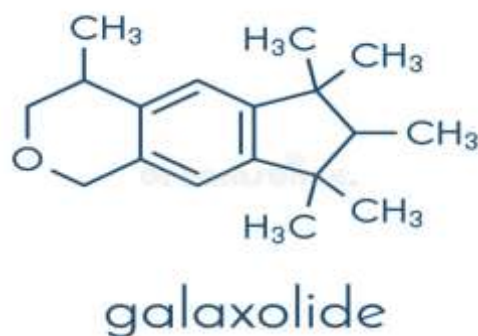
---

### Jasmine :

- ❖ Scientific name: *Jasminum sambac*
- ❖ Family: Oleaceae



- ❖ Geographic source: *Jasminum sambac* (Arabian jasmine or Sambac jasmine) is a species of jasmine native to tropical Asia, from the Indian subcontinent to Southeast Asia. It is cultivated in many places, especially West Asia, South Asia and Southeast Asia.
- ❖ Chemical constituents:
  - ✓ *Jasminum sambac* contains dotriacontanoic acid, dotriacontanol, oleanolic acid, daucosterol, hesperidin, and [+]-jasminoids A, B, C, D in its roots.
  - ✓ Leaves contains flavonoids such as rutin, quercetin and isoquercetin, flavonoids rhamnoglycosides as well as  $\alpha$ -amyrin and  $\beta$ -sitosterol. A novel plant cysteine-rich peptide family named jasmintides were isolated from this plant.
- ❖ Use
  1. Traditionally *Jasminum sambac* has been used to treat dysmenorrhoea, amenorrhoea, ringworm, leprosy, skin diseases and also as an analgesic, antidepressant, anti-inflammatory, antiseptic, aphrodisiac, sedative, expectorant.
  2. It is widely cultivated for its attractive and sweet fragrant flowers.
  3. It is used in gardens as an ornamental plant.
  4. Other commercially important species grown for the perfumer industry are *Jasminum officinalis*, *Jasminum grandiflorum*, and *Jasminum auriculatum*.

**Galaxolide :**

Galaxolide is a synthetic musk with a clean sweet musky floral woody odor used in fragrances. It is one of the musk components that perfume and cologne manufacturers use to add a musk odor to their products. Galaxolide was first synthesized in 1965, and used in the late 1960s in some fabric softeners and detergents.

❖ Formula: C<sub>18</sub>H<sub>26</sub>O

❖ Chemistry:

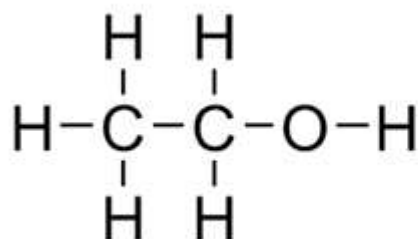
Galaxolide is an organic heterocyclic compound that is 1,3,4,6,7,8-hexahydrocyclopenta[*g*]isochromene substituted by methyl groups at positions 4, 6, 7, 8 and 8 respectively. It is a synthetic musk used as a fragrance in cosmetics. It has a role as a fragrance.

❖ Description:

Its odor is described as a “clean”, sweet, floral, woody musk, Research has shown that it is in particular the (4*S*,7*R*) and the (4*S*, 7*S*) forms of galaxolide that are the most powerful musk notes, with odor thresholds of 1 ng/L or less.

❖ Uses:

1. Add a musk odour to their products.
2. Fabric softners
3. Synthetic musk used as fragrance in cosmetics
4. **Ethanol :**



Ethanol is present in alcoholic drinks (beer, wine, spirits) when diluted. It is used as a topical agent to prevent skin infections, in pharmaceutical preparations (e.g. rubbing compounds, lotions, tonics, colognes), cosmetics, and in perfumes. Ethanol may be present in fuels, labelled as ethanol blended fuels, and is used as an industrial solvent for fats, oils, waxes, resins, and hydrocarbons. It is used to make many chemical compounds, lacquers, plastics and plasticizers, rubber and rubber accelerators, aerosols, mouthwash products, soaps and cleaning preparations, polishes, surface coatings, dyes, inks, adhesives, preservatives, pesticides, explosives, petrol additives/substitutes, elastomers, antifreeze, yeast growth medium, human and veterinary medicines and as a dehydrating agent.

❖ Description:

- Substance name - Ethanol
- Molecular formula- C<sub>2</sub>H<sub>6</sub>O
- Synonyms - ethyl alcohol

- Physical properties
  1. Ethanol is a clear, colourless liquid with a characteristic pleasant odour and burning taste.
  2. It is highly flammable.
  3. Ethanol is used to dissolve other chemical substances and mixes readily with water and many organic liquids.
  4. Ethanol is considered a volatile organic compound by the National Pollutant Inventory.
- Melting Point: -114°C
- Boiling Point: 78.5°C
- ❖ Uses:
  1. It is used as a topical agent to prevent skin infection.
  2. Preservative
  3. It is used in the manufacture of paints, varnishes, lacquers, medicines, perfumes, dyes, soaps and synthetic rubber.
  4. It is used as a solvent. Many organic compounds which are insoluble in water are soluble in ethyl alcohol.
  5. Being a good solvent, ethyl alcohol (ethanol) is used in medicines such as tincture iodine, cough syrups and many tonics.
  6. It is used as a fuel in cars along with petrol. It is also used as a fuel in spirit lamps.
  7. It is used as an antiseptic to sterilize wounds and syringes in hospitals and dispensaries.

**Formulation table :**

Sr. No.	Ingredients	Quantity	%
1)	Jasmine oil	9 ml	18%
2)	Orange oil	1 ml	2%
3)	Ethyl alcohol	39 ml	78%
4)	galaxolide	1 ml	2%

**Methodology :**

- Take 9 ml of jasmine oil & 1 ml of orange oil.
- Add 39 ml ethyl alcohol .
- Add 1 ml galaxolide to it.
- Fill it in aerosol container for further use

1) **Jasmine extract :**Method 1: Maceration

- Take 350 gm of *Jasminum sambac* (jasmine flowers) .
- Menstruum is pored in a vessel till the flowers re completely dipped in it (Ethyl alcohol).
- Keep it for 8 days in a glass vessel



#### Method 2: Steam distillation

Steam Distillation Steam distillation is a special type of distillation process (separation process) for temperature sensitive materials like natural aromatic compounds. Through this process the botanical material is placed in a still and steam is forced over the material. The hot steam will help to release the aromatic molecules from the plant material. The molecules of these volatile oils then escape from the plant material and evaporate into the steam. The temperature of the steam therefore needs to be carefully controlled. The temperature should be just enough to force the plant material to release the essential oils, yet not too hot as it can burn the plant material or the essential oils. The steam which then contains the essential oil is passed through a cooling system to condense the steam, which then forms a liquid from which the water and the essential oils are then separated. The steam is produced at high pressure than the atmosphere and therefore it boils at above 100°C which facilitates the removal of the essential oil at a faster rate and by doing so, it could prevent damage to the oil.



#### **2) Orange oil :**

Orange oil is an essential oil produced by cells within the rind of an orange fruit (*Citrus sinensis* fruit). In contrast to most essential oils, it is extracted as a by-product of orange juice production by centrifugation, producing a cold-pressed oil. It is composed of mostly (greater than 90%) d-limonene, and is often used in place of pure d-limonene. D-limonene can be extracted from the oil by distillation.

Evaluation test:

##### 1) Fragrance test :

For fragrance test paper is used which is known as fragrance blotter. Perfume is sprayed on a paper to test the aroma of perfume.



- Steps
  - Spray the fragrance twice in a downward motion in front of you.
  - Swiftly pass the blotter the fragrance's vapours cloud.
  - Quickly wave the blotter under your nose and inhale.
  - Refer back to the card regularly to test its life cycle.
- 2) Skin Test:
  - Steps
    - Spray the back of your hand twice whilst respecting the correct spray distance.
    - Leave to dry naturally & do not rub in fragrance.
    - Inhale the fragrance without letting it touch your nose.
    - Refer back to your hand over time to see how it evolves.

#### Evaluation Test:

Sr.no.	Test	Observation
1.	pH	7
2.	Skin test	No irritation
3.	Fragrance test	Pleasant aroma

#### Conclusion:

Perfume have made or significant impact on the society during past and present it was surprised to know that some ingredients were from plants and animals this turn out to be the makeup of most of the fragrances that men & women use today in their colonges and perfumes.

Perfume formulated in this article was made by using herbal ingredients like jasmine , orange oil which doesn't cause irritation to skin and do not prolong any type of side effects cause due to marketed perfumes. As well as it gives prolong aroma of jasmine and orange which mediate olfaction and gives satisfaction to the user.

#### References:

1. Joy PP, Thomas J, Mathew S, Skaria BP. Medicinal plant, Naya Prokash, Calcutta, 2001: 449-632.
2. [http://en.wikipedia.org/wiki/Jasminum\\_sambac](http://en.wikipedia.org/wiki/Jasminum_sambac).
3. Kunming institute of botany. Flora Yunnanica Tomus 4, 668. Academica Sinica 1986.
4. Jiangsu new medical college. The dictionary of traditional Chinese medicines, p. 297. Shanghai People Press, Shanghai 1977.
5. Ito Y, Sugimoto A, Kakuda T, Kubota K. J Agric Food Chem 2002; 50: 4878-4884.
6. Hara Y, Luo S, Wickremasinghe L, Yamanishi Y. Food Rev Intern 1995; 11: 409-434.

7. Kapoor J. *Perfum flavor* 1991; 16: 21-26.
8. Rao Y, Rout P. *J Essen Oil Res* 2003; 15: 398-401.
9. Sun S, Ma Y. *Acta Bot Sin* 1985; 27: 186-191.
10. He C, Liang Z, Liu H. *Tianran, Chanwu, Yanjiu Yu Kaifa* 1999; 11: 53-57.
11. Mookherjee B, Trenkle R, Wilson B. *Pure Appl Chem* 1990; 62: 1357-1364.
12. Shalaby A, Hassan H. *Ind Perfume* 1989; 33: 268-273.
13. Singh R, More T. *Ind Perfume* 1986; 30: 251-253.
14. Kaiser R. New volatile constituents of *J. sambac* (L.) Aiton. In: Lawrence B, Mookherjee B, Wills E (eds) *Flavors and fragrances: A world perspective*. Elsevier, BV Amsterdam, 1988: 669-684.
15. Kobayashi A, Kubota K, Anzai Y, Cheng M, Yamanishi T. In: *Proceedings of the 29th symposium on the chemistry of terpenes, essential oils and aromatics*, 1985: 129. Mie, Japan. Also reviewed by Lawrence B. *Perfum Flavor* 1992; 17: 68-71.
16. Wu C, Zhao D, Sun W, Ma P, Wang Q, Lu C. *Zhiwu Xuebao* 1987; 29: 636-642. Also reviewed by Lawrence B. *Perfume Flavor* 1994; 19: 64-69.
17. Rao Y, Rout P. *Ind Perfume* 2002; 46: 49-53.
18. Zhu L, Li Y, Li B, Lu B, Xia N. *Aromatic plants and essential constituents*. South China Institute of Botany, Chinese Academy of Science, Hai Feng Publisher Co, distributed by Peace Book Co Ltd, Hong Kong 1993. Also reviewed by Lawrence B.) *Perfume Flavor* 1994;
19. Zhang Y-J, Liu Y-Q, Pu X-Y, Yang C-R. Iridoidal glycosides from *Jasminum sambac*. *Phytochemistry* 1995; 38: 899-903.
20. Inagaki J, Watanabe N, Moon JH, et al. Glycosidic aroma precursors of 2-phenylethyl and benzyl alcohols from *Jasminum sambac* flowers. *Biosci Biotech Biochem* 1995; 59: 738-739.
21. Zhang ZF, Bian BL, Yang J, Tian XF. Studies on chemical constituents in roots of *Jasminum sambac*. *Zhongguo Zhong Yao Za Zhi*. 2004; 29: 237-239.
22. Edris AE, Chizzola R, Franz C. Isolation and characterization of the volatile aroma compounds from the concrete headspace and the absolute of *Jasminum sambac* (L.) Ait. (Oleaceae) flowers grown in Egypt. *European Food Res Tech* 2008; 226: 621-626.
23. Rahman MA, Hasan MS, Hossain MA, Biswas NN. Analgesic and cytotoxic activities of *Jasminum sambac* (L.) Aiton. *Pharmacologyonline*
24. Shrivastav P, George K, Balasubramaniam N, Jasper MP, Thomas M, Kanagasabhapathy AS. Suppression of puerperal lactation using jasmine flowers (*Jasminum sambac*) *The Australian and New Zealand J Obstet and Gynaec* 1988; 28: 68-71.
25. Rath CC, Devi S, Dash SK, Mishra R. Antibacterial potential assessment of Jasmine essential oil against *E. coli*. *Indian J Pharma Sci* 2008; 70: 238-241.
26. Nayak BS, Mohan K. Short communication influence of ethanolic extract of *Jasminum grandiflorum* linn flower on wound healing activity in rats. *Indian J Physiol Pharmacol* 2007; 51: 189-194.
27. Singh P, Bundiwale R, Dwivedi LK. In-vitro study of antifungal activity of various commercially available itra (Volatile plant oil) against the keratinophilic fungi isolated from soil. *Intl J Pharma and Bio Sci* 2011; 2: 178-184.
28. Talib WH, Mahasneh AM. Antiproliferative activity of plant extracts used against cancer in traditional medicine. *Scientia Pharmaceutica* 2010; 78: 33-45.
29. Abdoul-Latif F, Edou P, Eba F et al. Antimicrobial and antioxidant activities of essential oil and methanol extract of *Jasminum sambac* from Djibouti. *African J Plant Sci* 2010; 4: 38-43.
30. Zhang YJ, Liu YQ, Pu XY, Yang CR. Iridoidal glycosides from *Jasminum sambac*. *Phytochemistry* 1995; 38: 899-903.