

## Quadrant II – Transcript and Related Materials

**Programme: Bachelor of Science (Second Year)**

**Subject: Chemistry**

**Paper Code: CHS102**

**Paper Title: Chemistry of Cosmetics and Perfumes**

**Unit: 03**

**Module Name: Essential oils and their importance in cosmetic industries with reference to Eugenol, Geraniol, sandalwood oil, eucalyptus, rose oil.**

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**Notes:**

### **Essential Oil**

- **Essential oils are natural aromatic compounds found in the seeds, bark, stems, roots, flowers, and other parts of plants.**
- **It give plants their distinctive smells, and provide plants with protection against predators and disease and play a role in plant pollination.**
- **Essential oils are non water-based phytochemicals made up of volatile aromatic compounds.**
- **They contain the true essence of the plant it was derived from.**
- **Essential oils are highly concentrated. It doesn't contain artificial substances, unlike perfumes and fragrance oils.**
- **Essential oils are steam distilled or expressed.**

### **Composition of Essential oils**

- **Essential oils are mixtures of organic compounds.**
- **Terpenes are the key components of all essential oils.**

- The distinctive character of an essential oil can be attributed to the functional group present in its key molecule.
- Esters, ethers, aldehydes, lactones, ketones and alcohols are all found in essential oils.

## Types of Essential Oils

### 1) Eugenol

- Eugenol is a clear to pale yellow liquid that has a spicy clove-like aroma found in clove oil, nutmeg, cinnamon and bay leaf. .
- Eugenol, a naturally occurring substance found in many plants, is used to make fragrances and flavors. In cosmetics and personal care products, Eugenol is used in the formulation of aftershave lotions, bath products, bubble baths, fragrances, hair care products, moisturizers, shampoos and skin care products.
- Eugenol is used in perfumes and also as a flavouring agent and in dentistry, due to its antiseptic and anaesthetic properties. It can be mixed with zinc oxide and then used for temporary fillings.
- Eugenol is hepatotoxic and can cause serious health issues when used in high concentrations. As a component in personal care and dentistry products, it can cause allergic reactions such as contact dermatitis and contact stomatitis.

### 2) Rose Oil

- Rose Oil Rose oil is extracted from the flowers of the Rosa x. damascene Mill., also known as damask rose as the flower was initially brought to Europe from Damascus.
- Rose oil is widely used as a fragrance in different types of cosmetic products (soaps, body lotions, face creams etc.) and also as a flavouring agent in food products such as jam, ice cream, pudding and yoghurt.
- Four cases of allergic contact dermatitis to rose essential oils occurred in three aromatherapists and in one chemist with a particular interest in aromatherapy.

### 3) Geraniol

- Geraniol is a monoterpenoid alcohol. It is a colourless to pale-yellow oily liquid that has a sweet rose, floral odour.
- It occurs naturally in rose oil, citronella oil and palmarosa oil but it can also be found in other essential oils like lemon, geranium, bergamot and lavender oil in lower concentrations.
- Due to its pleasant rose odour it is commonly used in perfumes, body lotions, creams, after shave lotions and hygiene products.
- Geraniol is also widely used as a flavouring agent to induce the flavour of fruits such as pineapple, raspberry, peach, grapefruit, plum, red apple, lime, watermelon, orange and lemon.
- As a flavouring agent it can be found in candies, ice creams and baked food products to improve the smell of the foods. Geraniol has antiseptic, antibacterial and anti-inflammatory properties

#### 4) Eucalyptus Oil

- Eucalyptus is a fast-growing evergreen tree native to Australia.
- There are over 400 different species of eucalyptus. *Eucalyptus globulus*, also known as Blue Gum, is the main source of eucalyptus oil used globally.
- Leaves are steam distilled to extract the oil, which is a colorless liquid with a strong, sweet, woody scent. It contains 1,8-cineole, also known as eucalyptol.
- The leaves also contain flavonoids and tannins; flavonoids are plant-based [antioxidants](#), and tannins may help to reduce [inflammation](#).
- As an ingredient in many products, it is used to reduce symptoms of coughs, colds, and congestion.
- It also features in creams and ointments aimed at relieving muscle and joint pain.
- The oil that comes from the eucalyptus tree is used as an antiseptic, a perfume, as an ingredient in cosmetics, as a flavoring, in dental preparations, and in industrial solvents.
- eucalyptus to treat fungal infections and skin wounds.

- **Eucalyptus is an effective insect repellent and insecticide.**

## **5) Sandalwood Oil**

- **Sandalwood is an evergreen tree native to India and Indonesia and grows to 8 to 12 m in height and 2.5 m in girth.**
- **The bark is smooth and gray-brown in color, and the small flowers have numerous short stalks.**
- **Sandalwood oil has a warm, woody odor and is commonly used as a fragrance in incense, cosmetics, perfumes, and soaps.**
- **It also is used as a flavor for foods and beverages.**
- **In traditional medicine, sandalwood oil has been used as an antiseptic and astringent, and for the treatment of headache, stomachache, and urinary and genital disorders.**
- **In India, the essential oil, emulsion, or paste of sandalwood is used in the treatment of inflammatory and eruptive skin diseases.**
- **The oil has been used in the traditional Ayurvedic medicinal system as a diuretic and mild stimulant, and for smoothing the skin.**
- **The leaves and bark were used by early Hawaiians to treat dandruff, lice, skin inflammation, and sexually transmitted diseases.**