

Essential Oils

An essential oil is a volatile material isolated by some physical process from an odorous single species or botanical plant. More than 3000 oils have been identified from various parts of plants. These parts of plants are processed to yield essential oil devoid of cellulose, glycerides, starch, sugars, tannins, salts and minerals present in plants through steam distillation. Essential oils are generally liquid at room temperature while some are solid and semi-solid also. They are concentrated, rectified, extracted or chemically treated further to isolate the vital components. They are ^{then} purified and their properties are adjusted to get the desired flavour.

Most essential oils have cosmetic benefits in addition to their therapeutic properties. They are used as such as flavours and fragrances. They can be used in a variety of ways: in bath, in massage oil or in beauty products. All that is required is to add a few drops of the favourite essential oil to some base oil or neutral cream.

Composition:-

The essential oils are made up of Carbon, hydrogen and Oxygen and occasionally Nitrogen and Sulphur. The largest component is Terpenes which has ten Carbon atoms and are head-to-tail condensation product of two isoprene molecules. The terpenes may be aliphatic, alicyclic, bicyclic or tricyclic with varying degree of

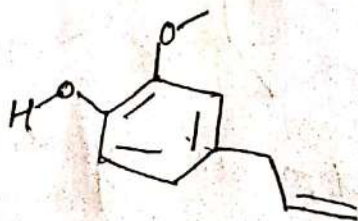
unsaturation. The volatile Component of essential oils usually contain 15 Carbon atom or less. However seed oils contain long-chain fatty acid.

Eugenol

Source:- Eugenol naturally occurs in clove (*Syzygium aromaticum*), Cinnamon, *Ocimum basilicum* (Sweet basil) and other plants.

Chemical Composition:- Eugenol is an an Allyl chain substituted Guaiacol

Cosmetic Property and Uses:- Eugenol is a clear to pale yellow liquid that has a spicy clove-like aroma. Various extraction methods have been practiced globally for the extraction of eugenol and other nutraceuticals from plants. The most extensively employed approaches in this regard include solvent extraction, hydro-distillation, microwave assisted extraction, Supercritical Carbon dioxide extraction and ultrasound based extraction. Eugenol is used in the formulation of after-shave lotions, bath products, bubble bath, fragrances, hair care products, moisturizers, Shampoos and skin care products.



2-Methoxy-4-(2-Propenyl) Phenol

Geraniol

It is a monoterpene and an alcohol.

Source: Geraniol is derived from plants such as Geranium and Lemongrass. It contains over 67 compounds. It is the primary ingredients of Rose oil, Palmarosa oil and Citronella oil (Java type). It also occurs in small quantities in Geranium, Lemon and many other essential oils. It has a rose like scent and is commonly used in perfumes. It is used in flavours such as peach, raspberry, grapefruit, red apple, plum, lime, orange, lemon, watermelon, pineapple and blueberry.

Chemical Composition: $C_{10}H_{18}O$ is a primary terpene alcohol and is found widely distributed in nature either free or in combined form as ester. Oil of palmarosa contains as much as 95% and Cymbopogon.

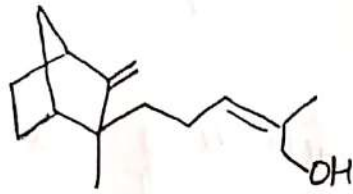
Cosmetic Property and Use: - It appears as a clear to pale-yellow oil that is insoluble in water, but soluble in most common organic solvents. It is mainly used in various types of creams and lotions.



(2E)-3,7-dimethyl-2,6-octadien-1-ol

Sandalwood (Chandan oil)

Source:- Sandalwood oil is part of the Santalaceae plant family. There are many different types and species of this plant across various parts of the world, although it is mainly on western ghats of Indian Sub-continent. Sandalwood oil is extracted from heart wood of *Santalum album* by steam distillation.



Chemical Composition: The sandalwood oil mainly contains two isomeric sesquiterpene alcohols (-santalol and santalol) aldehyde (santalal) ketone (Santenone), santalene and santalone.

Cosmetic Property and Uses: Sandalwood has a rich warm and woody aroma which changes depending on type of the origin of oil. It is used as emollient and has cooling and moistening effect for dry skin. It also has antiseptic, astringent, antidepressant and expectorant properties. It is also used to calm the mental chatter and is used as oil for meditation.

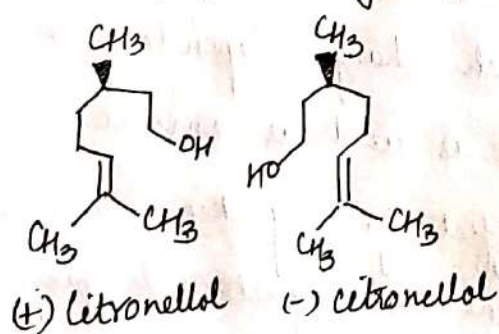
Rose oil

Source: It is extracted from Rose flower (*Rosa alba*). It is known as the king of flowers, Queen of essential oils and gift of angels.

Chemical Composition:- The most common chemical compounds present in Rose oil are: Citronellol, Geraniol, Nerol, Linalool, phenylethyl alcohol, Farnesol, stearoptene, α -pinene, β -pinene, α -lupinene, Limonene, p-ymene, camphene, β -Caryophyllene, Neral, Citronellyl Acetate, Geranyl Acetate, Neryl Acetate, Eugenol, Methyl Eugenol, Rose Oxide, α -damascenone, β -damascenone, benzaldehyde, Benzylalcohol, Rhodenyl Acetate and Phenyl ethyl formate.

Source: There are three main methods of extracting the Rose oil from the plant material:

- Rose otto oil prepared by steam distillation
- Rose absolute prepared by solvent extraction
- Rose absolute prepared by supercritical CO_2 extraction



Cosmetic Properties and Uses

Rose oil has anti-ageing and antioxidant properties. It also has vitamins A, C, D and E which are shown to minimise the appearance of fine lines and wrinkles. It has been shown that the fragrance of rose offers soothing and moodlifting effects as well as reducing blood pressure and levels of the stress hormone Cortisol. It is used in skin and hair care products. It acts as an antiseptic, skin softener, regulates skin moisture, balances skin pH, anti-inflammatory, astringent and haemostatic.