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Essential Oils: A New Perspective

Sheetal[1*], Monika Sood[2], Julie D. Bandral[3] and Zoya Ali[4]

[1,4]M.Sc. Research Scholar, [2]Associate Professor, [3]Professor,

Division of Post Harvest Management[1,2,3,4],

Sher-e-Kashmir University of Agricultural Sciences and Technology-Jammu, Chatha, 180009, Jammu and Kashmir.

[*]Corresponding author: sheetalbhagat700@gmail.com

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Introduction:

Essential oils (EOs) are colourless liquids that are mostly composed of aromatic and volatile molecules found in all parts of plants, including seeds, flowers, peel, stem, bark and whole plants. They are widely utilised as medication, fragrances, cosmetics and food preservatives in many nations. Because of their scent and flavour, they were initially utilised as medicine in the nineteenth century (Bhavaniramya *et al*., 2019). Essential oils are complicated mixtures of many different molecules, but the main component is monoterpenes, which have the highest number of hydrocarbons. Essential oils are produced and stored in particular locations near cavities, glandular trichomes or epidermal cells, canals, secretory cells or other spreading sections. Photoperiod, temperature, cultivation practices, relative humidity and irradiance all have a significant impact on essential oil composition. Essential oils are typically connected with major storage structures such as fruit, bark, flower, seeds, leaves, roots, rhizome and so on. Essential oils are highly volatile and complex combinations of chemicals such as terpenoids and aromatic molecules. Because of the diverse composition of bioactive compounds in essential oils such as carvacrol and thymol in oregano, eugenol in cloves, allyl isothiocyanate in mustard, menthol in peppermint, allicin in garlic and so on, each essential oil has its own distinct functional characteristic (Saeed *et al*., 2022).

History of Essential Oils:

Since the 16th century, the term EOs has been used to refer to the medication Quinta Essentia, which was named by Swiss physician Paracelsus von Hohenheim. Because of their flammability, they are known as essential oils (EOs) or essences. Numerous

researchers have attempted to define EOs. According to the Association Francaise de Normalisation (AFNOR), EO is a product obtained from a vegetable raw material, either by steam distillation or mechanical procedures from the epicarp of citrus, or "dry" distillation. Physical procedures will be used later to separate it from the aqueous phase. EOs were created by traditional hydro distillation in the late 12th century. Previous to this, the Romans and Greeks produced turpentine and camphor using a crude kind of distillation. Because of its importance, popularity, and broad use, EO-based aromatherapy became increasingly popular in the late twentieth century. EOs are extremely soluble in volatile substances like alcohol, ether, and fixed oils, but they are insoluble in water. The presence of volatile compounds in EOs such as ketones, aldehydes and aromatic compounds play important roles in aromatherapy because inhaling those compounds effectively reduces mental and physical stresses. EOs also function as chemical signals in plants, allowing them to control and regulate their own environments, such as protecting themselves from pests and attracting beneficial insects such as pollinating insects (Saeed *et al*., 2022).

Types of Essential Oils:

1. **Lemongrass Essential Oil:**
   Cymbopogon spp. are C_4 perennial sedges from the grass family Poaceae that are grown principally for their essential oils. Lemongrass is made up of over 180 species, including *Cymbopogon citratus, Cymbopogon flexuosus, Cymbopogon winterianus, Cymbopogon martinii, Cymbopogon nardus and Cymbopogon refractus*. Lemongrass, also known as Cochin grass, has a high levels of vitamins A, C, E, folate, niacin and riboflavin, protein, antioxidants and mineral nutrients such as N (0.74 %), P (0.07 %), K (2.12 %), S (0.19 %), Mg (0.15 %), Ca (0.36 %), Zn (35.51 ppm), Mn (155.82 %) and Fe (56.64 ppm). Most lemongrass species contain neral, isoneral, geranial, isogeranial, geraniol, geranyl acetate, citronellal, citronellol and germacrene-D which account for 60-80% of LEO (Mukarram *et al*., 2022).
2. **Thyme Essential Oil:**
   Thymus vulgaris L. (common thyme) is a Lamiaceae herb native to the Mediterranean region, where it has a long history of usage for whooping and spasmodic cough, cold, respiratory tract infections, sore throat, tonsillitis, colic, dyspepsia and intestinal infections and infestations. Thymus vulgaris L. is a culinary, fragrant and medicinal herb with chemical polymorphism. Geraniol, α-terpineol, sabinene hydrate, linalool, 1,8-cineole, carvacrol, or thymol are the most common terpenes in these chemotypes. Thymol (40.6%), p-cymene (33.8%), terpinen-4-ol (2.74%), and linalool (2.72%) were the most abundant elements (Ahmed *et al*., 2021).
3. **Lavender Essential Oil:**
   Lavandula angustifolia, also known as English lavender, is a Mediterranean-native evergreen woody plant. Because of its biological qualities, lavender essential oil, which contains several chemicals such as linalool and linalyl acetate, is commonly utilised in the food business. The lavender essential oil has analgesic, anti-inflammatory,

antioxidant, antibacterial, antifungal, sedative and anti-depressant properties and can help heal burns and insect bites (Kazemi *et al*., 2020).

4. **Peppermint Essential Oil:**
   Mentha piperita (Peppermint), is a natural hybrid of *Mentha spicata* and *Mentha aquatica* and it belongs to the family Lamiaceae. It contains roughly 1.2-1.5 % essential oil, and menthol, its principal active constituent, has anti-inflammatory, anti-oxidant, anti-bacterial, anti-cancer and analgesic properties (Mohammadifar *et al*., 2021).
5. **Rosemary Essential Oil:**
   The plant *Rosmarinus officinalis* L. (Rosemary) belongs to the Lamiaceae family. This plant is grown all over the world for its essential oils, extracts, use as a spice and various biological activity. This plant's essential oils have numerous pharmacological characteristics. There are changes in the chemical profile of rosemary due to regionality, seasonality, environmental conditions, agronomic circumstances and variety. In most situations, the primary components in rosemary essential oil are α-pinene, eucalyptol and camphor. However, additional chemicals such as verbenone, borneol, camphor and bornyl acetate have also been identified as major constituents of the essential oil (Micic *et al*., 2021).

Conclusion:

Essential oils are secondary metabolites found in plants that allow them to fight against intruders such as bacteria, fungi, insects and herbivorous animals. Essential oils have been shown to be effective against pathogenic as well as food deterioration agents. Essential oil bioactive components directly or indirectly disrupt cellular systems; disruption in one system disrupts other cellular operations. EOs have been studied and employed in a variety of disciplines, including the food, pharmaceutical and cosmetic industries, and their presence has been seen to combat foodborne pathogens and other microbes to a larger extent. However, more research on a wider range of EOs is still required. Because EOs are natural, safe and GRAS-compliant, and hence they can be used in little or large doses to improve quality and safety without creating losses.

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