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REVIEW ON ESSENTIAL OILS

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Abstract

In today's world the wellbeing and sustenance of food is very important so essential oils are used for preparation of food ,transport, storage are requirement of food handling. Essential oils are in use from our ancient periods and by ancestors and they pass us down with knowledge by giving us information in our daily life period and so on. EOs is used as food preservative, perfumery ,flavoring agent, and also as medicine . The antimicrobial activities of essential oils clearly indicates that, they are more acceptable because of their unique antibacterial, antifungal and antiviral properties. We will further see in this Eos its classification ,components applications, etc.and many more. So far as factors which are responsible for food spoilage and other health related problems are still in existence, there is the need to develop sustained preservation and public health relief techniques.

Keywords: Essential Oils, Antimicrobials, Preservation, Food Safety

Abbreviations:

EOs: Essential oils

WHO: World Health Organization

USDA: United State Department of Agriculture

GRAS: Generally recognized as Safe



Introduction

Due to increasingly oriented to the consumption of food commodities with characteristics of naturalness and minimal processing.[3] These features are perceived by the consumers as synonymous with health and are determining factors for food acceptance.[4] The World Health Organization, in a report published in 2015, estimated that each year about 600 million cases (almost 1 in 10 people in the world) of foodborne illnesses and 420,000 associated deaths occur globally. Due to food spoilage the consumption, the undesirable and unacceptable causes the metabolism disturbed since there are few changes in sensory characteristics.[1] Food spoilage can be safe, i.e. they may not cause illness because there are no pathogens or a toxin present, but changes in texture, smell, taste, or appearance cause them to be rejected.[2] Worldwide the postharvest fruit and veges losses are high at least 30%-40% percent and can be much higher than this % in some developing countries. So, Food safety has been an area of focus in this modern world; therefore, efforts are being made to ensure, secure and safeguard food in turn ensuring food security and availability of fresh and healthy produce. Food manufacturers rely heavily on food preservatives to safeguard and extend the shelf life of their products.[5] Since largely Intake of food additives, including synthetic preservatives, has been linked to the rising incidence of allergies and attention-deficit hyperactivity disorder in children.

Essential oils

Essential oils (EOs) are aromatic oily liquids extracted from different parts of plants for instance, leaves, barks, seeds, flowers and peels. The word essential oil was defined by Paracelsus von Hohenheim, for the first time, in the 16th century, referring to it as Quinta essentia .[6] Essential oils are being used from our ancient periods, also used them in our current and daily life. It is used as perfumer health purposes and also in medicinal purposes like antidepressant, stimulating, it is also alternatives to hazardous chemical preservatives, agents promoting food preservation, detoxifying, antibacterial, antiviral and calming show such properties.[15] Essential oils (EOs) are aromatic compounds found in great quantities in oil sacs or oil glands present at different depths in the fruit peel, mainly flavedo (contains the flavoproteins which make up the pigments that give each fruit its distinctive color) part and cuticles.[16]

Classification of Eos

1. VOLATILE OILS
2. NON VOLATILE OILS
 - a) **In Volatile Essential Oil Further Classified Into :-**
 - I. Hydrocarbons (isoprene)[17]
 - Terpenes (monoterpenes and sesquiterpene)
 - Isoprene
 - II. Organic matters
 - Acids
 - Alcohols
 - Aldehydes
 - Ester
 - Ketones and lactones

b) Non Volatile Essential Oil are further classified into:-[18]

- a) Hydrocarbons
- b) Fattyacids
- c) Sterols
- d) Carotenoids
- e) Waxes
- f) Flavonoids

Classification Based on their aroma :-[19]

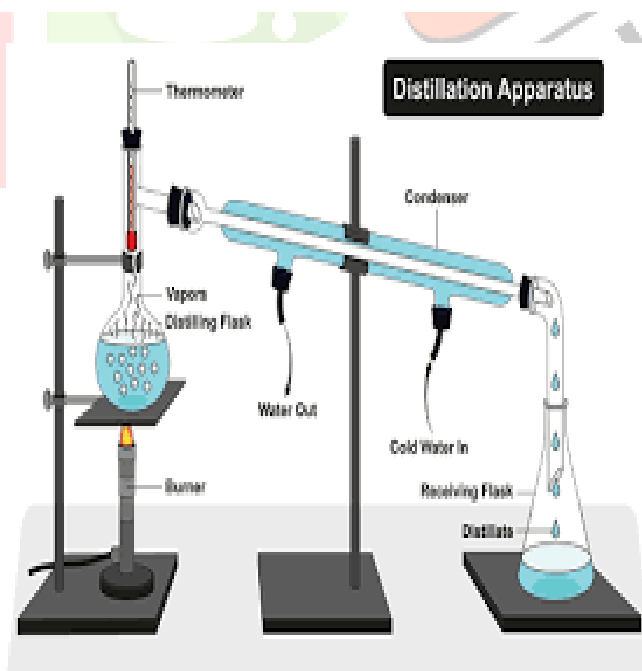
1. Citrus oil
2. Herbaceous oil
3. Camphoraceous oil
4. Floral oil
5. Woody oils
6. Earthy oils
7. Spicy oils

Classification based on extraction[20]

1. Steam –distilled oils
2. Cold pressed or expressed oils
3. Solvent extracted oils

❖ Steam-distilled oils :-

Steam Distillation is the most popular method used to extract and isolate essential oils from plants for use in natural products. The benefit of steam distillation is that **it yields oils that are exceptionally clean and pure**. It also allows for collection of temperature-sensitive compounds that may be damaged or altered by other collection processes[23]



❖ Cold pressed or expressed oils:-

Every single oil normally has more than a hundred components, but the number of component changes depending on the oil in question. However, the most important active compounds are included in two chemical groups: Terpenoids, alcohols, esters, aldehydes, ketones and phenols etc[24]

❖ Solvent extracted oil:-

This modern method **implements food-grade solvents such as ethanol, benzene, dimethyl, or hexane to isolate the oils**. It's often used for extracting essential oils from delicate aromatics, such as jasmine or rose, which are generally unable to withstand the pressure of steam distillation.[25]

❖ Application of essential oils in the food industry:-

The use of essential oils as antimicrobial additives in food, has been categorized as GRAS (Generally Recognized as Safe) by the US Food and Drug Administration and are rich sources of biologically active compound with known antimicrobial & antioxidant properties, which attracts interest as additives in the food industry. However, their application as a food additive is the recent growing interest in view of their strong antimicrobial and antioxidant properties[26]. The basic approach to ensure food safety is to minimize the initial microbiological load and/or to inhibit the growth of the remaining microorganisms during post-process applications, like production and storage, by the use of an active packaging [27]. Cinnamon essential oils have been characterized as the most relevant essential oils used in both food and cosmetic industries, and in particular as an antimicrobial agent due to its many applications: as a flavoring agent and as an aroma [28]. According to Simionato, the encapsulation of cinnamon oil in cyclodextrin nanospheres serve as a potential use for antimicrobial food packaging [29]. Furthermore, garlic essential oil nanophytosomes as a natural food preservative, with its application in yogurt as food model, showed its potential as a possible natural food preservative by effectively displaying suitable physicochemical properties, particularly in acidic food products [30,31]

Health Benefits :-



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