IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.67
Volume 5, Issue 1, February 2025

A Review on Essential Oil

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Abstract: *Essential oils are concentrated substances extracted from flowers, leaves, stems, roots, seeds, barks, resin or fruit rinds. The oils are often used for their flavour and their therapeutic or odoriferous properties, in a wide selection of products such as foods, medicines and cosmetics. Extraction of essential oils is one of the most time and effect consuming process. The way in which oils are extracted from plants is important because some processes used solvent that can destroy the therapeutic properties.*

Keywords: Essential oils

I. INTRODUCTION

Essential oils are concentrated substances extracted from flowers, leaves, stems, roots, seeds, barks, resin or fruit rinds. The oils are often used for their flavour and their therapeutic or odoriferous properties, in a wide selection of products such as foods, medicines and cosmetics. Extraction of essential oils is one of the most time and effect consuming process. The way in which oils are extracted from plants is important because some processes used solvent that can destroy the therapeutic properties. There are wide number of ways to extract the essential oils but the quality never remains the same. 'Steam Distillation' is the cheapest way for the extraction of oils. In this process the steam is allowed to pass through the extraction chamber which contains plant matter. When steam passes through the herb material under pressure which soften the cells and allow the essential oil to escape in vapour form. The vapour allow to pass through condenser and oil is collected in separating funnel and separated.[1]

Humankind has used plants for healing for many thousands of year, and it's form the tradition of that use of aromatic compounds in medicine began. Oils were used in the embalming process, in medicine and purification rituals. There are also over 200 references to aromatics, incense and ointment in the old and new testament. Frankincense, Cassia, Cinnamon, Myrrh, Galbanum, Rosemary are noted for being used for anointing rituals and healing of the sick. Research has confirmed centuries of practical uses of essential oils and we now know that the 'fragrant pharmacy' contain compounds with extremely broad range of biochemical effects. There are about 300 essential oils in general used today by professional practitioner, with the continual bombardment of viral, bacterial, parasitic and fungal contamination in our world. Essential oils have great benefit to help and protect our bodies and homes from this onslaught of pathogens. Immune system need support and essential oils can give it.[2]

Because of the enormous amount of the row product used to make wholly natural essential oils, lots of products on the market have been polluted With lower quality, commercial grade oil contain other chemical substances to reduce the cost or increase the profit margin. This is why it is important to study the chemical constituents of volatile fraction once the essential oils extracted.

The gas chromatography method (GC) is exclusively used for the qualitative analysis of the volatiles. The analysis of essential oils is developed in parallel with the technological development in GC such as a stationary phase, detection device, etc. However,advances in instrumentation were not only the important factor in the development of the analytical method for essential oils in plants. Sample extraction and concentration were also improved. The most outstanding improvement in the determination of the composition of the essential oils came from the introduction of the tandem techniques involving further chromatography or spectroscopy. The great amount of information on application of GC and hyphenated techniques to essential oils has been led to much research in thisfield[3].

Essential Oil : Essential oils are the concentrated volatile aromatic compounds produced by plants. The easily evaporated essence that give plant their wonderful scent. Each of these complex precious liquid is extracted from

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particular species of plant life. Each plant species originates in certain region of the world with particular environmental conditions and neighbouring fauna and flora. Essential oils are frequently referred to as "life force" of plants. Essential oils are extracted from oil sacs in flower, leaves, stem, roots, seeds, wood and bark. The amount of essential oil found in these parts is about–10% of the total. These oils have potent antimicrobial factors. These oils are often used for their flavor and their therapeutic or odoriferous properties in wide selection of such as foods, medicines and cosmetics[4].

Properties Of Essential Oils:

Physical properties of essential oil:-

- Liquid at ambient temperature.
- The density is lower than water.
- They have high refractive index, most of them rotates the plane polarised light.
- They are soluble in common organic solvent and lipo soluble.
- Steam distilled and sparingly soluble in water, they are soluble enough, however, to impart distinct fragrance to water and aromatic water.
- They have good flavouring property[5].

Table-1.1

Major Raw Material Used In Extraction Of Essential Oils:

Essential Oils are derived from various parts of Plants:

Leaves	Flowers	Peel	Seeds	Wood
Basil	Chamomile	Bergamot	Almond	Camphor
Bay leaf	Clary Sage	Grape fruit	Anise	Cedar
Cinnamon	Clove	Lemon	Celery	Rosewood
Eucalyptus	Geranium	Lime	Cumin	Sandalwood
Lemon Grass	Hyssop	Orange	Nutmeg Oil	
Melaleuca	Jasmine	Tangerine		
Oregano	Lavender			
Patchouli	Manuka			
Peppermint	Marjoram			
Pine	Orange			
Rosemary	Rose			
Spearmint	Ylang-Ylang			
Tea Tree				
Wintergreen				
Thyme				
Berries	**Bark**	**Resins**	**Rhizome**	**Root**
Allspice	Cassia	Frankincense	Ginger	Valerian
Juniper	Cinnamon	Myrrh		

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Chemical properties of essential oils:-

- Essential oils are complex and highly variable mixture of components, it contains the following constituents -
- The group of tepenoids.
- The group of far less common, of aromatic compounds derieved from phenyl propane.
- Degradation products of non-volatile constituents.
- Nitrogen containing compounds.
- Sulphur containing compounds.
- Polyacetylenes[6]

Chemical Constituents Of Essential Oils:

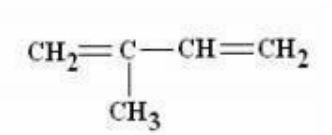
Pure essential oils are mixture of 200 components, normally it mixture of terpenes or phenylpropanoic derivatives. They can be classified into two groups :-

Volatile fraction : Essential oil contain about 90 – 95% of the oil in weight. It contain monoterpene and sesquiterpene hydrocarbon as well as oxygenated derivatives along with aliphatic aldehydes, alcohols, esters.

Nonvolatile residue: It comprises 1 – 10% of oil, containing hydrocarbons, fatty acids, sterols, carotenoid, flavour and waxes. [7]

Hydrocarbons:

Essential oils consists of chemical compounds that have hydrogen and carbon as their building blocks. Basic hydrocarbon found in plants are isoprene having the following structure[8]



(Isoprene)

Terpenes:

Generally have names ending with “ene”.

For example-limonene, pinene, camphene, piperene,etc.

The terpenes are further categorised as monoterpene, sesquiterpene, diterpenes[9]

Monoterpenes:

Properties: Analgesic, Bactericidal, Expectorants and stimulant.

Example :

a) Camphene and Pinene in Cypress oil.

b) Camphene, Pinene and Thujhene in Black pepper.

Sesquiterpenes:

Properties: Anti-inflammatory, Analgesic, Antiallergic, Antiseptic.

Examples:

a) Farnese in Chamomile and Lavender.

Carryophylline in basil and black pepper.

Diterpenes:

Properties: Expectorants, Antifungal, Hormonal balancers, hypotensive.

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Examples: Sclareol in Clary sage is an example ofditerpene alcohol.[10]

Alcohols:
Properties: Antiseptic, Antiviral, Bactericidal and Germicidal.Examples: a) Linalool found in ylang-ylang and Lavender.
Geraniol in geranium and rose.

Nerol in neroli.
Aldehydes:
Properties: Antiviral, Antifungal, Anti-inflammatory, Antiseptic, Bactericidal, Disinfectant, Sedative.
Examples:
a) Citralinlemon.
Lemon grass and lemon balm.
Citronella in lemongrass, lemon balm and citrus eucalyptus.

Acids:
Properties: Anti-inflammatory
Examples:
a) Cinnamic acid and benzoic acid in Benzoin.
b) Citric and Lactic.

Esters:
Properties: Antifungal, antimicrobial, Sedative. Examples:
Linley acetate in Bergamot and Lavender.
Geranyl formate in Geranium.
Ketones:
Properties: Expectorant, Cell proliferant, Vulnery. Examples:

Fenchone in fennel.
Carvone in spearmint and dill. Menthone in peppermint[11].

Type	Examples
1. Hydrocarbon volatile oils	Turpentine, black pepper, hops
2. Alcohol volatile oils	Peppermint, cardamom, rose, Sandalwood, coriander, eucalyptus
3. Aldehyde volatile oils	Cinnamon, lemon peel, orange peel, lemon-grass, bitter almond
4. Ester volatile oils	Gaultheria, lavender, mustard
5. Ketone volatile oils	Caraway, spearmint, buchu, camphor
6. Oxide volatile oils	Chenopodium, eucalyptus
7. Phenolic-ether volatile oils	Anise, fennel, nutmeg
8. Phenol volatile oils	Clove, thyme, creosote

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Classification of Essential Oils of Crude Drugs:

METHOD OF EXTRACTION OF ESSENTIAL OILS:

New methods of essential oil extraction are entering the mainstream of aromatherapy, offering new choices in oils never before available. The way in which oils are extracted from plants is important because some process use solvent that can destroy the therapeutic properties. Some plants and particularly flowers do mat lead themselves to step distillating. They are to delicate or their fragrance and therapeutic essence can not be completely released by water alone. These oils will be produced as 'absolutes' and while not technically considered essential oils, they can have still be therapeutic value. Jasmine oil and rose oil in particular are delicate flowers whose oils are often found in 'absolutes' form[8].The value of the newer producing methods greatly on the experience of the distiller as well as the intended application of the final product. Each method is important and has place in the making of aromatherapy-grade essential oils. Some of kothe few methods available for extraction of essential oils are givenbelow.[12]

Maceration

- Cold pressing
- Solvent extraction
- Enfleurage
- Hydro distillation
- Turbo distillation
- Carbon dioxide and super critical Carbon dioxide extraction
- Steam distillation

Maceration:

Maceration actually creates more of an "infused oil" rather than "essential oils". The plant matter is soaking invegetable oil, heated and stained at which point it can be used for massage.

Cold pressing:

Cold pressing is used for the extraction of essential oils from citrus rinds such as orange, lemon, grape fruit and bergamot. This method involves the simple pressing of the rind at about 120 degree F to extract the oil. The rinds are extracted from the fruit are ground and chopped and are then pressed. The result is a watery mixture of essential oils and liquid which will separate at given time. Alterations from the oils original state occurs– these citrus oils retain there bright, fresh, uplifting aromas like that of smelling as wonderfully ripe fruits. It is important to note that oils extracted using this method have a relatively short shelf live so make or purchase only what you will be using within the next six months[13].

Solvent extraction:

A hydrocarbon solvent is added to the plant material to help to dissolve the essential oil. When the solution is filtered and concentrated by distillation, substance containing resin or a combination of wax and essential oil remains. From the concentrate, pure alcohol is to extract the oil. When the alcohol evaporates, the oil is left behind. This method is not considered as the best method for extraction as the solvent can leave small amount of residue behind which could cause allergies and effect the immune system[14].

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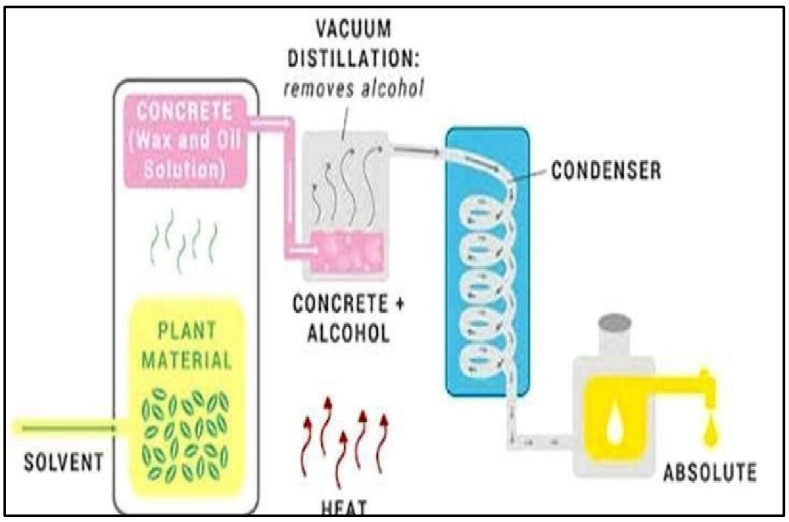
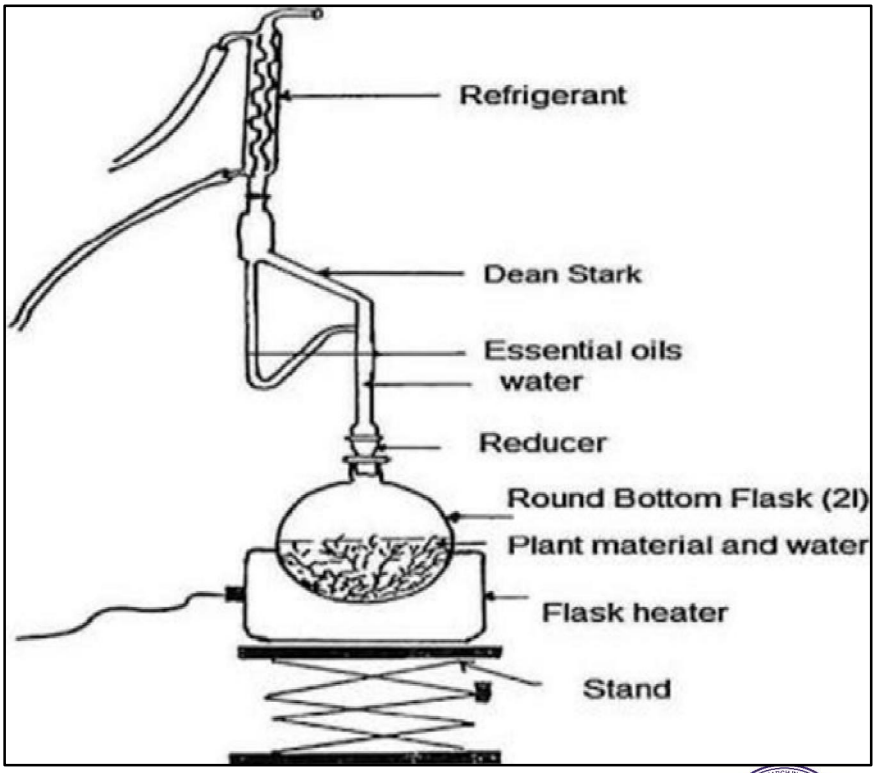


Enfleurage :

An incentive and traditional way of extracting oils from flowers. The process involves layering fat over the flower petals. After the fat has absorbed, the essential oilsfromthefat. The alcohol is evaporated and essential oil is collected.

Hydro distillation:

Some process become absolute to carry out extraction process like hydro distillation which often used in primitive countries. The risk is that they still can run dry or be overheated burning the aromatics and resulting is an essential oil with a burnt smell. Hydro distillation seems to work best for powders like spice powder, ground wood, etc. and very tough materials like roots, wood or nuts[15]



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Hydro distillation of essential oils.

Turbo distillation extraction :

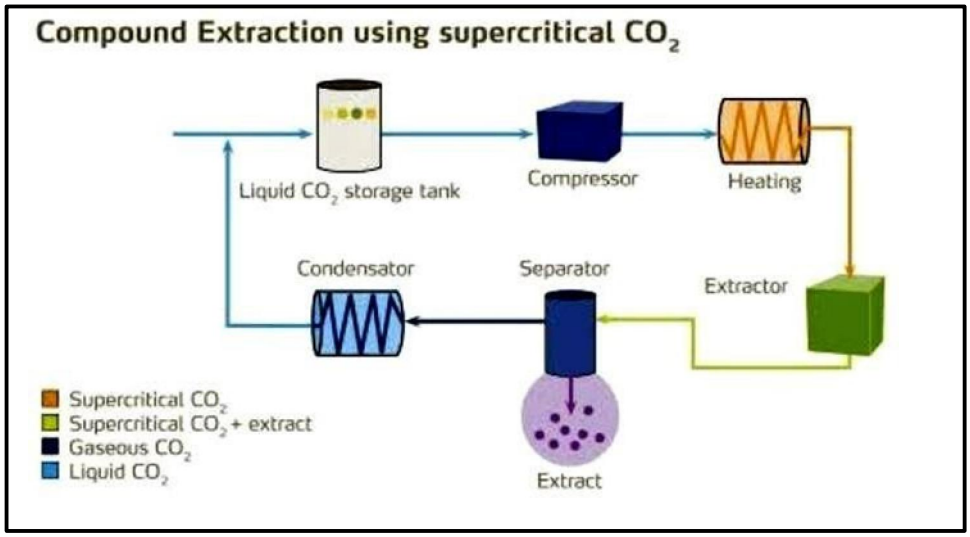
Turbo distillation is suitable for hard to extract or course plant material, such as bark, roots and seeds. In this process, plant soak in water and steam is circulated through this plant and water mixture. Through out the entire process, the same water is continuously recycled through the plant material. This method allows faster extraction of essential oils from hard to extract plant materials[16].

Carbon dioxide and super critical carbon dioxide extraction:

The most modern technologies, carbon dioxide and super critical carbon dioxide involves the use of carbon dioxide as the solvent which carries the essential oil away from the raw plant material. The lower pressure carbon dioxide extraction involves chilling carbon dioxide to between 35 and 55 ^{0}F and pumping it through the plant material at about 100 psi. The carbon dioxide in this condition is condensed to liquid. Super critical carbon dioxide extraction involves carbon dioxide heated to 87^{0}F and pumped through the plant material at around 8,000psi.– under these conditions, the carbon dioxide is linked to a 'dense fog' or vapour with release of pressure in either process, the carbon dioxide escapes in its gaseous form, leaving the essential oil behind. The usual method of extraction is through steam distillation. After extraction, the properties of good quality essential oil should be as close as possible to the 'essence' of the original plant. The key to 'good' essential oil is through low pressure and low temperature processing. High temperatures, rapid processing and the use of solvent after the molecular structure, will destroy the therapeutic value and alter the fragrance[17]

Steam distillation:

Most commonly, the essence is extracted from the plant using an technique called distillation. One type of distillation places the plant or flowers on screen. Steam is passed through the area and becomes 'charged' with the essence. The steam is then passes through the area where it cools and condenses. The mixture of water and essential oil is separated and bottled. Since plants contain such a small amount of precious oil, several hundred pounds may need to produce a single ounce.[18]



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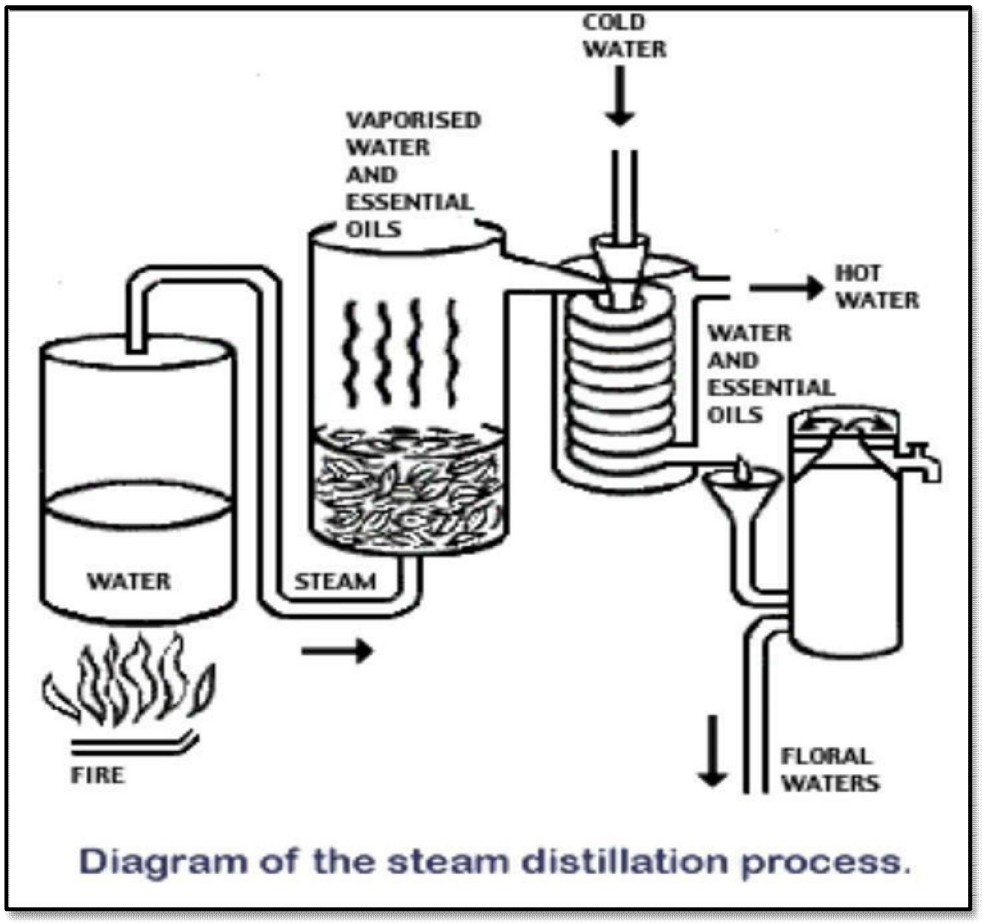

Diagram of the steam distillation process.

Uses Of Essential Oils:

Essential oils are products of the secondary metabolism of plants and generally are fragrant of volatile material consisting of complex mixtures of monoterpene and sesquiterpene hydrocarbon and oxygenated material biogenically derived from them gene essential oils are used in flavouring, perfumes, etc. and also as insect and animal repellent in pharmaceutical preparations as antimicrobial agent and so many other ways[19]

Analysis Of Essential Oils:

Gas chromatography is one of the best technique we have to identify the constituents of an essential oil. When properly used it can easily detect and identify the constituents of an essential oil and give us some indication and quality and authentically of the oil. The technique thus have limitations however[2]. Many minor components of essential oils do not register on GC detector system. The separation of essential oil components is usually carried out by GC with fused-silica capillary columns. The proper and conditions of columns used are variable depending on the polarity of the components to be separated. It is advantageous to use a more selective phase for given separation as the overlapping of peaks in the final chromatogram is often significant drawback of chromatographic techniques in natural samples. The discovery of choral phases allows the resolution of enantiomers of volatile components. These phases can give different evaluation sequences for polarity range and provide a distinct advantage in identification because of large changes in solute retention time. The information obtained from higher resolution GC analysis of the volatile fraction of essential oils must be significant to determine whether the product is genuine or not. If the product is adulterated, the kind and level of adulteration must be detected. Therefore, a selective and accurate.[20]

Example :- Chromatographic data of eucalyptus oil is given by GC as follows,

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3.4.1 Major Component Of Eucalyptus Oil

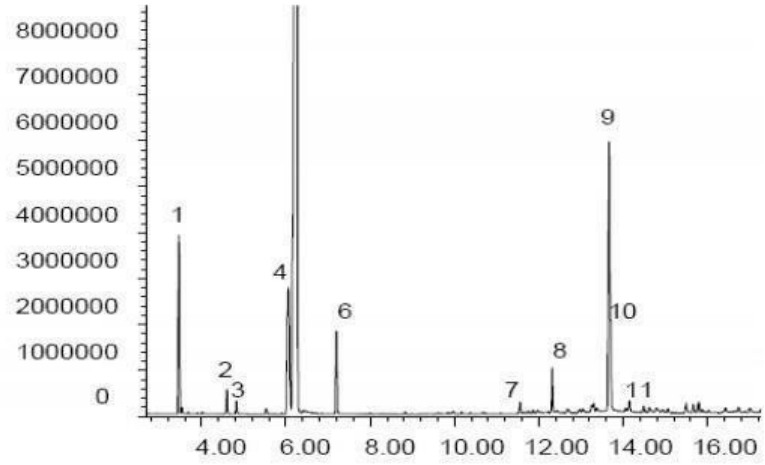
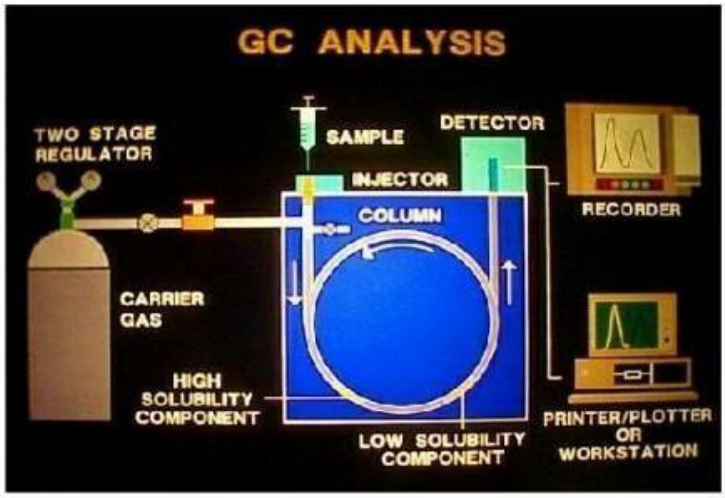


Figure-3.4 Chromatographic Data of Eucalyptus Oil

Componets	%age
α-Pinene	13.85
β-Pinene	0.78
Sabinene	---
Limonene	4.31
1,8-Cineole	67.67
p-Cymene	13.13
Linalool L	---
Terpinen-4-ol	---
α-Terpineol	45.68
α-Terpinenyle Acetate	---
d-Carvone	



Experimental Setup Of Gas Chromatography

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Experimental Setup:

A gas chromatogram consists of:-

A supply of carrier gas (nitrogen) from a high pressure cylinder having a pressure regulator and flow metres.

A sample injection system.[21]

The separation column made from variety of materials including glass, copper, stainless steel, cupro-nickel or organic polymer (Teflon). Packed beds are used.

The detector is situated at the exist of the separation column which senses and measures the small amount of the separated component present in the carrier gas leaving the column. Commonly used detectors are Thermal conductivity detectors, Wheatstone bridge circuit and flame ionisation detector.[22]

The recorder is fed by the output of the detector. Thermostated compartment for the column and detector[24]

Examples:

The odorous, principles of plant and animal sources are known as 'volatile oils'. As they evaporate, when exposed to air at ordinary temperatures, they are also called as 'ethereal oils'. They represent essence or active constituent of plant, hence they are also known as 'essential oils'. They are commonly found in the species of Labiatae, Rutaceae, Piperaceae, Zingiberaceae, Myrtaceae, Lauraceae. There are many examples of essential oils but some of these are Turpentine, Black pepper, Sandalwood, Eucalyptus, Cinnamon, Clove, Caraway, Lemon peel, Orange peel, Fennel, Nutmeg, Coriander, Lavender, Mustard, Peppermint, Cardamom, Mustard, etc.[25]

Lemonoil:-

Biological source : Lemon oil is volatile oil obtained by expression method, without the application of heat, from the fresh peel of the ripe or nearly ripe fruits of Citrus limonsis (Family-Rutaceae).

Organoleptic Characters:

Colour : Pale yellow or greenish yellow liquid. Odour : Reminiscent of lemon.

Taste : Aromatic

Solubility: In soluble in water, soluble in absolute alcohol.

Chemical Constituents: Lemon oil mainly contains terpenes. About 90% is +lemonene and other terpeneses 10% of the oil is represented by oxygenated compounds like Citral and Citronella. Lemon oil has tendency to resinfy and hence should be protected from air and light.[26]

Uses: Lemon oil is used as perfumery, flavouring agent.[27]

Eucalyptus oil:-

Synonyms: Eucalyptus, blue gum.

Biological source : Eucalyptus oil is essential oil obtained by steam distillation of fresh leaves of Eucalyptus globulus (Family- Myrtaceae).

Organoleptic Characters : Colour : Colourless. Taste : Characteristics. Odour : Characteristics.

Chemical Constituents: It contains 85% of volatile oil. The main constituent is cineole. The other constituents are p-cymene,ferulicacid,caffeicacid,gallicacid.

Uses : It is used as stimulant, antiseptic, flavouring agent, aromatic, duodent, expectorants, antimicrobial. It is also used in the treatment of lung disease, sore throat, cold.[28]

Mentha oil:

Synonyms: Oleum menthapiperita

Biologicalsource: It is the oil obtained by distillation of the fresh flowering tops of the plants known as Mentha piperita (Family-Labiatae).

Organoleptic Characters:

Colour: Colourless or yellow.

Odour: Characteristics, pleasant.

Taste: Pungent followed by cooling sensation.

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Chemical Constituents : It contains 80% menthol as chief constituent. It also contains ester, alcohol. The other important constituents are Menthone, menthol acetate, and several other terpene derivatives. The other terpenes include l - limonene, isopulegone, cineole, pinene, camphene, etc.

Uses : Mentha oil is carminative, stimulant, aromatic, counter-irritant, and flavouring agent. It has mildantiseptic properties. It is used in tooth paste and tooth powders, shaving cream. It is also consumed in the preparation of chewing gums, candies, jellies, perfumes, essences.[29]

Fennel Fruit:

Synonyms : Saunf, fructus foeniculum

Biological source : Fennel consists of dried ripe fruits of the plants known as Foeniculum vulgare (Family- Umbellifereae).

Colour : Greento yellowish-brown.

Odour : Sweet aromatic.

Taste : Strongly aromatic or mucilaginous. Size : 5to10x2to4mm.

Shape : Straight or slightly curved.

Chemical Constituents : Fennel consists of 3 to 7 % of volatile oil, 20% each of protein and fixed oil. The chief active constituent of volatile oil is a ketone, Fenchone (about20%) and phenolic ether (about 50%). The other constituents are phellandrene, limonene, methyl chavicol, anodic aldehyde etc.

Uses : It is used as carminative, aromatic and stimulant. It is also an expectorant and used as flavouring agent. It is also used in nausea, vomiting, diarrhoea.[30]

Nutmeg:

Synonyms: Myristica, Nux-Moschata, Jaiphal.

Biological Source : Nutmeg consists of dried kernels of seeds of Myristica fragrans (Family- Myristicaceae). The seeds are freed from their arillus and seed-coat. It contains not less than 5% (v/w) volatile oil.

Organoleptic Characters:

Colour : Externally,the kernels are greenish-brown or brown. Odour: Strongly aromatic.

Taste: Pungent and aromatic.

Size : Kernels are about 20 to 30 mm in length and 20mm broad. Shape : Ellipsoidal.[31]

Chemical Constituents: Nutmeg contains5 to 15% of volatile oil, and about 30% of fat. The volatile oil contains about 4 to 8% myristin, elimicin and saffrole. The fatty acid constituents of fixed oil are myristic, palmitic, oleic, lauric and other acids. The fat of nutmeg is known as nutmeg butter. The other constituents of the drug are protein and starch. Myristicin is very poisonous and the narcotic effect of the drug is said to be due to myristicin. Geraniol, terpineol, camphene, etc. are the other constituents of volatile oil of nutmeg.[32]

Uses : It is used as aromatic, stimulant and carminative. It is used as flavouring agent. The fat is known as Banda soap, is used in soap industry. The fat and Volatile oil of nutmeg are used in the treatment of rheumatism.[33]

Clove:

Synonyms: Caryophyllum, clove flower, clove bud, laung.

Biological Source : Clove consists of dried flower bud of Eugenia caryophyllus (Family- Myrtaceae).It should contain not less than 15%of cloveoil.

Organoleptic Characters:

Colour: Crimson to dark brown. Odour :Slightly aromatic.

Taste: Pungent and Aromatic.

Size: About10 to 17.5mmin length, 4mm in width, and 2mmthick.

Chemical Constituents: The drug contains about 15 to 20% of volatile oil,
10 to30%of tannin, resin, chromone and eugenin. The volatile oil contains eugenol (about 70 to 90%), eugenol acetate, methylamyl ketone, caryophyllenes and small quantities of esters and alcohol.[34]

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Uses : Clove is used as dental analgesic, carminative, stimulant, flavouring agent, aromatic and antiseptic. Exhausted clove is used in the preparation of cigarettes. The oil is used in perfumery and also in manufacturing of vanillin. [35]

II. LITERATURE REVIEW

Krishna A, Tiwari R, KumarS.*etal.*2019

Nowadays, use of alternative and complementary therapies with mainstream medicine has gained the momentum. Aromatherapy is one of the complementary therapies which use essential oils as the major therapeutic agents to treat several diseases. The essential or volatile oils are extracted from the flowers, barks, stem, leaves, roots, fruits and other parts of the plant by various methods. It came into existence after the scientists deciphered the antiseptic and skin permeability properties of essential oils. Inhalation, local application and baths are the major methods used in aromatherapy that utilize these oils to penetrate the human skin surface with marked aura. Once the oils are in the system, they remodulate themselves and work in a friendly manner at the site of malfunction or at the affected area.

Svoboda KP, DeansSG, *etal.*2017

This type of therapy utilizes various permutation and combinations to get relief from numerous ailments like depression, indigestion, headache, insomnia, muscular pain, respiratory problems, skin ailments, swollen joints, urine associated complications etc. The essential oils are found to be more beneficial when other aspects of life and diet are given due consideration. This review explores the information available in the literature regarding therapeutic, medical, cosmetic, psychological, olfactory, massage aromatherapy, safety issues and different plants used in aromatherapy. All the available information was compiled from electronic databases such as Academic Journals, Ethnobotany, Google Scholar, PubMed, Science Direct, Web of Science, and library search.

Ellse and Wall, Regnault-Roger. *etal.*2012

A concentrated hydrophobic liquid from plants having a volatile aroma is known as essential oil. These are ethereal oils also known as “oil of” the plant from which it’s isolated, like oil of rosemary. The oil is called as essential because it possesses a distinctive smell of the plant. These are usually known as “life force” of plants. Essential oils are the mixtures of fragrant and odorless substances. The fragrant substance is volatile and chemically pure substance. This fragrant substance which because of its smell, can be important for the society.

Silva; Hajhashemi, Perry *etal.*, 2011

These oils only attract some insects which help in the pollination of plant pollens but repel other which are harmful for the plant. Essential oils are volatile liquids which are rarely colored and have lower density than water. These are soluble in organic solvents. Out of 3000 essential oils known, only 300 are considered commercially important for various industries like, pharmaceutical, food, sanitary, perfume and agronomic. Some of the oils are known to have medicinal properties of curing organ dysfunction .

Pinto, Kamble and Patil, Viuda-Martos*etal*.,2011)

To meet the consumer demand of something natural to replace the chemical preservatives in food, essential oils appears to be good alternative. The synthetic preservatives come with their different sets of drawbacks, which have raised the demand of natural additives for which the EOs is the answer. Recent reports depict that benzoic acid used as additive changes to benzene in foods. Sorbic acid is decarboxylated to 1, 3-pentadiene which causes kerosene like odor. Saccharomyces cerevisiae and Pichia anomala.

Van de Braak and Leijten,Oosterhaven, Manabe*et al.*,2010

The essential oils are mainly used in food (as additives), pharmaceuticals and perfumes aftershaves and fragrances. The use of essential oils in aromatherapy is about 2% higher than in other markets. The components of essential oils either isolated from plants or prepared synthetically are also used for flavoring in food. Essential oils are used as root canal sealers antiseptics and as supplements in feed for lactating cows and weaned piglets because of their antibacterial properties. Some essential oils are commercially available in few food preservatives, „DMC base Natural“ is an example produced by DOMCA S.A. It is composed of 50% rosemary.

Wissal Dhifi, Sana Bellili, Sabrine Jazi,Nada Bahloul and Wissem Mnifetal.,2007

This review covers literature data summarizing, on one hand, the chemistry of essential oils and, on the other hand, their most important activities. Essential oils, which are complex mixtures of volatile compounds, particularly abundant in aromatic plants, are mainly composed of terpenes biogenerated by the mevalonate pathway. These volatile molecules

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.67
Volume 5, Issue 1, February 2025

include monoterpenes (hydrocarbon and oxygenated monoterpens), and also sesquiterpenes (hydrocarbon and oxygenated sesquiterpens). Furthermore, they contain phenolic compounds, which are derived via the shikimate pathway. Thanks to their chemical composition, essential oils possess numerous biological activities (antioxidant, anti-inflammatory, antimicrobial, etc.of great interest in food and cosmetic industries, as well as in the human health field.

AIMS

At present, approximately 3000 essential oils are known, 300 of which are commercially important especially for the pharmaceutical, agronomic, food, sanitary, cosmetic and perfume industries. Therefore, a need is stressed to isolate/develop a clone with higher oil content and superior oil quality. The details of chromosome morphology are useful parameters for drawing chromosomal relationships and thus could be useful in interracial, intraspecific and interspecific hybridization program of*Cymbopogon* and *Vetiveria or Chrysopogon* plants. Owing to the wide range of applications of the essential oils in commercial products procured from these plants, it is important to validate the therapeutic importance of such oils. The safety evaluation of the essential oils has lagged far behind the rate at which they are produced for use in commercial and therapeutic products.

OBJECTIVE:

- To the study for safety evaluation and determination of possible antigentoxic and antioxidant properties of the essential oils available commercially.
- To the study for evaluation of the essential oils and it same liorating effects on cisplat innduced toxicity in Swiss albino male

III. CONCLUSION

Essential oil research is an interesting outcome on complex matrices of natural origin. Even though lot of studies were made on exploring the composition of essential oils and its application on various diseases. Detailed study on its individual component and mode of action of particular compound on treatment of various diseases need to be investigated to use these novel chemicals as a commercial drug. Various methods have been followed for better extraction of essential oil from plants. This would help in better yield of essential oil from plants. Components of essential oils has various medicinal properties, it could be utilized for the novel development of new drugs. Even though essential oils are complex, volatile and water insoluble, it has significant biological activities at minimum concentration. Its volatile nature could be an added advantage to treat the food borne fungi and stored products insect pests.

The application of essential oil has spread evenly throughout the whole world as well as its analysis, which had led to the tremendous increase in the yield and quality of essential oil production. Also in aromatherapy and medicaments, disinfectants and insect repellent, all of which are directly or indirectly applied to human life to suit peoples desires and demand. The general usefulness of essential oil cannot be over emphasised as it is more beneficial than synthetic drugs.

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ISSN (Online) 2581-9429
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International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.67
Volume 5, Issue 1, February 2025

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Impact Factor: 7.67
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