Al-Nahrain University/College of pharmacy





Practical Pharmacognosy II

3rd stage 1st term

Extraction and Isolation of volatile oils

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Volatile oil

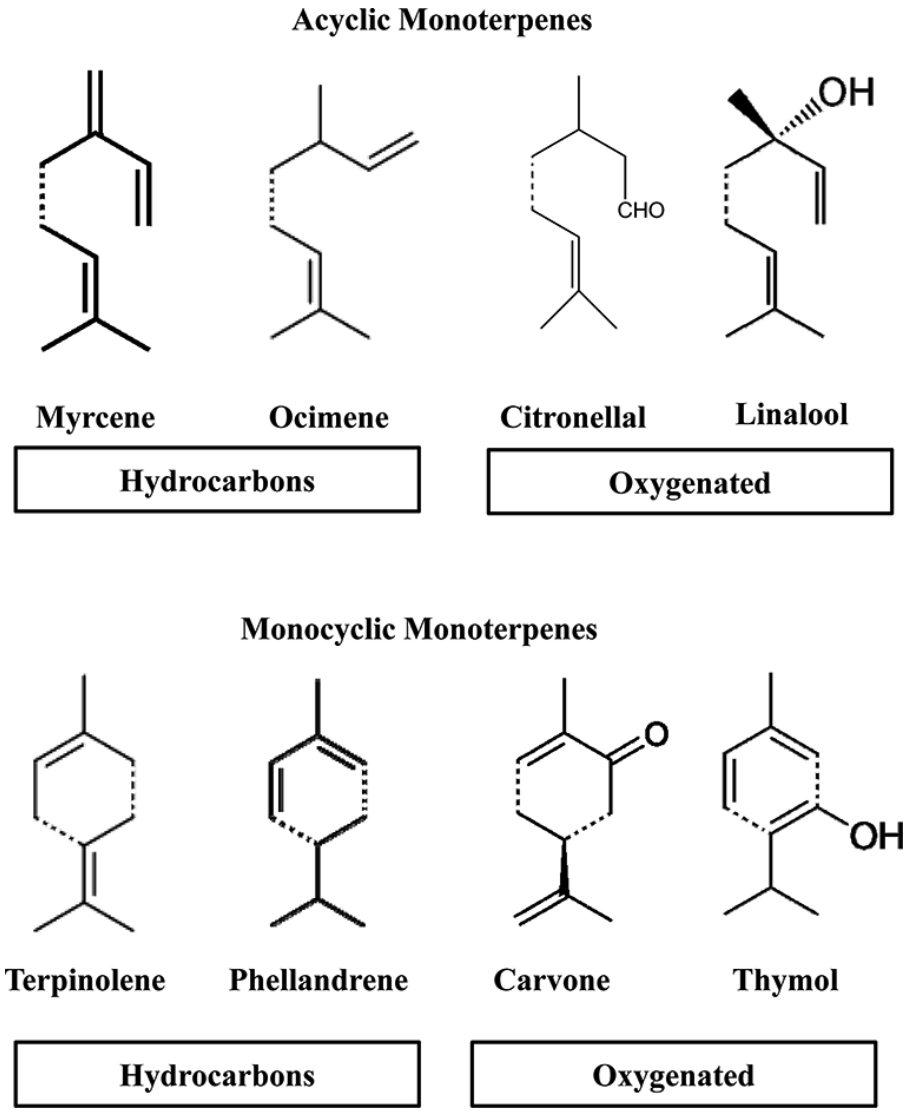
- They are odorous principles found in various plant parts.
- Because they **evaporate**, exposed to the air at room temperatures, they are called **volatile oils**; they are also **essential oils**.
- Volatile oils are **colorless** as a rule, particularly when they are fresh but on standing, they may **oxidize and resinify thus darkening in color**
- To prevent darkening, they should be stored in a **cool, dry place in tightly stoppered** preferably full ,**amber glass** containers,
- As a rule, volatile oils are **immiscible with water, t**hey are soluble in **ether, alcohol** and most **organic solvent**.
- Many volatile oils consist largely of **terpenes** (terpenes are natural products who structures may be divided into isoprene units).





Generally volatile oils and volatile oil containing drugs are divided into the following:

- **Hydrocarbons**
- **Alcohols**
- **Aldehyde**
- **Ketones**
- **Phenols**
- **Phenolic ether**
- **Oxides**
- **Esters**



Essential oils are derived from various sections of plants:

- **leaves:** rosemary, Teatree , basil, eucalyptus
- **Flowers**: rose , lavender
- **Seeds** :fennel, anise, cumin
- **Bark** : cinnamon
- **Rhizome** : ginger











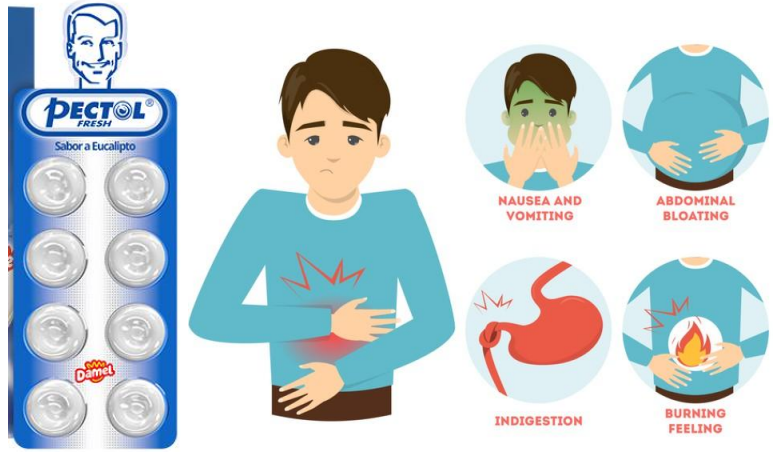






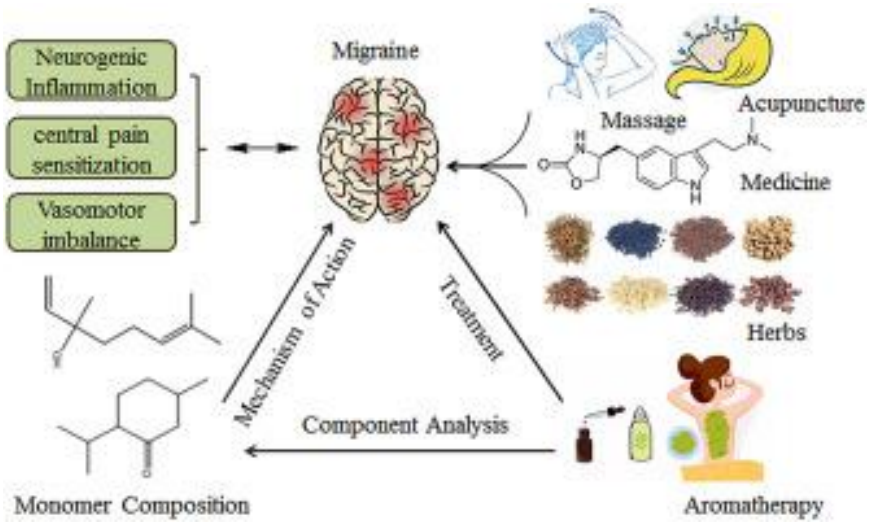
Pharmacological uses of volatile oils:

- **Carminative** : rosemary oil
- **Antitussive** : eucalyptus
- **Antiseptic** : clove oil
- **Aromatherapy** : lavender oil









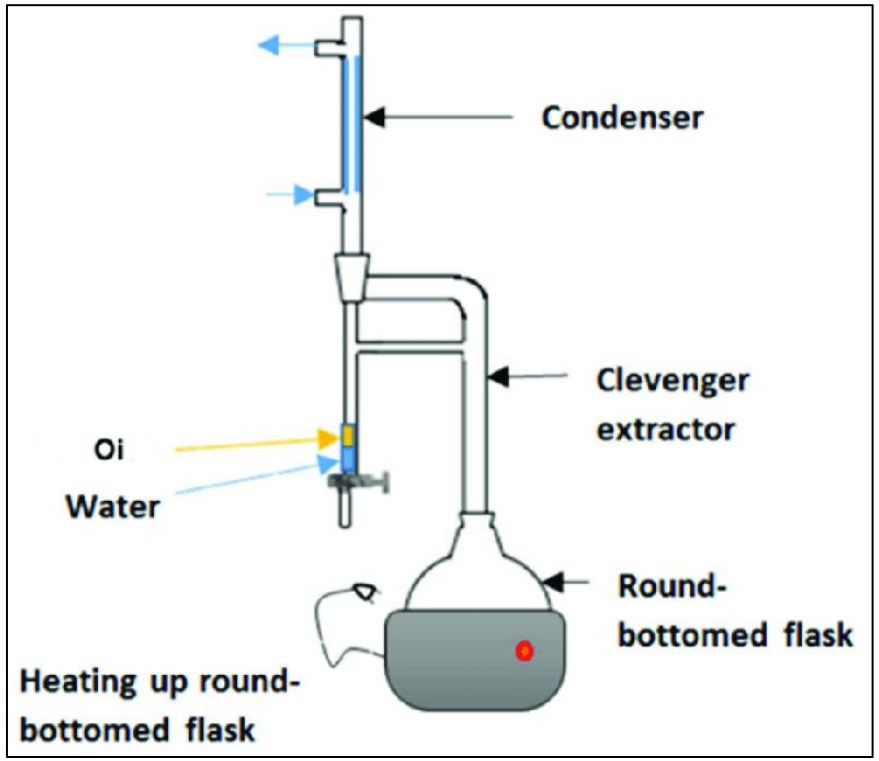




Isolation and Identification of the Volatile Oils:

- **Aim:** Determination of the volatile content of crude drugs by **water distillation method.**
- **Equipment:** **Clevenger type as an apparatus.**





Procedure

1) Weigh out 20 gm of the plant material (coarse powder) and place into **distilling flask**; add few pieces of porous earthenware.

2) Add **200 ml distilled water** to the flask and shake well. Add another 200m of water by rinsing the neck of the flask.

3) Connect the distilling flask with the **still head** (**Clevenger column**) of the apparatus.

4) Connect the **condenser** of the apparatus with the **cooling water** (from the tap).

5) Heat the distilling flask until the **boiling starts**. Record the time of the beginning of distillation and continue the distillation for one hour.

6) Switch off heating. Allow the graduated receiver to cool. Read off the **volume of the volatile oil**

7) Calculate the %v/w of the volatile oil content of drug.

