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Course name :

**Crop Production Technology-II
(ASAG 2204)**

Course credit :

(2-1-0)

Experiment 9

Topic: Study of oil extraction



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- **9.1 Aim**
- In this experiment you will extract essential oils of Cloves, Cinnamon and Nigella Sativa by steam distillation.
- **9.2 Material**
- *Petroleum benzene*, Distillation apparatus ,trimble oilseed sample, heating mantle soxhlet glass ware and balance



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- **9.3 Principle of essential oil extraction:** - The specific extraction method employed is dependent upon the seed material to be distilled and the desired end-product. The essential oils which impart the distinctive aromas are complex mixtures of organic constituents, some of which being less stable, may undergo chemical alterations when subjected to high temperatures. In this case, organic solvent extraction is required to ensure no decomposition or changes have occurred which would alter the aroma and fragrance of the end-product.

9.4 Procedure



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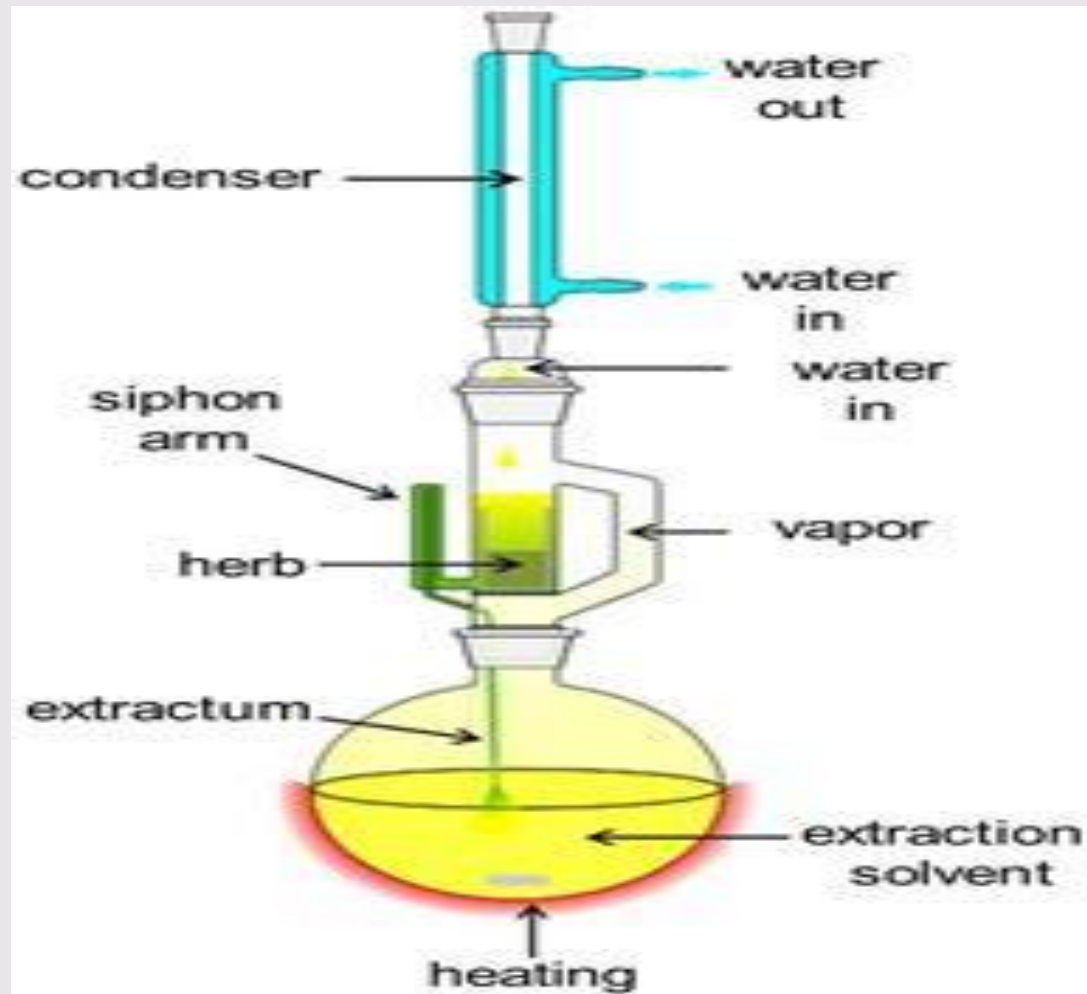
- 1. The grind sample which already prepared by lab assistant is weight on analytical balance.
- 2. The sample is mix with petroleum benzine using a ratio 4:1.
- 3. Soxhlet apparatus is set for the extraction.
- 4. After about three hour of extraction, the round-bottomed flask is heated in the water bath of the concentrator apparatus.
- 5. The solvent is removed and the excess water outside the flask is dried.
- 6. The extracted fat is weight and the fat content of the sample is calculated



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Fig 9.1: Soxhlet apparatus





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- **9.5 Calculation**
 - **Item Weight (g)**
 - **Round bottom flask before extraction**
 - **Round bottom flask after extraction**
 - **Thimble**
 - **Thimble + mixture**
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 - **(Round bottom flask before extraction-Round bottom flask after extraction)**
- Oil content (%) = -----X 100**
- **Original Weight of the sample**
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