



Introduction

Lab No. 1

Herbarium

Herbarium is a collection of preserved plant specimens, which are either whole plants or organs of plants, they are usually dried and mounted on a sheet, or kept in a preservative, as alcohol..

Specimen preservation:

- The collected plants are spread on white sheets and dried, in order to preserve their form and color.
- These specimens are then labeled with all essential data, such as family, species, description of the plant, date and place of collection. The sheet is then placed in a protective case.
- Some plants are soft, bulky and thus cannot be dried and mounted using the same method. In this case, other methods of preparation and storage may be used. For example, conifer cones and palm fronds may be stored in labeled boxes.
- Representative flowers or fruits may be preserved in formaldehyde to preserve their three-dimensional structure.

Uses:

1. Herbaria are essential for the study of plant taxonomy, geographic distributions, and the stabilizing of nomenclature.
2. Herbaria are used to catalogue or identify the flora of an area.
3. Herbaria also preserve a historical record of change in vegetation over time.

Procedures for extraction & isolation of plant constituents

The appropriate method of extraction depends on number of factors:

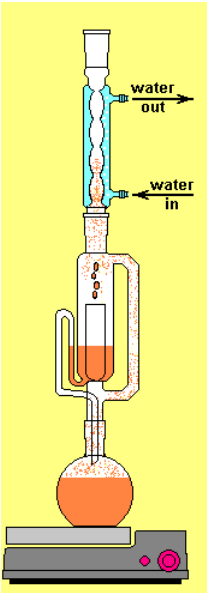
- Texture
- Water content
- Type of substance that is being isolated
- Purification depends on the selectivity of solvent

Preparation of the plant material before extraction

The plant material must be prepared before extraction by cutting or crushing, ranging from coarse, medium to fine powder

General procedures

1-Infusion	Plant material is placed in a pot and wetted with cold water, boiling water is poured over it, and left to stand, covered with lid (left for 15') then poured
2-Maceration	Used for water soluble active constituents. It consist of macerating the plant material in cold water for several hours
3-Digestion	This method is suitable for hard barks or woods which are difficult for water to penetrate.

4-Decoction	It consists of boiling plant material for ten minutes or if boiling water is poured over it and allowed to stand for thirty minutes.
5-Continuous hot extraction	<p>This procedure is considered as the most common method used for the extraction of organic constituents from dried plant tissues</p> <p>The powdered material is continuously extracted in a soxhlet apparatus with a range of solvents.</p> 
6- Solvent –solvent precipitation	The extract dissolved in a suitable solvent, is mixed with a less polar but miscible solvent causing the selective precipitation of the less soluble plant constituents.
7- Liquid –liquid extraction	<p>The solute molecules are partitioned between two immiscible solvents. The amount of solute in each phase will depend upon their relative solubility in each solvent. which in turn is related to their polarity.</p> 