

Classification of Medicinal Plants:

A- Alphabetical:

Either **Latin** or **Vernacular** عامي names may be used.

Although they are simple and suitable for quick references, It gives no indication of interrelationships between drugs e.g. Pharmacopoeias.

Classification of Medicinal Plants: (cont..)

B- Taxonomic:

Based on botanical classification, drugs are arranged according to the plants from which they are obtained, into:

Classes, orders, families, genera and species.

Classification of Medicinal Plants:

C- Morphological:

1. Drugs are divided into groups such as :
leaves, flowers, fruits, seeds, herbs and
entire organisms, wood, barks, rhizomes &
roots (**known as organized drugs**).
2. Dried lattices, extracts, gums, resins, oils,
fats and waxes (**known as unorganized
drugs**).

Classification of Medicinal Plants:

D- Pharmacological or therapeutic:

This involves the grouping of drugs according to the pharmacological action of their most important constituents or their therapeutic uses, e.g cardiotonic drugs.

Classification of Medicinal Plants: (cont..)

E- Chemical or Biogenetic:

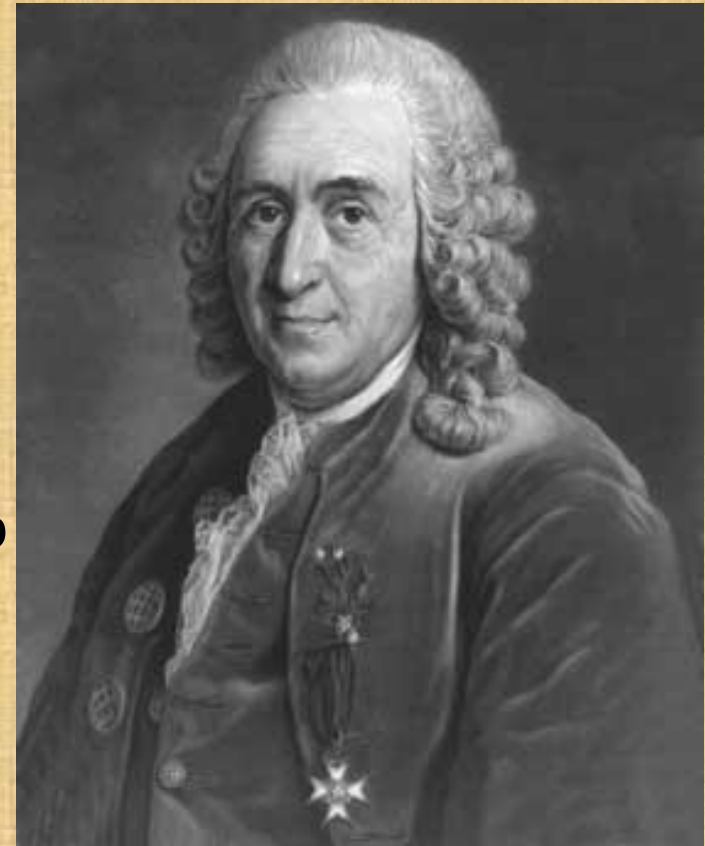
Acc. To the important constituents e.g. alkaloids, glycosides, volatile oils, etc.,

OR based on their biosynthetic pathways,.
This is a popular approach when the teaching of pharmacognosy is phytochemically biased.

- **Nomenclature:** The binomial system was founded by the Swedish biologist Linnaeus.
- In this system,
The first name: Start with a capital letter
denotes the **genus**,
-Second name
denotes the **species**.

Carolus Linnaeus (1707- 1778)

Swedish botanist and explorer. He studied botany at Uppsala university and explored Swedish Lapland. He is the first to develop principles for defining genera and species of organisms and to create a uniform system for naming them, **binomial nomenclature**.



-Genus and species name is followed by author's name who first described the species or variety.

e.g *Artemisia cina* **Berg.**, *Caryophyllos*

- Sometimes, species name is derived from author's name, e.g. the species of *Cinchona* named after **Charles Ledger**, who brought its seeds from Brazil in 1865, is known as *Cinchona Ledergiana*.

- *The species name is usually chosen to indicate certain characteristics of the plant:*

A. Striking characteristic of the plant:

- *Cassia acutifolia* (sharp pointed leaflets)
- *Conium maculatum* (maculate = spotted)
- *Cassia angustifolia* (narrow leaflets)
- *Glycyrrhiza glabra* (glabrous = smooth)
- *Atropa belladonna* (bella= beautiful, donna=lady)
- *Hyoscyamus muticus* (muticus = short)
- *Brosma serratifolia* (serrat = margin)

B. Characteristic colour:

- *Piper **nigrum*** (black)
- *Digitalis **purpurea*** (purple)
- *Digitalis **lutea*** (yellow)
- *Brassica **nigra*** (black)
- *Brassica **alba*** (white)

C. An aromatic plant (certain aroma)

- *Myristica **fragrans*** (nice aroma)
- *Caryophyllus **aromaticus*** (refers to aroma)

D-Geographical source:

- *Cinnamoum zeylanicum* (growing in Ceylon)
- *Hydrastis Canadensis* (growing in Canada)
- *Tamarindus indica* (growing in India)
- *Uriginia maritima* (near the coast)

E. Pharmacological activity:

- *Papaver sominferum* (inducing sleep)
- *Lytta vesicatoriam* (causing blistering)
- *Strychnos nux-vomica* (causing vomiting)
- *Ipomoea purge* (purgative action)

F. General meaning:

- *Allium sativum* (cultivated)
 - *Riticum vulgare* (wild).
 - *Linum usitatissimum* (most useful).
- The generic name may indicate certain characters of the plant:
e.g. *Atropa* means fate who cuts the thread of life
Glycyrrhiza means gluco = sweet, riza = root,
Linum, *Linea* = thread)

Production of Crude drugs

Collection, drying and storage of drugs:

The preparation of each drug for the market depends on its morphological nature, constituents, geographical source and other factors.

A. Collection of Crude Drugs:

1. Effect of Time of the Year (Seasonal var.):

It has been found that active constituents in plants vary in amount and nature throughout the year.

- Rhubarb is collected in summer (anthranol in winter → anthraquinones in summer).

- **Colchicum corm**: collected in spring (alkaloids).
- ***Hyoscyamus muticus*** collected in summer (alkaloids).

2. Time of the Day

- **Digitalis** is collected in the afternoon.
- **Solanaceous leaves** collected in the morning.
- **Salix** collected at night.

3. Stage of maturity and age:

- **Clove**: collected in bud form.
- ***Santonica fl* & tea leaves**: in as unexpanded flower buds.
- **Solanaceous leaves**: at flowering stage.
- **Pyrethrum flower**: in fully expanded.

4. General factors:

- Flowers are collected in dry weather.**
- Leaves are collected when plant is flowering.**
- Fruits and seeds when fully mature but unripe.**
- Underground organs when aerial parts die down.**
- Barks in spring (when they are easily separated).**
- Unorganized drugs in dry weather (not rainy).**

B. Drying of Crude Drugs

Reasons of Drying:

- To decrease size and weight (facilitate packing, transport and storage).**
- Facilitate powdering.**
- Prevent enzyme action, microbial growth and degradation of active constituents.**

Enzyme action

Desirable: e.g. Vanilla pods, required slow drying.

Undesirable: e.g. Digitalis leaves, required fast drying.

● *Methods of drying:*

- 1. Drying in open air:** in sun and under cover sheds at night or during wet weather, e.g. clove, cinnamon,...
- 2. Artificial oven drying** (Oven-drying is more rapid than air-drying, controlled temp. and more suitable for use in the wet weather countries. Leaves, herbs & flowers: 20-40°C, barks & roots: 40-65°C.
- 3. Vacuum drying:** in oven, rapid and at low temp.
- 4. Lyophilization** used for biological fluids, enzymes, proteins and royal jelly.

C. Storage of Crude Drugs:

During storage, Drugs are affected by light, moisture, temp., air oxygen (physicochemical) and by fungi, bacteria, worms, insects and mites (biological)

- Long storage is not recommended, due to deterioration.**
- Therefore, drugs should be stored in sealed containers in cool dark places.**