

Classification of crude drugs

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Crude drugs:

- Products of plants and animal origin found in raw form and pharmaceutical products from natural origin & include subs from mineral origin like kaolin, bentonite, etc.
- Crude drugs are further grouped as **organised** (cellular) or **unorganised** (non-cellular) according to whether they contain a regularly organized cellular structure or not.
- Unorganised crude drug doesn't contain cells but cellular prdt either solid or liq
- **Need for classification?**
- **Identify grp, name, manage, remember**

Classification of crude drugs

1. Alphabetical
2. Taxonomical
3. Morphological
4. Chemical
5. Pharmacological
6. Chemo-taxonomical



. ALPHABETICAL CLASSIFICATION:

Crude drugs are arranged according to their Latin or English names lphabetically:

. Indian Pharmacopoeia.

. British Pharmacopoeia.

. United States Pharmacopoeia & National Formulary.

. British Herbal Pharmacopoeia.

. British Pharmaceutical Codex.

. European Pharmacopoeia (Latin titles).

. Encyclopaedia of common Natural ingredients used in drugs and osmetics.

g.: Acacia, benzoin, cinchona, dill, ergot, fennel, gentian, hyoscyamus,

pecacuanha, jalap, kurchi, liquorice, myrrh,

ux vomica, opium, podophyllum, quassia, rauwolfia, senna, ncaria gambier,

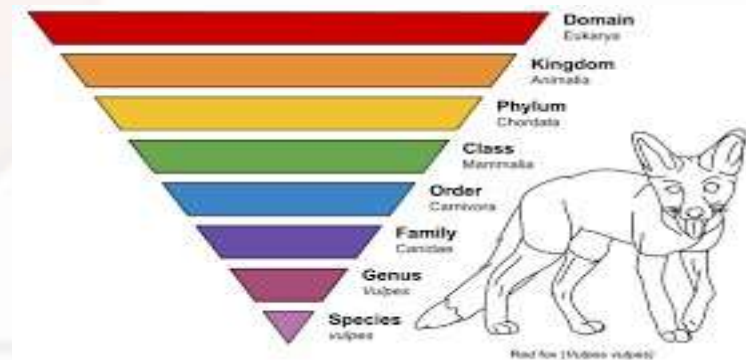
vasaka, wool fat, yellow bees wax, zedoary.

2. TAXONOMICAL CLASSIFICATION:

The drugs are classified according to plants or animals from which they are obtained in Phyla, Orders, Families, Genera, Species, Sub-species, etc.

This system of classification is **criticised** for its **failure** to recognize the organized and unorganized nature of crude drugs and chemical nature of active constituents and therapeutic significance of crude drugs

Phylum - Spermatophyta
Division - Angiospermae
Class - Dicotyledons
Order - Rosales
Family - Leguminosae
Sub-family - Papilionaceae
Genus - *Glycyrrhiza, Astragalus, Myroxylon Glycyrrhiza*
Species - *glabra, Astragalus gummifer, Myroxylon balsamum.*



Phylum - Spermatophyta

Division - Angiospermae

Class - Dicotyledons

Sub-class - Sympetalae

Order - Tubiflorae Solanaceae

Family - Atropa, Hyoscyamus, Datura

Genus - *Atropa belladonna, Hyoscyamus niger, Datura stramonium*

Species -

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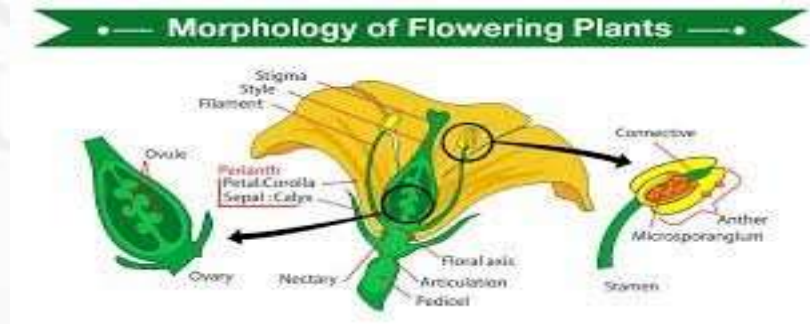
3. MORPHOLOGICAL CLASSIFICATION:

The crude drugs are grouped according to the parts of the plants or animal represented into organised and unorganised drugs.

- Seeds - nux-vomica, strophanthus, isabghol, castor senna,
- Leaves - digitalis, vasaka, eucalyptus cinchona, kurchi,
- Barks - Woods cinnamom, quailia quassia, sandalwood, red-sanders
- Roots - rauwolfia, ipecacuanha, aconite, jalap turmeric, ginger,
- Rhizomes - valerian, podophyllum clove, pyrethrum, saffron,
- Flowers - artemisia coriander, colocynth, fennel, bael
- Fruits -

Entire drugs- ephedra, ergot, cantharides, belladonna Dried latices- opium, gutta-percha, papain

Resins & resin combinations - balsam of tolu, myrrh, asafoetida, benzoin



Dried juices - aloes, kino, red gum

Gums - acacia, tragacanth, ghatti gum, guar gum

Dried extracts- gelatin, catechu, agar & curare

This system of classification is more **convenient for practical study**; especially when the **chemical nature** of the crude drug is **not clearly understood**.

4. CHEMICAL CLASSIFICATION:

Crude drugs are divided into different groups according to the chemical nature of their most important constituents.

Glycosides - Digitalis, senna, cascara, liquorice

Alkaloids - Nux vomica, ergot, cinchona, datura

Tannins - Myrobalan, pale catechu, ashoka

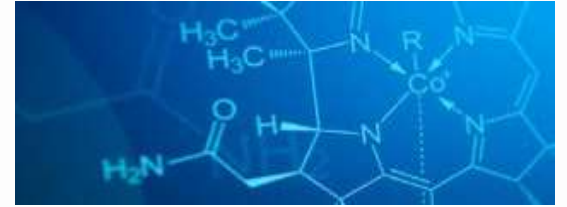
Volatile oils - Peppermint, clove, eucalyptus, garlic

Lipids - Castor oil, bees wax, lanolin, cod liver oil, kokum butter **Carbohydrates** -

Acacia, agar, guar gum, pectin, honey, isapghula **Resins & resin** - Colophony, jalap, Balsam of Tolu

Vitamins & Proteins & Yeast, Shark liver oil, Oxytocin, Hormones insulin casein, gelatine, papain, trypsin

preferred method of classification, since therapeutic and pharmacological significance is based on the chemical composition of crude drugs.

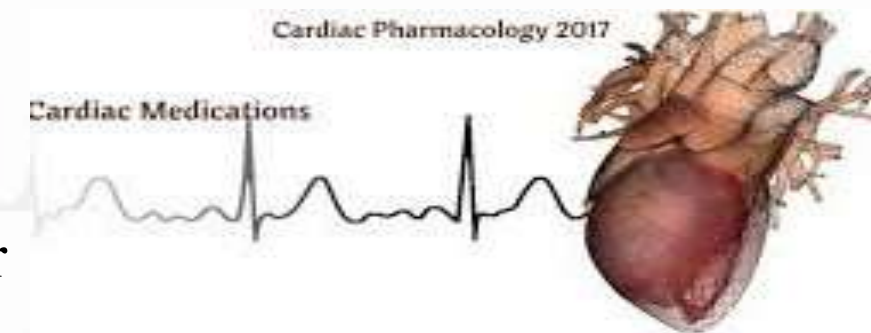


5. PHARMACOLOGICAL (THERAPEUTIC) CLASSIFICATION: This involves the grouping of crude drugs according to the **pharmacological action** of their active constituents or their therapeutic uses, regardless of their morphology, taxonomical status, or chemical relationships.

The drugs differing in MOA but having same pharmacological effects are also grouped together, e.g. bulk purgatives, irritant purgatives, emollient purgatives

Drugs acting on GIT:

Bitters -	Gentian, Quassia, Cinchona Dill,
Carminatives -	Mentha, Cardamom Ipecacuanha
Emetics -	
Anti-amoebiasis -	Kurchi, Ipecacuanha
Bulk laxatives -	Agar, Isapghula, Banana Senna, Castor
Purgatives -	Peptic oil
ulcer -	Derivatives of Glycyrrhithinic acid treatment
(Liqourice and Raw banana)	



Drugs acting on respiratory system:

Expectorant - Anti-tussives -
Bronchodilators -

Liquorice, Ipecacuanha, Vasaka Opium
(Codeine, Noscapine) Ephedra, Tea
(Theophylline)

Drugs acting on CVS:

Cardiotonics -
depressants -
Vaso-constrictors - Anti-hypertensives -

Digitalis, Squill, Strophanthus Cardiac
Cinchona (quinidine), Veratrum
Ergot (ergotamine), Ephedra
Rauwolfia

Drugs acting on autonomic nervous systems:

Adrenergics - Ephedra
Cholinergics - Physostigma, Pilocarpus
Anticholinergics - Belladonna, Datura

Drugs acting on CNS:

Central analgesics - Opium (morphine)
CNS Stimulants - Coffee (caffeine)
Analeptics - Nux-vomica, Lobelia, Camphor
CNS depressants - Hyoscyamus, Belladonna, opium, Hallucinogenics
- Cannabis, Poppy Latex

Anti-spasmodics:

Smooth Muscle Relaxants - Opium, Datura, Hyoscyamus Skeletal Muscle Relaxants - Curare

Anti-cancer: Vinca, Podophyllum, Taxus, Camptotheca **Anti-rheumatics:** Aconite, Colchicum, Guggul **Astringents:** Myrobalan, Black Catechu

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6. CHEMOTAXONOMIC CLASSIFICATION:

Chemistry correlated to taxonomy

The character most often studied in chemotaxonomy are 2^o **metabolites** of pharmaceutical significancesuch as **alkaloids, glycosides, flavonoids**, etc. DNA hybridization, amino acid sequencing in proteins, and serotaxonomy are also gaining significance in this method of classification. e.g.

Presence of Berberine alkaloid in berberis, argemone Presence of rutin, flavonoids in higher plants etc.

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