

**DIFFERENT SYSTEMS OF  
CLASSIFICATION OF CRUDE DRUGS**

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# CLASSIFICATION OF CRUDE DRUGS

- Plants,
- Animals,
- Microbes,
- Minerals,
- Marine organisms,

# IMPORTANCE OF CLASSIFICATION

- Identification
- Study of the individual drugs

Methods of classification

(a) Simple

(b) Easy to use

(c) Free from confusion and ambiguities.

1. Alphabetical classification

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2. Morphological classification

3. Taxonomic classification

4. Pharmacological classification

5. Chemical classification

6. Chemotaxonomical classification

# ALPHABETICAL CLASSIFICATION

- Simplest way of classification
- Crude drugs are arranged in alphabetical order
- Latin and English names (common names), local language names (vernacular names).

1. Indian Pharmacopoeia

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2. British Pharmacopoeia

3. British Herbal Pharmacopoeia

4. United States Pharmacopoeia and National  
Formulary

5. British Pharmaceutical Codex.

6. European Pharmacopoeia

# MERITS OF ALPHABETICAL CLASSIFICATION

- It is easy and quick to use
- No repetition of entries and is devoid of confusion.
- location, tracing and addition of drug entries is easy

# DEMERITS OF ALPHABETICAL CLASSIFICATION

- No relationship between previous and successive drug entries

**Examples: Acacia, Benzoin, Cinchona, Dill, Ergot, Fennel, Gentian, Hyoscyamus, Ipecacuanha, Jalap, Kurchi, Liquorice, Mints, Nuxvomica, Opium, Podophyllum, Quassia, Rauwolfia, Senna, Vasaka, Wool fat, Yellow bees wax, Zeodary.**



# Morphological Classification



## Organised Drugs

- Woods– Quassia, Sandalwood,
- Leaves– Digitalis, Senna,
- Barks– Cinchona, Cinnamon,
- Flowering parts– Clove, Pyrethrum,
- Fruits– Cardamom, Coriander, Fennel,
- Seeds– Ispaghula, Linseed, Nux vomica,
- Roots and Rhizomes– Rauwolfia, Ginger, Turmeric,
- Plants and Herbs– Ergot, Ephedra, Vinca, Datura,
- Hair and Fibres– Cotton, Jute, Silk,

## Unorganised Drugs

- Dried latex– Opium,
- Dried Juice– Aloe,
- Dried extracts– Agar, Pectin
- Waxes - Beeswax, Spermaceti,
- Gums – Acacia, Guar Gum, Tragacanth.
- Resins– Asafoetida, Benzoin, Colophony,
- Volatile oil–Sandalwood, Cinnamon, Lemon, Clove,
- Fixed oils and Fats– Castor, Chalmogra, Coconut,
- Animal Products – Bees wax, Cod-liver oil, Gelatin,
- Fossil organism and Minerals– Bentonite, Kaolin,

# DIFFERENCE BETWEEN ORGANIZED AND UNORGANIZED DRUGS

Organized Drugs	Unorganized Drugs
These may be of plant or animal origin.	These may be of plant, animal or mineral origin.
These are direct part of plant or animal.	These are the product of plant or animals.
These have cellular structure.	These do not have well defined cellular structure.
Generally identified by morphological character.	Generally identified by organoleptic properties.
Examples: Digitalis leaf, cinchona bark and ephedra stem.	Examples: Agar, gelatin, honey.

# MERITS OF MORPHOLOGICAL CLASSIFICATION

- Helpful to identify and detect adulteration.
- More convenient for practical study.
- when the chemical nature of the drug is not clearly understood.

# DEMERITS OF MORPHOLOGICAL CLASSIFICATION

- There is no co-relation of chemical constituents with the therapeutic actions.
- Repetition of drugs or plants occurs.

# TAXONOMICAL CLASSIFICATION

- It is purely a botanical classification.
- Crude drugs are grouped in Kingdom, phylum, order, family genus and species.

# Taxonomical Classification of Some Crude Drugs

Drugs	Family	Phyllum	Order
Opium	Papaveraceae	Papaverales	Angiosperms (Dicotyledons)
Coriander	Umbelliferae	Umbelliflorae	Angiosperms (Dicotyledons)
Ephedra	Ephedraceae	Genetales	Gymnosperms
Agar	Gelidiaceae	Gelidiales	Rhodophyta

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- **Merits:-** Taxonomical classification is helpful for studying evolutionary developments.
  - **Drawback:** This system also does not co-relate in between the chemical constituents and biological activity of the drugs.

# PHARMACOLOGICAL CLASSIFICATION

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- Grouping of drug according to their pharmacological action of the most important constituent or their therapeutic use.
- It is also termed as therapeutic classification.
- This classification is more relevant and is mostly followed method.



## Pharmacological Action

## Drugs

Anticancer

Vinca, Podophyllum, Taxus

Antiasthmatic

Ephedra, Lobelia

Anthelminthic

Male fern, Quassia wood

Antispasmodic

Datura, Hyoscyamus

Analgesic

Opium, Poppy

Bitter tonic

Quassia wood, Nux-vomica,

Carminatives

Coriander, fennel, clove,

Purgatives

Senna, Rhubarb

Cardiotonic

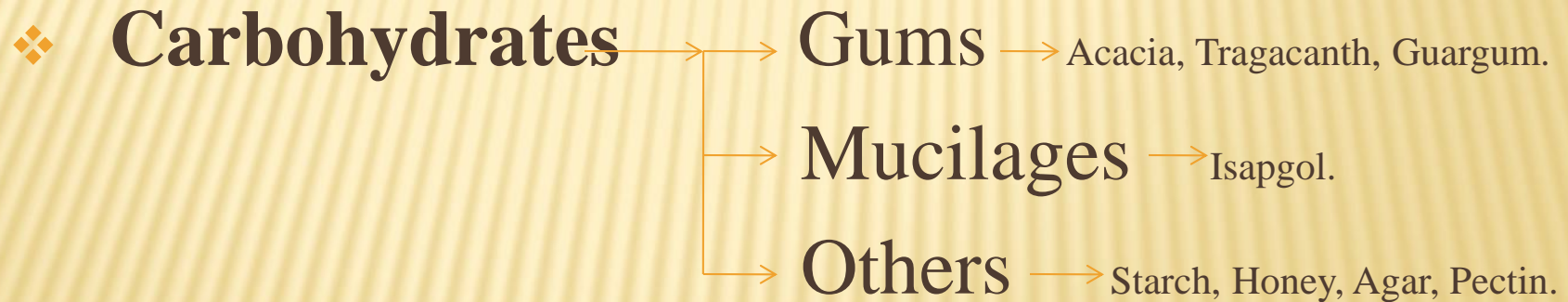
Digitalis, Squill, Strophanthus



# CHEMICAL CLASSIFICATION

➤ The crude drugs are classified based on their chemical nature of their most important constituent.

➤ Examples.



# ❖ Glycosides :

Anthraquinone Glycosides : Aloe, Rhubarb, Senna.

Saponins Glycosides : Arjuna, Glycyrrhiza.

Cyanophore Glycosides : Wild cherry bark.

Isothiocyanate Glycosides : Mustard.

Cardiac Glycosides : Digitalis, Strophanthus .

Bitter Glycosides : Quassia, Chirata, Kalmegh.

- ❖ **Tannins– Pale catechu, Black catechu.**
- ❖ **Resins–Colophony, Asafoetida, Ginger**
- ❖ **Alkaloids –**
  - ✓ **Pyridine and Piperidine – Lobelia, tobacco.**
  - ✓ **Tropane - Belladonna, Datura.**
  - ✓ **Quinoline – Cinchona**
  - ✓ **Isoquinoline – Opium, Ipecac.**
  - ✓ **Indole – Ergot, Rauwolfia.**
  - ✓ **Amines – Ephedra.**
  - ✓ **Purine – Tea, coffee.**
- **Merits : It is a popular approach for phytochemical studies .**
- **Demerits: Difficult to classify drugs which have complex chemical nature.**

# CHEMOTAXONOMIC CLASSIFICATION

- Chemical similarity of a taxon.
- Relationship between constituents and the species.
- Chemotaxonomy utilizes chemical facts for understanding the taxonomical status.
- Examples:
  - ❖ Tropane alkaloids ---- Solanaceae
  - ❖ Rutin ---- Rutaceae.