

Selection, Identification & Authentication of Herbal drugs

Selection of Herbal drugs:-

→ The plants are selected for research on any plant study must consider the following subheadings:-

* → Ethnobotany of plant

* → Ethnopharmacology of plant

Ethnobotany of plant :-

def:- Ethnobotany:- It is the scientific study of the traditional knowledge and culture of a people concerning plants and their medicinal, religious and other uses.

Ethnobotany ^{con} is the study of religious plants and their practical uses through the traditional knowledge of a local culture and people.

- Ethnobotanist is a person who documented the local customs involving the practical use of local flora for many aspects of life such as plants as medicine, food and clothing.

Ex:- Religious plants:- Peepal tree, tulsi

Bael tree leaves & Fruits, Coconut
Sandal wood, Neem etc,

② Ethnopharmacology - of plants

Ethnopharmacology - It is the scientific study of substance (plant extract) used as medicine especially folk remedy by different ethnics (or cultural groups).

- According to WHO - 20,000 plants species are used for medicinal purpose in various countries.
- out of them about 250 species are commonly used (or have been checked) for main active chemical compounds.
- Still so many plants and different species are remained, for which research evidence is required.
- Hence based on ethnobotanical and ethnopharmacological survey, we can select the plants.
- Based on Ethnobotanical and ethnopharmacological survey Herbal pharmacopoeia is prepared.
- While literature review we can use Herbal pharmacopoeia to select the plant.
- During selection of plant we must consider the type of plant (herb, shrub, tree etc), its collection, part of the plant, and geographical distribution.

Identification of Herbal drugs.

— The selected plant can be identified by following the systematic study of crude drugs.

— This study includes following steps—

systematic study of crude drugs—

- ① Origin, common name, scientific nomenclature and family.
- ② Geographical source and history
- ③ Cultivation, Collection, Preservation and Storage
- ④ Macroscopic, microscopical and sensory characters.
- ⑤ Chemical composition.
- ⑥ Identity, Purity, Strengths and assay
- ⑦ Substitutes & adulterants.

① Origin, Common name, Scientific nomenclature and family :-

origin — The native of the plant

Ex- ceylon cinnamon is native of ceylon (Srilanka)

Chinese cinnamon — china

Common name — Digitalis — fox glove leave

— cinnamon — true cinnamon

Vinca — Periwinkle

scientific nomenclature and family:-

ext Digitalis - Digitalis purpurea
family scrophulariaceae.

Rauwolfia - Rauwolfia serpentina
family - Apocynaceae.

② Geographical Source and history:-

Cinchona is widely ~~cultivated~~ in distributed in central America, Jamaica, France, South Atlantic, India etc.

History of cinchona:-

→ The history of the cinchona plant and the identification of the precise origin from South America known as Jesuit bark and Jesuit powder.

→ It is used to cure fever 1660 BC

→ The bark is mostly used in England and in Denmark by Thomas Bartholin

→ From 1730s it is used in the treatment of 1730s.

③ Cultivation, Collection, preparation and storage of cruel drug:-

→ Almost all the plant are must cultivate in suitable climatic conditions.

Ex:- Rhubarb -

Propagation - Obtained from wild source

- These are also cultivated by seeds or by rhizomes.
- Altitude - 3000m.
- Time of Propagation: Spring or autumn

Collection - collected from 6-7y old plants just before flowering season.

Storage - Dried by artificial drying and stored in wooden container.

④ Macroscopic, microscopic and ~~se~~ characters

Macroscopic characters - Sensory characters -

Colour - Buff yellow ^{Ex: Rhubarb}

Odour - Sharp & characteristic

Taste - Bitter astringent

Shape - Flat or Round pieces.

Size - 8-10 cm-L, 3-5 cm thickness

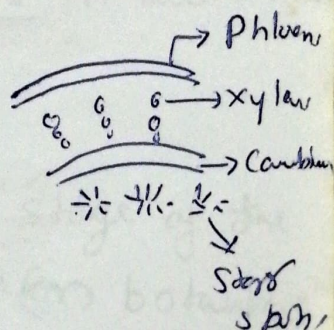
Microscopy -

- The T.S. shows cambium with xylem & phloem

- Non lignified vessels

- Reddish medullary rays.

- Pith containing star shaped spots.



③ Chemical Composition -

Rhubarb contains - Anthraquinone glycosides

→ Rhein, Aloe emodin, chrysophenol, emodin etc.

⑥ Identity purity strength & anay ✓

Identity → Identified by — **Rhubarb**

- ① Brown bagged's test
- ② Modified " "
- ③ Alkali " → drug + 5% KOH — Red
- ④ Ammonia " → drug + NH_3 → Blue

⑦ Substituent & Adulterant ✓

→ Substrate for Muc →

Beaver — Castor fiber

Civet — Viverra zibetha

Cassia —

Substituent — Bombay

Clove —

Cassia

Adulterant — Mother clove

Clove stalk

exhausted cloves

* Authentication of Herbal Drugs:-

→ Meaning of Authentication:-

Authentication is the process (or action) of proving (or showing) something to be true, genuine (or valid).

→ Herb authentication:-

Def:- Herb authentication is a quality assurance process that ensures the correct plant species and plant parts are used as raw materials for herbal medicines.

— The proper authentication of herbal raw materials is critically important to the safety and efficacy of herbal medicines.

Various Methods of authentication:-

① Application of chemometrics in authentication of Herbal medicines.

→ Authentication is the first stage of the identification of plant species (or botanical verification) by the currently accepted Latin binomial name and synonyms.

→ The steps involved in authentication are —

- ① Taxonomic studies,
- ② Macroscopic "
- ③ Microscopic "

① Taxonomic studies:-

Taxonomy is the science of systematic identifying, naming, arranging and classifying species into similar groups by using their gross morphology.

Thus, taxonomy is blend of identification, nomenclature and classification of herbal drugs.

② Macroscopic studies:-

It includes external features of the plant.
in Morphology

③ Microscopic studies:-

It includes anatomical features of the each plant part.

- Records should be maintained for ① stage of collection

② Part of the plant collected

③ Regional status

④ botanical identity such as -

① → phytomorphology

② → microscopical

③ → histological analysis

④ → Taxonomical identity.

→ Records are maintained by various botanical institutes like Botanical Survey of India, in the form of Herbarium. (A herbarium is a historical record of documenting of plant information)