

Evaluation of Crude Drugs

Presented by-

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Drug Evaluation

Drug evaluation means-

- Confirmation of its identity.
- Determination of its purity.
- Determination of its quality.
- Determination of nature of adulteration.

Need/Reasons for drug evaluation

Evaluation of crude drug is essential to check-

- Substitution/Adulteration.
- Biochemical variation.
- Deterioration.

Methods for evaluation

- Morphological/Organoleptic Evaluation.
- Microscopic Evaluation.
- Chemical Evaluation.
- Physical Evaluation.
- Biological Evaluation.

A] Morphological/Organoleptic Evaluation

Its a qualitative evaluation and drugs are evaluated by means of sensory features like colour, odour, taste, shape, size, texture, net content, volume.

B] Microscopic Evaluation

- This method enables detailed microscopic examination of organized crude drugs in their entire and powdered forms.
- Transverse sections (T.S.) are prepared for histological studies.
- Microscopic characters of plant part like cell wall, cell content, starch grains, lignin, Calcium oxalate crystals, fibres, vessels and trichomes can be studied.
- Micrometry.

- Microchemical tests-

S. N.	Cellular Constituent	Chemical used to Evaluate
1	Lignified tissue	Phloroglucinol + Conc. HCl (1:1)
2	Mucilage	Ruthenium Red
3	Starch grains	Dilute Iodine solution
4	Fixed oil/ Vol. oil	Sudan Red
5	Aleuron grains	Alcoholic picric acid

Quantitative microscopy

Leaf constants-

- Stomatal no.
- Stomatal index
- Palisade ratio
- Vein islet no.
- Vein termination no.

Lycopodium spore method.

C] Physical Evaluation

- Physical characteristics of crude drugs are evaluated like-
- Moisture content
- Viscosity
- Melting point
- Solubility
- Optical Rotation
- Refractive Index
- Ash values
- Extractive values
- Swelling index
- Volatile oil content
- Foreign organic matter

D] Chemical Evaluation

- The estimation of active constituents by chemical process is termed as chemical evaluation.
- Chemical evaluation is done by following two methods-
 - i) Chemical tests-Qualitative and Quantitative test (Preliminary phytochemical screening).
 - ii) Chemical assay-Estimation of particular group of constituents, (Titrimetry/ Gravimetry).

E) Biological Evaluation

- It confirms the therapeutic activity of raw material and finished products.
- When potency of drug is estimated by measuring its effect on living organisms like bacteria, animal tissue/entire animal it is termed as **Bioassay**.

Following methods are used for biological evaluation-

1. Antipyretic activity
2. Anti-inflammatory activity
3. Hypoglycemic activity
4. Antiulcer activity
5. Analgesic activity
6. Analgesic activity
7. Microbiological assay
8. Cardiac activity
9. Anthelmintic activity



THANK YOU