EVALUATION OF CRUDE DRUGS

Disclaimer

All the content material provided here is only for teaching purpose.

Drug evaluation may be defined as the determination of identity, purity and quality of a drug.

- Identity – identification of biological source of the drug.
- Quality – the quantity of the active constituents present.
- Purity – the extent of foreign organic material present in a crude drug.

- **Importance of evaluation of crude drugs:**
- Determination of Biochemical variation in the drugs
- Identification of deterioration due treatment and storage
- Repoting Substitution and adulteration, as result of carelessness, ignorance and fraud

METHODS OF DRUG EVALUATION

The evaluation of a drug is drug done by studying its various properties.

The various properties are:

(1) **Organoleptic evaluation**

(2) **Microscopic evaluation**

(3) **Physical evaluation**

(4) **Chemical evaluation**

(5) **Analytical evaluation**

(6) **Biological evaluation**

1.Organoleptic (Morphological) Evaluation

- This refers to drug evaluation by means of organs of sense and includes other sensory organs like color, odour, taste ,size ,shape and texture.
- It includes the study of morphology and other sensory characters.

S.NO:	CHARACHTER	DRUG EXAMPLE
1	Brown **colour**	Cinnamon
2	Aromatic **odour**	Umbelliferous fruits
3	Sweet **taste**	Liquorice
4	Fractured **surface**	Cinchona
5	Wavy **shape**	Rauwolifia
6	7 to 8mm width 25 to 60 mm length (**size**)	Senna leaf

(a) Study of Morphology

- It includes the visual examination of drug.

S.NO	PART OF DRUG	EXAPLE
1	BARK	KURCHI
2	UNDERGROUND	TURMERIC,ZINGER
3	LEAVES	DIGITALIS
4	FLOWERS	SAFFRON
5	FRUITS	FENNEL
6	SEEDS	NUX-VOMICA
7	RESIN	ASAFOETIDA
8	WOOD	SANDAL WOOD
9	GUMS	ACACIA
10	ENTIRE DRUG	ERGOT

1- Shape and size.

Flowers:

Floral parts: stigmas, corollas, anther, ovary, receptacle.

Leaves and leaflets:

Length, width, apex, margin, base, venation,
the texture of the leaf and the hairs in upper and lower surface.
The feel of the surface described as soft, hairy smooth.

Bark:

The barks occur in three shapes:

- Flat or curved pieces.
- Single quill.
- Double quills.

ii- Barks have two surfaces, an outer and inner.

iii- The inner surface is usually lighter in color than the outer surface

2- Odor and taste.

Odor:

1- distinct 2- indistinct

aromatic-balsamic,- spicy

Taste:

1) Acidic (sour)
2) Saccharine (sweet): indicates sugar or sugar like substances
3) e.g., liquorice.
4) Saline (salty)
5) Alkaline
6) Bitter: indicates presence of substances such as bitter principle
7) e.g., glycoside, alkaloids.
8) Tasteless
9) Distinctive sensations to the tongue

I. Mucilaginous and oily (soft feeling) e.g., linseed.

II. Astringent indicates presence of tannin.

III. Pungent (warm biting sensation) e.g., ginger.

IV. Acrid (irritant sensation) e.g., Aconite, coca.

V. Nauseous (those tending to excite vomiting), Ipecac.

The percentage purity of an authentic ginger powder calculated as follows

$$\frac{N \times W \times 94{,}000 \times 100}{S \times M \times P} = \%\ \text{Purity of drug}$$

N= NUMBER OF CHARACTERISTIC STRUCTURES(STRACH GRAINS) IN 26 FIELDS

W=WEIGHT IN mg OF LYCOPOSIUM TAKEN

S=NUMBER OF LYCOPODIUM SPORES IN THE SAME 25 FIELDS

M=WEIGHT IN mg OF SAMPLE CALCULATED ON BASIS OF DRIED SAMPLE AT 105 C

P=2,86,000 IN CASSE OF GINGER STARCH GRAIN POWDER

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