

UNIT-7

PHARMACOGNOSY

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Pharmacognosy

- Pharmacognosy is derived from two Greek words, *Pharmakon* & *Gnosis*
- **Pharmakon** – means ‘drug’.
- **Gnosis** – means ‘knowledge’.
- In brief, Pharmacognosy means ‘knowledge of drugs’.
- It is a study of drugs that originate in the **plant & animal kingdoms**.

Pharmacognosy is a branch of pharmacy which deals with the basic resources of medicines from nature (plant & animal) and their uses as medicaments from ancient time to present day.

Pharmacognosy

Pharmacognosy may be defined as an important branch of Pharmacy which deals with the study of structural, physical, chemical, biochemical and sensory characters of natural drugs of plant and animal origin. It also includes a study of their history, distribution, cultivation, collection, identification, preparation, evaluation, preservation, use and commerce.

- At present pharmacognosy involves not only the **crude drugs but also their natural derivatives** (pure compounds or constituents).
- **Digitalis leaf** and its isolated glycoside, **digitoxin**; **Rauwolfia root** and its purified alkaloid, **reserpine**; and **thyroid gland** with its extracted hormone, **thyroxine**, are all part of the subject matter of pharmacognosy.

Drug

Standard dictionaries define drug as “an original, simple medicinal substance, organic or inorganic, used by itself or as an ingredient in medicine”.

According to WHO's definition – “any substance used in a pharmaceutical product that is intended to modify or explore physiological systems or pathological states for the benefit of the recipient”.

Pharmaceutical product/Medicine means “a dosage form (tablet/capsule/syrup/IV/IM) containing one or more drugs along with other substances included during the manufacturing process”.

Application of Drug

- **Prevention of a disease** : for example, **vaccine**.
- **Fight against an infection**: for example, **antibiotics**.
- **Temporary blocking of a normal function**: for example, **general & local anesthetics**
- **Detoxification of the body**: for example, **antidotes**.
- **Diagnostic agents**: for example, **radioisotopes**.
- **Correction of dysfunction**: for example, **cardiotonics** (eg, **digoxin**) for the treatment of congestive heart failure.
- **Correction of hyperfunction**: for example, **Rauwolfia root** (eg., **reserpine**) for the treatment of hypertension.

Crude Drug:

The term “Crude”, as used in relation to natural products.

A crude drug is a natural drug of plant or animal origin which has undergone no treatment other than collection and drying, that is, the quality or appearance of the drug has not been advanced in value or improved in condition by any physical or chemical treatment.

For example: Digitalis leaf, Rauwolfia root etc.

Important active constituents of plants used in medicine

Active constituents	Plants	Pharmacological activity
Morphine, Codeine, Papaverine	<i>Papaver somniferum</i> L.	Sedative, smooth muscle relaxant
Quinine, Quinidine	<i>Cinchona</i> sp.	Antimalarial, antiarrhythmic
Hyoscine, Atropine	<i>Datura</i> sp.,	Parasympatholytic
Digitoxin, Digoxin	<i>Digitalis lanata</i>	Cardiotonic
Reserpine, Rescinamine	<i>Rauwolfia</i> sp.	Hypotensive, vasodialator
Vincristine, Vinblastin	<i>Catharanthus roseus</i>	Anticancer

Important active constituents of plants used in medicine

Active constituents	Plants	Pharmacological activity
Caffeine	<i>Camellia sinensis</i>	CNS stimulant
Cocaine	<i>Erythroxylum coca</i>	Anaesthetic
Ephedrine	<i>Ephedra sp.</i>	Sympathomimetic
Pilocarpine	<i>Pilocarpus jaborandi</i>	Parasympathomimetic
Ergometrine	<i>Claviceps purpurea</i>	Oxytocic
Ergotamine		Vasoconstrictor
Ergotoxine		Vasodialator

Important active constituents of plants used in medicine

Active constituents	Plants	Pharmacological activity
Psyllium mucilage	<i>Plantago ovata</i>	Laxative
Sennosides	<i>Cassia angustifolia</i>	Laxative
Theophylline	<i>Coffea arabica</i>	CNS stimulant Diuretic
Steroid hormones	<i>Solanum sp.</i>	Anti-inflammatory, antiarthriytic

1. TULSI



- Blood purifier
- Preventive against malaria & dengue fever
- Chewing tulsi leaves relieves cold & flu
- Chewing 12 leaves of basil, twice a day prevent stress.
- The leaves are a nerve tonic & also sharpen memory.
- decoction of the leaves + honey + ginger = effective remedy for bronchitis, asthma, influenza, cough and cold
- juice of basil leaves + honey (if taken regularly for 6 months) → expel renal stone via the urinary tract.



2. NEEM

- Neem inhibits allergic reactions when applied externally or eaten.
- Oral doses of neem leaf extracts
- reduced insulin requirements by between 30% and 50% for diabetes.
- Neem extracts give significant protection from discomfort and speed the healing of gastric problems
- Neem quickly kills external parasites and a neem decoction is safer and just as effective as standard treatments for head lice and scabies. .



3. ALOE-VERA (Gritkumari)

- green leaves contain aloe gel and a sticky yellow residue called latex.
- Burn healing
- Wound healing
- Treat Sunburn
- Radiation-induced skin reactions
- Aloe with conditioner for silkier, smoother hair.
- Take orally to reduce cholesterol and triglycerides for a healthy heart.



4. Bhringaraj

- the main herb for the hair care and cirrhosis
- works to rejuvenate kidneys and liver. As oil, it treats graying and balding, makes the hair darker, and promotes deep sleep. It also improves complexion.
- the root powder is used for treating hepatitis, enlarged spleen and skin disorders
- anti-inflammatory properties, the herb is also used for treating hyperacidity.





5. TURMERIC



- stimulate digestion
- boost liver function
- Curcumin a means of reducing breast cancer risk among women
- When paired with vitamin D, curcumin may help protect against Alzheimer's disease
- curcumin can protect against liver damage.



6. GINGER

- stomach-soothing effects
- easing post-surgery nausea and vomiting
- Sipping ginger tea can help calm an upset stomach, as well as ease congestion if you've got a cold.
- ginger extract may slow the growth of colorectal and ovarian cancer cells,
- useful in treating chronic inflammation because it partially inhibits two important enzymes that play a role in inflammation gone awry -- cyclooxygenase (COX) and 5-lipoxygenase (LOX).





7. AMLA



- To stimulate appetite (Use pickles and preserves made from the green fruits)
- For hemorrhage, diarrhea and dysentery
- Seed fried in ghee and ground in conjee is applied as Lep to the forehead to stop bleeding from the nose.
- For hiccup and for painful respiration
Use juice or extract of the fruit combined with honey and pipli
- Due to vitamin C and polyphenols, is a antioxidant.
- Benefits heart, eyes, and brain

Conclusion

- **Medicinal herbs** can be a good alternative for many diseases and conditions. They are low cost, and tend to have fewer side effects. Moreover, they can be bought in health food shops, pharmacies and on-line without the need for a prescription. However, herbal medicines can still have unwanted health effects, especially when used in combination with other drugs. If you are using more than one herbal medicine, or using them for a serious condition, it's best to consult with a naturopath or established herbalist. It's also important to tell your physician that you are using an alternative medicine to prevent drug interaction.

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THANK YOU

