

GOEL INSTITUTE OF PHARMACY AND SCIENCES, LUCKNOW
D PHARMA Ist YEAR
PHARMACOGNOSY NOTES
UNIT-1
INTRODUCTION TO PHARMACOGNOSY

The term comes from greek words “*Pharmakon*” meaning *drug or medicines*, & “*Gnosis*” meaning *Knowledge*.

Pharmacognosy is the study of the physical, chemical, biochemical & biological properties of drugs, drug substances of natural origin as well as the search for new drugs from natural sources.

Pharmacognosy is the study of medicinal uses of various naturally occurring drugs & its history, sources, distributions, method of cultivation, active constituents, medicinal uses, identification test, preservation methods, substituent & adulterants. Plant preparation are said to be medicinal or herbal when they are used to promote health beyond basic nutrition.

The study of drugs from plants includes the subjects of botany, chemistry & pharmacology. Botany includes the identification (taxonomy), genetics & cultivation of plants. Chemical characterization includes the isolation, identification & quantification of constituents in plant materials.

Pharmacology is the study of biological effects that the chemicals in medicinal plants have on cell cultures, animals & humans practical perspectives as follows.

- Quality control (identity, purity, consistency).
- Efficacy (therapeutic & pharmacological indications).
- Safety (adverse reactions, drug interactions, contraindications, precaution).

CRUDE DRUGS:- Crude drugs are the drugs, which are obtained from natural sources like plants, animals, minerals, marine, micro-organisms & they are used such as they occur in nature without any processing except drying & size reduction.

HISTORY OF PHARMACOGNOSY:- Drug discovery from natural products have played & continue to play an individual role as sources of drugs or lead

compounds in the *prophylaxis* & treatment of diseases. Plants, especially those with pharmacological uses have been the primary sources of medicine & have an advantages over other sources in drug discovery for various reasons.

Pharmacognosy has been coined by the merger of two greek words. *Pharmakon* means *drug* & *Gnosis* means *knowledge* i.e. the *knowledge of drugs*. The nomenclature “Pharmacognosy was used first & foremost by *C.A. Seydler*. In about 77 AD, *Dioscorides*, a greek doctor, kept a record of about 600 kinds of crude drugs in his completed book *DE Materia Medica*, a book that has played an important role in Pharmacology & botany.

In *1815*, *C.A. Seydler*, a german who used the word “*Pharmacognosie*” in his book named *Analecta Pharmacognostica* was referred to as *the father of pharmacognosy*.

WORK OF GALEN:- Galen was Greek pharmacist, he worked on *extraction* of *chemical constituent* from the plants. He developed various method of extraction therefore the branch of pharmacy which deals with extraction of chemical constituent from plants & animals is called as *Galenical pharmacy*.

HIPPOCRATES:- Before the birth of Jesus. He was Greek scientist, he worked on *Human Anatomy & Physiology* particularly on *circulatory system & nervous system*. He prepared famous Oath for physicians, which is still taken taken by the physicians. He is known as father *of medicine*.

INDIAN HISTORY OF PHARMACOGNOSY:- It is about *5500 years old*, in the *Suktas of Rigveda & Atharwaveda* medicinal property of plant is given. There are several medicinal plants, which are given with there use. The old *Ayurveda* books, *Charak samhita & Sushrutsamhita* described many medicinal plants.

SCOPE OF PHARMACOGNOSY:-

- (1)Pharmacognosy gives a sound knowledge of the vegetable drugs under zoology.
- (2)It also includes *plant taxonomy, Plant breeding, Plant pathology, Plant genetics* & by this knowledge one can improve the cultivation methods for both *medicinal & aromatic plants*.

(3) Now a days phytochemistry (Plant chemistry) has undergone the significant improvements.

(4) This includes a variety of substances that are accumulated by plants synthesized by plants.

DEVELOPMENT OF PHARMACOGNOSY:- Modern pharmacognosy occurred during 1934-1960. This development was mainly due to some events like:

- Discovery of *Penicillin* in **1928**.
- Isolation of *Reserpine* **1952**.
- Anticancer properties of *vinca rosea*.
- Discovery of *Dioscorea* was utilized to prepare semi-synthetic steroidal hormone. Pharmacognosy is an applied science. It played a crucial role in the development of different disciplines of science. Pharmacognosy is an important link between *pharmacology* & *medicinal chemistry*. Natural products got more & more therapeutic importance with development links:
 - Isolation of therapeutically active constituents.
 - Their identification & structure elucidation.
 - There is a close link between structure & pharmacological action.

Natural products served the purpose of precursor for synthesis of several medicinally important compounds. Some isolated components from plants were made into different formulations & used as drugs. Biosynthesis of *primary* & *secondary metabolites* were presented before the world. Invention of *microscopy* & different chemical reagent. Knowledge of *plant taxonomy, plant breeding, plant pathology, plant genetics*. Its helpful in the development of cultivation technology for medicinal & aromatic plants.