History and Scope of Pharmacognosy

- 1. **Pharmacognosy:** Pharmacognosy is defined as a systematic and scientific study of structural, physical, chemical and biological characters of crude drugs including the study of their history, cultivation, collection and preparation for market.
- 2. Laxatives/purgatives: The drugs which promote defaecation are called laxatives, e.g. castor oil, senna, rhubarb, aloes, ispaghula.
- 3. Cardiotonics: The drugs which increase the force of cardiac muscles and stimulate the activity of heart are called cardiotonics, e.g. digitalis, arjuna.
- 4. **Carminatives:** The drugs which expel the gases from GIT by increasing peristalsis are called carminatives, e.g. fennel, coriander, cardamom, ginger, clove, cinnamon.
- 5. Astringents: The drugs which cause precipitation of superficial proteins are called astringents, e.g. black catechu, pale catechu.
- 6. **Analeptics:** The drugs which stimulate the central nervous system are known as analeptics or CNS stimulant, e.g. nux vomica, lobeline.
- 7. **Antihypertensives:** The drugs which reduce elevated blood pressure to the normal level are called antihypertensive, e.g. rauwolfia.
- 8. **Antitussives:** The drugs which are used in the treatment of cough are called antitussives/anticough agents, e.g. vasaka, tulsi, tolu balsam.
- 9. Antirheumatics: The drugs which are used in the treatment of rheumatism are called antirheumatics, e.g. guggul, colchicum.
- 10. Antitumor/anticancer agents: The drugs which are used in the treatment of cancer are called anticancer agents/drugs, e.g. vinca.

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- 11. **Antileprotics:** The drugs which are used in the treatment of leprosy are called antileprotic drugs, e.g. chaulmoogra oil.
- 12. Antidiabetics/hypoglycemic agents: The drugs which are used in the treatment of diabetes mellitus are known as antidiabetic drugs, e.g. gymnema, pterocaprus.
- 13. **Diuretics:** The drugs which increase the formation and excretion of urine are called diuretics, e.g. gokharu, punarnava.
- 14. **Antiseptics:** The drugs which kill the microbes when applied to living tissues are called antiseptics, e.g. benzoin, neem, myrrh, curcuma, turmeric.
- 15. **Disinfectants:** The drugs which kill the bacteria and their spore when applied to nonliving tissue are called disinfectants, e.g. benzoin, myrrh, neem, curcuma, turmeric.
- 16. **Antimalarials:** The drugs which are used in the treatment of malaria are called antimalarial agents, e.g. cinchona.
- 17. **Oxytocics/Ecbolics:** The drugs which stimulate the uterine contraction and expel the contents of uterus are called oxytocics, e.g. ergot.
- 18. **Vitamin:** Vitamins are organic substances present in small amounts in natural foodstuffs and are essential for growth of body and normal metabolism, e.g. shark liver oil (vitamin A), amla (vitamin C).
- 19. **Enzymes:** Enzymes are the protein substances which catalyse various biochemical reactions, e.g. papain, diastase, yeast.
- 20. **Perfumes:** These are the substances made from natural or synthetic materials which are used for creating a pleasant odour, e.g. rose, jasmine, sandalwood, citronella.
- 21. **Flavouring agents:** These are the agents used to give a pleasant flavour to the formulation, e.g. peppermint oil, lemon oil, orange oil, lemon grass oil.
- 22. **Pharmaceutical aids:** The substances which are of a little or no therapeutic value but are essentially used in the manufacture of or compounding of various pharmaceutical products are known as pharmaceutical aids, e.g. honey, starch, acacia, gelatin.
- 23. Crude drug: It means the drugs occurring in natural forms.
- 24. **Source of crude drug:** Crude drugs are obtained from plant, animals or minerals which are known as source of crude drugs.

- 25. **Organised drugs:** The drugs which have a definite cellular structures are called organised drugs, e.g. fennel, cinchona.
- 26. Unorganised drugs: The drugs which do not show a definite cellular structure are called unorganised drugs, e.g. acacia, tragacanth.
- 27. **Aphrodisiac:** The agents which stimulate the sexual desire are called aphrodisiacs, e.g. gokharu.
- 28. **Technical products:** The drugs from natural sources which are used in the industries like food industries are called technical products, e.g. ginger, cardamom, caraway.
- 29. **Technical use:** The use of drug other than pharmacological use is called technical use.
- 30. **Substitute:** Substitutes are the drugs having less percentage of active constituents and are added to the genuine drug.
- 31. Adulterants: Adulterants are the substances purposefully added in original drug to increase profit in marketing and they look similar to original drug but do not contain any active chemical constituent.
- 32. Barks: Barks are the external tissues of stem.
- 33. **Fracture:** The transverse broken surface of the bark is known as fracture.
- 34. **Balsams:** The oleoresins which contain benzoic acid or cinnamic acids are termed balsams, e.g. balsam of Tolu, balsam of Peru, storax, benzoin.
- 35. **Sialogogue:** The drugs which increase the secretion of saliva are called sialogogue, e.g. tobacco.
- 36. **Galactogogue:** The drug which increases the secretion of milk are called galactogogue, e.g. shatavari.
- 37. **Cholagogue:** The drug which increases secretion of bile, e.g. turmeric.
- 38. **Hydrogogue:** The drugs which promote watery evacuation of the bowel are called hydrogogue, e.g. jalap, calomel.
- 39. **Emmenagogue:** The substances which stimulate the menstrual flow are called emmenagogue.
- 40. **Stomachics:** The substances which increase the secretion of gastric juice and the functional activity of stomach are called stomachics, e.g. dill, fennel, coriander, gentian.

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Q 1. How following scientists contributed in development of pharmacognosy?

1. Galen (S.22, 23)

- He was a Greek scientist.
- He found method of extraction.
- He developed "galenical pharmacy".
- Galenicals prepared are decoction, infusion.

2. Seydler (S.23, 24, W.22, 23)

- Seydler coined the term pharmacognosy
- He was a German scientist.
- He wrote the book *Pharmacognostica Gignostica*.
- When he was a student, he published his thesis on "Sarspirella". The title of this thesis was "Analecta Pharmacognostica".
- He introduced the term "pharmacognosy" from two words:
- 'Pharmakon' means a drug
- 'Gnosis' means knowledge of.
- He explained the term "knowledge of drugs".

3. Dioscoride (S.23)

- He was a Greek physician.
- He described several plants of medicinal importance.
- His book is *De Materia Medica*.
- *Materia medica* is the text in which all natural products utilized by physicians were compiled together to form materia medica giving their detailed information.

4. Hippocrates

- He was a Greek physician.
- He is known as "Father of Medicine".
- He has contributed to pharmacognosy by his study on "anatomy and physiology of human beings".

5. Aristotle

- He was a Greek philosopher.
- He explained his theory as the "Origin of Universe", the sun and earth.
- He studied the animal kingdom.
- He suggested the principle of classification of animals.

6. Sushruta

- He was an Indian surgeon and physician.
- He knew about 1500 drugs.
- He used to operate GIT.
- His collection is named "Sushruta Samhita".

7. Charak

- He was an Indian physician.
- He knew about 700 drugs.
- The drugs were obtained from plants and minerals.
- His collection is named "Charak Samhita."

| Scientists | | Contribution |
|------------|------------|---|
| i. | Galen | Extraction method |
| ii. | Seydler | "Pharmacognostica Gignostica" |
| iii. | Dioscoride | "De Materia Medica" |
| iv. | Hippocrate | "Father of Medicine" |
| v. | Aristotle | "Animal kingdom"/classification of animals. |

Q 2. Give the scope of pharmacognosy. Explain history of pharmacognosy.

Scope of Pharmacognosy

- To provide knowledge of the natural plant and animal drugs.
- To provide knowledge of active constituents of drugs.
- To understand identification, extraction, purification, standardization and formulation of drugs.
- To find out adulteration in the drugs.
- Knowledge of pharmacognosy is useful in production of spices, cereals, paper, fabrics, paints, and also Bakery productions.

History of Pharmacognosy

- In Papyrus Ebers, an old documents, written in 1500 BC, Egyptions were aware of medicinal uses of several plants and animals and human anatomy also.
- The great Greek physician "Hippocrates" known as "Father of Medicine" studied the human anatomy and physiology.
- Aristotle, philosopher, is well known for his studies on "animal kingdom".

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- Theophrastus is well known for study on "plant kingdom".
- Dioscoride, a Greek physician, described several plants of medicinal importance in "De Materia Medica".
- Galen, a Greek scientist, described the method of extraction of active constituent of crude drugs.
- Seydler, a German scientist, coined the term pharmacognosy in 1815 in his work entitled "Analecta Pharmacognostica".

Q3. Write a note on "present status and future prospects of pharmacognosy."

- Pharmacognosy is concerned with the study of crude drugs of vegetable and animal origins.
- Plants are still a potent source of therapeutic agents.
- Now the people have realized the utility of drugs from natural origin which are not only economical but also very safer too and also easily available.
- All over the world the demand of herbal drug is increased tremendously.
- About 80% of the world population depends on crude drugs.
- Medicinal plants are of great value in the field of treatment and cure of diseases.
- It has been universally accepted fact that the plant drugs and remedies are found more safer than synthetic medicines for curing most of the complex diseases.
- In western world, as people are becoming aware of the potency and side effect of the synthetic drugs. Thus there is an increasing interest in the plant-based remedies with a basic approach towards nature.
- Active constituents from plant sources have lead to rapid developments in pharmacognosy and phytochemistry.
- Modern pharmacognosy has been developed rapidly due to the improvement made in the technology of isolation processes such as column, paper, thin layer, gas-liquid chromatographic procedures.
- Availability of modern state-of-the-art facility like structure determination and pharmacological screening helps to improve status of pharmacognosy.
- Rapid developments in the field of chemistry, biochemistry and pharmacology have further supported advancements in pharmacognosy.

OBJECTIVE QUESTIONS WITH ANSWERS IN BOLD LETTERS

- 1. The pharmacognosy is explained in the book Analecta Pharmacognostica.
- 2. "De Materia Medica" was written by Dioscorides.
- 3. Pharmakon means drug and gnosis means knowledge.
- 4. The word "Pharmacognosy" is derived from two Greek words **Pharmacon and Gignosco**.
- 5. The term Pharmacognosy is coined by scientist Seydler.
- 6. The scientist Aristotle suggested the principle of **classification of animal/study of animal kingdom**.
- 7. Seydler published his thesis on sarsaparilla when he was student.
- 8. Shushrut is the **Father of Surgery**.
- 9. Galen developed Galenical Pharmacy.
- 10. The word Ayurveda means Science of life.
- 11. **Hippocrates** is the Father of Medicine.
- 12. Galen has found the **methods of Extraction**.
- 13. Seydler wrote the book Analecta Pharmacognostica.
- 14. Homoeopathic system is developed in 18th Century.
- 15. Charaka is known as the Father of Ayurveda.