

## **SCOPE OF PHARMACOGNOSY**

Crude drugs of natural origin that is obtained from plants, animals and mineral sources and their active chemical constituents are the core subject matter of pharmacognosy. These are also used for the treatment of various diseases besides being used in cosmetic, textile and food industries. During the first half of the nineteenth century apothecaries stocked the crude drugs for the preparation of herbal tea mixtures, all kinds of tinctures, extracts and juices which in turn were employed in preparing medicinal drops, syrups, infusions, ointments and liniments.

## **FUTURE OF PHARMACOGNOSY**

- Medicinal plants are of great value in the field of treatment and cure of disease. Over the years, scientific research has expanded our knowledge of the chemical effects and composition of the active constituents, which determine the medicinal properties of the plants.
- It has now been universally accepted fact that the plant drugs and remedies are far safer than that of synthetic medicines for curing the complex diseases like cancer and AIDS.
- Enormous number of alkaloids, glycosides and antibiotics have been isolated, identified and used as curative agents.
- The modern developments in the instrumental techniques of analysis and chromatographical methodologies have added numerous complex and rare natural products to the armoury of phytomedicine. To mention a few, artemisinin as antimalarial, taxol as anticancer, forskolin as antihypertensive, rutin as vitamin P and capillary permeability factor and piperine as bioavailability enhancer are the recent developments.

Natural products have also been used as drug substitutes for the semisynthesis of many potent drugs. Ergotamine for dihydroergotamine in the treatment of migraine, podophyllotoxin for etoposide, a potent antineoplastic drug or solasodine and diosgenin that serve for the synthetic steroidal hormones are the first-line examples of the recent days.

In the Western world, as the people are becoming aware of the potency and side effects of synthetic drugs, there is an increasing interest in the plant-based remedies with a basic approach towards the nature. The future developments of pharmacognosy as well as herbal drug industry would be largely dependent upon the reliable methodologies for identification of marker compounds of the extracts and also upon the standardization and quality control of these extracts. It largely depends upon the forthcoming generations of pharmacognosists and phytochemists to explore the wonder drug molecules from this unexploited wealth.

## **PHARMACOGNOSTICAL SCHEME**

### **Biological Source**

This includes the biological names of plants or animals yielding the drug and family to which it belongs. Botanical name includes genus and species. Often some abbreviations are written after the botanical names, of the biologist responsible for the classification, for example, *Acacia Arabica* Willd. Here Willd indicates the botanist responsible for the classification or nomenclature. According to the biennial theory, the botanical name of any plant or animal is always written in italic form, and the first letter of a genus always appears in a capital later.

Biological source also includes the family and the part of the drug used. For example, biological source of senna is, Senna consists of dried leaflets of *Cassia angustifolia* Delite, belonging to family Leguminosae.

### **Geographical Source**

It includes the areas of cultivation, collection and route of transport of a drug.

### **Cultivation, Collection and Preparation**

These are important to mention as these are responsible for quality of a drug.

### **Morphological Characters**

In case of organized drugs, the length, breadth, thickness, surface, colour, odour, taste, shape, etc. are covered under the heading morphological characters, whereas organoleptic properties (colour, odour, taste and surface) should be mentioned, if the drug is unorganized.

### **Microscopical Characters**

This is one of the important aspects of pharmacognosy as it helps in establishing the correct identity of a drug. Under this heading all the detailed microscopical characters of a drug is described.

### **Chemical Constituents**

It is the most important aspect which determines the intrinsic value of a drug. It includes the chemical constituents present in the drug. These kinds of drugs are physiologically active.

### **Uses**

It includes the pharmaceutical, pharmacological and biological activity of drugs or the diseases in which it is effective.

### **Substituents**

The drug which is used during non-availability of original drug is known as substituent. It has the same type of physiological active constituents; however, the percentage quantity of the drug available may be different.

### **Adulterants**

With the knowledge of the diagnostic characters of drugs, the adulterants can be detected. One should have the critical knowledge of substances known to be potential adulterants. Most of the times the adulterants are completely devoid of physiologically active constituents, which leads in the deterioration of the quality. For example, mixing of buffalo milk with goat milk is substitution, whereas mixing of water in the milk is adulteration. In the first case, goat milk is substitute and in the second case water is adulterant.

### **Chemical Tests**

The knowledge of chemical tests becomes more important in case of unorganized drugs whose morphology is not well defined.