

FORMS OF BOTANICALS

Large numbers of botanicals are being used in healthcare both for preventive as well as curative purpose. Botanicals are known as Herbals, Naturals, Nutraceuticals, Functional foods, Phytopharmaceuticals, Cosmeceuticals, Traditional medicines, etc. The use of indigenous drugs from plant origin forms a major part of complementary and alternative medicine/traditional medicine (CAM/TM). With the advent of new segments such as functional foods and cosmeceutical, the market for herbs and botanicals has changed significantly over the past decade.

Unlike, Pharmaceuticals, herbals/botanicals are used in various forms i.e. Fresh drug, Crude drug, Powdered crude drugs, Extracts, Standardized extracts, Extracts rich in phytoconstituents, Phytoconstituents, juices, etc. besides this the formulations which are made from herbals are either Monoherbal (Single ingredient), Polyherbal (Multi ingredients).

During earlier times, traditional medical practioners (Ayurvedic Vaidyas) were using mainly **fresh drugs** to dispense or formulate, to satisfy the medical need of the people in near vicinity. However, being of plant origin and most of them being seasonal it was not possible to make it available throughout the year, moreover to satisfy the growing needs of the masses, concept of **dried herbal drugs (crude drugs)** was explored. Today, dried crude drugs are extensively being used for consumption as well as for trade purpose, though small amount of fresh drugs are also being used.

Powdered crude drugs form provides certain advantages in terms of transportation (reducing the bulk) as well as ease of use. Certain formulations, like *churnas* are made from powdered crude drugs either single herb or simply by mixing powder of two or more drugs. Readymade powdered crude drugs also save comminution operation necessary prior to extraction.

Botanical extracts, wherein the crude drugs were extracted using aqueous media or solvents alone or in combinations. In majority of the cases the dose of crude herbal drugs is large and would pose a problem of accommodating appropriate amount in the dosage forms. Extracts by virtue of being more potent and stable has considerably eased this problem. Moreover, it also provided the ease of blending

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two or more ingredients in the formulation. Availability of readymade extracts has helped immensely to grow the formulator sector and eventually herbal sector. However, in the absence of any regulation on extraction industry there were considerable variations in terms of constituents present in the same product being produced from different manufacturers. Moreover the drugs to extracts ratio or equivalent were not matching with the chemical constituents.

This has necessitated the demand for **standardized extracts** in which extracts are standardized with the help of particular marker/biomarker. Since the herbals or herbal medicinal products in its entirety are regarded as the active substance, a content of marker/biomarker alone will not suffice. The concept of standardized extracts is based on the assumption that content of particular marker/biomarker is directly related to the proportional content of the other unknown constituents present in the plant. In some cases it was observed that the activity of the plant material is due to particular constituent (e.g. anti-obesity activity of coleus root is due to the presence of forskolin and *Garcinia cambogia* fruit due to hydroxy citric acid or HCA) this has led to the development of preparation of **extracts enriched with particular phytoconstituents** e.g. Coleus extract with 5 % or 10 % forskolin, Garcinia extract with 50 % HCA, etc. However, in few cases **phytoconstituents** like Curcuminoids (more than 95 purity), Calcium sennoside 95 %, Piperine, alone are found to be having beneficial effect. This development from fresh drug to phytoconstituents to a great extent was possible due to the concurrent advancement which took place in the field of extraction technology and instrumental method of analysis.

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