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Phytochemistry and Phytoconstituents of Herbal Drugs and Formulations

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Abstract

Indian civilization has played a pioneer role from the time immemorial in utilizing the plants such as indigenous drugs. Ethnomedicinal therapy plays a vital role in the primary healthcare of tribal and rural populations and hold great potential in the discovery of new drugs.

The efficacy of traditional herbal has proven over the long decades, but the mode of action is even more complex than mechanistic clarification of a single bioactive factor because of unfractionated or partly fractionated extracts and often mixtures of different constituents are used. The insufficient and unacceptable evidences of safety, efficacy, standardization and inconsistent production practices are a major concern. Evaluation and isolation of these mixtures of the active constituent is a challenging task, moreover the safety of consuming certain herbs are also questionable. On the increasing trend in the use of herbal preparations as remedies for major diseases, there is also a growing concern about their efficacy, safety and control. This prompted the WHO to come out with recommendations for control in the documents "Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines" in 1993.

Herbal remedies are complex mixture of many herbs which may sometime produce synergistic effect with each other resulting in the increased therapeutic potential of remedy. The identification of biologically active compound responsible for medicinal property alone and in combination is an essential requirement for quality control and dose determination of plant based drugs. Therapeutic activity of an herbal formulation depends on its phytochemical constituents. Correct identification and quality assurance is an essential prerequisite to ensure reproducible quality of herbal medicine, which contributes to its safety and efficacy.

Complete phytochemical investigation of the medicinally important plants should be carried out, as this would be beneficial in standardization and dose determination of herbal drugs. The process of standardization can be achieved by stepwise pharmacognostical, phyto- and physico-chemical studies. Various advanced methods such as chromatographic, spectrophotometric and use of molecular biomarkers in fingerprints are employed in standardization of herbal drugs. Standardization of polyherbal formulations minimizes batch to batch variation; assure safety, efficacy, quality and acceptability of the formulations. TLC and HPTLC fingerprint profiles were used for deciding identity, purity and strength of formulation and for fixing standards for Ayurvedic formulation.

Biography

Professor Papiya Bigoniya completed her undergraduate studies at Dr. H.S. Gour University, Sagar, India and Post graduate studies in Pharmacology specialization from Jadavpur University, Kolkata, India in Pharmacy faculty. She received her Ph.D. degree in Pharmaceutical Sciences from Dr. H.S. Gour University, Sagar, India. She was a University Grant Commision's (UGC) Junior research fellow for 2 years during post graduation. She carried out her doctoral studies under National Doctoral Fellowship awarded by All India Council of Technical Education at Dr. H.S. Gour University, Sagar. She assumed a faculty position in Department of Pharmacy, Barkatulla University, in 1998. She was one of the founder members of Department of Pharmacy in Barkatulla University and severed there for five years. In 2006 she joined as Associate professor and vice Principal in Globus College of Pharmacy, Bhopal. Presently she is working as a Professor and Principal in Radharaman College of Pharmacy, Bhopal. She is a gold medallist in P.G Diploma in Pharmaceutical Management from Institute of Pharmaceutical Education & Research, Pune, India.

Her present research projects are focused on phytopharmacological work on active isolated constituents from Indian folklore medicine directed to explore their therapeutic potential and attempting on formulation of standardized product by following the modern herbal Ayurvedic monographs and international guidelines. Her field of research focuses on pharmacological screening, pharmacokinetic, pharmacodynamic and bioavailability studies, drug-food interactions, and standardization method development for herbals. She has 15 years of professional experience with more than 60 research publications in peer reviewed national and international journals and presented more than 45 papers in various conferences, SDPs and workshops. She is supervising a number of students in graduate and post graduate level projects. Doctoral studies are also in progress under her active supervision. She is reviewer of esteemed scientific publishers like Elsevier, Taylor and Francis, Academic Journals, Science alert and Biomed Central and also in advisory board of four reputed journals. She has also completed research projects funded by AICTE, New Delhi and DRDE, Gwalior.