

Prospecting phytochemistry of Western Himalaya

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The Indian Himalaya is a source of variety of important medicinal plant species. These medicinal plants have been in use since Vedic times, for the cure of various ailments. The natural products from these medicinal plants are the most consistently successful source of drug leads. These products continue to provide greater structural diversity than standard combinatorial chemistry and so they offer major opportunities for finding novel lead structures that are active against a wide range of assay targets. In recent years, our group has investigated number of highly valued medicinal species of the Western Himalaya for finding novel structural diversity, in particular *Lonicera japonica*, *Bacopa monnieri*, *Holarrhena antidysenterica*, *Rosa damascena*, *Tinospora cordifolia*, *Zanthoxylum armatum* and *Asparagus racemosus*. New bioactive lead molecules have been characterized belonging to the classes of cerebrosides, flavonoids, terpenoids, steroidal alkaloids and steroids. Simultaneously, robust analytical and spectroscopic measurements for determination of these biologically important phytochemicals have been developed. These analytical and spectroscopic methods have resulted into rapid identification and quantification of several kinds of natural product from plants which have led to the discovery of new drug candidates. Hence, in the present work our lead achievements on chemical and biological aspects of new natural products from Western Himalayan region of India will be discussed.

Biography

Neeraj Kumar received his master's degree in Organic Chemistry at Govt. P.G. College, Rishikesh (HNB Garhwal University). He began his doctoral studies under the direction of Dr. Bikram Singh and Professor S. S. Bari and obtained Ph.D. in Organic Chemistry (Natural Products) from Panjab University, Chandigarh, India. During that time, he contributed significantly on phytochemical investigations of selected medicinal plants: isolation and structure elucidation of the novel scaffolds of biological relevance, methodologies development for quality assurance and chemical fingerprinting of medicinal plants. He joined the Department of Natural Products at CSIR-Institute of Himalayan Bioresource Technology in April of 2008, where he is currently a scientist of Organic Chemistry (Natural Products). His group's research interests center around the phytochemistry and development of biomimetic metal phthalocyanine/organocatalyst/Lewis acid catalyzed highly selective organic transformations such as nitro reduction, reductive amination, carbonyl reductions and cascade synthesis.

Phytochemical analysis and antibacterial potential of *Moringa oleifera*

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Moringa oleifera (drumstick) is a part of the daily traditional Indian diet. This plant has huge medicinal value and reported for anti-inflammatory, anti-diabetic, anti-oxidative, anti-bacterial and many other properties. This experiment deals with the extraction of phytochemicals from the dried leaves of *Moringa oleifera* using various types of extracting solvents like methanol, ethanol and water by using different standard extraction protocols. The extract yields are studied and the best solvent procedure with maximum yields is standardised. The anti-bacterial efficacy of this extract under different concentrations is tested against common pathogenic bacteria both gram positive and gram negative using tetracycline as the standard antibiotic. The diameter of the zones of inhibition and the minimum inhibitory concentration (MIC) using the modified disk diffusion method was evaluated. It is seen that the plant extracts have notable antibacterial effect and can be used as a substitute for conventional antibiotics in many cases. The phytochemical analysis of the different extracts was also performed using standard chemical procedures. The phytochemical screening indicated the presence of phenolics, flavonoids, tannins, glycosides etc., in the extracts. The quantification of these extracts can provide an indication towards the active component which is responsible for the antibacterial property.

Biography

Nilanjana Ghosh is a second year master's student in School of Bioscience and Engineering in biomedical engineering and her research interests are in pharmacognosy and drug delivery. Priyadarshini mallick is a Ph.D. student at the same institute pursuing her thesis on anti-inflammatory property of various natural drugs.