Bioactive Secondary Metabolites from Himalayan Medicinal Plants

Natural products have been a reservoir of diverse structures that lead to pharmacologically active compounds, lead compounds or new chemical entities in drug discovery. Presently, more than 50% of all approved molecular drugs are based on natural products or natural product derivatives. In India, Himalayan medicinal plants are a major source of natural products with complex biodiversity. A good number of abstracts and research articles published by our research group so far, for evaluating antioxidant, the anti-microbial and anti-diabetic activity of different secondary metabolites which have been extracted from various plants. Especially plants used in traditional medicine systems are mostly chosen as material for chemical investigation to discover pharmacologically active compounds. This discussion describes the chemical structures and biological activities of new/known isolated secondary metabolites from seven medicinal plants including Boenninghausenia albilora, Skimmia anquetelia, Glycosmis arborea, Hemidesmus indicus, Zanthoxylum alatum, Melia azedarach, and Tanacetum nubigenum collected from high altitude of Himalayan region. The structure of the isolated compounds was unambiguously elucidated by one - and two-dimensional NMR spectroscopy, mass spectroscopy and by comparison with literature data. The isolated compounds were tested for their antifeedant, antibacterial and antidiabetic activities. All obtained results were published or submitted for publication in respective international journals.

Besides the above, we have also worked in the area of green nanotechnology and have synthesized some Zinc oxide nanoparticles from medicinal plants which were found to have promising biological activities.