

Paper ID: PT-08**Recent Approaches in Natural Products Research for Drug Discovery****Plenary Talk**K. Suresh Babu¹

¹Chief Scientist, Division of Natural Products and Medicinal Chemistry, CSIR-Indian Institute of Chemical Technology, Hyderabad-500007, India

Email: suresh@iict.res.in

Abstract

The Indian subcontinent has a vast coastal belt along with a wide range of forest environments, which host a large number of unexplored plant and marine species. This diversity has been the source of unique chemical compounds with the potential for industrial development as pharmaceuticals, cosmetics, nutritional supplements, molecular probes, fine chemicals, and agrochemicals. In recent years, a significant number of novel metabolites with potent pharmacological properties have been discovered from natural sources, including marine and terrestrial plants. The recent move of society towards nature for the treatment of various diseases, where there is no satisfactory cure in modern medicine, has diverted the attention of natural and medicinal chemists and biologists to unravel their chemical characteristics and biological activities together in order to define their therapeutic potential in the light of modern pathobiological understanding. This move has collectively led to rediscover, design, and refine the therapeutic application of medicinal plants and marine sources.

During the last eight years, we have studied several medicinal plants and marine organisms guided by *in vitro*-based bioassays to delineate the chemistry of natural products responsible for biological activities. This effort has led to the identification of several potent multiple-active medicinal plants and marine sponges, their active fractions, and synergistic molecular compositions. We have identified, in particular, several free radical scavengers, xanthine oxidase, and α -glucosidase inhibitory principles present in substantial yields. The presence of multiple active phytochemicals in rich concentrations in some medicinal plants therefore offers an exciting opportunity for the development of novel therapeutics and also provides scientific justification for their use in traditional medicines. Therefore, biologically activity-based chemical characterization of these medicinal plants may provide scientific explanation for their use in traditional medicines and also redesign and develop preparations for novel therapeutic applications.

Keywords: Natural Products Chemistry, Medicinal Plants, Marine Bioactive Compounds, Bioassay-Guided Isolation, Novel Therapeutics