

## Bioactive constituents of medicinal plants and their contribution to modern medicine

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Since times immemorial, higher plants have been used as a source of drugs for the alleviation of human ailments. Traditional systems of medicine such as Ayurveda, Siddha and Unani of India, the traditional medicine of China and the folklore medical practices of several other countries utilise higher plants in their medicinal preparations. According to World Health Organisation, an estimated 80% of the world population still depend on traditional systems of medicine consisting of herbs and the products derived from them for their primary health care. With the advent of scientific and technological developments, several medicinal plants of various countries were investigated and the bioactive constituents of the plants isolated and characterized. This activity resulted in the discovery and introduction of several important plant based drugs. Some of the important plant derived drugs are the antihypertensive drug, reserpine from *Rauwolfia serpentina*, the anticancer agents vinblastine and vincristine from *Catharanthus roseus*, the anticancer principles camptothecin (from *Camptotheca acuminata* and *Nothapodytes nimmoniana*), paclitaxel (from *Taxus brevifolia*), the antimalarial drug artemisinin (from *Artemisia annua*). Advances in the development of bioactive constituents of medicinal plants from time to time and how they contributed to modern medicine will be presented. It is understood that satisfactory medication is available only for one third of the known diseases. Despite the fact that a large number of plant based drugs are available, several ailments like cancer, rheumatoid arthritis, Parkinson disease, Alzheimer disease, etc., continue to evade satisfactory solution. Hopefully, future research on the bioactive natural products and medical science will help in the discovery of new drugs for the treatment of above mentioned ailments.

### Biography

Gopal Rao Mallavarapu obtained his M.Sc. and Ph.D. in Chemistry from Andhra University, Visakhapatnam. He did postdoctoral research at the University of Pennsylvania, Philadelphia and Georgetown University, Washington DC in USA. He worked as scientist in CSIR-Central Institute of Medicinal and Aromatic Plants Research Centre, Bangalore and retired from service in 1998. His specialisation is chemistry of natural products, processing of medicinal and aromatic plants and characterisation of essential oils. He published more than 120 research papers in reputed journals, five book chapters and has six patents to his credit. Presently, he is helping Ph.D. students in their research projects.

## In-vitro callus induction in *Chlorophytum borivilianum*- A medicinally important plant used for sexual disability

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Plant synthesizes a wide range of chemical substances many of which are commercially useful compounds. Secondary metabolism is the synthesis and metabolism of endogenous compounds by specialized proteins. These secondary metabolites provide disease and stress resistance, help in pollination to the plants. The secondary metabolites are primarily used by medical sciences to control various diseases and ailments. *Chlorophytum borivilianum* commonly called Safed musli in India, belongs to the family Liliaceae, which is an important plant used in the Traditional System of Medicine to treat various ailments like immunomodulatory effects, oligospermia and in arthritic conditions. It contains important active constituents like steroids viz., sarsasapogenin, asparnin and adscendoside A and B which are used for the treatment of sexual disability in males and females. The callus can be used to extract the active constituent responsible for the above mentioned activity. Thus a protocol was developed for its high production and availability. Murashige and Skoog's (MS) medium supplemented with 2, 4-D 3 mg/l and kinetin 1 mg/l combinations showed good callus production with green colour. When the nodal explants were cultured in MS + IBA 1mg/l they showed large number of root formations. The roots which were formed from the regenerated shoots were further processed for hardening which lead to the development of new plants with much more leaves, nodes and shoots. Thus, this protocol will be effective for more regeneration of plants which will in turn produce more amounts of active constituents for treating the human disabilities.

### Biography

Gunosindhu Chakraborty has completed his Ph.D. from Hamdard University. He is working as associate Professor and Head of the Department in Pharmacognosy, NIET. He has also completed his post graduation diploma in Clinical Research from Delhi. He has published more than 80 research papers in reputed journals and presented 90 research articles in conferences of national and international repute. He is also serving as editorial board member of reputed journals. He is the recipient of many awards viz: Bharat Jyoti award, Best Citizens of India award by professional bodies.