

## Overview

IIIM, Jammu is a World class Institute in the area of Natural Products with expertise in all the relevant fields needed for drug development especially Herbal drugs based on traditional systems of healthcare and validated as per modern systems. It can play a vital role in promoting ASU medicines for making them acceptable world over and also in development of new drugs /new chemical entities. Varieties with desired chemoprofiles and for production of novel phytochemicals.

## Mission and Goals

- ❖ Isolation of new bioactive molecules from natural sources.
- ❖ Development of new INDs by structure modification of natural products/ synthesis.
- ❖ Development of standardized herbal products as new drug candidates or PHP's (Positive Health Promoters).
- ❖ Creation of enriched repository of chemical marker compounds by isolating a large number of molecules to be used for chemoprofiling of the medicinal plants/formulations containing them.
- ❖ Development of SOPs for standardization of single/polyherbal formulations by using existing /newly developed protocols (HPTLC, HPLC, GLC ,LC-NMR-MS).
- ❖ Human resource development in the area of natural products to bring out quality research

## Competencies

- ❖ A strong natural products resource base with repository of isolated molecules.
- ❖ State of the art extraction facilities including accerated solvent extraction unit, Supercritical extraction plant, Solid phase extraction unit, GMP pilot scale extraction unit
- ❖ A large herbarium collection, Repository of raw and synthetic drugs derived from plant sources and a database of all medicinal and aromatic properties associated with major Indian medicinal plants. and quality estimation of various plant based drugs sold in open markets.
- ❖ State-of-the-art facilities for isolation of molecules including Flash chromatograph systems, Prep HPLC's , and scientific expertise for chemical (GC-MS, HPLC etc) and molecular

(DNA markers for genetic diversity) evaluation and quality assurance conforming to global standards

- ❖ Facility and scientific expertise for characterization of isolated/ synthesized molecules by modern day techniques

## People

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## Area of Research

- ❖ Chemistry of Natural products involving isolation and structure elucidation of bioactive molecules from plant sources.
- ❖ R & D work on development of new drugs/formulations/new chemical entities.
- ❖ Development of processes for isolation/synthesis of drugs and drug intermediates.
- ❖ Studies on structure activity relationship/molecular modeling of bioactive molecules.
- ❖ Development Of Novel Target Based Anticancer Therapeutics

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- ❖ Development of Standard Operation Procedures /marker based standardization methods for medicinal plants/ formulations using modern techniques like HPTLC/HPLC/LC-NMR-MS, GLC etc.

### **Current Projects**

- ❖ Development and evaluation of ayurvedic based botanical drugs as Positive Health Promoters (PHPs) (PHP-Ageing, PHP-Diabetes, PHP-Cancer) (SMM 0007)
- ❖ Resourcing biomolecules from medicinal plants, microflora including higher fungi( MLP3008)
- ❖ Development Of Novel Target Based Anticancer Therapeutics (SIP 0027)
- ❖ Rural Development program including Cultivation of medicinal and aromatic plants at Jammu (RSP 0028)
- ❖ Pathway engineering and system biology approach towards homologous and heterologous expression of high value phytochemicals (artemisinin, picrosides, morphine, withanolides, podophyllotoxins. (NWP0008)
- ❖ Climate change and adaptation of species complexes.( NWP 0020)
- ❖ Discovery and preclinical studies of new bioactive molecules (Natural and semi-synthetic) & traditional preparations. (NWP 0037)
- ❖ Botanical Reference Substances (BRS) And Phytochemical reference molecules (GAP 1123)
- ❖ Golden Triangle Project (GAP0401)
- ❖ DNA fingerprinting proteomics and chemoprofiling of traditional ginger cultivars of northwestern Himalayas (GAP1110)
- ❖ Identification of New bioenhancers for oral care application (0412)