

National workshop on
BIOPROSPECTING IN MEDICINAL PLANTS
THROUGH *IN SILICO* METHODS



From 20th to 25th March, 2017

At Saraswathi Thangavelu Centre of JNTBGRI
Puthenthope, Thiruvananthapuram

Organised by

Bioinformatics Centre



Biotechnology & Bioinformatics Division
Jawaharlal Nehru Tropical Botanic Garden & Research
Institute, Puthenthope, Thiruvananthapuram - 695 586

Sponsored by

Department of Biotechnology



Ministry of Science & Technology
Govt. of India, New Delhi

About the workshop

Plants are producing innumerable number of secondary metabolites and most of these molecules have pleiotropic therapeutic potential. These molecules induce less or no side effects when compared to synthetic drugs. Despite the advancement in modern science, isolation, characterisation and therapeutic validation of these molecules have been hampered. Of the total estimated plant species only 6% of them have been evaluated pharmacologically and ~15% of them have been subjected to phytochemical investigation. India has rich repository of plant genetic diversity with high rate of endemism that make the country a gold mine of unique plant derived molecules with great therapeutic activity. In Indian traditional systems of medicine especially in Ayurveda remedies are available to treat all diseases so far reported. However, its efficacy and mode of action are seldom investigated due to several reasons such as high investment, lack of raw materials, time consuming screening methods and yielding less number of lead molecules. Application of bioinformatics (computational methods) is the best option to address the above mentioned problems by the way of documenting information and demonstrating the pharmacological activity through *in silico* methods that may give an insight for further experiments leading to novel drug discovery. The Bioinformatics Centre of JNTBGRI is engaged in this area of research since its inception in 1998. The present training programme is aimed to generate skill in this line among the college teachers and researchers.

Objectives

To provide training in bioinformatics tools and generate *in silico* bioprospecting skill among the college teachers and researchers.

Course contents

Plant derived medicines and its importance; Drug discovery process; Role of bioinformatics in drug discovery; Biological databases and its applications – protein and chemical databases; Protein structure visualisation, Sequence alignment and analysis tools, Protein modelling; Preparation of chemical structure (2-D and 3-D) of ligand molecules; Docking tools; Post docking result analysis; Computer aided drug designing; A case study – project.

Methodology: Lectures, demos and hands-on- sessions

Level of participants: Scientists, College teachers (UGC) and Ph.D. students

Registration fee: Nil

How to apply

Applicants are requested to send the duly filled registration form through online

Only online applications will be accepted

The number of participants are limited to 15 and the selection will be on first come first basis.

Accommodation: Accommodation will be arranged on payment basis.

Last date for receipt of application: 17th March, 2017

Note: All communications through e-mail only
Contact e-mail: bioinfotbgri@gmail.com

For more information please visit the web site www.jntbgri.in

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About JNTBGRI

Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) is an autonomous R & D Institution established in 1979 by Government of Kerala for conserving the tropical plant genetic resources and to develop strategies for their sustainable utilization. Since the inception of Kerala State Council for Science Technology and Environment (KSCSTE) JNTBGRI has become a leading institution under it. The institute is located at the foot hills of the Western Ghats (at Palode, 40 km away from Thiruvananthapuram City by Thiruvananthapuram - Shencottah Road) in a 121 hectare forest land with hills and hillocks with evergreen, deciduous, marshy and riverine vegetation in addition to grasslands and rocky areas providing different microclimatic conditions for the growth of the tropical species. There is no ideal organization at present in India with such diverse area and vegetation to undertake research on plant diversity conservation and sustainable utilization of plant genetic wealth. The institute is conserving largest number of plant species among the botanic gardens in Asia. 800 tree species, 60 bamboo species, 102 palm species, 800 medicinal and aromatic plants including 100 rare species, 600 orchid species and 150 orchid hybrids, 150 fern species, 35 gymnosperm species and more than 1000 species/varieties/cultivars of ornamentals are maintained in the garden. The institute has also established an Extension Centre viz. Saraswathy Thangavelu Centre of JNTBGRI at Puthenthope, Thiruvananthapuram (2 km away from Kaniyapuram in Thiruvananthapuram - Kollam NH 47 Road) where the Bioinformatics Centre is established.

About Bioinformatics Centre, JNTBGRI

The Bioinformatics Centre of Jawaharlal Nehru Tropical Botanic Garden and Research Institute is one of the Bioinformatics Distributed Information Centres, a part of National Biotechnology Information System Network (BTISNET) of Department of Biotechnology, Government of India. The Centre was established in 2001 as a Research Centre at Saraswathy Thangavelu Centre of JNTBGRI, Puthenthope, Thiruvananthapuram. The major activities of the Centre are

- ❖ Biodiversity database creation and bioprospecting of medicinal plants particularly for novel drugs against snake venom, tuberculosis and hepatitis B.
- ❖ Interlinking/integration of biological databases created by BTISNET centres, Big data analysis and interpretation.
- ❖ Human resource development in Bioinformatics.
- ❖ Providing facility for carry out Ph.D., M.Phil and P. G. research works.