

**INTERNATIONAL WORKSHOP ON MEDICINAL PLANTS, THEIR BIOACTIVITY,
SCREENING AND EVALUATION, CENTRAL DRUG RESEARCH INSTITUTE
(CDRI), LUCKNOW (INDIA), DECEMBER 2-5, 1997**

PARTICIPATING COUNTRIES: 14 (INCLUDING 12 MEMBER COUNTRIES OF THE NAM S&T CENTRE)

NUMBER OF PARTICIPANTS: 17

NUMBER OF WORKSHOP FACULTY MEMBERS: 29

Medicinal plants provide one of the most important raw materials for drugs used in modern as well as traditional system of medicine all over the world. In spite of phenomenal development in synthetic drug chemistry and antibiotics, plants still constitute an important part of pharmacopoeias in both the developed as well as developing countries. The value of plant-based drugs produced in the USA, OECD countries and Japan has been steadily rising, expecting to soon reach a 100 billion US dollar mark.

In view of their importance for developing countries, the Governing Council of the Centre has identified Medicinal Plants as an area of priority. The NAM S&T Centre had earlier brought out two important publications dealing with Medicinal Plants and Aromatic & Essential Oil Bearing Plants, which have been widely circulated among member countries.

Bioactivity evaluation is an important part of the development of new drugs from natural products. Unfortunately there are limited facilities and expertise available in the developing countries for the purpose. The Governing Council of the Centre had therefore approved the proposal of the Centre to organize a workshop for its member countries with a view to share the latest developments in this area and contribute towards building up their competence. Subsequently a 4-day international workshop on Medicinal Plants, their Bioactivity, Screening and Evaluation was organised by the Centre at the Central Drug Research Institute (CDRI), Lucknow during December 2-5, 1997. Since the United Nations Industrial Development Organization (UNIDO) has also been implementing a programme on industrial processing of medicinal plants in developing countries, which includes toxicity and scientific evaluation of traditional preparation and human resources development, it co-sponsored the workshop. The Senior Technical Advisor of UNIDO Dr. T. De Silva worked closely with the NAM S&T Centre along with Dr. B.N. Dhawan of CDRI to formulate the overall workshop programme.

Representatives from selected member countries, which are pursuing active programme for utilisation of medicinal plants, attended the Workshop. These countries included Bangladesh (Mr. Md. Shahjahan of the Institute of Food Science and Technology of BCSIR), Bhutan (Dr. Dorji Thinkley of the National

Institute of Medicine, Thimpu), Cuba (Dr. Maria Hortensia Fernandez de la Torre, Gerency of the National Research Programmes on Natural Medicine and Pharmaceutical Biotechnological Products, Havana), Egypt (Dr. Nahla Sayed Abdel Azim of the National Research Centre, El Dokki), India (Mr. B. D. Shethia of the Central Salt and Marine Chemicals Research Institute, Bhavnagar, Dr. Mrs. Solimabli Wahidulla of the National Institute of Oceanography, Goa and Mr. Gopal S. Gond of Guru Nanak College of Sciences, Ballarpur), Malaysia (Dr. Rasadah Mat Ali of the Forest Research Institute Malaysia FRIM, Kuala Lumpur), Nepal (Dr. Bharat P. Bashyal of the Royal Nepal Academy of Science and Technology, Kathmandu), Nigeria (Dr. Ms. O. O. Adeyemi of the College of Medicine, University of Lagos), Pakistan (Dr. Qazi Najm-us-Saqib of the Faculty of Pharmacy, Gomal University), Sri Lanka (Dr. Gunaratne De Silva of Bandarnaike Memorial Ayurvedic Research Institute, Nowinna, Maharangama and Ms. Meepa Auyasi Lokuge of the Lanka Ayurvedic Herbal Medicine Research Pvt. Ltd, Colombo), Tanzania (Dr. Mainen Julius Moshi of the Institute of Traditional Medicine, Dar-es-Salaam), Thailand (Dr. Ms. Krisana Pootakhan of Chiang Mai University) and Vietnam (Dr. Pham Nim Man, Institute of Materia Medica, Hanoi). An expert from Australia sponsored by the World Health Organisation (WHO) also attended the workshop. Indonesia, Laos, Peru and Zimbabwe had nominated their representatives, who could not attend.

The 29-member Workshop Faculty included Dr. Roger W. Moni from Queensland Pharmaceutical Research Institute, Australia, two former Directors of the Central Drug Research Institute (CDRI), Lucknow Dr. B.N. Dhawan and Dr. V.P. Khamboj, former Director of Industrial Toxicology Research Centre (ITRC), Lucknow Dr. R.C. Srimal, Director of the Regional Research Laboratory (RRL) in Jammu Dr. S.S. Handa and Director of the Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow Dr. Sushil Kumar, besides other eminent speakers from industry and academic institutions.

Prof. V.S. Ramamurthy, Secretary to the Government of India in the Department of Science and Technology and Vice-President of the Governing Council of the Centre and Dr. C.M. Gupta, Director, CDRI presided over the inaugural function and highlighted the importance of the Workshop for developing countries. Dr. R.A. Mashelkar, Director General of the Indian Council of Scientific and Industrial Research (CSIR) inaugurated the Workshop and stated that although the developing countries have rich tradition of indigenous system of medicine, efforts have been lacking for conservation, standardization and scientific evaluation of the medicinal plants resources. CSIR has initiated a coordinated project for the development and commercialization of medicinal plants in India in which several laboratories of CSIR are participating. CDRI has already developed a number of plant-based drugs, some recent ones being 'Guglip', a hypolipidaemic drug and 'Memory Plus', a memory enhancer that are in the market. Another drug, 'Picroliv', a hepato-protector is in clinical trials. Dr. Mashelkar stressed the need for protection of intellectual property relating to medicinal plants and drugs derived from them. Turmeric, the Rhizome of the

plant *Circuma longa* (Haldi) is widely used in India since ancient times as a condiment and anti-inflammatory agent. Curcumin is its major active constituent. CDRI has found the activity of Curcumin to be comparable to that of phenylbutazone in cases of rheumatoid arthritis without any side effects with low ulcerogenic index. He recalled that CSIR has successfully challenged the patent on healing properties of Turmeric in the US Patent Office by an American scientist. He complimented the Centre and UNIDO for organizing this important workshop in India at CDRI.

Dr. Satyawati, former Director-General of the Indian Council of Medical Research (ICMR) delivered the Keynote address and referred to conventional methods of screening medicinal plants for biological activity and identifying the active principles through phytochemical studies, which has been in use in developing countries. There is a need, she stated, to promote more and better-organized inter-disciplinary studies on medicinal plants and their standardization and quality control for therapeutic use.

The participants presented respective Country Reports in the plenary session chaired by Dr. De Silva. The workshop spread over 7 Technical Sessions included 22 presentations dealing with biological screening and demonstration of techniques to assess bioactivity of medicinal plants. The topics covered included collection and authentication of medicinal plants, chemical processing and organization of biological screening. Presentations on bio-activity included those for contraceptive activity, metabolic, hypolipidemic and anti-diabetic, anti-inflammatory, hepato-protective, anti-viral, anti-fungal, anti-bacterial, anti-protozoal and anti-helminthic activity. Presentations were made on immune system, adaptogens, regulatory toxicology, quality control and ethical aspect of animal experimentation. Presentations also covered intellectual property rights and its implications. Extended visits were arranged to various laboratories connected with screening of these bioactivities including endocrinology, medical mycology, microbiology, medicinal chemistry, parasitology, toxicology and pharmacology. Visits were also made to Herbarium, Instrumentation Centre and the Institute of Medicinal & Aromatic Plants (CIMAP), where presentations were made on Domestication and Conservation of Medicinal Plants. At the concluding session, Dr. Tuley De Silva on behalf of UNIDO made a detailed presentation on UNIDO Programme on Industrial Utilisation of Medicinal and Aromatic Plants for developing countries.

A number of participants and faculty members took part in the panel discussion from which the following recommendations emerged:

- Creation of a data base of institutions in member countries where facilities and expertise are available for evaluation of bioactivity to facilitate exchange of material, scientists and placement for training;
- Members to undertake bioactivity evaluation of crude drugs being exported by them to develop value added products;

- Need for setting up of bioactive screening facilities by member countries for their flora, in particular for endemic and threatened species;
- Assistance of international organisations like UNIDO for setting up of these facilities and of UNIDO and NAM S&T Centre for training placement etc.; and
- Creation of awareness by member countries on procedure for getting patent protection natively as well as abroad.

Dr. Nityanand, former Director CDRI and Consultant to UNIDO distributed certificates to all the participants and delivered the Valedictory Address.