Visit of Shri Sompal, Member Planning Commission to NRC M&AP

Shri Sompal, honourable Member of Planning Commission and Shri M. D. Asthana, Principal Advisor (Agriculture), Planning Commission, Govt. of India visited National Research Centre on 28th of June, 2000. Officials from the Ministry of Agriculture also accompanied them to this visit.

Dr. S. Maiti, Director welcomed the honourable guests with presentation of bouquet and thereafter briefed them about various research and developmental activities of the Centre. The honourable guests also visited the Herbal Garden maintained by the Centre. Shri Sompal showed his keen interest to see each and every collection and appreciated the efforts. While visiting the garden he also highlighted about various usages of medicinal plants from his vast knowledge of ISM.

The members showed their great concern for the urgent research requirements in the area of medicinal plants to cope up with the current internal demand for herbal medicines and export. The Nation's stand in the present IPR regime was also discussed.

To commemorate their visit the centre organized tree planting by the guests. Shri Sompal planted a sapling of Terminalia bellirica (Behda) and Shri Asthana a sapling of T. chebula (Horda). These two tree species belong to the important triphala preparation (Behda, Harda and Anola) of ISM. Later in a formal function, Shri Sompal released an extension bulletin on "Cultivation of Isabgol". He congratulated the Centre for such efforts in delivering the technology to the farmers. At the end he wished all success to the National Research Centre.
MEDICINAL and aromatic plants as a group encompasses a huge number of plant species that are used in Homeopathy and various Indian systems of medicines such as folk medicine, Ayurveda, Siddha and Unani. About 4500 species are used in different folk medicines, 1700 in Ayurveda, 1000 in Siddha, 700 in Unani and 500 in Homeopathy. Millions of rural people all over the world use medicinal and aromatic plants as self-help cure against a number of common diseases.

In addition, medicinal plants are also widely used to treat livestock. The idea of using medicinal plants to treat human and livestock is not new. In the recent years, there is a renewed interest, especially in developed countries, in using plants to treat livestock, pets, and humans. Why this renewed interest? Because,

- Many people believe that plants are less toxic and safer than modern manufactured drugs.
- Many people believe that plants are more natural than manufactured drugs.
- Preparations from medicinal plants can be made at home and are less expensive than manufactured drugs.
- In developing countries, medicinal plants often are more accessible than manufactured drugs.

However, the important questions still remained unanswered are:

- Are medicinal plants so effective as claimed by many traditional medicine practitioners?
- Are they really safe? Of the hundreds of plants used in ISM, very few have been researched for their efficacy and toxicity by modern techniques.

Systematic study of large number of medicinal plants used in ISM has not so far been taken up. Many fragmented approaches to the subject were initiated time to time in the past. But so far status remained the same.

- There is incomplete toxicity-information on most of these plants; and
- There is incomplete efficacy-information on most of these plants.

Notwithstanding these, demand of medicinal plants is growing in a steady pace of 7% annually. As much as increased demand for herbal remedies threatens medicinal plants, it’s the increased demand for space that poses the greater danger. Habitat loss is a major, if not leading — factor in the demise of the most threatened medicinal herbs. Though India possesses rich biodiversity, the growing demand is putting heavy pressure on the existing resources. Many species have reached to a status of near extinction.

Realizing these facts, a Task Force Committee was rightly set up by the Planning Commission for conservation and sustainable use of Medicinal plants. The Committee has submitted its report which contains a number of recommendations and strategies need to be adopted for sustainable development of medicinal plants sector. The following five targets have been fixed:

- Focus on environment and biodiversity conservation especially in forests, wastelands and sacred groves.
- Systematic cultivation of medicinal plants by adopting selection of plants having demand, development of high yielding varieties, in vitro propagation and organic farming.
- Quality control and standard preparations.
- Formalizing and organizing the market and trade.
- Policy and institutional arrangement for conservation, enhancement and sustainable utilization of medicinal plant resources.

An estimate of about 10000 million rupees has been proposed for a period of five years which is expected to generate additional employment to 100 million people in the process of cultivation, collection, drying, grading and processing of medicinal plants.

I sincerely hope that this committee report would be implemented in letter of spirit and required financial support would be extended to this sector for its sustainable growth and harvesting rich dividends in future.

Satyabrata Maiti
**Break Through & Research Highlight**

*In vitro Clonal Multiplication of Safed Musli*

Safed musli (*Chlorophyllum borivillianum*), a rare and endangered medicinal herb is valued for its dried fasciculated roots, which possess aphrodisiac properties, used as a tonic in various ayurvedic formulations. Indiscriminate collection from natural habitat has made this species scarce in nature. Therefore, a tissue culture method has been developed at Department of Biosciences, Sardar Patel University, Vallabh Vidyanagar for its large-scale multiplication and conservation. Micro propagation using shoot buds as explants has been achieved on Murashige and Skoog (MS) medium containing 2.0 mg l⁻¹ BAP and 30 mg l⁻¹ adenic sulphate. In every four weeks 4-5 fold of multiplication was obtained.

The plantlets developed thick long roots (100 percent) in Knop's medium supplemented with micronutrients, vitamins, NAA and activated charcoal. Survival rate of these rooted plantlets in soil is about 50%. Experiments to increase the rate of survival in soil, the comparison between wild plants and *in vitro* raised plants for the production of fasciculate storage roots and their active principles are underway.

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**New Initiative**

**Germplasm collection of Sacred lotus**

*Lotus at the conservation block*

National flower of India, sacred lotus (*Nelumbo nucifera*), is a valued medicinal and ornamental species. AICRP M&AP, Trichur has collected 42 accessions of this plant from different districts of Kerala and Tamil Nadu. The accessions show wide variability in flower colour, petal number, presence of transitional whorls, carpels in the torus etc. Besides lotus, Dr. T. V. Viswanathan Memorial Herbal Park maintained by this Centre is boast of having collection of over 400 medicinal plant species.

**Kalmegh as Rainfed crop**

Kalmegh (*Andrographis paniculata*) has been successfully grown as rainfed crop in medium black soil of Indore region. Seeds are sown within first fortnight of May in the seed bed at 250 g/ha. 30-40-day old seedlings are transplanted and usually two removals of weeds are required, one at 25-30 days after transplanting (DAT) and second at 40-45 DAT. About 2500-3000 kg dry biomass/ha is obtained when harvested by mid of November. A total return of Rs. 24000-30000/ha is obtained from this crop.

AICRP M&AP, Anand also recommends cultivation of Kalmegh during Kharif as profitable crop. Transplanting of 45-day old seedlings during first fortnight of July and harvesting by second fortnight of November yielded highest biomass (4017 kg/ha) of good quality (1.95% andrographolid) at Anand condition.
News from AICRP M&AP Centers

Visit of Honourable Minister of State for Agriculture to AICRP M&AP, centre at Kerala

Shri Hukkum Deo Narayan Yadav, Honourable State Minister for Agriculture (AHD&DARE) visited AICRP M&AP centre of Kerala Agricultural University on May 14, 2000. He took keen interest in large collections of medicinal plants maintained at the herbal garden. He also planted a sapling of Ashoka tree (*Saraca asoca*)—an endangered species as symbol of its conservation need for the future generation.

New Project

A new NATP project entitled “Survey, evaluation and identification of active ingredients having medicinal value used by tribals of Madhya Pradesh” has been sanctioned to Dr. S. K. Gangrade and Dr. P. K. Mishra of JNKVV at Indore.

Awards and recognitions

Dr. S. K. Maheshwari, Scientist (Agronomy), AICRP M&AP, Indore was awarded Gold Medal for the best poster paper presentation in the International Seminar on Ayurveda and Traditional Medicines: Scope and Challenges of 21st Century held at Gujarat Ayurved University, Jamnagar held during January 5-7, 2000.

Book news

To popularize the cultivation of medicinal plants among the farmers a book in Marathi language on Cultivation of Medicinal Plants ओषधी व सुगंधी वनस्पति चे पांढरा तंत्र has been published by AICRP M&AP, Akola Centre on 25-5-2000. The book is available from the Directorate of Extension Education, Dr. PDKV, Akola (Maharashtra) with a nominal price tag of Rs.25/-. 

TRAINING PROGRAMME ON MEDICINAL AND AROMATIC PLANTS

A five-day training program on medicinal and aromatic plants was organized by the Directorate of Extension Education, Rajasthan Agricultural University during 11-15 October, 1999 at Rajasthan College of Agriculture (RCA), Udaipur. The program was sponsored by Development Directorate, Ministry of Agriculture, Government of India, New Delhi.

The objective of the training was to identify, adopt recent cultivation practices and know the values of medicinal and aromatic plants.

A total of 20 participants comprising of Agricultural Officers from Department of Horticulture, Government of Rajasthan and Officers from Agriculture College, KVK of the University attended the programme. Resource persons were drawn from RCA, Udaipur; Ayurved College, Udaipur; Forest Dept.; Tapowan Ashram, Sukhadi University; Jagaran Jan Vikas Samiti and Directorate of Extension, Udaipur for the training.

IMPRESSIONS ABOUT OUR NEWSLETTER

I was impressed with the quality of the newsletter and its contents. Especially the column on endangered species was informative. Please keep this up. This would stimulate taking up some concrete steps to preserve.

— Dr. P. S. Rao

I liked the idea of not showing the Director’s photo under “Director’s Desk” column.

— Dr. Mruthyunjaya

The layout of the newsletter and the overall appearance and quality of the contents are all highly impressive.

— Dr. Pushpangadan
From the Institute

- Shri N. Srinivasa Rao, Scientist (Computer Application) joined on 27.1.2000
- Shri Amar Singh Dhama, T-4 (Field Technician) joined on 31.1.2000
- Shri S. U. Vyas, Jr. Clerk joined on 15.4.2000
- Shri Sarvanan Raju, Scientist (Plant Physiology) joined on 22.4.2000
- Shri C. K. Vankar, SSGr.1 (Watchman) joined on 1.5.2000

Distinguished Visitors
- Dr. G. B. Rathuri, Head, CHES, Godhra on 12.1.2000
- Dr. I. S. Yadav, Retd. Director, IIHR, Bangalore on 10.2.2000
- Dr. S. P. Ghosh, DDG(H), ICAR, New Delhi on 26.2.2000
- Dr. R. N. Pal, ADG(PC), ICAR, New Delhi on 25.3.2000 and 17.6.2000
- Shri Sankarji Thakore, Ex. Minister of Agriculture Gujarat State on 7.6.2000
- Dr. Subir Kumar Ghosh, Deputy General Manager (Technical), National Bank for Agriculture & Rural Development, Calcutta on 11.6.2000
- Dr. D. J. Patel, Principal, B. A. College of Agriculture, GAU, Anand on 17.6.2000
- Dr. D. C. Bhandari, Zonal Leader (Arid Zone), NATP (Plant Biodiversity), CAZRI, Jodhpur on 19.6.2000
- Shri Sompal, Member, Planning Commission, Govt. of India on 28.6.2000
- Shri M. D. Asthana, Principal Advisor (Agriculture), Planning Commission, Govt. of India on 28.6.2000
- Dr. S. P. Kashyap, Director, S. P. Institute of Economic & Social Research, Ahmedabad on 28.6.2000

Our New Colleagues
- Shri Dharam Bir, T-1 (Driver) joined on 1.1.2000

Human Resource Development

| Dr. P. P. Joshi, Sr. Scientist (Organic Chemistry) | Symposium on Strategies for development of Herabl Drugs | April 6-8, 2000  
| Dr. O. P. Aishwath, Scientist (Soil Science) | Workshop on up-gradation of communication skill at Extension Education Institute, GAU, Anand | April 24 – May 1, 2000  
| Shri N. A. Gajbhiye, Scientist (Organic Chemistry) | Workshop on Management of problematic Soils of Ecological Zone V of Gujarat at CSSRI Regional Station, WALMI, Anand | May 22-23, 2000  
| Shri R. Natarajan, Scientist (Economic Botany) | 69th FOCARS Training at NAARM, Hyderabad | January 6 – May 6, 2000  
|  | First on-job training under the HRD on PGR Management in the TOE at NBPGR, New Delhi | January 4 – March 31, 2000  


Endangered Species

**Rauwolfia sumatrana:** A potential medicinal plant species on its last legs in Bay Islands

*Rauwolfia sumatrana* of Apocynaceae is used extensively by the tribes of Andaman & Nicobar Islands in curing various ailments especially as an antihelminthic medicament, for relieving gastrointestinal troubles, epilepsy, fits and headache. The species was reported to be distributed across different islands ranging from Neil Island at the north to Koproheat, Koshin and Campbell Bay of Great Nicobar at the extreme south. The plants have been classified as an extra-Indian species found only in the Andaman & Nicobar biogeographic zone of Indian Sub Continent. It is a perennial small tree, 10-12 m in height with glabrous thick leaves arranged in whorls of 3 at nodes with a milky latex exudates. Terminal flowers appear during October-November and the gray green and globose berries turn into purple at maturity. The propagation is predominantly through seeds. However, *ex vitro* macro propagation by stem cuttings is also evident. Both leaf and bark are found to possess active ingredients of medicinal value. Destructive and ruthless harvesting and habitat disturbance due to increased anthropogenic pressure have led to rapid population depletion of this species in these island, which is of great concern for its survival and perpetuation.

At Central Agricultural Research Institute, Port Blair, attempts are being made towards conservation, isolation and biochemical profiling of the active ingredients and development of suitable *in vitro* micro propagation protocol for mass propagation of this species. Preliminary phyto-chemical analysis revealed the presence of tannins, reducing sugars and saponins in the leaf and bark tissues and steroids in the latex and bark. Steroids were found to be concentrated in greater levels in the bark than any other part.

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**Consultancy**

National Research Centre for Medicinal and Aromatic Plants has geared up to undertake contract research, contract service such as filed testing of pesticides and growth regulators, soil analysis, chemical analysis etc. and limited consultancy on various aspects of crop development, production and protection of medicinal and aromatic plants.