S. Ignacimuthu (ERI) reviewed the various pest-management options that have been investigated recently. He emphasized that the interrelationships among edaphic factors, attributes of primary producers, herbivore–carnivore–neutral–detritivore interactions and the ever-changing climatic factors have to be considered in great depth with a view to developing eco-friendly IPM models.

During the panel discussion, the following action plans were discussed: strengthening insect taxonomy and biodiversity expertise for authentic identification of the wide range of pestiferous and beneficial insect fauna; promoting botanically derived biopesticides; enhancing field stability and cost-effectiveness of the biopesticides; suitable extraction and evaluation methods; exploiting induced systemic resistance in crop plants as secondary benefit from beneficial microbes like *Pseudomonas* and endophytic association; greater attention towards identification of more virulent insecticidal microbial strains; extending the shelf-life and standardizing liquid formulations to enhance their adoption; improving the impact potential of mass-reared parasitoids and predators; exploring more aggressive and adapted strains of parasitoids and predators and improving female sex ratio through cost-effective methods; enhancing the efficiency of attractants, including parapheromones as lures and improving trap-design development; evaluating the use of traps and attractants in mating disruption; refining and validating different cultural and organic methods as affordable components of IPM; inventing more efficient bioagents/bioproducts and dispensing/delivery systems for the three major thrusts for vector control, namely preventive, larvicidal and adulticidal, towards more holistic and area-based strategies, and standardizing the parameters and protocols for in-house compliance in quality control of biocontrol agents and biopesticides.

The meeting reports of ERI have been published in *Current Science* from time to time. Many scientists have interacted with us after reading these reports. They have also interacted with the respective scientists of their specific field of interest. In this sense it has played an important catalytic role. Occasionally, some funding agencies have also contacted us for greater details regarding the deliberations.

S. Ignacimuthu, Entomology Research Institute, Loyola College, Chennai 600 034, India. e-mail: eri_lc@hotmail.com

MEETING REPORT

Plant taxonomy*

A two-week training programme in 'plant taxonomy' was held recently at the Forest Research Institute (FRI), Dehradun. A total of 26 participants (including research scholars, lecturers/readers) from different institutions and universities covering nine states of India attended the programme. Resource persons from different organizations delivered lectures on various topics. Two field visits were also organized to Mussoorie and Lachhiwala, and the surrounding areas. S. S. Negi, Director (FRI, Dehradun) inaugurated the programme. He spoke on the history and achievements of the FRI and the importance of taxonomy in today's context. Veena Chandra (FRI) introduced the theme of the training. The programme was intended to provide basic training of systematic botany with complete methodologies and techniques for plant collection. P. K. Hajra (formerly of Botanical Survey of India, Dehradun) delivered lectures on topics entitled 'History of botanical research in India' and 'Floristic diversity in India'. He discussed about the various collectors during different periods, areas of their collection, and about the diversity of different groups of plants and endemism.

D. K. Upreti (NBRI, Lucknow) discussed the basic facts about the lichen thallus, including collection, preservation and identification methods for beginners. In addition, he shared his Antarctica experience with the participants. P. K. Mishra (Lucknow University) gave a lecture on morphotaxonomic studies on freshwater algae in northern India. He pointed out the activities of the AICOPTAX scheme on freshwater algae of India and spelt out the different species found in different states of northern India. Dinabandhu Sahoo (University of Delhi) spoke about the importance of sea-weeds cultivation as an alternate source of livelihood. J. R. Sharma (BSI, Dehradun) dealt with conservation measures for fungi. His lecture consisted of major groups of fungi, their macro and micromorphology, threats and conservation measures. He also talked about the methods of fungi collection and preservation. A. N. Shukla (FRI) discussed the different forest fungi and the extent of damage caused by them.

D. K. Singh (BSI, Dehradun) delivered a lecture on 'Bryophytes in India – an appraisal', in which he emphasized on the exploration and inventorying of bryophytes and also identification and mapping of RET species. Singh also discussed in brief about the historical overview of bryological studies in India. He talked about the diversity and distribution and economic importance of bryophytes in India and also phytogeographical affinities. He also shared his Antarctica experience with the participants. N. Punetha (L. S. M. Government P.G. College, Pithoragarh) spoke on pteridophytes in India, covering their diversity, classification and taxonomy. Veena Chandra (FRI) delivered lectures on 'Ethnobotany and its significance' and 'Digitization of Dehradun herbarium'. She emphasized the importance of virtual herbarium and presented the digitization aspects of a herbarium. She also delivered a talk on

*A report on the two-week training programme in 'Plant Taxonomy' organized and held at the Systemic Botany Division, Forest Research Institute, Dehradun during 21–31 January 2008 and sponsored by the Ministry of Environment and Forests, Government of India.

the importance of 'Getting to know trees in the field' by identifying their characters such as buttresses, bark, leaves, branching pattern, flowering and fruiting, and seeds. Rita Singh (Indraprastha University, Delhi) delivered a lecture on gymnosperms in India. She discussed right from the geological history to the distribution of gymnosperms. She dealt in detail with systematics and geographical distribution of the Indian cycads.

Lectures were also delivered on certain specific groups such as orchids, rattans, bamboos, etc. H. J. Chowdhary in a lecture on 'The family Orchidaceae in India' discussed the characteristics, classification, distribution and importance of the genera of the family. Sas Biswas (FRI) delivered a lecture on 'Rattans in India' and described the species diversity and distribution of important rattans in India and adjacent countries. He also talked about the ethnobotany of rattans. H. B. Naithani (FRI) delivered a lecture on 'Diversity and variability of bamboo resources and their conservation'. He emphasized that both *in situ* and *ex situ* conservation strategies should form an integral part of programme of maintenance of bamboo genetic resources. S. S. Jain (Indian Council for Forestry Research and Education, Dehradun) gave a lecture on 'Taxonomic importance, history and economic importance of Indian Meliaceae'. Paramjit Singh Channa (BSI, Kolkata) dealt with grasses of India. G. S. Rawat (Wildlife Institute of India, Dehradun) delivered a lecture on the 'Alpine flora of the western Himalaya: A review of floristic', covering the early explorers in the area, patterns of diversity, endemism in alpine flora of western Himalayas, functional diversity and future research needs.

H. B. Singh (National Institute of Science Communication and Information Resources, New Delhi) delivered a lecture on 'Collection of special kinds of plants' and described the purpose of plant collection. Anup Chandra (FRI) described the importance of authentic identification of species and herbarium methodology. Sas Biswas (FRI) discussed 'Recent trends in planning management and integration of herbarium'. L. B. Chowdhary (NBRI, Lucknow) spoke on the 'Principles on molecular taxonomy: A case study of the genus *Astragalus* L', in which he described the merits of molecular markers and methods of DNA study. He also delivered a lecture on 'Species concept'. S. P. S. Kushwaha dealt with 'Importance of remote sensing in taxonomic studies'. Sarita Arya (FRI) spoke on the 'Role of tissue culture in conservation of RET plants'. Paramjit Singh (FRI) delivered a talk on the 'Role of herbarium in research, education and extension'. Paramjit Singh Channa talked about the latest International Code of Botanical Nomenclature. The detailed code was discussed by Veena Chandra, who talked about the typification, naming of plants, rejection and retention of names, effective and valid publication, etc.

During the training period, two field visits were organized to Mussoorie for field identification of plant species along altitudinal variation and to Lachhiwala forest for identification of plants in different ecosystems.

Workshops were organized for herbarium methodology, such as collection of different kinds of plants and their processing for example, pressing, mounting, stitching, etc. Besides, a classroom workshop was conducted for identification of plants with the help of flora using botanical keys. A bamboo identification workshop was also held in the FRI, Bambusetum.

Veena Chandra, Systematic Botany, Botany Division, Forest Research Institute, Dehradun 248 006, India.
e-mail: veenachandra007@rediffmail.com