

A report on the brainstorming session in the area of Plant Reproductive Biology

Studies on reproductive biology, an important interdisciplinary area of plant sciences, are essential to understand the evolution and survival of the species, to develop effective conservation strategies and for exploitation of the economic potential of the species. Reproductive biology has been an active area of research, particularly in the fields of evolutionary biology, embryology, physiology and biochemistry. Tissue culture technology is being extensively used in studies on reproductive biology.

During the last decade, interest in reproductive biology has increased tremendously throughout the world and techniques of molecular biology are being used extensively. Indian contributions to reproductive biology have been impressive in the area of embryology. However, in the other vital areas, contributions from Indian workers are very marginal. Contrary to the situation in other countries, interest in this field is dwindling in India. This is very disappointing particularly in the light of (i) the presence of a rich flora distributed over a wide range of habitats, (ii) the need for developing effective conservation strategies for a large number of endemic species and (iii) lack of data on the economic potential of a majority of our endemic species.

In view of the dismal scenario in the country, the Programme Advisory Committee on Plant Sciences had identified Plant Reproductive Biology as one of the challenging areas. In view of its importance and to generate a wider interest, a brainstorming session in this area was planned. The expert committee set up to organize the session, identified the following areas for inviting research pre-proposals:

Reproductive biology of special groups of plants such as endangered species, endemic species, species of medicinal and of other economic importance, parasitic and insectivorous species, aquatic plants, mangroves, shola vegetation, canes and rattans, important

- weeds and orchids.
- Reproductive biology in relation to conservation, flower attractants and rewards, plant-pollinator interaction, gene flow through pollen and seeds, efficacy of limited pollination to increase genetic variability, pollination efficiency particularly in mixed cropping.
 - Apomixis: Fundamental and applied aspects.
 - Evolutionary aspects of reproductive biology.
 - Seed biology: Embryo-endosperm relationship, seed and fruit abortion, biology of 'unorganized embryos'.
 - Vegetative reproduction with special reference to economic trees in which seed propagation is problematic.
 - Applied aspects of reproductive biology: Pollen allelopathy, incompatibility, *in vitro* fertilization, pollination efficiency and constraints, pollen viability and storage, pollen selection, seed viability and dormancy (in non-agricultural crops), effects of environmental stresses on reproductive biology.

The main consideration in identifying these areas was to emphasize relevant areas which have largely been ignored. Tissue culture aspects were not included, as considerable work is already going on in the country in this area.

The brainstorming session was organized from March 22 to 24, 1994 at the University of Jammu under the Chairmanship of H. Y. Mohan Ram, University of Delhi. In his keynote address, Mohan Ram highlighted many of the fascinating aspects on flower induction, sex-expression, pollination biology and seed biology. He also emphasized the need for using the basic data to develop new concepts. Other experts presented state-of-the-art reports on the following topics - Apomixis (P. K. Gupta, University of Meerut); Pollen-pistil interaction (K. R. Shivanna, University of Delhi); Haploids (S. K. Raina, Indian Agricultural Research

Institute, New Delhi); Breeding systems (A. K. Koul, University of Jammu); Seed biology (N. S. Rangaswamy, University of Delhi).

Besides these lead lectures, a special lecture and video film on pollination biology of Asclepiadaceae (S. K. Chaturvedi, University of Allahabad) was also presented.

The pre-proposals received were in the areas of endangered species, special groups such as orchids and canes, medicinal plants and conservation biology.

The research students of the Department of Life Sciences, University of Jammu actively participated in all the deliberations. In the last session, there was a general discussion on a wide range of research-related topics such as funding policy, preparation of project proposals, collaborative research programmes, etc. in which both experts and young researchers took active part. The young researchers highlighted difficulties faced by post-doctoral fellows in finding suitable positions to continue their research. They also expressed appreciation for the decision of the Programme Advisory Committee of the Department of Science and Technology to organize the brainstorming session at Jammu, thus enabling the research workers to meet experts and discuss their research programmes.

At the conclusion of the session, the consensus was that although a good beginning was made, concerted efforts should be continued in order to encourage research in the whole spectrum of plant reproductive biology in the country.

The programme Advisory Committee on Plant Sciences (Department of Science and Technology) would continue to welcome well-defined proposals in the areas listed above for consideration.

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