

NATIONAL SEMINAR ON TREE BIOTECHNOLOGY 2013
AT IFGTB COIMBATORE
23 -24 September 2013

The National Seminar on Tree Biotechnology 2013 – Emerging Opportunities in Forestry and Tree Science was held at the IFGTB on 23-24 September 2013. The Seminar was inaugurated by the Chairman, National Biodiversity Authority, Dr. P. Balakrishna Pisupathi. He congratulated IFGTB for 25 years of research efforts and also for this initiative on tree biotechnology. He opined that among the biotechnological approaches more than 30% is related to clonal forestry and other major areas are related to diversity analysis, genomics particularly markers related studies in tree biotechnology. He also informed that about 65% of biotechnological studies are confined to 6 species only. He asked the gathering to harness on the huge natural diversity existing in forestry.



A website on In silico Gene Bank for Adaptation to Abiotic stress was launched. Shri. T.P. Raghunath, IFS, Group Co-ordinator Research welcomed the gathering, Dr. R. Yasodha, Organising Secretary of the seminar presented an over view of the seminar. Dr. N.Krishna Kumar, Director, IFGTB, in his presidential address, informed the house that 'Action decision' needs to be taken in the field of tree biotechnology not only to meet the demand of wood and NTFP by enhancing productivity, but also to cope with challenges relating to

agroforestry, stress sites, water use efficiency, nutrient use efficiency, pest and disease tolerance.



About 60 research papers were deliberated in 10 different themes. Lead talks were delivered by the following speakers

Theme	Speaker/s
Advances in Clonal Propagation	<i>S.A. Ansari, TFRI, Jabalpur</i>
Current methods in tissue culture	<i>Shuchishweta V. Kendurkar, NCL, Pune</i>
Cell culture and secondary metabolites	<i>O.P. Sidhu, CSIR-NBRI, Lucknow.</i>
Genetic evaluation protocols and tools	<i>M. Sujatha, Directorate of Oilseeds Research, Hyderabad</i> <i>Shailendra Rajan, Principal Scientist, CISH, Lucknow</i>
Marker assisted selection	<i>K. K. Vinod, Senior Scientist, IARI, Rice Breeding and Genetics Research Centre, Aduthurai.</i> <i>M. Venkateswarlu, Seribiotech Research Laboratory, Central Silk Board, Bangalore.</i>
Evolutionary biology and conservation	<i>M.V.Rao, Bharathidasan University, Tiruchirappalli</i> <i>N.Vijayan Nair, Director, SBI, Coimbatore</i>
Genetic improvement and Genomics	<i>Mohan Varghese, ITC Life Sciences and Technology Centre, Bangalore</i> <i>Latha Rangan, IIT, Guwahati</i>
Genetic engineering	<i>A. Thulaseedharan, RRII, Kottayam</i> <i>D. Sudhakar, CPMB, TNAU, Coimbatore</i>
Advanced DNA technologies	<i>Sriram Parameswaran, Genotypic Technology, Pvt. Ltd., Bangalore</i>
Computational Biology	<i>Sucheta Tripathy, CSIR-IICB, Kolkata</i> <i>Malali Gowda, C-CAMP, NCBS, Bangalore</i>

Participants from 53 different organizations spread across the country took part in the seminar proceedings. Best presentation and poster awards were decided from the proceedings.



A.P. Anu Aravind of JNTBGRI, Trivandrum, P.M. Sreekanth of Bangalore City college, Bangalore, A.D. Rane of College of Forestry, Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli, Maharashtra and Dr. Suma Arun Dev of KFRI, Peechi received the best presentation awards. Best Poster awards were given to Binoy Kurian, JNTBGRI, Palode & B. Karpaga Raja Sundari, IFGTB, Hemshikha Tyagi, AFRI, Jodhpur & Ms. Sumathi, IFGTB and T. Gireesh, RRII, Kottayam & K. Sowmiya Rani, IFGTB.

Vote of thanks was proposed by Dr.Modhumita Dasgupta.



Recommendations of the National Seminar on Tree Biotechnology 2013

1. Advanced clonal multiplication methodologies should be standardized and adopted in commercially viable species.
2. Research on adventitious rooting at morpho- physio-molecular level and hardening should be pursued in prioritized commercially important tree species
3. Tissue culture technologies should be developed at commercially viable scale for mass multiplication. Field level data should be continuously obtained and disseminated for better acceptance of tissue culture technology.

4. Facilities for scaling up clonal technologies for production of quality propagules for commercial purposes should be established through appropriate agencies through public- private participation.
5. Standard guidelines for certification of TC material for the tree species should be evolved, and accredited by the certified agencies.
6. Metabolic profiling of medicinal and commercially important tree species for potentially useful active principles should be studied in detail for commercial applications.
7. Generate information on breeding systems on species targeted for genetic improvement studies.
8. The marker based research need to be continued in tree species to realize the gains
9. Strategies for marker assisted breeding/selection should be debated and suitable approaches need to be supported in program mode for selected few species.
10. Enhanced application of molecular markers to be employed in selection of elite germplasm.
11. Studies on evolutionary biology to be undertaken for the conservation of species for high productivity and adaptability to biotic and abiotic stresses.
12. Establishment of multilocation gene banks for conservation in situations like non production of viable seeds coupled with sporadic flowering.
13. Existing germplasm resources handled by various agencies should be documented under a national register, monitored and maintained. –General R
14. Inventory and research on apomictic trees should be given impetus for improving productivity.
15. Cryopreservation needs to be given due thrust especially for development of species specific protocols.
16. Propagation and conservation technologies for endangered species need to be developed, for reintroduction in suitable habitats.
17. Breeding orchards should have adequate diversity for genetic improvement of species to prevent gene loss during domestication.
18. Whole genome and transcriptome sequencing of tree species to be initiated.
19. Genomics and computation biology of tree species to address biological problems should be undertaken.
20. Use of DNA barcoding for timber forensics and biosystematics.
21. GM Research in tree species need to be taken up and marker free GM techniques should be explored.
22. All biosafety aspects to be considered before initiating GM projects and case-by-case risk assessment to be followed for approval of field trials
23. Dissemination of information on safety aspects of transgenics to be made to the general public.
24. Documentation of Chromosome genome size and ploidy level.
25. RNAi programmes need to be given due thrust for functional analysis of genes.

General Recommendations

- Germplasm documentation and maintenance. Provision of funds for maintenance of the same.
- Species based networking programmes in a coordinated approach.
- Earmarked budget for tree biotechnology.
- Efforts to be made for exploring novel genes from forest genetic resources.
- Public private partnership.

Oral Presentations





Poster sessions

