PROJECT COMPLETION REPORT

1. PROJECT NO : RAG/PLAN/IWST/TIP/X-67/6-126/FRC/08

2.TITLE OF THE PROJECT : Development of micro propagation protocols for production of superior germplasm of *Dalbergia latifolia* Roxb. and *Pterocarpus santalinus* L.f.

3. PRINCIPAL INVESTIGATOR: D r. G. R. S Reddy, Scientist-F

& ASSOCIATES: Dr. T.S. Rathore Scientist –F

4. PROJECT APPROVAL DATE

a) RAG : 2008

b) RPC : 2009

c) ICFRE : 2009

5. DATE OF COMMENCEMENT OF PROJECT : April 2009

6. DATE OF COMPLETION OF PROJECT : March 2014

7. TOTAL BUDGET OF THE PROJECT : 13.19 lakh (Revised budget)

i) List of equipment procured under the project (with cost): Autoclaves 2 (Rs.1.20 lakhs), Laminar Air Flows 2 (Rs. 1.00 lakhs), TC racks 4 (Rs. 80,000)

ii) Total expenditure on the project: 12.90 Lakh

4. **Abstract of significant findings:** The present work entitled "Micropropagation of *Dalbergia latifolia Roxb.*: An important multipurpose tree" was conducted at Institute of Forest Biodiversity. The work lead to the development of tissue culture protocols for rapid multiplication of *Dalbergia latifolia*, using axillary buds of young sprouts from the superior genotypes selected earlier by the Institute. More than 80 per cent of the culture exhibited axillary bud sprouting from nodal segments on Murashige and Skoog (MS) medium supplemented with 6- benzyl amino purine (BAP) 0.5mg/l and α-naphthalene acetic acid (NAA) 0.2mg/l. Subculture of sprouted shoots from the original explants on MS medium supplemented with GA3 (2.5 mg/l) and BAP, 0.5 mg/l was found to be essential for further shoot multiplication and elongation. *In vitro* raised shoots of approximately four cm in length exhibited 90 per cent response of rooting within four weeks on half strength MS basal medium supplemented with indole-3-butyric acid (IBA) 1.0 mg/l in case of rosewood. The hardening of the plantlets was done under 50 per cent agro shade net for three months before being transferred successfully to the field. Similarly, *Pterocarpus santalinus* was tested but it is slightly difficult species as compared to rosewood. However, more than 90 per cent of the culture exhibited axillary bud sprouting from nodal segments on Murashige and Skoog (MS) medium supplemented with 6- benzyl amino purine (BAP) 0.5mg/l and α-naphthalene acetic acid (NAA) 0.2mg/l. Subculture of sprouted shoots from the original explants on MS medium supplemented with BAP (1.0 mg/l) and TDZ 3.0 mg/l was found to be essential for further shoot multiplication and elongation. *In vitro* raised shoots of approximately 3.5 cm in length exhibited 78 per cent rooting within four weeks on half strength MS basal medium supplemented with indole-3-butyric acid (IBA) 1.0 mg/l in case of red sanders. The hardening of the plantlets was done under 50 per cent agro shade net for three months before being transferred successfully to the field. Callus induction studies were also carried out and the response of Rosewood is better than red sanders. The hormones 2,4-D,1.0 mg/l + NAA, 0.5 mg/l induced 100 %callus in leaf explants of rosewood whereas NAA , 0.5 mg/l + BAP, 2.5 mg/l resulted in maximum 98 per cent callus induction in leaf explants.

5. **Research Output:** The micro propagation protocols for the production of superior germplasm of *Dalbergia latifolia* Roxb. and *Pterocarpus santalinus* L.f. were developed using juvenile shoots used as explants. The protocols for callus multiplication are also successful in both the species. The superior germplasm of rosewood and red sanders has been multiplied and planted in the Institute. The process of multiplication is progressing to