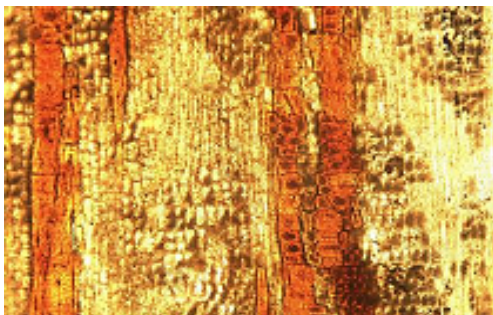


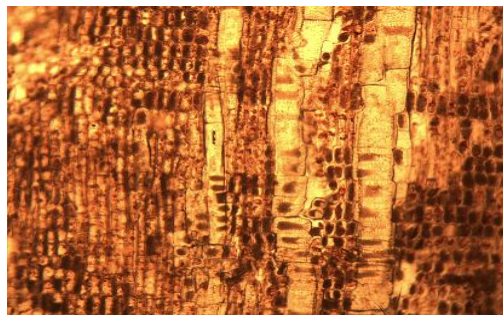
## COMPLETED EXTERNALLY AIDED PROJECTS

### **Project 1: Studies on the properties of coffee wood as indicators of white stem borer resistance (Funded by Central Coffee Research Institute) [2005-08]**

**Findings:** The project was basically consisted of training in-service officials of CCRI in histo-chemistry. As per the agreement, a number of clones (selections) were collected at regular intervals of different locations of coffee growing areas which were affected by stem borer alongwith healthy (immune) and inoculated ones. Histo-chemical tests like presence of starch, proteins and lipids were made on these samples for finding any relationships. Histo-chemical studies were also made on the presence of tannins. Studies have indicated that the presence of these food reserves in different stages of phenology have no direct relevance to borer attack. However, the presence of sclerotic cells in the bark of immune variety compared to the susceptible one is an indication of their resistance offered against the borer attack.



Sarchimor Immune Bark, Tannin, 2006



Sarchimor Susceptible Bark, Tannin, 2006

### **Project 2: Investigations on lesser known aspects of mangrove biodiversity and ecology in the States of Goa, Karnataka and Andhra Pradesh (Funding Agency: Ministry of Environment and Forests (MoEF)) [2004-08]**

**Findings:** Survey and inventory of mangrove floral diversity in selected areas along Goa, Karnataka and Andhra Pradesh coast was carried out. Twenty two lesser known mangrove wetlands were reported for the first time from Andhra Pradesh. A total of 885 plant specimens were collected and all the specimens were made into herbarium and identified. Ecological data were also collected. *Brownlowia tersa* (L.) Kosterm. was collected and reported for the first time from Southern India. *Ruppia maritima* L.– a marshy plant was reported as new distributional record from Andhra Pradesh. Three rare mangrove species, namely, *Aegialites rotundifolia* Roxb., *Ceriops tagal* (Per.) C. B. Rob. and *Scyphiphora hydrophyllacea* Gaertn. were recorded from Andhra coast. Collected insects, foulers and borers from mangrove areas along Goa, Karnataka and Andhra Pradesh coasts and identified. Anatomical studies of selected mangrove trees were completed. Phytochemical studies on selected species, namely, *Rhizophora mucronata* Poir., *Xylocarpus granatum* Koenig, *X. mekongensis* Pierre and *Excoecaria agallocha* L. were carried out. Selected mangrove species were screened for wood energy values. A workshop on mangroves was conducted at IWST, Bangalore during February 2008.

**Project 3: Community ecology of a detritus systems. Insects and fungi associated with fallen trees in the Nilgiri Biosphere Reserve (Funding Agency : MoEF, Govt. of India) [2004-07]**

**Findings:** Different landscape elements were selected in Rajeev Gandhi National Park for assessing the role of fallen logs in biodiversity conservation. Various sampling methods, including black light traps were used to collect the insects from fallen logs. Specially designed traps for collection of emerging insects from fallen logs were fixed to each log. A weather recorder was installed for studying the effect of seasonal variation in insect and fungal biodiversity. About 300 species of xylophagous insects were recorded from fallen logs at Nagarhole national park. The insects are being identified. Twenty species of fungi and 42 species of mycophagous insects were recorded from fungi inhabiting fallen logs. Chemical characterization of different stages of fallen logs of 10 species is completed and was correlated with the community structure of insects and fungi. The role and interactions of insect and fungal communities in the fallen log system was assessed. Final technical report is prepared and submitted to MoEF.

**Project 4: Studies on the Entomofaunal diversity and their interactions in selected provenances of sandal (Funding Agency: Ministry of Environment and Forests (MoEF)) [2004-May 2007]**

**Findings:** The project was completed on 31<sup>st</sup> May 2007 and the completion report is submitted.

**Project 5: Development of protocols for rapid and mass clonal propagation of *Bambusa pallida* Munro and *Phyllostachys bambusoides* Sieb.et Jucc. (Funding Agency: Department of Biotechnology) [2004-07]**

**Findings:** Developed protocols for micropropagation of *Bambusa pallida* and *Phyllostachys bambusoides* from nodal shoot segments of mature clumps. High frequency (>95%) multiple shoot induction (4-6 shoots/explant) obtained in liquid MS medium with NAA 0.25 mg/l + BAP 2.5 mg/l in *B. pallida*. *P. bambusoides* MS liquid medium with NAA 0.25 mg/l; + TDZ (0.5-1.0 mg/l) proved most suitable for multiple shoot induction (3-4 shoots/explants). Shoot multiplication rate was high (3-4 fold) in *B. pallida* as compared to *P. bambusoides* (2.5 fold in 4 weeks period). Low nutrient medium (MS/2 and MS/4 basal salts) with NAA/IBA (1.0-2.0 mg/l) favoured rooting in both the species. Shoot clumps (2-3 shoots per clump) proved better than single shoot for rooting. In case of *P. bambusoides*, macro-propagation using nodal branch cutting was also standardized for high rate of rooting (>80%). Attempts were also made for *in vitro* propagation through somatic embryogenesis but results were not encouraging.

**Project 6: Studies on assessing growth performance of *Guadua angustifolia* Kunth under different management schedules. (Funding Agency: National Mission for Bamboo Application) [2005-08]**

**Status:** Established field trials for assessing growth performance of *Guadua angustifolia* Kunth at two spacing (5m x 5m and 5m x 9m) and fertilizer trials consisting seven treatments at two sites

viz; Yelwala near Mysore and Gottipura near Bangalore in 1.3 ha each. Intercropping has been done continuously with horse gram since 2005. Evaluated survival rate and growth performance of the exotic bamboo *Guadua angustifolia*. Survival rate varied from 60 – 90% initially, which decreased to 45-60% in 2007 mainly due to termite infestation. Initial results suggest that *Guadua angustifolia* may not be a suitable species for semi-arid areas.

**Project 7: Bamboo location trials (Funding Agency: National Mission for Bamboo Application) [2005-08]**

**Status:** Trials were established in respect of 8 bamboo species viz; *Bambusa bambos*, *B. balcooa*, *B. nutans*, *B. tulda*, *Dendrocalamus asper*, *D. hamiltonii*, *D. giganteus* and *D. stocksii* (in Bangalore) and *Guadua angustifolia* in place of *D. stocksii* in FRC, Hyderabad) during July-Sept. 2005 and maintained at Nallal, Bangalore and Dulapally, Hyderabad. Maximum survival (100%) was in *B. balcooa* and minimum (about 50%) in *D. asper*. Based on the growth performance, *D. hamiltonii* proved the most promising species whereas, *D. asper* and *G. angustifolia* were found unsuitable in semi-arid conditions of Bangalore and Hyderabad.