

Continued ICFRE Funded Project 2010-11 –TFRI

Project S. No.	Name of Project	PI	Thrust Area	Current Status
1	Determination of polysachharides for the Development of bioproducts. (April 2009, 2009-2012)	Smt. Neelu Singh	Non wood Forest Produces (Chemistry of NWFPs, value addition and utilization)	Collected, processed and isolated polysaccharides from selected species Physical and chemical properties of polysaccharides –starch from <i>Curcuma angustifolia</i> , <i>C. pseudomantana</i> , <i>Dioscorea bulbifera</i> , <i>D. hispida</i> were determined. Polysaccharides –starch different species were modified by acetylation and hydroxyl-propylation. Degree of substitution was evaluated. Compatibility of starches with different concentrations of plasticizer/ additives were evaluated .
2	Development of an information system for forest tree species associated insects and their management. (June 2008, 2008-2011)	Dr. Sharad Tiwari	Forest Management- (Information and Communication Technology)	Database structure has been designed and database tables are created. All the user interface forms are designed. Data has been collected for nine forestry species viz. <i>Shorea robusta</i> , <i>Dalbergia sissoo</i> , <i>Dalbergia latifolia</i> , <i>Acacia catechu</i> , <i>Acacia nilotica</i> , <i>Albizia lebbek</i> , <i>Bamboo</i> , <i>Tectona grandis</i> , <i>Ailanthus excels</i> on insect pests associated with these species based on scientific name, common name, distinguishing characters, nature of damage, host range, natural enemy and control management techniques. Photographs for different insect pests has been collected through field visit. Data entry work for eight forest tree species <i>Shorea robusta</i> , <i>Dalbergia sissoo</i> , <i>Dalbergia latifolia</i> , <i>Tectona grandis</i> , <i>Acacia catechu</i> , <i>Acacia nilotica</i> , <i>Albizia lebbek</i> , <i>Bamboo</i> related information has been done in the software.
3	Evaluation of Productive of maize on <i>Dalbergia sissoo</i> (Shisham) and <i>Zea mays</i> (Maize) agroforestry system. (April 2008, 2008-2011)	Dr. Nanita Berry	Forest Productivity (Social Forestry, Agroforestry/ Farm Forestry)	Established Sissoo-zeamays system as an OSR trial at TFRI campus under two year old <i>Dalbergia sissoo</i> plantation which were already established in 21 plots (size 10m x 10m) at 3 different spacings of 4m x 4m, 5m x 5m and 6m x 6m and 3 plots were kept as blank outside the plantation area. Hybrid maize seeds were sown at a same spacing of 60cm x 20cm with tree to crop line spacing of 60cm and 120cm as per the approved project design, i.e. Randomized Block Design. The maize crop was harvested and yield data were recorded, tabulated and analyzed statistically. Growth parameter i.e. Collar diameter and height of each <i>Dalbergia sissoo</i> plant was recorded at the time of planting and harvesting of maize crop and after statistical calculation tabulated

				the data. Soil samples have been collected from each RBD block at the time of planting and harvesting of maize crop and the pH, E.C., Organic carbon, Available N,P,K, and Ca++, Mg++ was determined and after statistical calculation tabulated the data.
4	Genetic improvement of <i>Buchnanania lanzan</i> spreng. CFRHRD (July 2007, 2007-2011)	Sh. N.D. Khobragade	Genetic Improvements (Tree improvement)	Survey & selection of candidate plus trees. Establishment of progeny trial of <i>B.lanzan</i> .
5	Genetic variation for in-vitro morphogenetic potential of <i>Dalbergia sissoo</i> Roxb. Clones and evaluation of their field performance. (April 2007, 2007-2012)	Dr. Yogeshwar Mishra	Genetic improvement (Conservation of forest Genetic resources)	The shoot cultures of five selected clones were established with good response of nodal segment explants in these clones. The shoot cultures were tested to produce more shoot number by initiating shoot multiplication experiments. The varied responses of shoot multiplication rate were noticed in different clones treated with various hormonal doses. However, the maximum shoot multiplication rate was obtained in GBW clone, which resulted in more than 4 fold shoot multiplication rate. The rooting experiments were also initiated this year following the existing protocols of Kalia et al. (2004) and Joshi et al. (2003), but the results obtained in our systems were differed from these published reports. Therefore, some new experiments have been started using various basal media and different hormones for augmenting rooting percentage.
6	Standardization of cultivation protocols for <i>Asparagus racemosus</i> (satawar). CFRHRD (June 2007, 2007-2011)	Shri Suneesh Buxy	Non-wood Forest Products (Resource Development of NWFPs)	74% germination response observed at depth of 1.5 to 2 cm. Observation recorded at CFRHRD, Poama, TFRI & Saraswada for growth productivity. Mortality recorded 9%, 11%, 8% & 9% respectively. Recorded the observation of effect of organic fertilizer along with spacing (45x45, 45x60 & 60x60 cms) Significant growth recorded (increasing no. & weight of tubers) according to applied organic manures. Effect of irrigation of growth is also laid out, recorded the tubers were slightly bigger than irrigated ones. Soil analysis has been done. Sample taken and sent to Venkatesh Food Industries for chemical analysis. Satawarin content).
7	Studies on diseases of important medicinal plants and their bio-control. (June 2008, 2008-2011)	Dr. V.S. Dadwal	Forest Protection (Insect pests, diseases and control)	Disease survey conducted during July-December 2008-09 & 2009-10 at State Forest Research Institute nursery Jabalpur, Raipur, Bilaspur, Bhopal, Chhindwada, Dhar revealed that <i>R.serpentina</i> plantation were suffering from foliage diseases caused by <i>Phomopsis sethii</i> , <i>Macrophomina phaseolina</i> , <i>Mycosphaerella rauvolfiae</i> , <i>Alternaria 2lternate</i> , <i>Cladosporium oxysporum</i> <i>Colletotrichum</i>

				<p><i>capsicii</i>, <i>Lasiodiplodia theobromae</i>, <i>Phoma joliana</i> and <i>Cercospora rouvolfia</i>.</p> <p><i>W. somnifera</i> plants have shown leaf spot disease caused by <i>Pseudocercospora withaniae</i>, <i>Cladosporium oxysporum</i>, root rot disease caused by <i>Fusarium oxysporum</i> and damping-off caused by <i>Sclerotium rolfsii</i>.</p> <p>Leaves of <i>C.borivillianum</i> have shown leaf spot disease caused by <i>Colletotrichum</i> sp. and <i>Phoma joliana</i>. and root disease caused by <i>Fusarium oxysporum</i>.</p> <p>Four strongly antagonistic bacteria /actinomyces have shown significant result for controlling growth of pathogen in vitro.</p>
8	<p>Studies on endogenous auxin level and its relationship with adventitious rooting potential in <i>Dalbergia latifolia</i> Roxb. (April 2008, 2008-2011)</p>	Dr. Pramod Kumar Tiwari	Genetic Improvement (Vegetative Propagation)	<p>Spectrophotometric method for estimation of IAA was standardized. IAA was screened as best rooting hormone. Significant seasonal/genotypic variation was recorded in endogenous auxin (IAA). IAA was minimum (1.742 $\mu\text{g g}^{-1}$ fresh weight) in March and maximum (3.640 $\mu\text{g g}^{-1}$ fresh weight) in July. Maximum IAA was in tree 8 (3.117 $\mu\text{g g}^{-1}$ fresh weight) and minimum in tree 1 (2.334 $\mu\text{g g}^{-1}$ fresh weight). Significant variation in endogenous auxin was also recorded among selected trees from Chandrapur (MS) and Jagdalpur (CG). Significant variation was recorded in endogenous IAA in seedlings of selected trees. Basal dip treatment of IAA (5mM) for 4 hrs promoted adventitious rooting upto 11.33% compared to 1.33% in control in shoot cuttings of Jabalpur. Experiment with seedling cuttings by the treatment of 2mM IAA for 4 hrs yielded an average of 35.83% rooting.</p>
9	<p>Studies on the dynamics of litter decomposition in sal forests of central India and its impact on nutrient status of soil. (July 2009, 2009-2013)</p>	Dr. K.K. Soni	Forest Protection (Mycorrhizae, Rhizobia and other useful microbes.)	<p>Study sites were selected from sal forest of MP, CG, and Orissa. Litter samples from different layers have been collected for study of microflora and fauna involved in decomposition of litter. Isolation and identification of litter decomposing microflora is under progress. <i>Russula</i> sp. , <i>Geastrum</i> sp. , are commonly occurred as mycorrhiza forming fungus. <i>Cocomyces tandonii</i> , and <i>Merasmius</i> sp are recorded as a dominant litter decomposing fungi. Some new and interesting fungi namely <i>Asterostomella</i> (Black mildew) <i>Wiesneriomycetes</i>, and synnematosus forms were recorded from India.</p>

10	Studies on the harvesting time of some selected Medicinal plants for their natural antioxidants constituents. CFRHRD (July 2009, 2009-2012)	Dr. Vishakha Kumbhare	Non wood Forest products (Chemistry of NWFPs, Value Addition and Utilization)	Survey conducted in natural forest of Tamia, Delakhari & Jhirpa range & Medicinal Plants Conservation Area(MPCA), Delakhari for species availability under study. Only <i>G. sylvestre</i> species was found in natural forest of Rainikheda beat, Jhirpa range. <i>W. somnifera</i> & <i>M. oleifera</i> was cultivated in farmers field. <i>S. rebaudiana</i> species availability was meagre. <i>W. somnifera</i> experimental bed was established in CFRHRD nursery. Collected leaves sample of all species from nursery & <i>G. sylvestre</i> natural forest at monthly time intervals & estimated natural antioxidant constituents. Further work is under progress.
11	Studies on wood-decay and its control on stored tropical timber. (June 2008, 2008-2012)	Dr.C.K.Tiwari	Wood Products (Value Addition and Utilization)	During the period, I have completed survey, Collection, Isolation, purification of culture, processing of wood decaying fungi and its maintenance from 68 wood depots of Madhya Pradesh (18) Chhattisgarh (13) Maharashtra (12) and Orissa (25) and 1159 specimens of wood decay fungi were collected on 34 hosts and process for study. These specimens of wood decaying fungi were identified as 54 species under 22 genera, out of them 4 genera: <i>Hapalopilus</i> , <i>Ceriporiopsis</i> , <i>Schizopora</i> , <i>Postia</i> , and 7 species: <i>Hapalopilus nidulans</i> , <i>Ceriporiopsis merulinus</i> , <i>Trametes ochraceae</i> , <i>Postia placenta</i> , <i>Schizopora paradoxa</i> , <i>Pycnoporus coccineus</i> , & <i>Pycnoporus cinnabarinus</i> , reported first time from M.P., MS and CG. Three resupinate wood decaying fungi were recorded as new to India. These are 1. <i>Australohydnum dregeanum</i> (Berk.) Hjortstam and Ryvarden 2. <i>Hjortstamia friesii</i> (Lév.) Boidin and Gilles, 3. <i>Schizopora flavipora</i> (Berk. and M.A. Curtis ex Cooke) Ryvarden. Isolation of wood –decaying cultures from fruit bodies or basidiocarp and decaying wood by means of tissue culture method on PDA, 29 cultures were prepared and maintained. Layout of experiment of toxicity test and decay resistance using 3 timber species (<i>Tectona grandis</i> , <i>Shorea robusta</i> and <i>Pterocarpus marsupium</i>) <i>F.flavus</i> with 4 different concentrations (0.5%, 1.0%, 1.5%, 2.0%) of urea and Zinc sulphate was conducted.