

PROJECTS ONGOING DURING THE YEAR 2008-2009

PLAN PROJECTS

Project I: Standardization of nursery technology and evaluation of various planting stocks of *Pterocarpus marsupium*. (Project ID No. 109/CFRHRD/2006-2(9)).

Status: Seeds of *Pterocarpus marsupium* (Bijasal) were collected from Gondia (Maharashtra) region. The seeds were treated with cold water for 24 hours showed promising results as compared to hot water treatment. The bigger size seeds gave higher germination percentage and germination value as compared to the small size seeds. The studies showed higher germination percentage in the month of July and minimum in the month of January. Potting mixture in the ratio of 80% organic compost + 20% soil was found to be best combination, whereas the 250cc size gave better results with respect to root and shoot biomass. Experiments to study the effect of different dosages i.e. 2,4 and 6 gm. of inorganic fertilizers on growth and development of 4 months old seedlings has been conducted. Urea, Diammonium Phosphate and Murate of Potash per plant was applied but initially no effect of inorganic fertilizers on growth and development of seedlings was observed. Branch cuttings of *Pterocarpus marsupium* kept in mist chamber after treating the cuttings with different concentration of IBA 500,1000,1500 and 2000 ppm for 24 hours. Shoot formation was recorded after 14 days but no root formation was observed. A field trial of different types of seedlings (seedlings raised in polybags, root-trainers & root-shoot cuttings) has been established at CFRHRD Campus with three replications and spacing of 5x5 meter in randomized block design for evaluating the planting stocks of *Pterocarpus marsupium*.

Project II: Studies on the seasonal variation in active chemical constituents of Hadjor, *Cissus quadrangularis* Linn. [108/CFRHRD/2006-1(8)]

Status: *Cissus quadrangularis* (Hadjor) plant samples were collected from the following places depending on the availability viz. Chhindwara, Bhopal, TFRI, campus Jabalpur (Madhya Pradesh), Nagarjuna Botanical Garden, Akola, Nagpur (Maharashtra), Janjgir, Raigarh (Chhattisgarh) and National Research Centre for Agroforestry (NRCAF) Jhansi (U.P.) and planted in the nursery beds of the centre. Established *Cissus quadrangularis* nursery beds are being maintained. *Cissus quadrangularis* fresh stem samples were collected on monthly basis from medicinal and aromatic plants (MAPs) nursery of the centre for estimation of active chemical constituents viz. total phytosterols, ascorbic acid, macroelements and trace elements content. Method was standardized for estimation of total phytosterol content. The samples were analyzed from January 2007 to March 2009. Ascorbic acid (Vitamin – C) contents were analysed in the samples from November 2006 to March 2009. Macroelements viz. calcium, magnesium, potassium were analyzed from July 2006 to March 2009. Trace elements viz. zinc, copper, manganese, iron and selenium content were estimated. Analysis of active constituents viz. total phytosterols and ascorbic acid in *Cissus quadrangularis* fresh stem samples collected from Bhopal, Jabalpur, Chhindwara(M.P.), Janjgir, Raigarh (Chhattisgarh), Akola and Nagpur (M.S.) and Jhansi (U.P.) were also analysed simultaneously. Survey was conducted in some places of Chhattisgarh and Madhya Pradesh viz. Rajnandgaon, Khairagarh, Kapsi, Tamia and Betul

District for collecting information from the tribals and traditional herbal healers regarding their knowledge on best harvesting time of *C. quadrangularis*.

Project III: Standardization of cultivation protocol for *Asparagus racemosus* (Satawar). [No.119/CFRHRD/2007-2(12)]

Status: *Asparagus racemosus* (Satawar) seeds were sown in nursery beds at 1.5 x1.5 cm spacing. Farm-yard manure and compost was applied. 70% germination response was observed at the depth of 1to 2 inches. Experiment was laid out to study the effect of different spacing viz. 45x45 cm, 60x45 cm, 60x60 cm and 45 x 30 cm and harvesting age of *Asparagus racemosus* on farmers field at Jabalpur, Poama and Chhindwara. The experiment was also laid out to study the effect of above spacings in combination with different types of organic fertilizers (F.Y.M., Vermicompost and VAM) with three replication in a randomized block design at CFRHRD nursery. The experiment was also laid out to study the effect of irrigation on growth of *Asparagus racemosus*. Half of the experimental plot was irrigated at 5 days interval and other half was left under stress condition. The tuber of stress condition crop is slightly bigger than the irrigated one. Soil testing of CFR & HRD nursery, Chhindwara and farmers field was done. 5% mortality of *Asparagus racemosus* plants was observed in farmer's field. Maintenance of experimental plots is being done. Samples of tubers have been taken for records. Seed collection from CFR & HRD nursery has been done to raise nursery for laying out other experiment in June. Chemical analysis of *Asparagus racemosus* (Satawar) tubers was done for saponin component at an interval of 45 days for 4 sites.

Project IV: Genetic improvement of *Buchnanian lanzan*. [No.116/CFRHRD/ 2007-1(11)]

Status: Extensive survey has been conducted at Amarwada and Delakhari block of Chhindwara Forest division and selected 13 phenotypically superior candidate plus trees. Also 12 phenotypically superior candidate plus trees of *B. lanzan* were selected from Gondia and Shahada forest division of Maharashtra and 8 candidate plus trees from Raigarh Forest division of Chhattisgarh. Seeds have been collected from 25 candidate plus trees of *B. lanzan*. Collected seeds were dried in the shade. After drying, seeds were placed in polybags for germination. Germination percentage and growth data (height and collar diameter) has been recorded. 41-97 percentage germination was recorded. Progeny trial of *B. lanzan* has been established in the Centre for Forestry Research and Human Development campus by planting 25 progenies. 9 trees / family / replication with three replications in a randomized block design has been laid out. Progeny trial is being maintained. Data has been recorded on height and collar diameter of *B. Lanzan*.