CHAPTER X

CENTRE FOR FORESTRY RESEARCH AND HUMAN RESOURCE DEVELOPMENT, CHHINDWARA

Centre for Forestry Research and Human Resource Development, Chhindwara came into existence on 30th March 1995 and declared as satellite centre of Tropical Forest Research Institute, Jabalpur under the Indian Council of Forestry Research and Education, Dehra Dun from 3rd January, 1996. The mandate of the centre is to take up the forestry research in the specialized areas like biodiversity conservation, non-wood forest products, forest protection, socio-economics, silviculture and tree improvement, in addition to this, the center has also been assigned to develop the human resource in forestry sector by imparting vocational training leading to poverty alleviation through self employment.

PROJECTS COMPLETED DURING THE YEAR 2002-2003

Project 1 : Structure and function of the dry deciduous forest as per degradation status with special emphasis on forest management and regeneration (ID No.18). *For technical report contact, Principal Investigator - Dr. P.K. Pande.*

Findings: The poor regeneration of different tree species may be due to the various biotic disturbances like grazing, illicit felling, lopping, etc. in the past. Analysis of leaf litter from these disturbed sites showed higher concentration of nutrients. It suggests the less control on nutrient return through leaf fall by biochemical cycling on disturbed sites. Disturbances not only reduce stand biomass of tree species (dominant species in particular) but also decline the productivity. NPP_{Tree} is shifted towards herb and shrub's compartment. The lower uptake land higher retention on disturbed sites, checks the nutrient flow to the forest floor, whereas lower uptake may causes nutrient loss from the system by leaching and other physical processes. Therefore, artificial regeneration is suggested inside the blanks of disturbed forest sites to minimize the nutrient losses and enhance productivity by gap filling plantation.

PROJECTS CONTINUED DURING THE YEAR 2002-2003

Project 1 : Studies on the feasibility of cultivation of medicinal and aromatic plants as intercrop in natural forests and plantations and their phytochemical investigations [049/CFRHRD-(2001-2002)/1(2)].
Principal Investigator - Dr. P.K. Pande.

Kalmegh *(Andrographis paniculata)* as inter crop with *Gmelina arborea*

Status: A herbal garden comprising of nearly 200 medicinal and aromatic plants including several endangered/threatened species has been established at the centre. Cultivation technique of aswagandha (*Withania somnifera*), safed musli (*Chlorophytum borivillianum*), kalmegh (*Andrographis paniculata*) and lemon grass (*Cymbopogon flexuosus*) has been standardized. Agrotechnique was standardized for the cultivation of sarpagandha (*Rauvolfia serpentina*).

Thirty five compounds constituting 88.23% of the essential oil of *Pogostemon plectranthoides*; 34 constituents representing 98.7% of the essential oil of *Thuja orientalis* and 32 compounds representing 90.57% of the *Cyperus scariosus* oil were identified by GC-MS. *Curcuma caesi,* an endangered plant was also cultivated. The volatile rhizome oil was analysed by GC-MS, which resulted in the identification of 30 components representing 97.48% of the oil.

Project 2 : Studies on the insect pests of *Emblica officinalis* and *Gmelina arborea* in agroforestry and plantation ecosystems [050/CFRHRD-(2001-2002)/2(3)].
Principal Investigator - Dr. B.P. Meshram.

Status: The impact of pest outbreak was evaluated on the different age group plantations of *Gmelina arborea* and *Emblica officinalis*. Ten national provenance's of *G. arborea* were screened against key pest and top

Emblica officinalis attacked by gall forming insect, *Betousa stylophora*

drying in irrigated plantation was noticed due to insect diseases complex. About 40% incidence of sapsucker *(Tingis beesoni)* followed by fungus *(Hendersonula* sp.) was observed. The infection can be controlled by spraying decis @0.005% + Carbendazim 0.1%. Seasonal history of gall forming insect *(Betousa stylophora)* was studied. Seven varieties of *E. officinalis* were evaluated against the insect pests.

Project 3 : Standardization of nursery techniques and propagation methods of *Buchanania lanzan* Spreng. (achar or chironji). [051/CFRHRD-(2001-2002)/3(4)]. *Principal Investigator - Dr. D.L. Nandeshwar.*

Status: Nursery techniques of *B. lanzan* on the effect of sowing methods (dibbling, line and broadcast), effect of mulching (dried grass, black polysheet, white polysheet, under shed control); effect of orientation and planting depth on the germination of seeds and performance of the seedlings were studied and standardized. Effect of the grading of seeds of *B. lanzan* on germination and seedling growth was studied and observed that medium size seeds preformed better than small and big size seeds. Growth data were recorded from the field evaluation trial of *B. lanzan* to investigate the performance of seedlings raised through different methods.

NEW PROJECTS INITIATED DURING THE YEAR 2002-2003

NIL.

EXTERNALLY AIDED PROJECTS

NIL

PROJECTS COMPLETED DURING THE YEAR 2002-2003

Project 1 : Development of neem in various agro-ecological regions of India [(011/TFRI-99NWFP)Ecol-111(NOVOD)/1999-2002)]. *For technical report contact, Principal Investigator - Dr. S. K. Banerjee.*

Findings: Provenance trial (2 ha) consisting of eight provenances was maintained and data were collected. Two hac clonal seed orchard was established at the center. The CSO comprises of 26 clones selected in Madhya Pradesh. Agroforestry models were established at farmer's field and 15000 seedlings were provided to the Zilla Panchayat of Narshingpur and Chhindwara district of Madhya Pradesh for raising neem plantations.

Education and trainings

1. Training on cultivation of medicinal and aromatics plants was organized to farmers, SFD officials, NGO's, (Simlipal Tiger Reserve, Baripada, Orissa) on 22nd and 23rd October, 2002.

2. Training on cultivation of Medicinal Plants, Pest Management and Biofertilizers was organized to forest officials at Forestry Training School Chaibasa (Jharkhand) on 24th October, 2002.

Training on cultivation of medicinal plants

3. Training on cultivation of medicinal and aromatic plants was organized to SFD officials (Forst Circle Chhindwara) at CFRHRD, Chhindwara, M.P. on 20th and 21st January 2003.

4. Training on cultivation of medicinal and aromatic plants was organized to SFD officials/CVFC members at CFRHRD, Chhindwara, M.P. on 27th and 28th January, 2003.

5. Training on Pest managemeng/Biopesticides/Biofertilizer was organized to SFD officials (Forest Circle Chhindwara) at CFRHRD, Chhindwara, M.P. on 13th March, 2003.

6. Training on Conservation/cultivation of medicinal plants was organized to farmers at Amaravati University M.S. on 21st March, 2003.

7. Training on Computer application was organized to the officers/staff of CFRHRD, Chhindwara, M.P. on 31st March, 2003.

Publications

Research papers

1. Pandey, A.K. (2003). Composition and *in-vitro* antifungal activity of the essential oil of menthol mint (*Mentha arvensis* L.) growing in Central India, *Indian Drugs,* 40(2): 126-128.

2. Pandey, A.K. and Chowdhury, A.R. (2002). Essential oil composition of *Pogostemon plectranthoides* Desf. from Satpura plateau of Central India, *FAFAI Journal,* 4(3): 47-49.

3. Pandey, A.K. and Chowdhury, A.R. (2002). Essential oil of *Cypruys scariosus* R. Br. Tubers from Central India, *Indian Perfumer,* 46(4): 325-328.

4. Pandey, A.K. and Chowdhury, A.R. (2002). Essential oil of *Ocimum basilicum* L. from Satpura plateau of Central India, *Indian Perfumer,* 46(2): 131-134.

5. Pandey, A.K. and Chowdhury, A.R. (2002). Volatile constituents of the fruit oil of *Thuja orientalis* L. Central India, *Journal of Essential oil Bearing Plants,* 5(2): 93-98.

Brochures

1. Pandey, A.K.; Patra, A.K. and Shukla, P.K. (2002). Cultivation of Medicinal Plants: Bach (*Acorus calamus*), CFRHRD, Bull. No.9.
2. Pandey, A.K.; Patra, A.K. and Shukla, P.K. (2002). Cultivation of Aromatic Plants: Palmarosa *(Cymbopogon martinii*), CFRHRD, Bull. No.11.
3. Pandey, A.K.; Patra, A.K. and Shukla, P.K. (2002). Cultivation of Aromatic Plants: Citronella (*Cymbopogon winterianus*), CFRHRD, Bull. No.12.
4. Pandey, A.K.; Patra, A.K. and Shukla, P.K. (2002). Cultivation of Medicinal Plants: Gudmar (*Gymnema sylvestre*), CFRHRD, Bull. No.10.
5. Meshram, P.B. and Patra, A.K. (2003). Pests of (*Gmelina arborea*) and their control measures, CFRHRD, Bull. No.13.

Conferences/meetings/workshops/seminars/symposia

1. Dr. A.K. Pandey participated and presented a paper in *National Interactive Meet on scope and opportunities in Research and Business of Medicinal and Aromatic Plants* on May, 17th 18th 2002 at CIMAP, Lucknow.
2. Dr. A.K. Pandey participated *Modular Workshop on Documentation of Biological Resources in Madhya Pradesh* on July, 20th 2002 at SFRI, Jabalpur.
3. Shri A.K. Patra and Dr. A.K. Pandey participated in the National Workshop on Indigenous Knowledge of Tribals on March 1-2, 2003 at Dr. H.S. Gour University, Sagar.
4. Shri A.K. Patra; Sri S.D. Sonkar; Dr. A.K. Pandey and Dr. P.B. Meshram participated and presented paper in the *National Seminar on Management of Degraded Forests for Productivity Enhancement and Carbon Sink Expansion on* 15th and 16th January, 2003 at TFRI, Jabalpur.