Project Profile

1 **Project No.** G.O./TN-11/2005

2 Project Title: Selection and Clonal propagation of Commercially Important Medicinal Plants.

3 Principal Investigator: Dr. Santan Baratwal, Scientist C (From 1/4/05 to 25/08/06)

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7. Budget: Rs.1000000

8. Funding Agency: National Medicinal Plants Board

Summary:

Cultivation of medicinal plants by farmers is a recent happening. Industry prefers raw material from cultivated source because of authentication, reliability and continuous supply. Non availability of quality planting stock coupled with poor cultivation practices and extension support, processing and unorganized markets are the major constraints in commercialization of cultivation. Therefore, concentrated efforts are required, both in collection and cultivation of medicinal plants, in order to ensure sustainability of the Industry. A. Clonal Propagation of medicinal plants: a. Tinospora cordifolia Different potting mixtures such as vermiculite, Composted coirpith, and sand and varying IBA concentration of 100, 250 and 500 ppm were tried out. Best response was in the combination of 100 ppm concentration and composted coir pith (90% rooting). b. Aegle marmelos Clonal propagation of Aegle marmelos was tried with cuttings from both young and mature trees in different concentrations of IBA and IAA along with different potting mixtures. Branch cuttings of 1 cm diameter and 10 cm length planted in 160 cc root trainer developed adventitious roots when treated with 2000 ppm IBA. 60% rooting was observed. Mature cuttings failed to root. c. Terminalia bellirica Pencil thick, 15 cm long hardwood woody branch cuttings from mature trees (with a girth class from 126 cm to 450 cm) were tried in for rooting using vermiculite, soilrite, composted coir pith and Sand. Different concentrations of IBA (1000 ppm. 2000ppm and 3000ppm) were tried. Initially 3 % rooting was observed in the combination of 2000 ppm and vermiculite. These rooted cuttings were grown in earth pots to produce the mature donor plants. Mature donor plants, were used for collecting semi-hardwood cuttings. These were obtained from new shoots emerging at branches which were pruned in winter. The semi hard wood cuttings were treated with a combination of IBA and NAA (1500 ppm each) and tried in two potting mixture namely vermiculite and soilrite. 10 % rooting was observed in vermiculite and 30% rooting in soilrite. B. Biochemical analysis: a. Terminalia chebula: Bark samples from 24 genotypes were analyzed for tannins, total phenols, alkaloids and flavanoids. Highest tannin content was observed in Bargur 17 (Eratty) (8.693). Bargur Ã¢â‚¬â€œ 9(Tamarakaria) recorded the highest value for phenols with a value of 5.79 mg/g. Highest alkaloid content was observed in Thalaimalai (5.075 mg/g), while maximum flavanoid content was observed in Bargur 15 (4.01 mg/g) b. Aegle marmelos: Eight genotypes were subjected to

biochemical analysis for tannins, total phenols, alkaloids and flavanoids both in leaves and fruits i. Leaves: Maximum tannin content was observed in IFGTB Ã¢â‚¬â€œ 2 - 13.06 %, Maximum alkaloid content was observed in R.S.Puram -2 - 2.513 %. Maximum alkaloid content (66.25 mg/g) was observed in IFGTB-3 while the minimum value for alkaloid content was found in R.S.Puram Ã¢â‚¬â€œ 1 (36.25 mg/g). Maximum flavonoids content of 65 mg/ g was observed in IFGTB-3 while the minimum value for flavonoids content was found in R.S.Puram Ã¢â‚¬â€œ 1. ii. Fruits: Maximum tannin content was observed in IFGTB-4 - 27.183 %. Maximum phenol content 4.610 % was observed in IFGTB-1. Maximum alkaloid content (66.25 mg/g) and maximum flavonoid content were observed in IFGTB-3. C. Tinospora cordifolia i. Leaves: Maximum tannin content was obtained from Silent valley II (16.470 percent). Anaikatti sample had the maximum total phenol content - 15.945 %, maximum alkaloid content - 40.23 g/mg and maximum flavonoids content - 90.25 g/mg. ii. Stem The highest tannin (7.88 percent content), total phenol content (11.79 percent), alkaloid (50.75 mg/g) and flavonoid content (51.5 mg/g) was found in samples from Anaikatti. iii. Root Highest values for tannins, total phenols, alkaloids and flavanoids were recorded in samples from Anaikatti similar to the stem. d. Saraca asoca (bark) The genotype collected from Peechi dam area had the maximum tannin content - 3.265 per cent, maximum alkaloid content - 28.25 g/mg and maximum flavonoids content - 63.250 mg/g of sample. Courtrallam samples had the maximum total phenol content of 2.845 %.