

### **XIII.A.8. An Analysis and Accounting of Nutrient Health in Soils and Litter of Monocultures of Exotic Eucalyptus, Tereticoruis, Prosopis Juliflora and Indigenous D. Sissoo Plantations- An Intangible Parameter for Sustainability**

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An attempt had been made to evaluate the nutrient potential in the soils of *E. tereticomis* and *D. sissoo* plantations. Hie sets at the age of 6-8 year and 19-21 year, in triplicate were selected for both the tree types, in the territory of Chandigarh (30042' N, 76054' E 280 m MSL). The soil samples were taken during the different seasons of the year for 3 years. The amount of organic carbon, organic matter, nitrogen, phosphorus and potassium coupled with micro-elements and physical parameters percentage moisture, PH, EC and texture were estimated at each of the sites. The values were also compared with the nutrient status in the soil of control (a site free of vegetation). The monetary transactions were done following surrogate market valuation technique, The amount of nitrogen, phosphoms, potassium, zinc, iron and manganese concentrations. The total potential value assessed was Rs.64743.62 /ha in *E. tereticomis* compared to Rs.240752.06/ha in *D. sissoo*. The decomposition of leaf litter and its nutrient return to soil was also studied. The *D. sissoo* litter had a potential value of Rs.62649.49/ha compared to Rs.44239.69/ha in *E. tereticomis*.

The analysis of physical parameter revealed that better soil conditions prevailed in indigenous tree plantation of *D. sissoo* to promote the growth of underground vegetation compared to the *E. tereticomis*. The number as well as types of plant species found in *D. sissoo* plantations were seen much better than that of *E. tereticomis* irrespective of age. The age status of nutrients and physical parameter in *E. tereticomis* seems to largely affect the growth of various plant species on its floor. It may ultimately affect the entire chain of ecological processes to such an extend that it may break the thread of sustainability. On the other hand, in and *D. sissoo* plantations the adequate soil conditions favoured the growth of under canopy vegetation. Thus, sustainability in terms of soil stability, phytodiversity is seen better in indigenous systems.