

Performance of Economically Important Medicinal Plants in Casuarina based Agroforestry Systems in Tamil Nadu, India

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Abstract

The present investigations were undertaken to study the performance of economically important medicinal plants in agroforestry systems with two species of Casuarina in Tamil Nadu, India. The soil fertility was found to be improved under shade conditions. Among the two tree species, the highest macro- and micronutrient presence was found in the soil of *Casuarina equisetifolia* followed by *Casuarina junghuhniana*. The *Gloriosa superba* produced maximum seed yield in open field compared to agroforestry system at Jayangondam location. The colchicine content of *Gloriosa superba* seed extract was high in *Casuarina junghuhniana* based agroforestry system at Jayangondam followed by Sivagangai. The maximum shoot length and root length of *Decalepis hamiltonii* were recorded in *Casuarina equisetifolia* based agroforestry systems compared to *Casuarina junghuhniana* based agroforestry systems and open field. The highest shoot length and root length of *Hemidesmus indicus* were observed in *Casuarina equisetifolia* based agroforestry systems when compared to *Casuarina junghuhniana* based agroforestry systems and open field. Among eight medicinal plants, *Decalepis hamiltonii*, *Gloriosa superba* and *Hemidesmus indicus* had shown good performance in casuarinas based agroforestry systems. Medicinal plants based agroforestry has the potential to provide additional income to the farmers besides enhancing environmental services.