

## MACROPROPAGATION OF THE INDIAN MEDICINAL PLANT *Premna tomentosa* Willd.

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**ABSTRACT:** *Premna tomentosa* Willd. is a moderate sized deciduous tree of apparently more economic and medicinal values. It is not commonly seen to be used by the medicinemen of Tamil Nadu now-a –days. The plant has been located in the plains and hills of Tamil Nadu, with the help of its varied vernacular names. It is in excessive biotic disturbance. It has been found to be in reproductive isolation, Hence, macropropagation of this plant has been contemplated and tried successfully for the first time. The results are reported.

### INTRODUCTION

*Premna tomentosa* belongs to the family Verbenaceae and is an economically important tree. The wood of this plant is hard and heavy. It resembles teak and is used for house building, furniture, combs, weaving shuttles, turnery, carving and fancy works. Due to the demand for its wood the trees are over exploited. Regeneration of this tree is very poor and there is no seed-setting. It is also a medicinally and commercially valuable plant. The water boiled with its leaf is used to treat human paralysis. It is also a good antirheumatic agent. The decoction of leaves is used to cure dropsy and stomach disorders and extract of inner bark is used to arrest diarrhoea (Anonymous, 1969; yoganarasimhan, 2000).

Seeds and plantlets of this species are rarely seen in natural habitats. The plant seems to be regenerating very slowly through root-suckers. The rate of exploitation is more than its regeneration. So, the need for conservation and vegetative propagation is

very urgent for this plant, Due to over exploitation the plant exists only in small patches in certain habitats/sacred grooves of Tamil Nadu. The present study was undertaken to macropropagate this plant on a large scale for plantation purpose.

### MATERIALS AND METHODS

The experiment was conducted in a mist-chamber during 2002. Stem-cuttings were collected from a sacred groove in Shanmuganathapuram village, Pudukkottai district, Tamil Nadu. The stem cuttings were divided into two groups based on stem diameter. The two groups based on stem diameter. The two group of stem cuttings are, Group A: 1-2 cm and Group B: 2.5-3cm in diameter with 3-4 nodes and 15-20 cm in length. Slant cuts were made below the nodes of the cuttings (Hartmann and Kester, 1976). The cuttings were planted in polythene bags (15x15 cm) filled with red soil, goat's manure and sand in the proportion of 1:2:1 as the rooting medium.

The planted cuttings were kept in the mist-chamber under a congenial microclimate (70-80% relative humidity and  $33-37 \pm 2^{\circ}\text{C}$  temperature) (Rajasekhar Reddy et al., 2001). The cuttings were maintained in the mist chamber for 150 days.

### **OBSERVATION**

The stem cuttings were observed for every 30 days. The data are presented in Table 1. The Group B cuttings produced leaves within 30 days and the Group A cuttings produced leaves after 30 days. Root initiation was noted first in Group B within 90 days. All the Group B cuttings showed profuse rooting before 120 days and in

Group A cuttings profuse rooting was observed after 120 days. All the cuttings were removed from the mist-chamber and transferred to open nursery condition for field planting after 150 days.

### **RESULTS AND CONCLUSION**

The observations showed that the Group B stem performed well than Group A cuttings. The reason may be due to their greater stem thickness than Group A. Hence, it is concluded that for the large scale macropropagation of *Premna tomentosa* for plantation purpose stem cuttings of 3cm diameter is recommended.

### **REFERENCES**

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**Table – 1**Morphometrics of cultured stem-cuttings of *Premna tomentosa* willd

Number of days of culture	Group A				Group B			
	Number of Cuttings	Number of leaves /Cuttings	Number of rooted Cuttings	Number of survived Cuttings	Number of Cuttings	Number of leaves /Cuttings	Number of rooted Cuttings	Number of survived Cuttings
1-30	25	-	-	25	25	2	-	25
31-60	25	2	-	25	25	2-4	-	25
61-90	25	2-4	-	25	25	4-6	20	25
91-120	25	2-6	18	25	25	4-8	25	25
121-150	25	4-8	25	25	25	6-10	25	25