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Effect of Potting Media on Germination and Seedling Growth of *Pterocarpus marsupium*

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Abstract

Forest nurseries have a pivotal role to play in supplying quality seedling to raise plantations under social forestry, agroforestry and farm forestry program. Hence, in the present study under taken on effect of potting mixture on germination of *pterocarpus marsupium* significantly influenced the germination percentage due to different potting media. Higher germination percentage (65%) was recorded in treatment receiving soil + sand + vermicompost followed by treatment receiving soil + sand + leaf mould (35%) and lowest was recorded in control (13.33%). Collar diameter was higher in treatment receiving soil + sand + leaf mould (1.22 mm) followed by treatment soil + sand + vermicompost (1.15 mm). All the treatments were significantly superior to control (0.93 mm) Higher root length was reported in treatment with soil + sand + vermicompost (11.20 cm) which was at par with treatment receiving soil + sand + poultry manure (10.20 cm) and significantly differs with rest of the treatments and lower root length was noticed in control (7.27 cm).

Key words : Potting media, *Pterocarpus marsupium*, Germination, Growth.

Potting mixture can influence the quality of seedlings to greater extent. The seedlings raised in good media can ensure better establishment and growth when planted in the main field. The ultimate advantage of good potting mixture is good drainage, water-holding capacity and thereby, it gives excellent disease free growth of the seedlings. There are evidences of potting mixture affecting the growth and vigor of seedlings as a result of more spread of roots resulting better uptake of available nutrients and moisture (1). Therefore, the information on the effect of media on the growth and establishment of seedlings is essential for large scale production of healthy seedlings. Hence, a cheap and successful potting mixture will enable the farmers and foresters to produce superior quality seedlings of *Pterocarpus marsupium* for planting under social forestry program and on private lands.

Methods

The present investigation was conducted at UAS, Hebbal during 2007. The seeds of *Pterocarpous marsupium* were collected from Forest Department. The various media as treatments used were T_1 –Soil + sand (control) (2 : 1 : 1), T_2–Soil + sand+FYM, T_3–Soil + sand + vermicompost, T_4–Soil + sand + woodash, T_5–Soil + sand + sawdust, T_6–Soil + sand + poultry manure, T_7 –Soil + sand + leaf mould. The expriment was laid out in compiete randomized design and replicated four times. The mixture was filled in polythene bags of size 8 × 3 inches. The seeds were sown in polythene bags and placed in mist chamber. The necessary plant protection measures were adopted. The observations on germination, seedling growth and biomass were recorded at 60 days interval. Data collected were analyzed under M-stat program.

Results and Discussion

The germination percentage was significantly highest recorded in treatment receiving soil + sand + vermicompost (65%) followed by in treatment receiving soil + sand + leaf mould (35%) and lowest was recorded in control (13.33%) (Table 1). Significantly higher seedling height was recorded in treatment soil + sand + poultry manure (11.43 cm) which was at par with treatment receiving soil + sand + FYM (10.73 cm) which is followed by soil + sand + wood ash (10.13

Table 1. Effect of potting mixture on germination and seedling growth of *Pterocarpus marsupium* at 60 DAS.

Treatments	Seedling parameters			Root parameters			Biomass (g)	
	Height (cm)	Coller diameter (mm)	No. of leaves	root length (cm)	No. of roots	Germi-nation (%)	Total fresh biomass	Total dry biomass
T_1 – Soil + sand	8.12	0.93	5.06	7.27	5.50	12.46	0.63	0.12
T_2 – Soil + sand +FYM	10.73	1.03	6.00	7.70	11.0	21.61	0.89	0.22
T_3 – Soil + sand + vermicompost	9.40	1.15	6.77	11.2	13.5	65.24	1.20	0.27
T_4 –Soil + sand + wood ash	10.13	1.09	6.47	8.62	10.0	31.22	0.94	0.12
T_5 –Soil + sand + sawdust	9.24	1.11	6.33	8.28	11.0	26.82	0.93	0.23
T_6 – Soil + sand + poultry manure	11.43	1.22	6.99	10.2	14.2	33.26	1.67	0.35
T_7 –Soil + sand + leaf mould	9.90	1.48	6.94	8.38	9.75	35.35	0.92	0.23
Mean	9.85	1.14	6.37	8.81	10.7	32.28	1.03	0.22
SE ±	0.62	0.09	0.39	0.82	1.62	0.03	0.03	0.01
CD at 5%	1.83	0.27	1.15	2.41	4.75	0.09	0.09	0.03

cm) and the lowest was noticed in control (8.12 cm). The collar diameter was higher in treatment receiving soil + sand + leaf mould (1.22 mm) followed by treatment soil + sand + vermicompost (1.15 mm). All the treatments were significantly superior than control (0.93 mm)

The number of leaves was significantly influenced due to various potting media. Higher number of leaves were noticed in treatment with soil + sand + poultry manure (6.99) which was at par with all the treatments and significantly superior over control (5.06) whereas root length was highest reported in treatment with soil + sand + vermicompost (11.20 cm) which was at par with treatment receiving soil + sand + poultry manure (10.20 cm) and significantly differed with rest of the treatments and lower root length was noticed in control (7.27 cm). There are evidences of potting mixture effecting the growth and vigor of seedlings as a result of more spread of roots resulting better uptake of available nutrients and moisture. These results are in conformity with the findings of Bahuguna et al. (2) in *Acacia albida* and Maithani et al. (3) in *Dalbergia sissoo.*

References

1. Neetamutha, Udayaburman, Kumar P. R.K. Agarwal and L. N. Harsh. 1997. Effect of flyash substitution in nursery mixture on growth of Hardwikia binata. Indian J. For. 20 : 213—219.
2. Bahuguna V. K., G. P. Maithani, U. D. Dhaundiyal and K. P. Unnikrishnan.1987. Standardization of nursery techniques of Acacia albida Indian moist climatic conditions. Indian For. 113 : 95—100.
3. Maithani G. N., V. K. Bahuguna and S. P. Singh. 1988. Effect of size of containers and different soil media on the germination behavior and growth of seedlings of *Acacia nilotica. Albizia procera and Dalbergia sissoo.* Indian J. For.11 : 56—59.