

NOTES

A NOTE ON THE ROOTING OF *SHOREA BRACTEOLATA* STEM CUTTINGS

Aminah Hamzah

Forest Research Institute Malaysia, Kepong, 52109 Kuala Lumpur, Malaysia

Shorea bracteolata Dyer (family Dipterocarpaceae) is one of the dipterocarp species which can be successfully propagated by cuttings (Srivastava & Manggil 1981). In rooting of cuttings, factors such as age of stock plants, source of cutting material, presence of leaves and nodes *et cetera* are important and need to be considered. This experiment was to investigate the rooting ability of stem cuttings of young seedlings from different node positions.

Cuttings of *S. bracteolata* were taken from 6-*month*-old potted seedlings which had an average height of 35.5 cm. Each seedling had approximately nine nodes. The cuttings were cut according to their node positions starting from the apex to the ninth node. The undeveloped apex and terminal shoot were discarded. The leaf of each cutting was cut transversely to one third of its size. The length of the cuttings were between 1.2 to 2.5 cm and their diameters were between 0.25 to 0.45 cm depending on their node positions along the stem. These cuttings were then inserted into the rooting medium of pure river sand (particles 60% < 2 mm; 40% > 2 mm diameter). No hormone was applied to the cuttings. For each node position, ten cuttings were used. They were arranged in the rooting bed in a complete randomized design with four replications. A total of 320 cuttings were used. The rooting medium was kept moist by automatic mist sprinkler operated at hourly intervals. Each duration of spray was one minute. To ensure high humidity around the cuttings, the rooting beds were covered with plastic sheets supported by wooden frame. Rooting of cuttings were assessed 12 weeks after being set into the rooting medium. The number of rooted cuttings and the roots per rooted cutting were recorded.

It was found that the rooting of *S. bracteolata* stem cuttings was between 57.5 to 95.0% depending on the node positions. The rooting percentage of cuttings of the first node below the apex was significantly lower than the cuttings from the fifth and sixth node positions (Table 1). The rooting started to increase from the second to the fifth node where the highest rooting of 95% was observed and then gradually decreased with respect to the node positions. This could probably be due to differences in the extent of lignification. A similar trend was obtained by Lo (1985) with stem cuttings of 8-*month*-old *Shorea macrophylla* seedlings.

Unlike the rooting percentage, the mean number of roots per rooted cutting was not significantly affected by the node position (Table 2). This was also observed by Leakey and Mohammed (1985) with the single node cutting of *Triplochiton scleroxylon* where the number of roots produced by cuttings was not greatly affected by their node positions. In spite of that, there was a trend showing that the root number of cuttings started to increase from the second to the fifth node after which it gradually decreased with node position. The lowest root number was obtained with cuttings taken from the eighth node position (Table 2).

Table 1. Mean rooting percentage of *Shorea bracteolata* stem cuttings by their node positions

Position of nodes below the apex	Rooting percentage
1	57.5 a
2	85.0 ab
3	87.5 ab
4	90.0 ab
5	95.0 b
6	92.0 b
7	87.5 ab
8	82.5 ab

Means with the same letter are not significantly different at the 5% probability level

Table 2. Mean root number of *Shorea bracteolata* stem cuttings by their node positions

Position of nodes below the apex	Root number
1	4.25 a
2	7.05 a
3	7.15 a
4	7.30 a
5	7.30 a
6	6.05 a
7	5.62 a
8	4.75 a

Means with the same letter are not significantly different at the 5% probability level

In conclusion, *S. bracteolata* could be vegetatively propagated using single node stem cuttings and cuttings taken from the middle part of the stem.

Acknowledgements

I wish to thank Darus Ahmad and Wan Razali Wan Mohd for their critical comments of this study.

References

- LEAKEY, R.R.B & MOHAMMED, H.R.S. 1985. The effects of stem length on root initiation in sequential single node cuttings of *Triplochiton scleroxylon* K. Schum. *Journal of Horticultural Science* 60(3): 431-437.
- LO, Y.N. 1985. Root initiation of *Shorea macrophylla* cuttings: Effects of node position, growth regulators and misting regime. *Forest Ecology and Management* 12: 45-52.
- SRIVASTAVA, P.B.L. & MANGGIL, P. 1981. Vegetative propagation of some Dipterocarps by cuttings. *Malaysian Forester* 44(2 & 3): 301-313.