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Influence of different potting media and IBA concentrations on sprouting and rooting of *Dalbergia sissoo* cuttings

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Abstract

The present experiment was carried out at The Energy & Resource Institute (TERI), New Delhi to study the effect of different potting media and IBA concentration on sprouting and rooting of *Dalbergia sissoo*. For the experiment, 400 cuttings were selected. The results of the experiment revealed that potting media 1 (vermiculite 33%, solilite 33% and sand 33%) had the maximum sprouting (62.67%) percentage, whereas potting media 3 (vermiculite 40%, solilite 20% and sand 40%) recorded the least sprouting (51%) in cuttings of *Dalbergia sissoo*. Moreover, the cuttings in potting media 3 (vermiculite 40%, solilite 20% and sand 40%) treated with 4000 ppm IBA had the maximum sprouting (59%), while the sprouting was least (56%) in potting media 2 (vermiculite 20%, solilite 40% and sand 40%) treated with 2000 ppm IBA. Furthermore, potting media 4 (vermiculite 40%, solilite 40% and sand 20%) had the maximum rooting (76%) in cutting of *Dalbergia sissoo*, whereas potting media 2 (vermiculite 20%, solilite 40% and sand 40%) recorded the least rooting (53.5%) in cutting of *Dalbergia sissoo*.

Keywords: Influence, potting media, IBA, concentrations, sprouting, *Dalbergia sissoo*

Introduction

Dalbergia is named in the honour of Nicolus Dalberg, a Swedish botanist. *Sissoo* is one of the vernacular names. In India it is considered as one of the best timbers, wherever elasticity and durability is concerned. The tree is hardy, can tolerate severe drought as well as the submersion for a long period of time. It is a frost resistant deciduous tree with dark grey rough bark. It grows in the entire sub-himalayan tract and also in the Himalayan valleys upto an elevation of about 1,500m. It is also grown through Ind0-Gangetic plains of Rajasthan and Gujarat. *Dalbergia* is propagated by seeds, root suckers and root and shoot cuttings. Seeds are sown in the nursery during the month of February-March. Due to long juvenile phase propagation through seeds becomes quite tedious. Propagation through asexual method particularly cutting has opened a new pave in the field of *Dalbergia sissoo* cultivation. Moreover, application rooting promoting PGR's along with growth promoting soil mixture can increase the success rate in its cultivation. Keeping in view the above considerations, the proposed experiment was conducted to study the effect of different potting media along with different IBA concentration on rooting and sprouting of *Dalbergia sissoo*.

Material and Methods

The present experiment was carried out at The Energy & Resource Institute (TERI), New Delhi to study the sprouting and rooting of *Dalbergia sissoo* in different potting media under different treatments. 400 cuttings were selected for the experiment. The cuttings were placed on four potting media with different percent of vermiculite, solilite or agro pit and sand (table 1). These cuttings were further treated with different concentration of IBA. IBA was applied at 2000 ppm, 4000 ppm and 6000 ppm along with control in all potting media.

Table 1: Composition of different potting media

Potting media	Vermiculite	Solilite or Agro pit	Sand
1.	33%	33%	33%
2.	20%	40%	40%
3.	40%	20%	40%
4.	40%	40%	20%

It is clear from the table 2 that different concentration of IBA and potting media had significant effect on sprouting of *Dalbergia sissoo*. Among the 4 potting media used, potting media 1 (vermiculite 33%, solilite 33% and sand 33%) had the maximum sprouting (62.67%), whereas potting media 3 (vermiculite 40%, solilite 20% and sand 40%) recorded the least sprouting (51%) in cuttings of *Dalbergia sissoo*. Moreover, cuttings in potting media 3 (vermiculite 40%, solilite 20% and sand 40%) treated with 4000 ppm IBA had the maximum sprouting (59%), while the sprouting was least (56%) in potting media 2 (vermiculite 20%, solilite 40% and sand 40%) treated with 2000 ppm IBA.

Table 2: Effect of different concentration and potting media on sprouting of *Dalbergia sissoo*

Potting media	Average Sprouting %	IBA concentration	Average Sprouting %
1	62.67	Control	52.67
2	54.33	2000ppm	56
3	51	4000ppm	59
4	58.33	6000ppm	58.67

The table 3 indicates the effect of different concentration of IBA and potting media on rooting of *Dalbergia sissoo*. Among the 4 potting media used, potting media 4 (vermiculite 40%, solilite 40% and sand 20%) had the maximum rooting (76%) in cutting of *Dalbergia sissoo*, whereas potting media 2 (vermiculite 20%, solilite 40% and sand 40%) recorded the least rooting (53.5%) in cutting of *Dalbergia sissoo*. Moreover, cuttings in potting media 3 treated with 4000 ppm IBA had maximum rooting (71%), while the rooting was least (47%) in cuttings placed in potting media 1 (vermiculite 33%, solilite 33% and sand 33%) with no IBA treatment.

Table 3: Effect of different concentration and potting media on rooting of *E. camaldulensis*

Potting media	Average rooting %	IBA concentration	Average rooting %
1	62	Control	47
2	53.5	2000ppm	70.5
3	66.5	4000ppm	71
4	76	6000ppm	69.5

Conclusion

From the present study it can be concluded that selection and multiplication of *Dalbergia sissoo* can be successfully done by asexual means particularly through cuttings. Potting mixture of vermiculite 33%, solilite 33% and sand 33% had the most profound effect on sprouting of cuttings along with application of 4000 ppm IBA.

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