VEGETATIVE PROPAGATION OF THE THREATENED HALOPHYTE, *MALLOTONIA GNAPHALODES*

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Abstract. The dune inhabiting halophyte, *Mallotonia gnaphalodes* (sea-lavender) is threatened with extinction, with less than ten colonies left in the continental southeastern United States and many more colonies on islands in the Bahamas and Caribbean. The major barrier to widespread use of this plant in coastal landscape applications, including dune stabilization programs, has been difficult propagation. The objective of this project was to develop successful vegetative propagation techniques for sea-lavender. Successful rooting of cuttings was accomplished using fog propagation, 8,000 ppm indolebutyric acid, and a well-aerated rooting medium.

INTRODUCTION

The halophyte, *Mallotonia gnaphalodes* (sea-lavender) is threatened with extinction due to extensive, unrestricted development which has eliminated most of its dune habitat in southeastern Florida. Currently, there are less than ten colonies left on the continental United States, with many more reported in the Bahamas and Caribbean islands (2). Sea-lavender is an important dune stabilizer, but also has many aesthetic characteristics which give the plant a great potential for more general landscape use.

Sea-lavender is a very beautiful shrub up to 2 m tall, with slender grey-green, pubescent leaves (1,2). It grows in smoothly rounded clumps up to 7 m wide and would be an interesting addition to the list of plants available for use in xeriscapes.

The main limiting factor in the widespread production and use of sea-lavender is difficult propagation. A preliminary test using 1,000 field-collected seeds, provided by the State of Florida's Department of Natural Resources, showed virtually no seeds germinated under the usual germination environment. Nurserymen reported similar germination problems and also indicated difficulty in vegetative propagation from cuttings.

Since field specimens were observed to layer naturally, vegetative propagation of sea-lavender was the focus of this study. The objective of this project was to investigate parameters which could be manipulated to improve the success of vegetative propagation.

VEGETATIVE PROPAGATION

An experiment designed to determine whether mist or fog propagation was superior for vegetative propagation of sea-lavender was initiated. Fog propagation proved to be superior, with

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nearly all cuttings rooting under fog at 90% relative humidity, but none under a standard mist system. Apparently the increased humidity of fog propagation is a key factor in overcoming the initial problem of vegetative propagation.

An experiment designed to determine the optimum auxin treatment compared 0, 1,000, and 8,000 ppm indolebutyric acid (IBA) as talc preparations. Cuttings treated with 8,000 ppm IBA prior to sticking rooted best.

Finally, an experiment was conducted which compared four propagation media for use in cutting propagation. The four media tested were: sewage sludge compost, sphagnum peat moss: perlite: vermiculite (3:1:1, v/v/v), sand, and perlite. Results indicated that a light, well-aerated mix such as the sphagnum peat moss: perlite: vermiculite mix is best, although sewage sludge compost and sand both were effective when no rooting hormone was applied. A mixture of sewage sludge compost and perlite might also be effective.

Based on these findings, the optimum rooting conditions for sea-lavender cuttings are fog propagation, an 8,000 ppm auxin application, and a well-aerated rooting medium.

REVEGETATION

While these results are promising for the successful vegetative propagation of sea-lavender, there are also problems with establishment of the plants, particularly if the growing medium is one which does not drain readily. This problem should be solvable through work investigating growing media following propagation.

The outlook for existing dunes and native plants looks bright, as there is currently an increasing public realization of their importance. This is complemented by the creation of programs to preserve existing dunes through limits on construction, creation of walkways to guide people over the dunes without destroying them, and replanting efforts. With continued work, sea-lavender and other dune inhabitants will continue to be representative of this important halophytic environment.

LITERATURE CITED

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