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MACROPROPAGATION OF *CASUARINA CUNNINGHAMIANA* MIQ VIA MISTLESS POLYTUNNEL (HYDROPIT)

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ABSTRACT : In India, Plantations of *Casuarina equisetifolia* are very common and about its regeneration is very well understood. *Casuarina Cunninghamiana* is one such fast growing species. Nevertheless, not much known about its artificial regeneration. Efforts have been made at the Reserch cum Training Unit of BAIF Institute for Rural Development (K) to propagate by rooting of shoot cuttings via a low cost methodology. Efforts also have been made to illustrate briefly about the species, methodology followed, and its merits.

Key words : Polytunnel, Micro environment, stecking.

INTRODUCTION :

Causuarina cunninghamiana commonly called by various names like River sheoak, Creek oak, River oak, Casuarina and so on. The tree is one of the handsome and largest of the Casuarinas. It is a good street tree and is suitable for semi-arid regions (NAP, 1984). It grows upto 40m in height and more than 1 m in diameter. It is native to Eastern and Northern Australia. It is extensively planted in Argentina and neighboring countries for windbreaks and to protect stream banks. It is planted widely in Israel for windbreaks and woodlots. It has wide adaptability, varying from temperate to tropical, altitude from sea level to about 800m, rainfall from 500-5000 mm per year and soils very from silty loams to sands to gravel. Nodulation is prolific.

In India, extensive plantations of *Casuarina equisetifolia* have been taken up. Vegetative propagation of this species is almost standardized in India. In Casuarina, since wind pollination prevails, genetic diversity among progeny is high via seed-route, To assure uniformity in a population vegetative propagation is the method of choice. However, according to the published literatures, *Casuarina cunninghamiana* is produced only through air layering (Gooteeing) Chaudhary and Ram, 1961 and Syed, 1957). Trials of rooting branch cuttings were reported unsuccessful (Chaudhary and Ram, 1961). The method of air-layering is relatively costly and connot produce more stecklings in comparison with rooting of cuttings. Such unsuccessful reports prompted the authors to work on the species to propagate via stem cuttings.

MATERIALS AND METHODS :

The experiment was conducted at Research unit (Clonal propagation unit), S. Lakkihalli of BAIF Institute for Rural Development (Karnataka). The study was conducted in the month of Oct-Nov, 1998. The study site was located between 130 12' lati-

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tude and 760 24' longitude. The site experiences true tropical climate with mean annual rainfall 700 mm and temperature variation from 15°c (December) to 34° c (April). In the campus of BIRD (K), an international provenance trial of *C. cunninghamiana* is in progress. Few provenances are showing highly superior performance. From such superior trees stem cuttings have been taken for rooting. The cuttings of 10-12 cm length were treated with 0.2 per cent Bavistin and then cuttings were treated with various concentrations of growt regulators. Such treated cuttings were planted in polybags filled with soil : sand (1:1) and drenched properly.

The bage were arranged in a pit of 5m x 1m (LxB) and 30 cm deep. The pit was provided with bottom layer of polysheet, above which sand layer of about 2-3 cm was made. A bamboo frame was made by making arches over which polysheet was spread to cover the pit and all sides were sealed by putting weight to create " a controlled micro-environment". Pit was watered once in 3-4 days. There were three replications and fifty polybags in each treatment.

RESULTS AND DISCUSSION :

Table : 1 Rotting Response of Casuarina cunninghamiana

Sl. No.	Teatment	Average rooting per cent
1	IBA 1000 ppm	13.0
2	IBA 2000 ppm	20.0
3	IBA 3000 ppm	27.0
4	IBA 3000 ppm + 1300 ppm Kinetin	40.0
5	Keredix (rooting power)	25.0
6	Control	10.0

From Table it is evident that the rooting response of *Casuarina Cunninghamiana* varies with the concentration of growth regulator. It varies from 10 per cent (control) to 40 per cent (IBA 3000 ppm + 1300 ppm Kinetin). To compare its rooting response no published literature is available on this species. Survey of literature reveals that the earlier trials of rooting of cuttings ware unsuccessful. Therefore, it is probably a new report on this species.

SUMMARY :

According to the survey of pub*lished literature Casuarina cunninghami- ana* is neglected and difficult to root type species. Few

unsuccessful trials on this species have been reported. A trial has been undertaken to propagate vegetatively. The technique followed was simpler, cheaper and indigenous. Locally available materials would be sufficient to produce stecklings. Stem cuttings when treated with IBA 3000 ppm + 1300 ppm Kinetin gave maximum rooting per cent (40 per cent). To improve the rooting per cent trials are underway.

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