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Effect of Growth Hormones on Rooting Response of Shoot Cuttings of *Morus alba* Var. Gosherami

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ABSTRACT

An experiment was conducted to see the effect of growth hormones IBA, IAA and NAA on rooting response of branch cuttings of *Morus alba* var. Gosherami. Different concentrations used were IBA-100, 200, 300 and 400 ppm, IAA-100, 200, 300 and 400 ppm and NAA-100, 200, 300 and 400 ppm . Distilled water was used as control. IBA (100ppm), IAA and NAA (100 and 200ppm) resulted in maximum rooting of 93.33%. Maximum root length was observed in IBA (200ppm) as 127.3 cm., however maximum number of roots per cutting (22.00) was recorded in NAA (100 ppm).

Keywords:

growth harmones, shoot cuttings, rooting, IAA

INTRODUCTION

Reproduction of tree species by vegetative means is an important aspect for genetic improvement and became necessary to develop quick and economic methods of producing plant material of desired characters. These methods seem to be very useful for multiplication of species and for producing clones. Clonal plant material is of considerable importance in the practice of forestry because it offers advantage of uniformity of growth and development by eliminating genetic differences between tree and by making immediate availability of superior individuals for plantations. It is prime necessity of today for ever increasing demand of superior planting material. Root inducing chemicals have brought revolution in the techniques of propagation. Stem or shoot portions are generally good material for rooting purposes as they have undifferentiated tissues which readily permit initiation of root primordia. *Morus alba* a multipurpose tree species of Kashmir used for silk worm rearing and as an important agroforestry tree species was chosen for rooting studies with the help of growth hormones.

MATERIALS AND METHODS

Experiment was conducted in the nursery of Division of Forestry, SKUAST-K during July. *Morus alba* var. Gosherami was used for the purpose of study. Cuttings of 20 cm length and 15-20 mm diameter were made from the coppice shoots. The cuttings were treated with the growth hormones for 24 hours. Only 4 cm. basal portion of the cuttings were dipped in growth hormone solutions. The treated cuttings were thereafter planted in the nursery bed and watered as and when required. The treatments included were IBA-100, 200, 300, and 400 ppm, IAA-100, 200, 300 and 400 ppm, NAA-100, 200, 300 and 400 ppm besides control (Distilled water dip). The treatments were replicated three times with five cuttings per treatment using randomised block design. The data on rooting per cent, root length (cm.) and number of roots per cutting was recorded in the month of September.

Table 1. Effect of Growth regulators on rooting of branch cuttings of *Morus alba* var. Gosherami

Treatment	Rooting (%)	Root length (cm.)	No. of roots/cutting
IBA-100 ppm	93.33	115.5	9.33
IBA-200 ppm	86.66	127.3	16.66
IBA300 ppm	86.66	83.7	19.66
IBA-400 ppm	-	-	-
IAA-100 ppm	93.33	90.3	10.00
IAA-200 ppm	93.33	82.4	14.33
IAA-300 ppm	86.66	71.2	12.33
IAA-400 ppm	-	-	-
NAA-100 ppm	93.33	85.7	22.00
NAA-200 ppm	93.33	67.1	18.33
NAA-300 ppm	66.66	61.5	16.00
NAA-400 ppm	40.66	48.9	7.66
Control (Distilled water dip)	13.33	45.6	8.33
C.D.at 5%	29.98	33.93	7.19

RESULTS AND DISCUSSIONS

The data on rooting of *Morus alba* var. Goshrami is presented in Table 1. The growth hormones under study had differential effects on rooting percentage. Maximum rooting (93.33%) was observed in IBA (100 ppm), IAA (100, 200 ppm), NAA (100, 200 ppm) while as control(Distilled water treated cuttings) resulted in minimum rooting percentage of 13.33.The exogenous application of auxins enhance rooting in hardwood cuttings has been reported by Nanda (1970). IBA (200 ppm) treated cuttings resulted in maximum root length of 127.3 cm followed by IBA (100 ppm) as 115.5 cm while as it was minimum in control (45.6cm.). Differential response of root length has been observed in *Dalbergia sissoo* by Khan and Sidhu (2002) as a result of application of growth hormones. Similar results in *Avincennia officinalis* and *Avincennia alba* have been reported by Kesava Reddy et al. (1994). Number of roots per cutting was observed maximum in NAA (100 ppm) as 22.00, while as it was minimum in control as 8.33 variable response in number of roots per cutting using IAA, IBA, IPA and NAA in *Dalbergia sissoo* has been reported by Pain and Roy (1981)and Shamat and Kumar (1988).

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