



## **Vegetative Propagation of *Morus alba* var. Kanva Through Branch Cuttings.**

**PA Khan and KN Qaiser**

*Faculty of Forestry, Sher-e-Kashmir University of Agricultural sciences and Technology of Kashmir Shalimar, Kashmir - 191121, India*

### **ABSTRACT**

Exogenous application of growth hormones promoted root formation in cuttings taken from coppice shoots of *Morus alba* var. Kanva. The concentrations of growth hormones were IBA-100,200,300 & 400ppm, IAA 100,200,300 & 400ppm and NAA 100,200,300 & 400ppm besides control (distilled water dip). Among these hormone concentrations IBA-100 ppm and IAA-100 ppm were most effective in rooting. Growth hormones not only enhanced root formation but also root length and number of roots per cutting.

### **Keywords:**

IAA, morus, rooting

### **INTRODUCTION**

Multiplication by vegetative means offers the advantage of greater uniformity and immediate availability of superior clones for plantation work. Plants with desired characteristics can be obtained at will and made available in the shortest possible time. Nursery raising through seeds on the other hand can not fully meet the increasing demand and take a long time for eventual planting in the field. With the increasing demand on tree improvement and for optimizing biomass reproduction, the importance of vegetative propagation has increased. The rooting success of stem cuttings depends upon proper environmental treatment.

The potential for increased genetic gain through vegetative propagation of forest trees has been

demonstrated by many workers (Libby 1974; Khosla et al. 1982). In the present investigation an attempt was made to study the rooting behaviour of *Morus alba* var. Kanva using different growth hormone concentrations. Exogenous application of growth hormones promoted root formation in cuttings taken from coppice shoots of *Morus alba* var. Kanva. The concentrations of growth hormones were IBA-100,200,300 & 400ppm, IAA 100,200,300 & 400ppm and NAA 100,200,300 & 400ppm besides control (distilled water dip). Among these hormone concentrations IBA-100 ppm and IAA-100 ppm were most effective in rooting. Growth hormones not only enhanced root formation but also root length and number of roots per cutting.

## MATERIALS AND METHODS

Experiment was conducted in the nursery of Division of Forestry, SKUAST-K during July. *Morus alba* var. Kanva 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 month of September.

## RESULTS AND DISCUSSION

The data on rooting of *Morus alba* var. Kanva is presented in Table 1. Maximum rooting of 93.33% was recorded in IBA (100 ppm) and IAA

(100 ppm) where as minimum rooting (20.00%) in control. Increase in the concentration from 100 to 400 ppm in all the treatments reduced the rooting percentage. Ye (1984) observed 85.7-91.3% rooting in *Dalbergia sissoo* cuttings treated with 100-200 ppm of IBA and NAA. Negi (1982) reported that 100 ppm IAA, IBA and NAA increased number of rooted cuttings and per cent rooting in *D. latifolia*. The exogenous applications of auxins enhance rooting in hardwood cuttings has been reported by Nanda (1970). Significant differences were observed between various treatments in root length. Maximum root length of 80.83cm. was observed in NAA (100 ppm) followed by IBA(100 ppm). Control (Distilled Water dip) induced minimum root length of 27.47 cm. Differential rooting length was observed by Khan and Sidhu (2002) in *Dalbergia sissoo* Roxb. as a result of application of different concentrations of growth hormones IAA, IBA and NAA. The number of roots per cutting was higher (19.00) in IBA (400 ppm) and lower (8.00) in control. Pain and Roy (1981) and Shamat and Kumar (1988) have noted a differential increase in number of roots per cutting in *D. sissoo* as a result of IBA, IAA, IPA and NAA

**Table-1:** Effect of growth hormones on rooting of branch cuttings of *Morus alba* var. Kanva

Treatment	Rooting (%)	Root length (cm.)	No. of roots/cutting
IBA 100ppm	(81.14) 93.33	63.00	11.33
IBA -200ppm	(54.98) 66.66	51.63	12.66
IBA300ppm	(46.98) 53.33	47.06	14.66
IBA -400ppm	(35.00) 33.33	37.63	19.00
IAA -100ppm	(81.14) 93.33	59.96	10.66
IAA -200ppm	(72.28) 86.66	50.63	8.33
IAA -300ppm	(59.20) 73.66	45.86	9.33
IAA -400ppm	(54.98) 66.66	33.26	7.33
NAA -100ppm	(72.28) 86.66	80.83	12.00
NAA -200ppm	(59.20) 73.33	73.76	14.33

Figures in parenthesis are transformed values

**REFERENCES**

- Khan PA and Sidhu DS 2002 Effect of growth regulators on rooting performance of stem cuttings of Shisham (*Dalbergia sissoo* Roxb.). *SKUAST JRes* **4(1)**: 88-92.
- Khosla,PK, Nagpal R and Puri S. 1982. Propagation of some agroforestry species by air layering. *Indian J For* **5**:171-174.
- Libby WJ 1974 The use of vegetative propagules in forest genetics and tree improvement. *Newzealand J For Sci* **4**: 440-447.
- Nanda KK 1970 Investigations on the use of auxins, nutrition and morphological nature in rooting of hypocotyl cuttings of *Impatiens balsamina*. *Indian J Expt Biol* **12**:82-84.
- Negi KS 1982 A note on rooting response in *Dalbergia sissoo* Roxb. Cuttings by plant hormones. *Indian For* **108**: 300-301.
- Pain,SK and Roy BK 1981 A comparative study of the root forming effect of IPA, IBA and NAA on stem cuttings of *Dalbergia sissoo*. *Indian For* **107**:151-158.
- Shamat GS and Kumar S 1988 Rooting studies of *Punica granatum* and *Dalbergia sissoo* cuttings under controlled phyto environmental conditions. *Indian For* **114**:331-334.