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Research Notes

Vegetative Propagation of Annatto(*Bixa orellana)* (Linn.)

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Improvement of forest species through breeding is rather difficult because of their long generation times, prevalence of out breeding and operational difficulties (Paramathma *et al.,* 2000). Therefore, the genetic gains in forestry achieved by tree breeding including hybridization have been rather few (Tewari, 1994). Vegetative propagation is one of the

Table 1. Influence of growth regulators on vegetative propagation of Annatto(*Bixa orellana*) on 60 days after treating

Treatments		Sprouting %	Rooting %	Root length (cm)	Shoot length (cm)
IAA	1000 ppm	25	0	0	0
	2000 ppm	30	7	6.0	4.5
	3000 ppm	45	18	10.0	5.0
	4000 ppm	55	22	12.5	6.5
	5000 ppm	40	0	0	0
IBA	1000 ppm	25	0	0	0
	2000 ppm	28	0	0	0
	3000 ppm	32	0	0	0
	4000 ppm	30	0	0	0
	5000 ppm	30	0	0	0
	Control	12	0	0	0
SEd		1.7	0.7	0.07	0.07
CD (0.05)		3. 5	1.4	0.14	0.14

most effective tools for improvement in forestry. Recently there has been growing interest in using the techniques of clonal forestry and thereby exploiting the considerable amount of genetic variability already existing in the populations of forest tree species. This has arisen partly because of the increasing number of forest tree species that have been found amenable to vegetative propagation and partly because of demonstration of tremendous yield improvement by adopting clonal forestry approaches. Many methods are available for the vegetative propagation of tree species, but currently the emphasis is on the use of rooted branch cuttings because this method has many advantages over the other methods. In the current study also semi hard wood cuttings were used for propagation.

Hence a study was carried at five year old trees of *Bixa orellana* maintained at Avinashi taluk of Coimbatore district, Tamil Nadu. From the plantation, superior trees were identified and semi hard wood cutting were collected. The semi hard wood cutting of 1.0 to 1.5cm diameter was trimmed to15 to 20 cm length with minimum of two nodes from the branches of the lower canopy. The selected cuttings were given protection against pathogenic fungi by dipping in a 0.5 per cent Bavistin solution before planting. Then the cuttings were soaked individually in IAA and IBA hormonal solutions of various concentration viz., 1000, 2000, 3000, 4000 and 5000 ppm for five minutes. Each treatment was replicated 4 times and in each replication 50 cuttings were used for the study. The treated cuttings were

then planted in a polybag filled with sand:soil:FYM in 2:1:1 ratio at a depth of 4 cm and placed in a mistless low cost polytunnel system with a humidity of 72 to 80 per cent coupled with intermittent spray of water. After 60 days of planting, sprouting per cent, rooting per cent, root length (cm) and shoot length (cm) were recorded and evaluated for the propagation efficiency .

Out of two growth regulators, IAA shown supremacy in terms of per cent rooting, average root length and also shoot length in Annato (Table 1) than IBA. Among various concentrations, IAA 4000 ppm registered superiority in terms of per cent rooting, and average root length. The increase in concentration of IAA also showed increase in rooting percentage from 2000 to 4000ppm IAA. However at higher concentration of 5000 ppm the treatment failed to induce rooting. The dose of hormone was also an important factor in the rooting of cuttings (Nautiyal *et al.*, 1991). IBA at all concentrations failed to induce rooting which indicated the preference of IAA by annato plant. The differences in rooting indicated that growth regulators alone were not responsible for rooting in cuttings, but variety of factors including age of the parent tree, season (Nanda *et al.,* 1969) and the part of the trees sampled. The other factors like age of the mother tree, size of the cuttings and the changes in nutrients reserves as well as carbohydrate reserves (Rieckermann *et al.,* 1999) might have greatly influenced the rooting of branch cuttings. However in the present investigation, a maximum of 51.3% rooting of branch cuttings was achieved on cuttings taken from five year old trees. Thus, the investigation of *Bixa orellana* on vegetative propagation revealed that semi-hardwood cuttings treating in IAA 4000 ppm for five minutes can enhance the rooting and sprouting percentage.

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