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TITLE: **EFFECT OF BRANCH POSITION AND AUXIN TREATMENT ON CLONAL PROPAGATION OF TECTONA GRANDIS LINN.F.**

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INTRODUCTION

Teak (*Tectona grandis* Linn.f.) is one of the most prized high value timber species. Industrial teak plantations have in recent times rapidly expanded due to shrinking supplies followed by total ban on harvesting teak from natural stands.

The teak plantingstock is still produced from seeds of unselected elite genotypes which may lead to poor stand establishment. the number of seeds per fruit and their germination ability are also variable and limited by several factors.

Therefore an alternative method i.e., Clonal Propagation is required for mass multiplication of elite trees.

The Present study under taken to examine the effect of branch position (Basal,Middl Apical)and application of root inducing plant growth regulators (Auxins like IBA,NAA) at 2000ppm &4000ppm concentration on adventitious root formation in teak shoot cuttings obtained from plantation

METHODOLOGY

Selection of elite plant based on external features

Cutting of mononodal cuttings(4cm) from various places like basal position ,middle and apical region.

Branch position and auxin treatments obtained various branch position mononodal cuttings were treated with IBA, NAA at 2000ppm and 4000ppm Control is maintained without treatment

- Treated cuttings were planted in plastic trays, which were filled with sterilized pre soaked vermiculite.
- The cuttings were planted 1.0cm in vermiculite.
- The trays kept inside a chamber where the relative humidity was maintained at 85% with maximum and minimum day night temperature at $32^0$and 26^0c

After 45 days the cuttings were removed from the rooting medium observations like sprouting , rooting, number of sprouts per cutting and their length, number of roots and their length(cm) were recorded

RESULTS

Effect of branch position:The middle branch position revealed maximum(68.21) rooting percentage is followed by apical (40.60) and basal (32.40) middle branch position exhibited maximum (66.05) sprouting percentage is followed by apical (41.15) and basal (26.78)

Effect of auxin treatment

The auxin treatment promotes the overall quality of teak rooted cuttings.however, treatment with IBA increased rooting and sprouting while NAA suppressed it 4000ppm IBA was the most effective treatment in causing root elongation

Interactive effect of branch position and auxin treatment: The combination of IBA(4000PPM) and Middle position of the branches exhibited the highest values of rooting ,sprouting and number of roots.

EFFECT OF BRANCH POSITION, AUXIN TREATMENT AND THEIR INTERACTION ON ROOTING RESPONSE OF SHOOT CUTTINGS

Rooting parameters	Branch position	Auxin treatments					Mean branch position
		control	2000NAA 4000IBA	4000NAA	2000IBA		
%Rooting	Basal	31.30	26.68	24.20	34.76	45.07	32.40
	Middle	66.01	65.32	60.32	72.07	75.17	**68.21**
	Apical	44.13	33.56	26.19	45.62	53.40	40.60
%sprouting	Basal	30.46	23.66	20.05	26.26	33.46	26.78
	Middle	65.86	62.26	53.91	73.59	74.62	**66.05**
	Apical	44.93	33.82	22.20	44.11	60.70	41.15

Mean no. of shoots	Basal	0.81	o.62	0.44	0.49	0.66	0.60
	Middle	1.00	1.00	1.00	1.00	1.50	**1.10**
	Apical	0.85	0.65	0.48	1.17	1.16	0.86
Mean length of shoots	Basal	2.22	3.13	3.18	3.25	3.40	3.04
	Middle	3.05	3.23	3.48	3.52	4.10	**3.48**
	Apical	2.29	3.33	3.41	3.68	3.75	3.29
Mean no. of leaves	Basal	3.14	3.79	3.95	3.63	3.87	3.68
	Middle	3.81	4.15	4.05	4.53	4.78	**4.26**
	Apical	3.29	3.26	3.21	3.74	3.66	3.43
Mean no. of roots	Basal	3.10	3.81	4.56	3.60	3.78	3.77
	Middle	2.89	3.87	4.80	3.81	3.82	3.84
	Apical	2.56	3.88	5.19	4.30	4.28	**4.04**
Mean length of roots	Basal	2.27	3.09	4.56	4.45	5.24	3.92
	Middle	2.90	4.95	5.32	4.72	5.84	4.75
	Apical	2.96	6.28	5.54	4.79	6.18	**5.15**


BASAL
MIDDLE
APICAL


BASAL
MIDDLE
APICAL

DISCUSSION

The branch position on donor plant has an important effect on rooting and sprouting response of teak.

Cuttings taken from the middle position had the best rooting percentage followed by apical and basal positions respectively. Further the similar Results was obtained in *Dalbergia sissoo* (Husen,2004) Number of roots and length of roots are high in apical part as may be indigenous auxin effect, but the rate of rooting is high in the cuttings from the middle position.

CONCLUSION

- The present study highlighted the importance of branch position and auxin treatment for maximum root response in teak cuttings taken from the garden.
- Findings of this project suggest that cuttings from the middle position and treated with 4000ppm IBA has given maximum rooting and sprouting.
- Therefore , this can be utilized to produce elite clones for planting stock improvement program of teak.

However further physiological and biological investigations are needed in take to understand detailed mechanism of rooting response