



RESPONSE OF PLANTING MONTHS IN VEGETATIVE PROPAGATION OF *Cestrum nocturnum* Linn. THROUGH HARDWOOD CUTTINGS

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ABSTRACT

A study was carried out to standardize the optimum month of planting for vegetative propagation of *Cestrum nocturnum* L. through hardwood cutting under Meerut region (plains of Uttar Pradesh). The results revealed that significantly higher survival percentage of cuttings, their vegetative growth and root development parameters were obtained during January planting.

Key Words : *Cestrunum nocturnum*, hardwood cutting, propagation, shrub.

Cestrum nocturnum which is commonly known as “Night-Jessamine” or Queen-of-the-Night” (Raat-ki-Rani in Hindi) is an important ornamental shrub. It bears highly sweet-scented flowers in clusters, of pale-green in color, which begin to open in the dusk and night and spread there pleasant fragrance all-around. Besides its aesthetic importance, its flowers are in great demand for extraction of essential oils also. Its flowers produce 0.85% pure concrete and 0.135% essential oils (Sivasamy and Bhattacharjee, 1997). For obtaining maximum success in propagation of *C. nocturnum* through hardwood cuttings, it is very difficult to predict that which month of the year would be ideal for planting the cuttings in a particular region. Therefore, attempts were made to find out the best month for planting the hardwood cuttings of *C. nocturnum* under the climatic condition of Meerut region (plains of Uttar Pradesh).

MATERIALS AND METHODS

The present investigation was carried out at the Horticultural Research Farm of Institute of Advanced Studies, Chaudhary Charan Singh University, Meerut (Uttar Pradesh), during two consecutive years. Meerut, the region of northern plains of India is situated at 29.01°N latitude and 77.43°N longitude at an elevation of 222 meter above mean sea level. Meerut is characterized by its semi-arid and sub-tropical type of climate and has the extremes of weather condition. The hardwood cuttings were planted on seventh date of each month from November to October at monthly intervals. There were altogether twelve treatments, replicated thrice in randomized block design. The length of all cuttings was made 20-25 cm. Fine sandy loam soil was used as rooting medium for filling up the polyethylene bags (20×12 cm sized). The rooting medium was made free from weed, stables of previous crops and stone pieces. In each polyethylene bag, one cutting was planted gently by hand in one third of its length. Uniform

Table 1: Effect of planting months in propagation of *Cestrum Nocturnum* L. through hardwood cuttings (Two years pooled data)

Sr. No.	Planting month	Survived cuttings (X)	No. of sprouts/ cutting	No. of leaves/ cutting	Length of longest sprout / per cutting (cm)	Diameter of thickest sprout/ cutting (cm)	No. of primary roots/ cutting	No. of lateral roots/ cutting	Length of longest root/ cutting (cm)	Diameter of thickest root/ cutting (cm)
1.	November	61.50	2.68	20.55	16.15	0.52	11.83	25.17	22.24	0.38
2.	December	76.00	2.41	20.85	24.78	0.52	15.32	40.72	29.99	0.41
3.	January	92.00	2.80	35.20	37.53	0.65	17.99	44.27	37.35	0.46
4.	February	67.50	2.59	27.67	29.69	0.59	09.47	26.38	23.90	0.30
5.	March	08.00	2.15	22.50	24.79	0.50	09.72	19.84	28.36	0.32
6.	April	23.00	1.77	17.95	27.02	0.52	15.77	39.72	34.54	0.32
7.	May	24.50	1.72	19.79	23.82	0.47	08.27	20.62	18.83	0.32
8.	June	06.50	1.59	13.21	13.19	0.53	11.02	26.02	23.45	0.23
9.	July	19.50	2.52	22.60	12.27	0.46	10.38	17.87	21.56	0.24
10.	August	05.00	2.08	20.76	11.27	0.43	06.38	19.72	20.62	0.26
11.	September	64.50	2.06	18.65	9.25	0.45	11.72	22.77	28.20	0.25
12.	October	75.50	2.06	19.92	14.11	0.41	11.50	26.21	29.21	0.27
	S.Em±.	3.38	0.19	2.30	1.92	0.02	1.25	4.34	1.94	0.02
	C.D.	13.08	0.79	9.17	7.65	0.09	4.99	17.30	7.75	0.08
	(P=0.01)									

cultural operations were followed during the entire course of investigation. Observations on survival percentage, vegetative growth and root formation parameters were recorded during the span of seven months of planting the cuttings. Two years data were pooled and analyzed statistically (Table 1) to draw the conclusion.

RESULTS AND DISCUSSION

Table 1 indicates that different months of planting the hardwood cuttings of *Cestrum nocturnum* had significantly affected all the parameters studied during the course of investigation. The cuttings planted during the month of January gave significantly higher survival percentage (92) when compared with rest months of the year (8-76%). The maximum number of sprouts per cuttings was produced when cutting were planted during the month of January. However, non significant difference was observed when cutting were planted during the months of January to March and again from July to December. It was also observed that (Table 1) significantly higher number of leaves, length of longest sprout and diameter of thickest sprout per cutting were produced by January planting, when compared with rest

of the other treatments. However, cuttings planted during the month of January and February gave significantly at par results with each other with respect to these three parameters. Table 1 also reveals that the treatment, planting of cuttings during the month of January gave significantly higher number of primary and lateral roots, length of longest root and diameter of thickest root per cutting over other treatments. Though, there were non significant difference among the treatments of December, January and April plantings. But the planting of cuttings during months of November, December and January produced significantly at par results with each other for diameter of thickest sprout per cutting. Similar results also obtained in propagation of *C. nocturnum* through semi-hardwood and softwood cuttings (Singh, 1998). In determining the survival percentage, vegetative growth and root development parameters in hardwood cuttings, accumulation of sugars and auxins contents presents in the cutting are believed to play a dominant role. In addition to sugars and auxins, certain rooting co-factors are also believed to be required for establishment of cutting (Hertmann *et al.*, 1997). Apart from these, certain

external favourable conditions like optimum soil moisture, atmospheric humidity and temperature regime are also needed for greater cell activity in the stem cutting. It seems that cuttings planted during the month of January received optimum weather condition required for the better functioning of internal contents present in the cuttings and thus resulted in significantly higher survival percentage, vegetative growth and root development.

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