

Propagation Studies in Jamun

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ABSTRACT

At present there is no vegetative method of propagation is standardize in jamun. Hence, the study was undertaken on “Propagation Studies in Jamun” during 2005-06 at University Department of Horticulture, Dr. Panjabrao Deshmukh Krushi Vidyapeeth, Akola (M.S.). An experiment was conducted in Split Plot Design with four replications. In all twenty-four treatments were imposed. The result of present investigation indicated that, the bud-sprouting was found maximum during 2nd week of March and the number of leaves on scion were found maximum in softwood grafting done during 2nd week of May.

Key words : Jamun, Propagation, Softwood, Patch

INTRODUCTION

India have a wide variation in agro-climatic conditions grows almost all the fruit crops. India ranks second next to Brazil in area and production in the world. In dry land / rainfed areas, jamun (*Syzygium cumini* L.) has occupied on unique place due to hardy nature for biotic and abiotic stresses, which belongs to the family Myrtaceae. Including jamun, some more fruits are now considered in the genus *Syzygium*. *Syzygium cumini* is synonymous to *Eugenia jambolana* Lamk and *Eugenia cumini* Druce (Irulappan and Anbu, 1993)

Jamun is propagated both sexually and asexually. But at present the majority of nursery owner using the sexual method of propagation due to presence of polyembryony the new plant get is also true to type but it come into bearing latter than vegetative propagated and also tall and slender. As this crop gained the importance due to its medicinal and nutritive value the orchardist are demanding for early bearing and dwarf tree with high yield potential. It is possible only when there is standardization of vegetative method of propagation. The present investigation has been planned to study the “Propagation Studies in Jamun”.

MATERIALS AND METHODS

The present experiment “Propagation Studies in Jamun” was carried out at Nursery Unit, College of Horticulture, Dr. Panjabrao Deshmukh Krushi Vidyapeeth, Akola during the year 2005-06. The investigation was laid out in Split Plot Design with twenty-four treatment combinations, which were replicated four (4) times, the number of plants per treatment were ten. The details regarding the experiment are given below:

Treatment details :

Main treatment : Time of propagation

- T₁ : 2nd week of January, 2005
- T₂ : 2nd week of February 2005
- T₃ : 2nd week of March 2005
- T₄ : 2nd week of April 2005
- T₅ : 2nd week of May 2005
- T₆ : 2nd week of June 2005
- T₇ : 2nd week of July 2005
- T₈ : 2nd week of August 2005
- T₉ : 2nd week of September 2005
- T₁₀ : 2nd week of October 2005
- T₁₁ : 2nd week of November 2005
- T₁₂ : 2nd week of December 2005

Sub treatment : Method of propagation

- V₁ : Softwood grafting
- V₂ : Patch budding

T ₁ V ₁	T ₃ V ₁	T ₅ V ₁	T ₇ V ₁	T ₉ V ₁	T ₁₁ V ₁	T ₁₂ V ₁
T ₁ V ₂	T ₃ V ₂	T ₅ V ₂	T ₇ V ₂	T ₉ V ₂	T ₁₁ V ₂	T ₁₂ V ₂

For raising of seedlings (rootstock) the seeds of jamun were sown in 20 x 10 cm size polythene bag filled with sand, soil, FYM with 1:1:1 proportion on 21st June, 2004. The germinated seedlings were nursed for their better growth. The budding / grafting operation was undertaken from January, 2005 on 7 months old seedlings to December, 2005 on 15 months old seedlings.

Jamun seedlings of uniform growth were selected for the propagation operation at monthly interval from mid January 2005 to mid December 2005 for 12 months. In the experiment two methods of vegetative propagation were adopted viz., softwood grafting and patch budding.

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RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following sub heads:

Effect of time and method of propagation on days required for bud sprouting :

The effect of time and method of propagation on days required for bud-sprouting were found to be significant. The data presented in Table 1 indicated that, minimum days (13.50 days) required for bud-sprouting were observed in softwood grafting done during 2nd week of June. The softwood grafting done during 2nd week of August (23.68 days), 2nd week of July (24.03 days), 2nd week of September (25.01 days) and 2nd week of May (25.37 days) were found to be at par with each other. While, maximum days for bud-sprouting (99.50 days) were observed in patch budding done during 2nd week of September. The softwood grafting done during 2nd week of January, October to December and patch budding done during February to May, November and December could not show any sprouting. The propagation operation should take place at the time when favorable temperature is

expected and when the cambium tissue is in the active stage. Higher temperature is more favorable for callus formation which unite the scion buds with the stock. In the present study such conditions were observed in June and January and this might be the reason for early bud sprouting. The results are in conformity with those of Singh *et al.* (1984) in mango, Singh and Parmar (1998) in aonla, Chovatia and Singh (2000) in jamun.

Effect of time and method of propagation on number of leaves on scion :

The data (Table 2) revealed significant differences among the different time and method of propagation on number of leaves on scion. Data indicated that, the number of leaves on scion were recorded maximum (7.87) in softwood grafting done during 2nd week of May and it was found at par with the softwood grafting done during 2nd week of August (7.15), 2nd week of September (6.81) and patch budding done during 2nd week of January (6.81). While, the minimum number of leaves were observed in softwood grafting done during 2nd week of July (3.31). This might be due to the fact that, water is one of the driving forces for cell elongation and multiplication and

Table 1 : Days required for bud-sprouting as influenced by time and method of propagation

Treatments	Time	Days required for bud sprouting	
		Method of propagation	
		Softwood grafting (V ₁)	Patch budding (V ₂)
T ₁	2 nd Week of January	--	32.75
T ₂	2 nd Week of February	31.00	--
T ₃	2 nd Week of March	34.86	--
T ₄	2 nd Week of April	58.75	--
T ₅	2 nd Week of May	25.37	--
T ₆	2 nd Week of June	13.50	46.50
T ₇	2 nd Week of July	24.03	51.25
T ₈	2 nd Week of August	23.68	72.00
T ₉	2 nd Week of September	25.01	99.50
T ₁₀	2 nd Week of October	--	67.00
T ₁₁	2 nd Week of November	--	--
T ₁₂	2 nd Week of December	--	--
Interaction (Time x Method)			
	Time (T)	Method (M)	T x M
'F' test	--	--	Sig.
S.E. ±	--	--	3.12
C.D. (P=0.05)	--	--	8.78

'--' indicates the treatment could not showed any sprouting

Table 2 : Number of leaves on scion as influenced by time and method of propagation

Treatment	Time	Days required for bud sprouting	
		Method of propagation	
		Softwood grafting (V ₁)	Patch budding (V ₂)
T ₁	2 nd Week of January	--	6.81
T ₂	2 nd Week of February	5.50	--
T ₃	2 nd Week of March	4.82	--
T ₄	2 nd Week of April	5.67	--
T ₅	2 nd Week of May	7.87	--
T ₆	2 nd Week of June	4.25	4.67
T ₇	2 nd Week of July	3.31	6.25
T ₈	2 nd Week of August	7.15	6.25
T ₉	2 nd Week of September	6.81	4.80
T ₁₀	2 nd Week of October	--	3.37
T ₁₁	2 nd Week of November	--	--
T ₁₂	2 nd Week of December	--	--
Interaction (Time x Method)			
	Time (T)	Method (M)	T x M
'F' test	--	--	Sig.
S.E. ±	--	--	0.74
C.D. (P=0.05)	--	--	2.10

'--' indicates the treatment could not showed any sprouting

the grafting operation done during summer and early monsoon periods got the favourable soil moisture, humidity and temperature which showed favorable effect on number of leaves on scion. These results are in conformity with those of Patel and Amin (1981) in mango in which they noticed that softwood grafting was best method of propagation in respect of maximum number of leaves.

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