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## Effect of various storage media and storage period on bare root transplanting of aonla (*Emblca officinalis* Gaertn.) budlings

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### Abstract

The experiment was carried out at experimental orchard of Department of Horticulture, NDUAT, Ayodhya (U.P). Based on the finding from present experimentation it was concluded that aonla bare rooted budling can be transported to distant places with good success. Among the storage media moist gunny bag and sphagnum moss followed by polythene sheet + sphagnum moss proved equally effective for a period of more than 48 hours in keeping bare rooted budlings fresh for transplanting success.

**Keywords:** Budling, gunny bag, moss grass, polythene sheet

### Introduction

Aonla or Indian gooseberry is an important fruit Indigenous to India. It can be successfully cultivated in marginal soils and various kinds of wastland. The poor establishment of budlings after transplanting is a major problem. On other hand transplanting budlings with earth ball cost heavy loss of fertile nursery soil and increases cost of transport budlings to distance places (Pareek and Vashishthag), bare rooted transplanting with growth regulators (Singh *et al.*, 1982; Singh and Pandey, 2003) [6] and other treatment has been done with varying success (Sandhu *et al.*, 1983a) [5]. Storage of budling often required because of labour problem, unfavorable weather condition, delay in field preparation transplanting loss and transplanting success owing to excessive loss from budlings. To overcome these problems transplanting of bare rooted aonla budling success need to find a suitable storage and period of storage. Media for storage of budling for longer period for better transplanting success.

### Materials and Methods

The experiment was carried out at experimental orchard of Department of Horticulture, NDUAT, Ayodhya (U.P). For the study single stem defoliated uniform in age and vigour budlings were selected for different storage medium and period of storage. There were four storage media, V12 moist, gunny bag, sphagnum moss, polythene sheet and polythene sheet + sphagnum moss, similarly four storage period V12, control (zero day) 48, 96 and 144 hours. Ten budlings were transplanted in field at each date at 30x30 cm apart, replicated thrice. The observations were recovered on transplanting success and plant growth of budling were recovered after 150 day of transplanting. The data was analyzed as per method given by Panse and Sukhatme (1989) [4].

### Results and Discussion

Storage medium and period played vital role in establishment of aonla budling (Table -1). Bare rooted budlings stored in moist gunny bag showed highest success (75.0%) closely followed by sphagnum moss (74.17%) and polythene sheet + sphagnum moss (71.67%). Budlings establishment decreased during storage but budlings establishment was not affected up to 48 hrs storage. Data presented in Table 2 indicated quicker sprouting (25.75 days) in polythene sheet + sphagnum moss stored budlings. Budlings stored in moist gunny bag (28.42 days) was statistically at par with sphagnum moss stored budlings. The time taken was significantly less in case of 48 hrs storage (24.50 days as compared with other storage period. It is evident from table 3 & 4 that budling height and diameter were influenced by various storage media and period of storage. The plant height was highest (109.25 cm) in moist gunny bag and minimum in polythene sheet stored budlings to were, the values did not differ significantly in other storage medium except, polythene sheet storage. Budling diameter ranged between 1.13 cm in polythene sheet to 1.21 cm in moist gunny bag storage media and differed significantly. Budling diameter decreased with increase in storage period being (1.25 cm) in immediate

transplanting followed by after 48 hrs transplanting moist gunny bag.

Storage media and period of storage also influenced number of branchlets per budling (Table- 5). The highest number of branchlets (154.41) noted in budling stored in moist gunny bag which did not differed significantly with other storage media except, polythene sheet. However, with increase in storage period it decreased fresh weight of scion shoot and root were also influenced by storage media and period of storage (Table-6). The maximum fresh weight (183.80 g) and root (77.95 g) was with the budlings stored in moist gunny bag. However, there was no significant difference among budling transplanted after storing in moist gently bad, sphagnum moss or polythene shoot + sphagnum moss.

The present study on storage media and storage period on bare rooted budlings showed good information. Among

different storage media moist gunny bag and sphagnum moss give better performance with respect to budling establishment and other growth characters followed by polythene sheet + sphagnum moss. Similar and budlings have been reported by Kanwar and Singh (1981) [3] in ber. On the other hand increased storage period caused contrary effect on the traits. Similar observations were also in conformity with the findings of Beniwal *et al.*, (1984) [1] in ber. The reason seems to be possible for the phenomena that budlings polythene sheet media got suffocated due to poor aeration and higher temrature the budlings in remaining three media as moist gunny bag moist sphagnum moss and polythene sheet + sphagnum moss remained in good condition upto 48 hrs of storage due to better aeration and in the storage media.

**Table 1:** Effect of storage media and period on the establishment of budlings

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	80.00 (63.93)	80.00 (63.93)	73.33 (59.00)	66.67 (54.78)	75.00 (60.97)
Sphagnum moss	80.00 (63.93)	76.67 (61.22)	73.33 (59.00)	66.67 (54.78)	74.17 (59.73)
Polythene sheet	80.00 (63.93)	70.00 (56.79)	60.00 (50.85)	56.67 (43.08)	64.17 (53.66)
Polythene sheet+ Sphagnum moss	80.00 (63.93)	76.67 (61.22)	70.00 (56.79)	60.00 (50.77)	71.67 (58.18)
Mean	80.00 (63.93)	75.84 (60.79)	69.17 (56.41)	60.00 (51.40)	

C.D at 5%, Storage media 0.05, Storage period 0.05, Storage media x storage period NS

**Table 2:** Effect of storage media and period on days taken to start sprouting budlings

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	32.00	25.00	26.67	30.00	28.42
Sphagnum moss	32.00	24.33	26.00	29.00	27.83
Polythene sheet	32.00	26.00	30.00	40.67	32.17
Polythene sheet+ Sphagnum moss	32.00	22.67	23.00	25.33	25.75
Mean	32.00	24.50	26.42	31.25	

C.D at 5%, Storage media 0.94, Storage period 0.94, Storage media x storage period 1.88

**Table 3:** Effect of storage media and period on diameter of budlings (cm)

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	1.25	1.22	1.19	1.17	1.21
Sphagnum moss	1.25	1.20	1.17	1.14	1.19
Polythene sheet	1.25	1.15	1.10	1.01	1.13
Polythene sheet+ Sphagnum moss	1.25	1.20	1.17	1.12	1.18
Mean	1.25	1.19	1.16	1.11	

C.D. at 5%, Storage media 0.05, Storage period 0.05, Storage media x storage period NS

**Table 4:** Effect of storage media and period on height of scion shoot (cm)

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	115.36	110.85	107.28	103.50	109.25
Sphagnum moss	115.36	108.56	105.50	98.82	107.06
Polythene sheet	115.36	103.72	95.80	91.40	101.57
Polythene sheet+ Sphagnum moss	115.36	107.90	104.10	97.25	106.15
Mean	115.36	107.76	103.17	97.74	

C.D at 5%, Storage media 5.05, Storage period 5.05, Storage media x storage period NS

**Table 5:** Effect of storage media and period on number of branchlets per budlings

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	160.33	156.60	153.20	147.50	154.41
Sphagnum moss	160.33	154.40	148.47	138.53	150.43
Polythene sheet	160.33	138.24	126.10	120.30	136.24
Polythene sheet+ Sphagnum moss	160.33	150.50	145.27	133.60	147.42

Mean	160.33	149.93	143.26	134.98	
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C.D at 5%, Storage media 11.83, Storage period 11.83, Storage media x storage period NS

**Table 6:** Effect of storage media and period on fresh of weight scion shoots (g)

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	188.62	184.21	182.56	179.81	183.80
Sphagnum moss	188.62	183.27	179.00	172.35	180.86
Polythene sheet	188.62	175.30	171.42	160.08	173.85
Polythene sheet+ Sphagnum moss	188.62	182.50	178.80	171.20	180.28
mean	188.62	181.37	177.94	170.86	

C.D at 5%, Storage media 7.05, Storage period 7.05, Storage media x storage period NS

**Table 7:** Effect of storage media and period on fresh of roots (g)

Storage media	Storage period				Mean
	Planting immediately	Planting after 48 hours	Planting after 96 hours	Planting after 144 hours	
Moist gunny bag	82.30	79.46	75.80	74.23	77.95
Sphagnum moss	82.30	78.21	75.36	70.60	76.62
Polythene sheet	82.30	74.27	70.04	63.20	72.45
Polythene sheet+ Sphagnum moss	82.30	77.32	75.00	70.20	76.20
Mean	82.30	77.32	74.05	69.56	

C.D. at 5%, Storage media 3.72, Storage period 3.72, Storage media x storage period NS

## References

1. Beniwal LS, Chauhan KS, Singh RS. Effect of various transplanting treatments and time transplanting on bare rooted budlings of ber (*Zizyphus mauritiana* Lamk). Haryana J Hort. Sci. 1992; 21(3&4):152-160.
2. Haryana J Hort. Sci. 21(3-4):152-160.
3. Kanwar JS, Singh SN. A note on the longevity of ber (*Zizyphus mauritiana* Lamk), 1981.
4. Panse VG, Sukhatme PV. Statistical Methods for Agricultural Workers, New Delhi, 1989.
5. Sandhu AS, Dhillon BS, Singh Z. Success on bare rooted transplanting of ber budlings. Punjab Hort. J. 1983a; 23:53-58.
6. Singh HK, Panday CS. Effect of transplanting treatments and time transplanting on bare rooted budlings of aonla (*Emblca officinalis* Gaertn). Haryana J. Hort. Sci. 2003; 32 (3&4):176-179
7. Singh K, Singh RS, Chauhan KS. Vegetative propagation of ber (*Zizyphus mauritiana* Lamk) - Effect of time of transplanting of budlings on the success and growth in polythene bag and nursery beds. Haryana J. Hort. Sci. 1984; 13(1&2):26-29.