

Effect of packing materials and storage of scions on graft success in nutmeg (*Myristica fragrans* Houtt.)

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Abstract

Evaluation of various packing materials and storage of nutmeg (*Myristica fragrans*) scions indicated that storage of scions in sealed polythene bags and in moist coir dust in sealed polythene bags were the best and 63.7% and 62.2% graft success respectively, was obtained up to 10 days of storage.

Key words : *Myristica fragrans*, nutmeg, scion, storage.

Nutmeg (*Myristica fragrans* Houtt.) trees are dioecious and segregation of sex into unisexual male, unisexual female and bisexual types have been reported. Identification of sex of nutmeg trees is difficult till they flower. Though nutmeg can be propagated through seeds, epicotyl grafting is commercially adopted to obtain high yielding and desirable populations of nutmeg. However, the scions for grafting are to be collected from high yielding female trees. High yielding female trees may not be available at the site of grafting and scions may have to be transported from far off places. Nutmeg scions are perishable and are to be packed in an ideal packing material and stored/transported. Since there is no published information on this aspect, a study was undertaken to find out a suitable packing material for storage of nutmeg scions for grafting.

The experiment was laid out in a Completely Randomized Block Design with 8 treatments and 3 replications and with 7 cuttings in each replication. Healthy uniform sized scions were detached from the tree and treated with copper oxychloride (0.5%). These scions were either left exposed or stored in various treatments such as polythene bag, moist soil, moist coir dust, sugar solution (1%), moist newspaper and moist jute bag. The lower end of the scions (3-4 cm) alone were immersed in the moist storage medium in the case of soil, coir dust and sugar solution and were sealed in polythene bags to prevent moisture loss. The scions wrapped in moist newspaper were also sealed in polybags. Grafting was carried out with fresh scions (scions collected just before grafting) on all the days of grafting and which formed the control. Three months old rootstocks were used for grafting.

The top portion of the rootstock was cut and a vertical downward slit was made in the centre of the rootstock. A wedge shaped cut was made at the base of the scion and was grafted onto the rootstock using a polythene ribbon of 2 cm width. Grafting was undertaken on the 3rd, 7th, 10th and 12th day of storage and

percentage success in grafting was recorded.

All the packing materials evaluated except moist jute bag were superior to exposed scions on all the days when the success in grafting was taken into consideration. Transporting scion materials stored in coir dust, polybags and sugar solution was on par with the adopted practice of using fresh scion for grafting, up to the 3rd day. The scions could be transported in polythene bags and moist coir dust stored in polythene bags and used for grafting with 63.7% and 62.2% success respectively, even on the 10th day of storage, the success obtained being on par with use of fresh scions. However, in general, there was decline in graft success as the storage period increased. Visual drying was not observed in any of the treatments up to the 7th day. When wrapped in moist jute bag, 52.3% of the scions were unfit for grafting on the 10th day and the grafting success was very low (Table 1). In plant tissues water loss due to transpiration is directly correlated to the decline in fresh weight and when the fresh weight declines below a critical point, the recovery of normal metabolic activity becomes impossible and wilting occurs (Mayak *et al.* 1974). Maintenance of high humidity in the sealed polythene bags would have reduced transpiration and prevented the desiccation of scions.

Table 1. Effect of packing materials and storage of scions on graft success (%) in nutmeg

Treatment	Period of storage (days)			
	3	7	10	12
T1	98.2 (82.3)	100.0 (89.7)	96.3 (77.0)	93.8 (75.3)
T2	96.3 (77.0)	82.8 (65.5)	63.7 (52.5)	52.3 (46.3)
T3	90.2 (71.7)	67.4 (55.5)	62.2 (52.0)	42.8 (40.8)
T4	47.6 (43.6)	42.6 (40.7)	42.5 (40.7)	33.5 (35.4)
T5	81.3 (64.4)	47.7 (43.4)	28.5 (34.4)	18.6 (30.9)
T6	67.8 (55.4)	41.3 (40.2)	32.0 (32.2)	26.5 (25.5)
T7	36.8 (37.3)	9.8 (18.2)	6.6 (14.9)	0.0 (0.29)
T8	18.8 (25.7)	0.0 (0.3)	0.0 (0.3)	0.0 (0.3)
CD at 5%	22.5	22.8	25.1	16.1

Values in parentheses are transformed values
T1- Scions taken fresh just before grafting; T2- Scions placed in polythene bags; T3- Lower end of scions immersed in moist coir dust and placed in polythene bags; T4- Lower end of scions immersed in moist soil and placed in polythene bags; T5- Lower end of scions immersed in sucrose solution (1%) and placed in polythene bags; T6- Scions wrapped in moist newspaper and placed in polythene bags; T7- Scions placed in moist jute bags; T8- Scions kept under open condition/exposed.

Reference

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