

Short communication

## Graft recovery of *Piper nigrum* L. runner shoots on *Piper colubrinum* Link. rootstocks as influenced by varieties and month of grafting

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### Abstract

Grafting black pepper (*Piper nigrum*) on resistant rootstocks of *Piper colubrinum* is a widely accepted technique to manage the problematic *Phytophthora* disease. To evaluate the influence of varieties and season on graft recovery, a preliminary study was conducted in 2000, in which the runner shoots of eight *P. nigrum* varieties were grafted on *P. colubrinum* rootstocks. Results show that regardless of the varieties, February and March are the best periods for graft production.

**Keywords:** Black pepper, Compatibility, *Phytophthora*

Grafting on *Phytophthora* disease resistant rootstocks of *Piper colubrinum* Link., a Brazilian marshy weed plant, is a well-known technique to surmount the abiotic and biotic stress problems of black pepper (*Piper nigrum* L.). Mathew and Rema (2000) noted that the grafts could survive up to nine years even with daily irrigation. Graft recovery, however, is a function of weather factors and varietal differences are also probable in this respect. To evaluate the effects of season of grafting and varieties on the success of *P. nigrum* grafts on *P. colubrinum*, a preliminary study was conducted at Panniyur in 2000.

Three noded cuttings from orthotropically growing branches of *P. colubrinum* were planted in polybags of size 20 x 15 cm containing 800 g potting mixture (1:1:1 of farmyard manure, sand, and soil). The cuttings were kept under 50% shade and watered daily for 5 months and was grafted on when the height of rootstock was at least 50 cm. Grafting work was started in June 2000, and grafts were produced every month for one year in a shade house protected from rains. Ten runner shoots, top shoots, and lateral shoots of *P. nigrum* varieties 'Panniyur 1', 'Panniyur 2', 'Panniyur 3', 'Panniyur 4', 'Panniyur

5', 'Panniyur 6', 'Panniyur 7', and 'Karimunda' were grafted and the process was replicated thrice in CRD. Graft recovery was monitored at monthly intervals for one year.

Regardless of the month of graft production and variety, runner shoots proved the best shoot type with highest graft recovery. Seasonal variations among runner shoots, lateral shoots, and top shoots of seven 'Panniyur' varieties and 'Karimunda' grafted on *Piper colubrinum* rootstock were largely similar; hence data on runner shoots only are presented here (Table 1). Monthly variations were, however, significant. In general, the months of February and March were more conducive for graft success (>90%). Among varieties, 'Panniyur 5' gave the highest graft recovery; nonetheless, this was statistically at par with 'Panniyur 3', 'Panniyur 2', and 'Panniyur 4'. The interaction effects of month of grafting vs. variety was also significant, implying that graft recovery of different varieties may be variable depending on the month of grafting.

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Table 1. Mean recovery percentage of runner shoot grafts of *P. nigrum* on *P. colubrinum* grafted during different months of a year at Panniyur, Kerala.

Month	'Panniyur 1'	'Panniyur 2'	'Panniyur 3'	'Panniyur 4'	'Panniyur 5'	'Panniyur 6'	'Panniyur 7'	'Karimunda'	Overall mean
June	75	100	100	100	100	100	25	100	88
July	100	75	67	100	100	50	100	75	83
Aug	100	50	100	100	100	75	25	25	72
Sep	75	100	100	100	100	75	100	50	88
Oct	75	75	50	100	100	50	50	50	69
Nov	50	50	75	100	100	0	75	25	59
Dec	100	75	75	25	75	85	43	18	62
Jan	77	93	100	100	100	50	100	75	87
Feb	100	100	100	50	100	100	100	100	94
Mar	100	100	100	100	100	100	100	75	97
Apr	25	100	75	75	75	50	75	75	69
May	75	100	75	75	75	50	100	75	78
Mean	79.3	84.9	84.7	85.4	93.8	65.4	74.4	61.9	

CD for month = 13.3\*\*

CD for variety = 10.9\*\*

CD for interaction between season and variety = 37.7\*\*

\*\* significant at 1% level

## Reference

Mathew, P.A. and Rema, J. 2000. Grafting black pepper to control foot rot. *Spice India*, 7: 10.