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EVALUATION OF PROMISING SELECTIONS OF SMALL CARDAMOM AGAINST *AZHUKAL* DISEASE*

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'Azhukal' or Phytophthora rot of small cardamom (*Elettaria cardamomum* Maton) (Menon *et al.*, 1972) is one of the most serious diseases of the crop. *Phytophthora nicotianae* var. *nicotianae* (Thankamma and Pillai, 1973), and *P. meadii* Mc Rae (Thomas *et al.*, 1988) were reported as the causative organisms.

All the common varieties of cardamom are known to be susceptible to the disease. Recently, a few selections with high yield and desired capsule characters have been developed at the Indian Cardamom Research Institute and these are being introduced among cardamom growers. The present study reports the results of screening of these selections done under green house conditions.

A total of six selections viz. MCC-61, MCC-34 and MCC-21 (local types) and improved clones such as MCC-60, MCC-12 and MCC-40 were used for the study. Seeds obtained from Crop Botany Division were used in raising seedlings in enamel trays containing sterile soil. Four month-old seedlings were transplanted to 25 cm diameter earthen pots containing sterile soil.

Screening was done 15 days after transplanting when they attained 4 to 5 leaf stage. For this, the spray inoculation method (Peethambaran *et al.*, 1988) was followed using 4-day old cultures on carrot agar. Zoosporas were prepared by the method of Tsao and Garbar (1970). The final spray fluid was prepared by filtering the suspension and adjusting the concentration to get 10^5 zoospores/ml.

Forty to fifty seedlings of each variety were inoculated by spraying 25 ml zoospore suspension with a glass atomiser. Control plants were sprayed with sterile water. Observations were recorded ten days after spraying. Data were recorded on the percentage of seedlings infected as well as on severity and extent of lesions on leaves. The percentage of lesion area on each leaf was recorded and the pooled up data was graded on a 0-4 scale based on the severity of infection (Kapoor *et al.*, 1988) as follows :

0 : No infection; 1 : 1-5% lesion area (tolerant);
2 : 6-25% lesion area (Relatively tolerant);
3 : 26-50% lesion are (susceptible);
4 : 51-100% lesion area (Highly susceptible).

No variety was found to be completely free from infection. The data were statistically analyzed and the values were found to be significant (Table-I). The results show that varieties MCC-34 and MCC-21 were highly susceptible and were on par with each

Table I. Percentage infection in different selections and distribution of plants in tolerant and susceptible categories

Selection	% infection	Scale 1&2 (Tolerant)		Scale 3&4 (susceptible)	
MCC 60	22.64	22.27	(28.18	11.79	(20.09)
MCC 34	28.54	13.95	(21.97)	25.31	(30.20)
MCC 21	32.65	10.35	(18.81)	36.59	(37.23)
MCC 12	21.54	18.75	(25.70)	8.69	(17.15)
MCC 61	22.85	16.88	(17.36)	10.97	(19.37)
MCC 40	20.65	17.79	(24.95)	6.63	(14.89)
General Mean		24.94			

Figures in brackets are angular values

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other and significantly different from the remaining four varieties. Accordingly the varieties were grouped into two major categories namely relatively tolerant and susceptible as shown in Table-I. Selections such as MCC-60, MCC-61, MCC-12 and MCC-40 recorded relatively low frequency in the susceptible category.

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