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CONTROL OF PHYTOPHTHORA DISEASE OF CARDAMOM

A disease of cardamom (*Elettaria cardamomum* (L.) Maton) characterized by the rotting and subsequent drying and shredding of leaves as well as decay of capsules and inflorescence stalks, caused by a species of *Phytophthora* was reported by Menon *et al* (1972) from Kerala. In view of the seriousness of the disease, a field trial was conducted to test the efficacy of different fungicides in controlling the disease.

The experiment was laid out at the Downtown Estate, Pachakkam, Vandiperiyar, Kerala, in randomized block design with four replications. The treatments were **hinosan** (O-ethyl S, S-diphenyl dithiophosphate), 40ml in 45 litres of water (T₁) **captan** (N-trichloromethyl mercapto-4-cyclohexene-1, 2-dicarboximide), 157.5 g in 45 litres of water. (T₂) **ziride** Zinc dimethyldithiocarbamate, 157.5 g in 45 litres of water. (T₃) **lonacol** (Zinc ethylene bisdithiocarbamate), 135 g in 45 litres of water. (T₄) **fytolan** (Copper oxychloride), 200 g in 45 litres of water. (T₅) **Bordeaux mixture**, 450 g of copper sulphate plus 450 g of lime in 45 litres of water. (T₆) and control, and no fungicidal treatment. (T₇). The plants were sprayed thrice, first during early May, before the onset of Southwest monsoon, second during July when there was a break in the monsoon and the third during November, after the monsoon showers.

The intensity of infection was graded on the basis of the degree of leaf infection and it was assessed by recording the total number of leaves and the number of infected leaves in each clump. The results showed that the effect of treatments was highly significant at 0.05% level and the treatments reduced the intensity of infection. The mean indices of intensity of infection were 2.228, 2.398, 2.220, 2.272, 2.184, 1.158 and 3.466 for treatments 1 to 7 respectively and the C. D. for comparison was 0.760. Thus all the fungicidal treatments were superior over control. Bordeaux mixture was the best and was superior to all other treatments.

The extent of damage caused by the disease was assessed by noting the number of plants affected per clump. The data were transformed to degrees by the arc-sine transformation and analysed and the treatment means and critical difference at 0.05% level were: 72.53, 52.21, 80.27, 64.07, 69.30, 33.79 and 90.00 respectively for the treatments 1 to 7 and

10 82 (C. D V The mean percentage of infection in the different treatments were: 91.0, 62.5 97.2, 80.8 87.4, 30.9 and 100 0 respectively. It was thus inferred that the effect of treatments was highly significant, over control where Bordeaux mixture was the best followed by captan, lonacol fytolan and hinosan. Ziride was ineffectivc.

Thus it was evident that intensity and extent of damage of the disease can be checked by spraying the crop with one percent Bordeaux mixture thrice.

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