

Effect of systemic fungicides on fruit rot of arecanut

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Fruit rot of arecanut (*Phytophthora arecae* (Coleman) Pethybridge) is a serious disease which occurs generally during South-west monsoon period (June to September) in Southern India. The losses due to this disease were estimated from 10-90% (Kotreddy and Anandaraj³, Rawther *et al.*⁴). The conventional fungicides were found to be ineffective. Hence, systemic fungicides effective in the control of *Phytophthora* were tried and compared with that of Bordeaux mixture.

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The trial was conducted in the farm of CPCRI Regional Station, Vittal from 1981 to 1983. The three systemic fungicides tested were metalaxyl (ridomil 25 WP), etridiazole (Terrazole) and aluminium tris-ethyl phosphonate (Aliette). Different concentrations of these chemicals (Table 1), chlorothalonil (daconil) hylenec (readymade bordeaux mixture) and one per cent Bordeaux mixture formed the treatments. The fungicides were sprayed twice at an interval of 40 days using a hydraulic rocker sprayer delivering about 1 to 1.5 litres of spray mixture per palm. Each treatment plot comprised 20 palms and three replications. The number of fruits on each palm before spraying, number of fruits shed owing to infection and the number of fruits remaining on the palm at the end of monsoon were recorded.

Data on the disease incidence as measured by the percentage of infected fruits are presented in Table 1. Since, more than 50 per cent of the fruits were infected in metalaxyl treated palms in 1981 itself, metalaxyl was omitted from the treatments in later trials in 1982 and 1983. So also with chlorothalonil (daconil) and copper fungicide (Hylenec). Low incidence of fruit rot was recorded in plots treated with aluminium-tris-ethyl phosphonate. The incidence of disease did not differ significantly either among the four concentrations of aluminium-tris-ethyl phosphonate or between any of the concentrations of aluminium-tris-ethyl phosphonate and Bordeaux mixture, thus indicating that both are on par. Both, however, reduced the disease incidence considerably because, in an unsprayed plot, 70 per cent of the fruits were infected (unpublished data). Fruit rot of arecanut being season bound, it is the previous season's inoculum in the form of latent infection within the dried bunches and canopy which serves as initial inoculum¹. The secondary spread is by means of sporangia which are produced abundantly on the infected fruits. The minimum incidence of fruit rot in aluminium-tris-ethyl phosphonate treated plots may be due to the reduced number of secondary inoculum due to the anti-sporulant activity of this fungicide (Farih *et al.*²),

TABLE 1: Effect of different fungicides on the incidence of fruit rot of arecanut

Treatments	Concentrative (%)	Disease incidence (%)
Metalaxyl	0.10	55.81*
Metalaxyl	0.15	51.34*
Hylenec	1.00	43.50*
Chlorothalonil	0.10	65.23*
Etridiazol	0.10	59.62
Etridiazol	0.15	53.38
Aluminium tris ethyl phosphonate	0.10	25.04
Aluminium tris ethyl phosphonate	0.15	22.63
Aluminium tris ethyl phosphonate	0.20	29.55
Aluminium tris ethyl phosphonate	0.25	24.97
Bordeaux mixture	1.00	35.31

C. D. (P=0.05)=17.94

Treatment differences significant at 5% level.

*Data for 1981 only.

thereby restricting the rapid secondary spread of the disease. For such a mode of action the time of application of fungicide is critical. The spraying has to be done soon after the primary inoculum resumes its activity and just before the secondary spread gathers momentum.

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¹Coleman, L. C. Mycological series Bulletin No. 2. Department of Agriculture, Mysore State, Bangalore (1910).

²Farih, A., Tsao, P. H. and Minge, J. A. *Phytopathology* 71 : 934-936 (1981).

³Koti-reddy, M. and Anandaraj, M. In *Phytophthora Diseases of Tropical Cultivated Plants* (Nambiar, K. K. N., Ed.) pp. 71-79, Central Plantation Crops Research Institute, Kasaragod (1980).

⁴Rawther, T. S. S., Radhakrishnan Nair, R. and Saraswathy, N. In *The Areca Palms* (Bavappa, K. V. A., Nair, M. K. and Premkumar, T. Eds.) pp. 185-224. Central Plantation Crops Research Institute, Kasaragod (1982).

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