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Efficacy of fungicides for managing rough bark disease (*Phomopsis* sp.) in cinnamon (*Cinnamomum zeylanicum* Blume)

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Rough bark disease is the most economically important disease in cinnamon which affects the bark quality and quantity. The causal agent was identified as a fungus, *Phomopsis* sp. Severe yield losses (up to 50%) can occur due to the disease when the situation is not managed properly. Four different fungicides (1% Bordeaux mixture, Tebuconozole, Hexaconazole and copper hydroxide) were applied with water (control) in three different frequencies (one, two and three months interval) to seven years old cinnamon plantation in which 50% cinnamon bushes were infected with rough bark disease. The trial was established as a factorial experiment to find the suitable fungicide/s and frequency of application and the cost involved. Growth and yield parameters and disease incidences were recorded bimonthly.

Bark yields were significantly higher in plots treated with Bordeaux mixture, Tebuconazole and copper hydroxide compared with the control plot while rough bark disease incidences were also significantly lower in the same plots compared to the control plot. However, there was no statistically significant difference between plots treated with the Bordeaux mixture and those treated with Tebuconazole. There were significant differences among the plots to which fungicides were applied at different frequencies. Higher yields and lower incidence of disease were observed in plots to which fungicides were applied at monthly intervals than in the others. There was a negative relationship between bark yield and incidence of rough bark disease ($r = - 0.66$, $P = 0.0001$).

The most suitable fungicides (among the tested chemicals) for controlling rough bark disease in cinnamon were Tebuconazole or 1% Bordeaux mixture. Monthly application was suitable in severe disease conditions to prevent yield loss to a great degree, and bimonthly application was adequate when the infection was moderate or mild (because there was no significant difference in profit margin with both monthly and bimonthly applications).

Keywords: 1% Bordeaux mixture, cinnamon rough bark disease, *Phomopsis* sp., profit margin, Tebuconazole

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