

(77)

Screening of Fungicides on the Management of Circular Leaf Spot Disease of Rubber

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Abstract

Since the first report in Sri Lanka in 2019, the Circular Leaf Spot Disease of rubber; caused by two fungi, *Colletotrichum* species and *Pestalotiopsis* species reached the epidemic level within several months. With the objective of determining the efficacy of fungicide/ fungicide combinations for the management of the disease, nine fungicide combinations were tested under polybag conditions as 40 polybag plants in each treatment. The fungicides were selected based on the results of the preliminary *in vitro* experiment. The systemic fungicides carbendazim and hexaconazole and the contact fungicide, mancozeb were tested in different combinations and in different concentrations. In order to evaluate the preventive action of the fungicides, the application of the respective fungicide was initiated prior to the appearance of disease lesions i.e. just after the dispatch of polybag plants from the nursery. Then the respective fungicide treatment was applied in seven-day intervals using a hand sprayer as to achieve an even foliar coverage of the plants under the treatment. The polybags plants were kept under a rubber field severely attacked with the disease, as to ensure even exposure to environmental conditions and with the objective of exposure to a natural inoculation. After a period of two months of establishment, the lesion percentage (LP) of each treatment was calculated by counting the number of leaflets with disease lesions and the total number of leaflets in the plants of the respective treatment. Analysis of variance for the LP values of the different treatments was carried out using SAS and subsequently, mean separation was carried out with Duncan's Multiple Range Test. The five treatments with (1) 3 g/l carbendazim and 3 g/l mancozeb alternatively, (2) 5 g/l carbendazim, (3) 4 g/l carbendazim, (4) 4 g/l carbendazim and 4 g/l hexaconazole alternatively and (5) 3 g/l carbendazim and 3 g/l hexaconazole alternatively gave significantly lower LP than the other treatments ($P > 0.001$). The treatment with 3g/l carbendazim and 3 g/l mancozeb alternatively gave the lowest LP of the value of 8.426 and however, a non-significant variation existed between those five treatments ($P > 0.001$). The two treatments 3 g/l carbendazim and 4 g/l hexaconazole resulted in moderate LP values of 40.939 and 40.203 respectively, whereas hexaconazole at the concentrations of 3 g/l and 5 g/l gave non-significant LP values compared to the control ($P > 0.001$).

Keywords: Circular Leaf Spot Disease, Screening of fungicides, Polybag nursery