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1998

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TRICHODERMA, A POTENTIAL BIO-AGENT IN INTEGRATED MANAGEMENT OF ROT DISEASES OF SMALL CARDAMOM

J THOMAS and R. SUSEELA BHAI

Indian Cardamom Research Institute, Myladumpara Spices Board, Idukki District, Kerala 85 553, India

Background and objectives

Small cardamom (*Elettaria cardamomum*) in India is affected by rot diseases caused by *Phytophthora meadii* infecting the capsules and *Pythium vexans* and *Rhizoctonia solani* infecting the rhizomes. Attempts were made with the objective of developing a low cost, effective and environmentally least harmful management strategy to control both these diseases with the well known biocontrol agent *Trichoderma harzianum*.

Materials and methods

A number of field trials were conducted in a disease-prone cardamom plantation, using selected fungicides and *T. harzianum* individually and in combinations of both. In the trials, plant sanitation and soil amendment with neem oil cake at 500 g per plant, foliar application of 1% Bordeaux mixture or 0.3% Aliette or 0.3% Akomin, soil drenching with 0.25% copper oxychloride and soil application of *T. harzianum* mass multiplied in farmyard manure coffee husk mixture at 5×10^6 c.f.u./g per g plant was included. Disease incidence and the population levels of bioagent in the soil were assessed and the cost effectiveness was worked out.

Results and conclusions

Fungicides such as Bordeaux mixture, Aliette and Akomin recorded the minimum disease incidence. Soil amendment with neem oil cake, soil drenching with copper oxychloride and Bordeaux mixture spray were effective in controlling rhizome rot disease [1]. *T. harzianum*-applied plots also showed considerable disease control as reported earlier [2]. Soils showed high population levels of *Trichoderma* in plots treated with the bio-agent alone or in plots where the bio-agent was applied 1 month after fungicide applications. Better management of both diseases was achieved at reasonably low cost and with minimum input of chemicals when the bio-agent *Trichoderma* was incorporated as a major component in the IPM strategy for control of cardamom diseases.

- References
1. Thomas J, Yijayan K, 1994. Proceedings of PLOCROSYM XI, 30 Nov-3 Dec 1994, Calicut (abstr).
 2. Dhanapal K, Thomas J, 1996. Current Trends in Life Sciences 21, 67-75.