

SHORT COMMUNICATION

Studies on the Fungus associated with Eriophyid mite disease of coconut

A. SWAIN AND B. MISHRA



J. Mycopathol, Res, 54(1) : 141-143, 2016;
ISSN 0971-3719

© Indian Mycological Society,
Department of Botany,
University of Calcutta,
Kolkata 700 019, India

This article is protected by copyright and all other rights under the jurisdiction of the Indian Mycological Society. The copy is provided to the author(s) for internal non-commercial research and educational purposes.

SHORT COMMUNICATION

Studies on the Fungus associated with Eriophyid mite disease of coconut

A. SWAIN* AND B. MISHRA

Department of Plant Pathology, Orissa University of Agriculture and Technology, Bhubaneswar 751003, Odisha

Received : 16.11.2014

RMS Accepted : 18.11.2015

Published : 25.04.2016

Coconut (*Cocos nucifera*) is one of the most important commercial nuts of India in terms of cultivation and utilization. Due to mythological sentiments, our country's people believes it as a fruit of worship. Association of *Fusarium oxysporum* fungus with the Eriophyid mite diseases of coconut is noticed as per the study undertaken here and pathogenecity of the fungus was studied. For control of this disease, different fungicides were tested in vitro namely Tricyclazole (75% WP), Companion (Carbendazim 12% + Mancozeb 63% WP), Copper Hydroxide, Carbendazim (50% WP), Vitavax Power showed 100% inhibition. Ridomil (Metalaxyl 8% + Mancozeb 64%) showed 59.74% inhibition and Thiram showed 15.285% growth inhibition. Control measures of fungus somehow indicate reduction symptoms of disease also.

Key words: Growth Inhibition, Pathogenecity, *in situ*, *in vitro*.

Coconut palm (*Cocos nucifera*) belongs to family Aricaceae. It is one of the important fruit crops of economic importance involving several growers of the country, who earn their livelihood out of this fruit. Odisha being coastal belt states is important in context of the production of coconut fruit. This fruit crop is mostly grown in southern states like Tamil Nadu, Kerla, Karnataka, and together accounts for 92% of the total production of coconut of the country. This plant is attacked by *Eriophyid* mite, (Moore and Howard, 1996) which is a very serious complex associated disease now a day,

causing yield loss, quality of nut, and crop failure to a considerable extent. Due to infestation of this mite and fungus can losses of the crop production goes upto 90%.

Fusarium oxysporum is found associated with Eriophyid mite of coconut and has been observed in Odisha condition, which resulted reduction in yield. In continuing application of fungicides as control measure was taken up for reducing mite also. For control of *Fusarium oxysporum*, an attempt has been made to see the effect of seven different fungicides formulation against *Fusarium oxysporum* associated with Eriophyid mite.

In coconut Eriophyid mite affected samples were

*Email: swain.abhimanyu@gmail.com

Table 1 : Effect of different fungicide on growth of *Fusarium oxysporum* associated with Eriophyid mite of coconut

Treatment	Conc. of fungicide (%)	Average Diameter of the Colony (mm)	Growth %	Growth Inhibition (%)
Tricyclazole (75% WP)	0.1	0	0	100
Companion (Carbendazim 12% + Mancozeb 63% WP)	0.2	0	0	100
Copper hydroxide (77% W.P)	0.2	0	0	100
Carbendazim (50% WP)	0.1	0	0	100
Vitavax Power	0.2	0	0	100
Ridomil (Metalaxyl 8% + Mancozeb 64%)	0.2	48.8	56.94	43.05
Thiram	0.2	72.6	84.71	15.28
Control		85.7	100	0
C.V %		1.59	0.76	3.04
S.E.M.		0.24	0.13	0.13
C.D. (5%)		0.71	0.38	0.38

Table 2 : Effect of different fungicide on growth of *Fusarium oxysporum* associated with Eriophyid mite of coconut

Treatment	Conc. of fungicide (%)	Average (%)
Tricyclazole (75% WP)	0.1	10
Companion (Carbendazim 12% + Mancozeb 63% WP)	0.2	10
Copper hydroxide (77% W.P.)	0.2	15
Carbendazim (50% WP)	0.1	15
Vitavax Power	0.2	15
Ridomil (Metalaxyl 8% + Mancozeb 64%)	0.2	50
Thiram	0.2	90
Control	0.0	100

collected by judging the symptoms and the fungus *Fusarium oxysporum* was isolated, by the single spore inoculation isolation technique. The culture were purified and tested for pathogenecity by pin prick method and kept in potato dextrose agar (PDA) slants. For testing of growth inhibition against the different fungicide, the poison food media were prepared using different fungicide i.e., Tricyclazole (75% WP), Companion (Carbendazim 12% + Mancozeb 63% WP), Copper hydroxide (77% WP) Carbendazim (50% WP), Vitavax Power, Ridomil (Metalaxyl 8% + Mancozeb 64%) and Thiram (Table 1).

After the observation of percentage growth, inhibitions of seven fungicides with one control were analyzed *in vitro* against *Fusarium oxysporum* presented in Table 1. From the seven fungicides tested

Tricyclazole (75% WP), Companion (Carbendazim 12% + Mancozeb 63% WP), Copper hydroxide, Carbendazim (50% WP), Vitavax Power showed 100% of growth inhibition followed by Ridomil (Metalaxyl 8% + Mancozeb 64%) showed 43.05% inhibition and Thiram showed less effective i.e., 15.28 % growth inhibition.

In another experiment in field, the same seven fungicides were taken for application. Experiment data are given in Table 2. From this field experiment, the growth of fungus colony was compared with control taking Tricyclazole (75% WP) and Companion (Carbendazim 12% + Mancozeb 63% WP) which showed 10% of colony growth. Copper hydroxide, Carbendazim (50% WP), Vitavax Power showed 15% fungus growth where as Ridomil showed 50% fungal growth, the result was similar

to *in vitro* test experiment Thiram was less effective with highest percentage of fungal growth i.e., 90%.

The result from both types of experiment indicated that the fungicides Tricyclazole (75% WP), Companion (Carbendazim 12% + Mancozeb 63% WP), Copper hydroxide, Carbendazim (50% WP), Vitavax Power were very effective against the fungus *Fusarium oxysporum* associated with Eriophyid mite of coconut, where as Ridomil and Thiram are very less effective.

In future experiment with plant extract need to be taken for testing for control of *Fusarium oxysporum* fungus associated with Eriophyid mite of coconut. The physical reduction of symptom of mite association of fungus needs studies further.

REFERENCE

Moore, D. and Howard, F.W., in *Eriophyid Mites-their Bio-logy, Natural Enemies and Control* (eds Lindquist, E.E., Sabelis, M.W. and Brunin, J.) Elsevier Science, 1996, pp. 561-570.