The Asian Journal of Horticulture; Vol. 5 No. 2; (December, 2010) : 298-300

Received : March, 2010; Accepted : August, 2010

Research Paper

Effect of seed dressing chemicals and biogents on seed mycoflora, compatibility and seed germination of tomato

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ABSTRACT

Three different popular fungicides, two most popular biopesticides with a treatment, soaking of seed in trisodium phosphate (0.5%) solution were used to test their efficacy in controlling the seed mycoflora, seed germination enhancement and compatibility on tomato infected and discolored seed of variety Azad T-6. It was found that all the seed dressing chemical and biogents alone or in combination for seed treatment, soaking of seed, reduced the mycoflora associated to seed and increased the germination percentage. Combination of most popular fungicides, carbendazim @ 1g/kg + thiram 2g/kg seed gave highest germination (94.02%) and 100 % controlling the mycoflora. Next best treatment was corbendazim 1 g/kg + captan 2g/kg of seed, which gave the (92.07%) germination and only *A. solani* and *Fusarium* sp. were found associated to seed.

Dabbas, M.R., Singh, D.P. and Prakash, H.G. (2010). Effect of seed dressing chemicals and biogents on seed mycoflora, compatibility and seed germination of tomato, *Asian J. Hort.*, **5** (2) : 298-300.

Key words : Fungicides, Biopesticides, Mycoflora, Trisodium phosphate, *Lycopersicon esculantum*

Tomato (*Lycopersicon esculentum* Mill) is a most popular vegetable is known to harbour a large number of seed-borne fungi. Heavy seed infection by pathogens, *A. niger*, *Rhizopus* sp., *Alternaria alternata* reduces the germination up to 30-40 %. The present investigation was undertaken to determine the efficacy of different seed dressing chemicals, biogents and seed soaking agents on seed mycoflora, their compatibility and germination of tomato seed.

MATERIALS AND METHODS

Standard blotter method and agar plate method using PDA were used to find out the fungi associated with the seed of tomato. Four hundred seeds pre- treated with 1 % solution of sodium hypoclorite for 10 minute and 0.1 % aquous solutions of mercuric chloride for 2 minute were tested separately. In blotter method, 10 seeds were put in each plate, where as only 5 seeds were plated in agar plate method. The plates were incubated at 25 ± 2^0C under alternating cycle of 12 hrs. NUV light and darkness for 7 days. On 8th day, the seeds were examined for the presence of fungi and each fungus was subsequently identified under compound microscope. The fungal species present on each seed was recorded separately. Out of above two incubation methods, standard blotter method favoured the detection of associated mycoflora on tomato seed (Kumar and Singh, 2000).

To find out the best seed treatment, controlling the associated seed mycoflora and enhancement of germination an experiment was layout in laboratory of Department of Vegetable Science, C.S. Azad Univ. of Agric. and Tech., Kanpur. The treatment consisted, seed treatment with captan (0.25%). Thiram (0.25%), carbendazim (0.25%), carbendazim (0.1%)+thirum (0.2%), Carbendazim(0.1%) + Captan (0.2%), *Trichoderma viride* (0.5%), *Pseudomonas fluorescence* (0.1%), *Trichoderma viride* (0.6%) + thiram (0.1%), *Trichoderma viride* (0.6%) + captan (0.1%) and with soaking of seeds in trisodium phosphate (0.5%) for 20 minutes. To test the efficacy of treatments in term of controlling associated mycoflora and interference on germination parcentage of mycoflora, the naturally infested seeds of highly susceptible variety Azad T-6 were tested with them by mixing their required quantities and shoking the seeds in plugged conical flasks for 15 minutes and seeds were soaked for 20 minutes. Ten seeds from each treatment were kept on other paper and each treatment was replicated three times. A separate set was also maintained as control, where the tomato seeds were not treated as well as soaked with any seed dressing