

Fusarium semitectum, a potential mycopathogen against thrips and mites in chilli, *Capsicum annuum*.

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Abstract

In India, chilli (*Capsicum annuum* L.) suffers with a characteristic leaf curl symptoms due to the attack of mite, *Polyphagotarsonemus latus* (Banks) (Acari: Tarsonemidae) and thrips, *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae) or both. Experiments were conducted in the fields of College of Agriculture, Shimoga, India during kharif (September 2003 to January 2004) and summer (March-June) 2004. After proving its pathogenicity, the potential of the mycopathogen, *Fusarium semitectum* was evaluated under field conditions using the popular chilli variety "Byadagi". Different combinations of *Fusarium semitectum* formulations with monocrotophos (0.025% and 0.05%) were tested. Oil-emulsion and dust-water formulations (DWF) at 1×10^8 spore/ml, DWF with monocrotophos and 5% Neem Seed Kernel Extract (NSKE) were evaluated. Population of *S. dorsalis*, *P. latus*, predatory mite *Amblyseius ovalis* and damage index were estimated. Populations of thrips, mite and the predatory mite were estimated at 15 days interval after 30 days of transplanting. Damage index was assessed using a visual rating method. Plant height, fruit length and dry chilli yield of each treatment were also taken. Among the treatments, oil-emulsion formulation and dust water formulation of *F. semitectum* in combination with monocrotophos (0.05%) reduced the population of thrips significantly over other treatments. Dust water formulation was achieved a significant decline of thrips population in chilli plants after 60 days of transplanting. This reduction of thrips population could be achieved due to the effect of second spraying, which was given at 50 days after transplanting. Chilli plant height and fruit length did not vary significantly among the treatment in both seasons. The highest dry chilli yield of 512 and 1058 kg/ha was recorded in dust water formulation in combination with monocrotophos (0.05%) followed by oil formulation (432 kg/ha and 763 kg/ha) in Kharif and summer seasons, respectively. *Fusarium* formulation sprayed plots were recorded low damage index than NSKE, water sprayed plots including control. Oil-emulsion formulation treated plot adjusted the highest benefit cost ratio of 6.07:1. Oil emulsion formulation (refined sunflower oil-Safola) was next best to the dust water formulation of *F. semitectum*. and monocrotophos combination and more-over equal to the monocrotophos 0.05% alone in suppressing the thrips and mite population. These results revealed that dust water formulation in combination with monocrotophos (0.05%) was able to suppress the population of thrips and mites and thus was able to give highest dry chilli yield. Oil emulsion formulation of *F. semitectum* can also be used as the next best choice in an environment friendly integrated chilli pest management programme.

Indexed keywords

EMTREE medical terms: animal; article; bacterial count; biological pest control; emulsion; fungus spore; *Fusarium*; growth, development and aging; insect; insect control; methodology; microbiology; mite; parasitology; pathogenicity; pepper; physiology; population dynamics; season

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