ABSTRACT

Microbial Control of the Southern Yellow Thrips, *Thrips palmi* Karny, and the Sweet Potato Whitefly, *Bemisia tabaci* Gennadius, with entomopathogenic fungi

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The Sweet Potato whitefly *Bemisia tabaci* Gennadius, (Homoptera: Aleyrodidae) and the Southern Yellow thrips *Thrips palmi* Karny (Thysanoptera: Thripidae), cause severe damage to a wide variety of important commercial crops in the Caribbean. The potential of entomopathogenic fungi to control these pests was explored. Laboratory rearing systems and novel caging systems were developed for screening entomopathogenic fungi against *T. palmi* and *B. tabaci*.

Over 95% of spores of *Verticillium lecanii*, *Paecilomyces fumosoroseus*, *Beauveria bassiana* and *Aschersonia aleyrodis* germinated after 12-16 hours incubation. Germination was accelerated in young conidia of *V. lecanii* and *P. fumosoroseus* but not those of *B. bassiana*. Older conidia of *P. fumosoroseus* had a more complex arrangement of microro dlets and were more hydrophobic than young spores. When produced on rice conidia of *P. fumosoroseus* germinated faster than those produced on Saboraud Dextrose Agar. Accelerated conidial germination was demonstrated, revealing new perspectives of how to artificially increase the efficiency of pathogens.

*A. aleyrodes*, *B. bassiana*, *Hirsutella* sp. nov., *P. fumosoroseus* and *V. lecanii* were evaluated under laboratory conditions. Adults of *T. palmi* and 2nd, 3rd and 4th instar *B tabaci* were susceptible to disease. 1st instar nymphs of both species were resistant. An isolate of *P. fumosoroseus* (11-91P) showed the best potential for the control of both species, over a wider temperature range and was easily mass produced in the laboratory.

Oil and water based formulations of *P. fumosoroseus* suppressed populations of *T. palmi* and *B. tabaci* more effectively than a chemical pesticide (Danitol) in melon gene fields and allowed the multiplication of predators. An integrated management strategy offers the best potential for environmentally feasible, economic control of these pests.

**Keywords:** Dorothy Peterkin; *Thrips palmi*; *Bemisia tabaci*; entomopathogenic fungi; *Paecilomyces fumosoroseus*; microbial control.