

Silverleaf whitefly controlled by *Isaria javanica* WH-EP-1 and its host range and sporulation¹

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Abstract

The entomopathogenic fungus *Isaria javanica* WH-EP-1, which infects silverleaf whiteflies (*Bemisia argentifolii*), was collected from Ji-An township, Hualien County, Taiwan. *I. javanica* WH-EP-1 can infect *B. argentifolii* at various developmental stages. In this study, the virulence against whitefly, host range, culture condition, and compatibility with pesticide were tested. The WH-EP-1 isolate (1×10^7 spores/mL) was sprayed on *B. argentifolii* second- and fourth-instar nymphs, adults, and eggs, and these were then incubated in a growth chamber (12L:12D, 70% R. H.). For each developmental stage, tests were performed at 20, 25, and 30 °C. The results indicated that mortality rates were between 31.1% and 71.1% for both second- and fourth-instar nymphs at 5 days postinfection. After inoculation, the adult infection rate was between 31.1 and 37.8%. The infection rate in nymphs were higher than in adults. In terms of host range test, WH-EP-1 isolate could infect *Myzus persicae* slightly. There were 18.3% infection rate on *Myzus persicae* after 5 d of inoculation. The culture condition test indicated that cultured with 24 hours of light per day was the most effective. Furthermore, using rice for mediums could yield the most conidia spores than other grains. In compatibility experiment, results revealed that there was no influence on spore germination with insecticides, as well as non-chemical materials. Pyraclostrobin and difenoconazole adversely affected spore germination among the fungicides used in this study. According to the aforementioned results, *I. javanica* WH-EP-1 exhibited potential for use as a biocontrol agent against *B. argentifolii*.

Keywords: entomopathogenic fungi, *Isaria javanica*, biological control, *Bemisia argentifolii*

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