

## Virulence of entomopathogenic fungus, *metarhizium anisopliae* to sweetpotato whitefly, *bemisia tabaci* (hemiptera: aleyrodidae) under osmotic stress

### ABSTRACT

The aim of the present study was to investigate the virulence of the entomopathogenic fungus *Metarhizium anisopliae* (isolates PR1 and GT3) under osmotic stress condition. The virulence study of the fungus was conducted by three ways—growth (germination, vegetative growth and sporulation); enzymatic activities (chitinase, protease and lipase) of *M. anisopliae* and percentage mortality of *Bemisia tabaci* to *M. anisopliae*. Conidia of *M. anisopliae* were produced under different osmotic stress conditions as SDA medium as control, SDA medium with 0.5 M NaCl, SDA medium with 0.5 M KCl, SDA medium with 1 M NaCl and SDA medium with 1 M KCl. The germination percentage, vegetative growth, sporulation, chitinase and protease activities were highest for control of PR1 isolate, reaching up to 97 %, 4.1 cm and  $6.6 \times 10^6$  conidia/ml, 2.6 mU/ml and 1.7  $\mu\text{g/ml/min}$ , respectively. These values decreased up to 86.7 %, 3.6 cm and  $4.1 \times 10^6$  conidia/ml, 1.6 mU/ml and 1.0  $\mu\text{g/ml/min}$ , respectively under osmotic stress. The lipase activity was highest for 0.5 M NaCl of PR1 isolate, reaching up to 18.2  $\mu\text{mol/ml/min}$ . The mortality percentage of *B. tabaci* was highest for control of PR1 and GT3 isolates, reaching up to 83.9 and 83.8 %, respectively. These values decreased up to 77.4 and 77.5 %, respectively under osmotic stress. This paper concludes that both the isolate PR1 and GT3 are virulent to *B. tabaci* under osmotic stress condition.

**Keyword:** Plant protection; Biocontrol; Germination; Radial growth; Conidiogenesis; Enzymatic activity; Mortality