

## Metarhizium anisopliae of Peninsular Malaysia origin poses high pathogenicity toward Coptotermes curvignathus, a major wood and tree pest

### ABSTRACT

The termite *Coptotermes curvignathus* has been reported in Malaysia and is responsible for the destruction of various timber-based products and orchard trees. Controlling this pest population using the biopesticide agent, *Metarhizium anisopliae*, is highly desirable when compared to chemical pesticides because the latter often leads to many environmental concerns. In this study, we isolated *M. anisopliae* from four different locations in Peninsular Malaysia and tested their pathogenicity on *C. curvignathus*. Another six isolates from a previous work were also included. Conidia in the form of suspension at  $1 \times 10^7$  conidia/mL were applied on worker termites and observed for mortality within a 12-day observation period. In addition, fungal progression rate was calculated based on the number of days it took for the mycelia to emerge and the conidia to form on infected termites. Among the ten fungal isolates tested, PR1 yielded the highest mortality (97%) and the shortest median lethal time ( $LT_{50} = 1.5$  days). While TFFH3 and PKLG isolates had the highest rate in mycelia formation (88%) and conidia sporulation (80%), respectively, they both recorded mortality at 93% and  $LT_{50}$  above 2 days. PR1's performance in infecting *C. curvignathus* appeared to augment its potential use as a biopesticide agent.

**Keyword:** Biopesticide; Entomopathogenic fungi; Pathogenicity test; Subterranean termite; Wood