

***METARHIZIUM ANISOPLIAE* AS A MYCOTERMITICIDE – LABORATORY BEHAVIOURAL BIOASSAY**

J. STAPLES AND R. MILNER

CSIRO Division of Entomology, Canberra, ACT 2601, Australia

The insect pathogenic Hyphomycete fungus *Metarhizium anisopliae* is a promising biological insecticide for the major pest species of subterranean termites in Australia. The infectious green conidia are mass-produced by solid-state fermentation on rice and the pure dry conidial formulation can be used for control in a number of ways. One promising method is by direct application to kill colonies of mound and tree nesting termites. While inundative application directly to termite nest colonies in mounds or in trees has been shown to be highly effective, indirect control of colonies by treatment of termite feeding sites has been shown to have variable results due to the ability of termites to detect the fungal spores. A laboratory bioassay to measure the relative repellency/attractancy of different baits or bait matrices based on termite tunnelling activity is described. The assay also allows determination of the degree of inhibition of repellency by adding varying amounts of other behaviour-modifying components, or synergists. This assay has been used to study the effects of different strains or isolates of *Metarhizium*, different concentrations and age of conidia, and the addition of various bait matrix components, on tunnelling response of termites. Such data are important to development of baiting systems for termites, which may incorporate pathogens, insect growth regulators, slow toxicants, or combinations of any of these as the main control agent, together with attractants.