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Growth and Pathogenicity of Entomopathogenic Fungi *Metarhizium anisopliae* Against Termites

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Abstract

Biological control with pathogenic fungi is a promising alternative to chemical control against the subterranean termite. Biological control with pathogenic fungi might provide long-lasting insect control without damage to the environment or non-target organisms. *Metarhizium anisopliae* is one of several natural agents for controlling a broad range of insects by direct penetration of the host cuticle. Using this fungus as the microbial insecticide is usually a part of insect pest management. Sporulation characteristics and virulence *M. anisopliae* were examined in relation to laboratory transmission in subterranean termite. Studies on physiology of *M. anisopliae* var. anisopliae and var. majus on 12 artificial media found that the medium which supported mycelium growth and sporulation was Sabouraud dextrose agar with yeast extract (SDAY). The optimum temperature was found between 25 °C–28 °C and fungi developed well in the pH range 6–8. The photoperiod for 24 hours per day produced green conidia more than other treatments. Two varieties of *M. anisopliae* were tested for their pathogenicity to workers of termites, *Coptotermes* sp. and *Microcerotermes* sp. Percent mortality of termites depend on concentration of conidia suspension, generation of fungi and variety of *M. anisopliae*. Termites apparently died after two days postinoculation and after seven days the white mycelia developed, the green conidia had appeared around the cadavers. The studies showed that both varieties of *M. anisopliae* could cause mycoses to the termites. However *M. anisopliae* var. anisopliae found more pathogenic virulence by producing epizootics higher than the *M. anisopliae* var. majus.

Keywords: Entomopathogenic fungus, *Metarhizium anisopliae*, termite

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