Mechanisms relevant to the enhanced virulence of a melanized *Metarhizium anisopliae*

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Abstract

The melanized transformant strain, *Metarhizium anisopliae* MA05-169, displays a greater resistance than the wild type strain to environmental stress and a higher virulence toward target insect host. In order to understand the possible mechanism(s) for these characteristics, the experiments were carried out by physiological and molecular approaches. The results indicate that the transformant germinated faster and produced more appressoria than the wild type, both *in vivo* and *in vitro*. In contrast to the wild type strain, the transformant was more tolerant to reactive oxygen species and produced more orthosporin. The pathogenicity-relevant hydrolytic (chitinase, protease, and phospholipase) encoding genes were overexpressed *in vivo*. The transformant's highly growth rate, its high anti-stress tolerance and its high virulence against pests are key properties for its potential bio-control field application.

Key words : *Metarhizium anisopliae*, melanin, entomopathogenic fungus, bio-control

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