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## Evaluation of Entomopathogenic Fungi Isolates for Control of Sweetpotato Weevils (*Cylas formicarius* Fab.)

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### Abstract

The objective of this work is to identify five entomopathogenic fungi isolates collected from Hungary using molecular techniques and evaluate their virulence to sweetpotato weevils (*Cylas formicarius* Fab.) in laboratory conditions. Molecular identification was made by sequencing the ITS - rDNA region. Pathogenicity study was based on mortality of adults of *Cylas formicarius* inoculated with *Conidia dasoge*  $10^8$  conidia ml<sup>-1</sup>. The results of sequencing of the ITS - rDNA region indicates that the MHU1, MHU2 and MHU3 isolates belong to the clade of *Metarhizium anisopliae*, which was identified as *Metarhizium anisopliae* with the sequences of ITS - rDNA region similar from 99 % to 100 %. Other two isolates MHU4 and MHU5 showed a high degree of similarity with *Penicillium variable* (99%). Laboratory bioassays were conducted to assess the pathogenicity of 4 isolates of *Metarhizium anisopliae* (MHU1, MHU2, MHU3 and MVN1) and 2 isolates of *Penicillium variable* (MHU4 and MHU5) toward sweetpotato weevils (*Cylas formicarius* Fab.). The *Metarhizium anisopliae*-MVN1 that was isolated from sweetpotato weevils death in Vietnam used as control. The pathogenicity tests show that three *Metarhizium anisopliae* isolates (MHU1, MHU3 and MVN1) caused early adult sweetpotato weevils adults mortality rate from 44.4 % to 50 % at four days after treatment. At six days after treatment, two *Metarhizium anisopliae* (MHU1 and MHU3) isolates were highly virulence on adult sweetpotato weevils adults with the mortalities 92.5 % and 94.2 %, respectively, and same the virulence degree of *Metarhizium anisopliae*-MVN1 isolate (100 % mortality rate). Four isolates *Metarhizium anisopliae* (MHU1, MHU2, MHU3 and MVN1) reached 100 % mortality rate as the same the rate of colony growth on death adult sweetpotato weevils adults at 10 days after treatment. However, two isolates of *Penicillium variable* were not pathogenic to *Cylas formicarius* with from 2.2 % to 3.3 % mortality rate. It is proved that two *Metarhizium anisopliae* isolates (MHU1 and MHU3) have great potential as biological control agents against sweetpotato weevils.

**Keywords:** ITS - rDNA molecular, *Metarhizium anisopliae*, sweetpotato weevil