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Pathogenecity and biocontrol potential of *Metarhizium anisopliae* in the management programme of the white grub, *Polyphylla olivieri* (Coleoptera : Melolonthidae)

Javad Karimi¹ and Aziz Kharazi-Pakdel²

¹Department of Plant Protection, Faculty of Agriculture, Ferdowsi University of Mashhad, Mashhad, Iran, E-mail: jkb@um.ac.ir.

²Department of Plant Protection, Campus of Agriculture and Natural Resources, University of Tehran, Karaj, Iran.

White grub, *Polyphylla olivieri* (Coleoptera : Melolonthidae) is a serious pest of fruit and other trees. The larvae damage the roots and cause trees to die and ultimately fall. This scarabeid is a dangerous pest of orchard trees in most parts of Iran. Its damage are severe especially for young trees. Complex life cycle of this pest and difficulty in application of synthetic pesticides for its control are from most obvious reason to evaluate environmental friendly-technics including application of natural insect pathogens like *Metarhizium anisopliae*. Control measures for white grubs have depended mainly on conventional chemical pesticides. While alternate control methods of this group is possible with entomopathogens, but use of these technologies is limited. Currently, there are some products formulated with fungal pathogens of insects that using commercially for controlling white grubs through the world. In this research, potential of a powerful insect pathogen was investigated whether might be useful for control of the white grub, *Polyphylla olivieri*. Exploratory survey revealed that *M. anisopliae* is widely distributed in the Tehran soils and in insects. Disease prevalence of *M. anisopliae* in grub cadaver was between 0 and 2% depending on host origin and species. Analysis of soils from different regions showed that *M. anisopliae* is common and was present in about 50% of the samples irrespective of their origin. Screening of fungus isolates in time mortality studies indicated that three isolates gave over 60% infected grubs. Although some of the isolates of *M. anisopliae* were highly pathogenic more study needed about their compatibility with the pesticides, strain improvement to enhance epizootic potential may be appropriate. *M. anisopliae* has the potential to be an effective biological control agent of *Polyphylla olivieri*.

Key words: *Metarhizium anisopliae*, *Polyphylla olivieri*, pathogenecity, biocontrol potential.