

23rd MSU-IIT Annual In-House Review of Research and Development Projects



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A new species and a new isolate of 'ZOMBIE FUNGI' in Rogongon, Iligan City and their Biocontrol potential against plat insect pest *Tetranychus urticae*

Monday, October 20, 2025 1:00 PM (4 hours)

Abstract: Given rising resistance and ecological concerns linked to chemical pesticides, entomopathogenic fungi (EPF) offer promising alternatives. Over 1,000 entomopathogenic species are in families Clavicipitaceae, Cordycipitaceae, and Ophiocordycipitaceae in the order Hypocreales. Insects often exhibit "zombie-like" behavior when infected and can be used as biopesticides. With the Philippines as a megadiverse country, survey on EPF could lead to the discovery of new species or isolates that can effectively control insect pests. Herein, two EPF were isolated from naturally infested insect hosts in Sikyop, Rogongon, Iligan City with Ophiocordyceps rogongonensis as the new species and Cordyceps javanica as the new isolate. Fungal identification was done using morphological and molecular approaches. Furthermore, C. javanica was assessed for its biocontrol potential against the two-spotted spider mite (*Tetranychus urticae*), a major pest affecting crop productivity. For the biocontrol assay against insect pest, *T. urticae*, a modified leaf-disc bioassay with spray application was conducted using three fungal concentrations (1×10^6 , 1×10^7 , 1×10^8 conidia/mL), Spirodiclofen (0.02% v/v), and a negative control. C. javanica exhibited strong virulence against *T. urticae*. The fungal colonization induced progressive mycosis, with 1×10^8 conidia/mL outperforming spirodiclofen by 53 hours. Probit analysis revealed decreasing LC₀ values and shorter LT₀ estimates with increasing dose and time. This is the first report of C. javanica from the Philippines and the identification of new species O. rogongonensis. While molecular analysis for the new species and its biopesticidal potential are ongoing, field validation for both EPF is recommended to support its integration into pest management strategies.

Key Words: Ophiocordyceps rogongonensis, Cordyceps javanica, biopesticide, fungi

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