Title : **Isolation and Identification of Filamentous Fungi from the Guts of Apis dorsata and Apis florea**

Author(s) : Ms. Piyachad Laoyang **Student ID** 650510247

Major : Microbiology

Advisor(s) : **1.** Associate Professor Dr. Terd Disayathanoowat

ABSTRACT

Native Thai honey bees, *Apis dorsata* and *Apis florea*, play an important role in ecosystems, particularly in plant pollination. The gut microbiota of honey bees is closely associated with their health and survival. This study aimed to investigate the diversity of filamentous fungi in the gastrointestinal tracts of both bee species. The fungal isolates were cultured on Potato Dextrose Agar (PDA) and identified based on morphological characteristics observed under a microscope, combined with DNA sequence analysis of the ITS region. Additional gene markers, including BenA, CaM, and RPB2, were analyzed to enhance species-level identification accuracy. Phylogenetic trees were constructed to confirm taxonomic classification. A total of 23 filamentous fungal isolates were obtained. The most predominant genera were *Aspergillus*, *Penicillium*, and *Mucor*, respectively. Antibacterial activity against *Paenibacillus larvae* revealed that isolates AD6.1, AF5.3, AF6.6, and AF6.7 demonstrated inhibitory effects, with mean inhibition zone diameters ranging from 7.03 to 15.11 mm. Additionally, isolate AD1.2 showed positive antagonistic activity against *Aspergillus flavus*. The antioxidant activity assay revealed that isolate AF5.6 exhibited the highest activity (75.93%), followed closely by AF6.2 **(75.25%).** These findings suggest that filamentous fungi in the gut of native honey bees may contribute to microbial balance and bee health. The results provide fundamental data for future applied research.

Keywords: Filamentous fungi, Native bee, Gut

.....

(Associate Professor Dr. Terd Disayathanoowat)