

## Departmental Seminar

# The Hidden Role of Fungi in Insect Ecology: Insights from the Black Soldier Fly

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While bacterial colonization of insect guts and their positive effects on host fitness—through nutrient provision and digestion enhancement—are well documented, the interactions between fungi and insects remain largely underexplored. In my laboratory, we investigate these understudied dynamics using the black soldier fly (*Hermetia illucens*, BSF) as a model. This cosmopolitan species, known for thriving in decaying organic matter, is hypothesized to interact closely with its surrounding microbial community. Our research identified *Candida tropicalis* as a dominant fungus in BSF environments, such as household compost bins.



Supplementation of *C. tropicalis* to larval diets resulted in increased larval weight, suggesting a significant role in host development. Our work further explores whether these effects arise directly from fungal consumption or indirectly via metabolic alterations in the substrate. Additionally, we examine the influence of *C. tropicalis* on the immune response of BSF larvae and their enhanced resistance to pathogenic fungi. These findings offer new insights into insect-fungal interactions and present a potential model for understanding insect invasions in natural and managed ecosystems.