

NEW PERSPECTIVES ON THE SOUTHERN PINE BEETLE-MICROBIAL SYMBIOSIS

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The southern pine beetle maintains a symbiotic relationship with two fungi via the use of a highly specialized mycangium. This mycangium is surrounded by gland cells and appears to be highly discriminatory for the fungi it allows to enter and thrive within. We have begun examining the mechanisms (structural and physiological) behind this selective and successful symbiotic partnership. Using SEM imagery and proteomic comparisons, we are attempting to describe the means by which these fungi enter, and are maintained within, the southern pine beetle mycangium. Preliminary results indicate the differential production of proteins by male and female beetles. Further studies will concentrate on identification of the proteins and further description of mycangial morphology. We have also noted novel interactions between beetles and bacteria. We describe the bacterial biota within the southern pine beetle gut and note potential antibiotic activity of orally secreted bacteria from bark beetles.