Sociedad Argentina de Microbiología General

XIX CONGRESO DE LA SOCIEDAD ARGENTINA DE MICROBIOLOGÍA GENERAL

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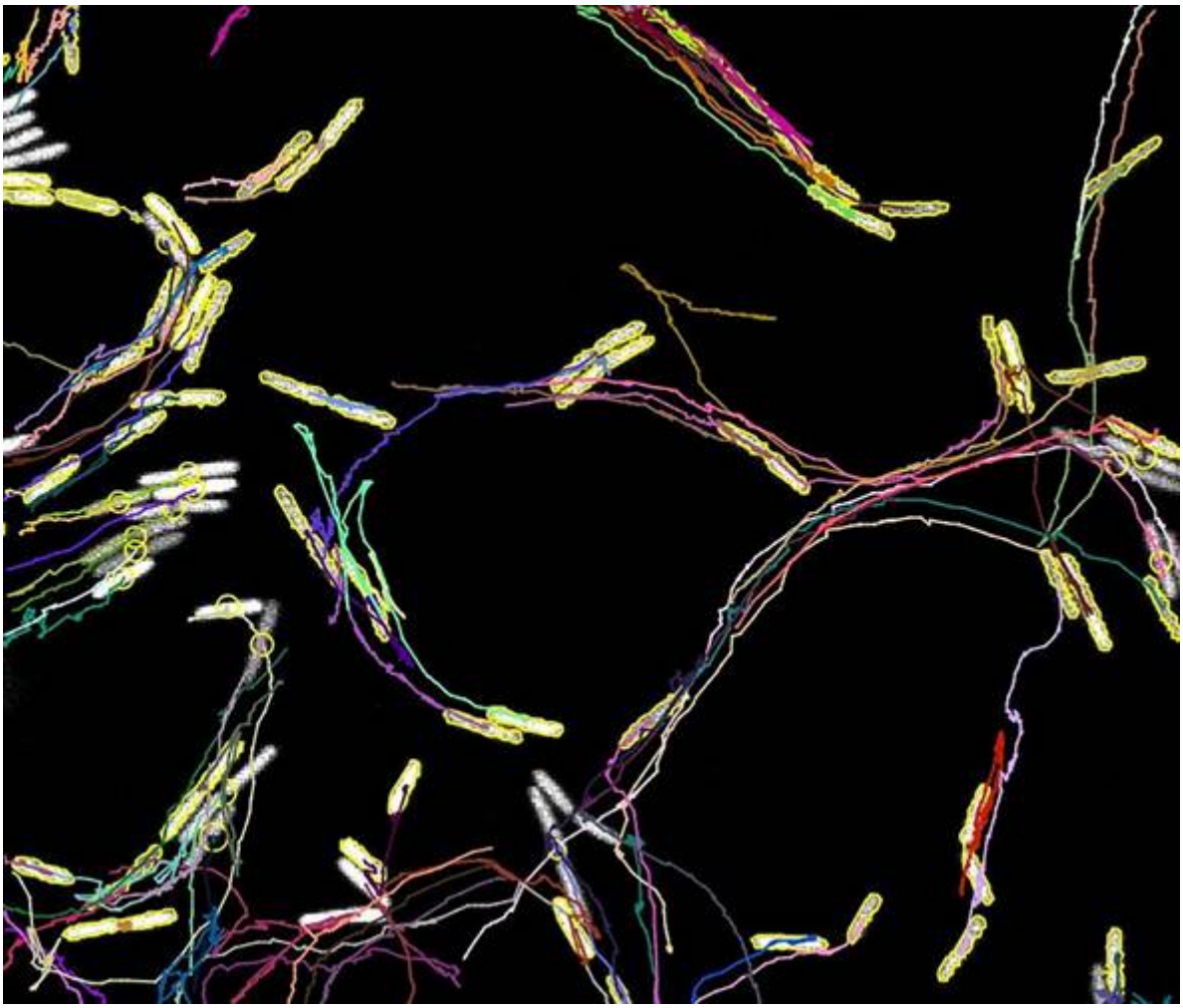

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ANTIFUNGAL EFFECT OF METABOLITES EXTRACTED FROM FUNGAL STRAINS ON ENTOMOPATHOGENIC STRAINS OF Apis mellifera.

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Ascosphaera apis and *Aspergillus flavus* are entomopathogens that affect the development of A. mellifera bee larvae, which causes a decrease in the individuals in the colonies. In recent years, it has been reported that bees interact with various species of fungi for beneficial purposes such as food and medicine. Four fungal strains *Trametes hirsuta*, *Skeletocutis* spp., *Trichoderma* spp. and *Pleurotus ostreatus*. All isolated fungal strains were grown on 50g of sterile brown rice for 10 days at 28°C under static conditions, the inoculum was subsequently macerated and suspended in 60 mL of ethanol (70%), to a final concentration of 0.8 g/mL. The preparation was filtered and the metabolic solution was concentrated by distillation at 70°C. 10 mL of metabolic concentrate (MC) was extracted from each fungal suspension and stored at 5°C until use. For the inhibition assays, 1 mL of each extract was resuspended in 25 mL of My20 liquid medium and malt extract to test the growth effect of *A. apis* and *A. flavus* respectively. Cultures were incubated on a shaker at 30°C for 10 days for *A. apis* , while media for *A. flavus* were incubated on a shaker at 25°C for 5 days. After this period, the grown mycelia were weighed and the biomass was determined. All tests were performed in duplicate. Only the entomopathogenic strains grown in both media without metabolic suspensions were used as a control. Mycelial weights were expressed as mean±standard deviation. Statistical analysis was performed using ANOVA and Turkey's mean comparison test with a 0.05 probability of committing a type I error. All MC showed significant differences in the growth effect of entomopathogenic strains, for *A. apis* it was $p<0.001$ and for *A. flavus* it was $p<0.0047$ concerning the controls. The weights of the biomass grown with MC of *Trametes hirsuta* were 1.74±0.06g for A. apis and 0.95±0.37g

for *A. flavus*; with MC of *Skeletocutis* spp. was 1.46±0.17g for *A. apis* and no growth for *A. flavus*; with MC of *Trichoderma* spp. not recording mycelial growth for *A. flavus* was 0.82±0.88g and the MC of *Pleurotus ostreatus* there was no mycelial growth for *A. apis*, and 0.77±0.24g for *A. flavus*. The controls recorded weights of 3.23±0.32g for *A. apis*, and 4.8±1.13g for *A. flavus*. The MC of the fungal strains has an antifungal effect on both entomopathogens, which is why they could be potential biological controllers of these diseases.

Palabras clave: Biocontrol-Bee-Metabolites