

BACTERIAL SYMBIONTS ASSOCIATED WITH STINGLESS BEE *Melipona scutellaris* AS SOURCES OF BIOACTIVE NATURAL PRODUCTS

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Microorganisms are beneficial producers of chemicals [1]. Insects establish various relationships with microorganisms [2] and some novel and bioactive natural products have been identified from insect microbial symbionts. Based on this ecological evidence, this work aimed to study the natural products biosynthesized by symbiotic microorganisms associated with the stingless bee *Melipona scutellaris*. Bees and their brood comb were collected using sterile materials. Microorganisms were isolated following published methodology^{3, 4} with modifications. Strains were cultivated in Chitin and ISP-2 agar media containing antifungal agents and PDA medium containing antibacterial compounds. A total of 45 microorganisms were isolated. All strains were assayed against two entomopathogenic fungi - *Beauveria bassiana* and *Metarhizium anisoplae* - and seven isolates were moderately active. Selected microorganisms were grown on ISP-2 agar for 7 days, and after extraction, both ethyl acetate and methanol extracts were obtained. Extracts were analyzed by HPLC - DAD - ELSD to verify their chemical profiles and screened against amastigotes of *Trypanosoma cruzi*. The methanol extract of strain ALLI-03-01 cultured in ISP-2 solid medium displayed 53% of parasite inhibition. Considering its biological potential, the strain ALLI-03-01 was cultured in ISP-2 liquid monoculture and also in dual cultures with the entomopathogenic fungi. The extracts obtained in liquid cultures were also assayed against *T. cruzi* and showed good results: ethyl acetate extract of monoculture displayed 42% of parasite inhibition, ethyl acetate extract of dual culture with *M. anisoplae* inhibited 77% of parasite growth, and ethyl acetate extract of dual culture with *B. bassiana* displayed 63% of inhibition. Due to these promising results, larger amounts of extracts are being produced for isolation of the bioactive compounds. Our strategy may succeed in finding compounds displaying pharmaceutical or agrochemical potential. In addition, we have tried to understand the ecological relationship between the bee *M. scutellaris* and its associated microorganisms.

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