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In Vitro Biocontrol Potential of Fungi and *Streptomyces cavourensis* Against the Asian Snail *Bradybaena similaris*

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The Asian snail, *Bradybaena similaris*, is a gastropod of horticultural importance due to severe damage caused to leaves and roots. Current management of terrestrial gastropods relies on chemical molluscicides, which, despite their efficacy, pose environmental risks and threaten non-target organisms. Therefore, this study evaluated the *in vitro* pathogenic potential of selected microorganisms from Brazilian biomes as a safe alternative for the biocontrol of *B. similaris*. Bioassays were conducted under controlled conditions (28±0.5°C, 70±10%RH, 14 h photophase) using snails with shell diameters of 7–11 mm and average weight of 0.25 g. The experiment followed a completely randomized block design with 10 replicates per treatment. The isolates evaluated included *Beauveria bassiana* (CMRP 4486), *Metarhizium* sp., *Trichoderma* sp., and the *Streptomyces cavourensis* (CMR P6046). Microbial suspensions were standardized at 10⁸ conidia mL⁻¹ and applied via spraying onto individual snails kept in Petri dishes containing filter paper and a fresh cabbage leaf disc (5 cm) renewed daily for feeding. A negative control (sterilized water) and a positive control (Abamectin - Abamex® at 18 g L⁻¹) were included. Mortality was assessed daily for 14 days, and fungal infection was confirmed by mycelial extrusion on cadavers. Data were analyzed using a Generalized Linear Model (binomial distribution) followed by Tukey's test ($\alpha=0.05$). Significant differences in mortality rates were observed among treatments ($p=0.027$). The positive control exhibited the highest mortality (12.0%), followed by *B. bassiana* (8.0%), *S. cavourensis* and *Metarhizium* sp. (both at 6.0%), and *Trichoderma* sp. (2.0%), with no mortality in the negative control. The shell, external mucus, and midgut epithelium of snails collectively block fungal and actinobacteria penetration, reducing biocontrol efficacy. Consequently, analyzing the modes of action of biological products is necessary to overcome these barriers, which is essential for the effective management of *Bradybaena similaris* in agriculture.

KEYWORDS: Biological control agents, Entomopathogenic, Pathogenicity, Gastropods, Actinobacterium.