

TITLE: EVALUATION OF *ARCOPILUS CUPREUS* GROWTH IN LARVAL FOOD OF *SCAPTOTRIGONA* SP. GROUP *TUBIBA* UNDER CONTROLLED CONDITIONS

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ABSTRACT

Throughout the evolution, insects and fungi have developed important interdependent interactions. An interesting example are the stingless bees *Scaptotrigona depilis* (Apidae, Meliponini), where the fungus *Monascus* spp. is directly related to the larvae feed. *Arcopilus cupreus* (Chaetomiaceae) was recently isolated in nests of *Scaptotrigona* sp. (group *tubiba*) originating from the northeastern Brazil, from the larval supply of the brood cells. We tested the hypothesis that this fungus develops only in the presence of larval feed provided by the bees in the combs. We evaluated the growth of *A. cupreus* in the larval provision food of *Scaptotrigona* sp. group *tubiba* under controlled conditions and on non-bee substrates. For this, two nests were opened and the collection was made withdrawing the provision of brood discs cells. The larval food was sterilized twice in UV light for 15 min. For evaluation of fungal growth, a sterile 96-well plate was used. We tested four treatments in triplicates: larval feed, larval feed plus distilled water (1: 1, v / v), distilled water plus 1% glucose and Sabouraud broth. Subsequently, each well received fungal filaments and the material was incubated at 30°C for eight days. Its development and characteristics were monitored. The fungus did not rely on larval food for its development; growing in all treatments. *A. cupreus* started its development from the third day of incubation. The fastest development occurred in the treatment with larval food plus distilled water and the slower development for pure larval food. In the larval feed with distilled water, *A. cupreus* showed complete development in the wells, spreading mainly from its edges, with slight ramifications of the mycelium and production of red extracellular pigment, also detected in Sabouraud broth and distilled water added with 1% of glucose. *A. cupreus* presented better growth when submitted to treatments that proposed higher water activity. As in the experimental conditions the larval food dehydrated, we suggest that a wetter condition, similar to the natural nests, favors the development of the fungus. Future experiments can demonstrate the importance of this fungus to the larval feed.

Keywords: meliponiculture, stingless bees, microbiota, meliponini mutualism.

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