

Identification and screening of microorganisms isolated from stingless bees.

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Stingless bees of the genus *Melipona* play an important role as pollinators, promoting the recovery and preservation of plant diversity and the expansion of productive capacity in agriculture. The use of agrochemicals in the management of agricultural crops can affect the health of these bees, causing the reduction of colonies. Therefore, this work aims to identify and evaluate the susceptibility of bacterial isolates from the gut of stingless bees to agrochemicals to select potential probiotic agents. For this, bacteria were isolated by extracting the guts of *Melipona* spp. and, subsequently, the identification of these isolates was carried out by Sanger sequencing of the 16S rRNA region using the primers 10F and 1100R. After identification, the bacteria were evaluated *in vitro* in environments with four concentrations of the commercial formulation of the agrochemical fipronil: 280 ng/uL, 28 ng/uL, 2.8 ng/uL, and 1.4 ng/uL. After 24 h of growth, the cultures of the isolates were added to a culture medium with fipronil at the four tested concentrations in triplicate. Also, a positive control was made using the culture without fipronil, and a negative control was composed of only a culture medium with concentrations of fipronil without the isolates. This procedure was performed with six isolates: two of the genus *Conoivina*, two of the genus *Lactococcus*, one *Fructobacillus*, and one *Floricoccus*. After building the bacterial growth curves, it was observed that the growth of the isolates reduced when using the fipronil at 280 ng/uL compared to the growth curves of the positive controls. This concentration is related to the lethal concentration (LC50) reported in the literature for stingless bees. Nevertheless, the isolates could grow in the lower fipronil concentrations, which are within the range of fipronil environmental concentrations, including the pollen in beehives. Future studies are still necessary to better understand how those microorganisms interact with this agrochemical and how they affect *Melipona* health. However, their ability to grow in the presence of fipronil makes them potential candidates for probiotic use to improve the health of stingless bees.

Keywords: Bacteria; Stingless bees; Agrochemicals; Fipronil.

Identificação e triagem de microrganismos isolados de abelhas sem ferrão.

O estudo apresentado teve como objetivo identificar e avaliar o efeito de agroquímicos sobre a microbiota de *Melipona* spp., a fim de selecionar possíveis agentes probióticos. Para isso, testes *in vitro* foram conduzidos, adicionando isolados do intestino de *Melipona* spp. em meio de cultura contendo diferentes concentrações de fipronil. Os isolados foram capazes de crescer em diferentes concentrações de fipronil, apresentando uma redução de crescimento apenas no tratamento com a concentração mais alta quando comparado com o controle positivo, sendo, portanto, possíveis agentes probióticos para serem aplicados na manutenção da saúde de abelhas.

Palavras-chave: Bactérias; abelhas sem ferrão; Agrotóxicos; Fipronil.

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