

Effect of *Eugenia uniflora* and *Pagostemon cablin* essential oils on Africanized *Apis mellifera* workers' locomotion

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Botanical insecticides have shown efficiency in controlling insect pests due to acetylcholinesterase inhibition. In addition, they are considered safer for non-target organisms and the environment when compared to synthetic chemical insecticides. The essential oils of *Eugenia uniflora* L. (Myrtaceae) and *Pagostemon cablin* Benth. (Lamiaceae) are potential insecticides and have already shown selectivity to the honey bee *Apis mellifera* L., 1958 (Hymenoptera: Apidae). However, information about its action on the behavioral activities of this and other insects is still scarce. Thus, the objective of this work was to evaluate the action of the essential oil of *E. uniflora* and *P. cablin* on the locomotion activity of *A. mellifera* workers. The treatments used were: T1) *E. uniflora* 0.75% + Tween[®] 1%; T2) *P. cablin* 0.75% + Tween[®] 1%; and T3) Sterile distilled water (control). The exposure was carried out by contact of the honey bees on the vitreous surface containing the treatments, which took place for two hours. After 24 hours, the honeybees were submitted to bioassays A) vertical displacement and B) free fall. A flight tower (35 x 35 x 105 cm WxWxH) was used for these bioassays, with a scale and light stimulus at the top. For each bioassay, ten honey bees were used per treatment. The essential oils tested did not change the locomotion activity of honeybees in both bioassays. For the vertical displacement bioassay, all treatments, including control, the honey bees reached stratum III, while for the free-fall bioassay, the stratum reached was I. Under the conditions evaluated, these oils are safer for *A. mellifera* when compared to synthetic chemical insecticides.

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