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## 1º SIMPC

Simpósio de Produtos da Colmeia

# LETHAL AND SUBLETHAL EFFECTS OF DIFFERENT CONCENTRATIONS OF THE ENGEO PLENO PRODUCT ON WORKERS OF AFRICANIZED APIS MELLIFERA L. (HYMENOPTERA: APIDAE)

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**LIBARDONI; Gabriela**<sup>1</sup>, **ABATI; Raiza**<sup>2</sup>, **NEVES; Pedro**<sup>3</sup>, **LOZANO; Everton**<sup>4</sup>, **POTRICH; Michele**<sup>5</sup>

### RESUMO

With the increase of the world population, agriculture needed to increase the cultivated areas and, consequently, the food production. More areas using the same crops, favored the appearance of pests, which cause damage and losses of yield. As a result, the use of synthetic phytosanitary products (SPPs) also increased. However, non-target insects such as pollinators, also end up being influenced when they are in crops. The Africanized bees *Apis mellifera* L. (Hymenoptera: apidae) are important in the pollination of several agricultural crops, so it is necessary to test these SPPs on them. Thus, the objective of this work was to evaluate the lethal and sublethal effects of Engeo Pleno, widely used in annual crops for pest control. For this, Petri dishes were sprayed with the suspensions of the treatments: T1 - Control; T2 - 10%; T3 - 5%; T4 - 2.5%; T6 - 1.25 and T7 - 0.625% of the concentration recommended by the manufacturer. For survival testing, 290uL of each treatment was sprayed onto each plate (five plates per treatment). After drying, each plate received 20 bees, where they remained for two hours and then transferred to cages. These cages were kept in an acclimatized room for evaluation from 1 to 120 hours. For the walking test, 14 Petri dishes sprayed with treatments T1, T2 and T7 were used, each dish received a bee that was filmed for 10 minutes and then the distance walked, walking time, walking speed and, rest time were evaluated. In the survival bioassay, all treatments reduced the longevity of the bees compared to the control. At the end of the 120 hours of experiment evaluation, 61% of the control bees were alive. The treatment with less interference in the longevity of bees was T2 (0.625%), with 6% of bees alive at the end of 144 hours. All bees from treatments T3 (1.25%), T4 (2.5%) and T5 (5%) were dead at the end of 96 hours of evaluation. And 48 hours after the experiment was carried out, all bees from the T6 treatment (10%) were dead. In the walking behavioral bioassay, the average speed (0.32 mm/s), the distance covered (145.3 mm), the walking time (453 s) and the rest time (146 s) of the bees from

<sup>1</sup> Programa de Pós-Graduação em Agronomia - Universidade Estadual de Londrina, gabrielalibardoni@gmail.com

<sup>2</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, raizaabati@gmail.com

<sup>3</sup> Programa de Pós-Graduação em Agronomia - Universidade Estadual de Londrina, pedroneves@uel.br

<sup>4</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, evertonloz@gmail.com

<sup>5</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, profmichele@gmail.com

the treatment containing 10% of the active ingredient of Engeo Pleno (T2), were affected when compared to bees from the control treatment (T1), which presented the average speed (0.69 mm/s), the distance covered (405.7 mm), the walking time (574 s) and rest time (26 s). The product Engeo Pleno affects the survival of worker bees of *A. mellifera* Africanized and impairs the locomotor capacity, and this in the field, can cause problems in foraging, an essential function for the good performance of the colonies.

**PALAVRAS-CHAVE:** Pesticide, synthetic phytosanitary product, behavior

<sup>1</sup> Programa de Pós-Graduação em Agronomia - Universidade Estadual de Londrina, gabrielalibardoni@gmail.com

<sup>2</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, raizaabati@gmail.com

<sup>3</sup> Programa de Pós-Graduação em Agronomia - Universidade Estadual de Londrina, pedroneves@uel.br

<sup>4</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, evertonloz@gmail.com

<sup>5</sup> Programa de Pós-Graduação em Agroecossistemas - Universidade Tecnológica Federal do Paraná - UTFPR/DV, profmichele@gmail.com