RESUMO - ECTOPARASITOS: SISTEMÁTICA, EPIDEMIOLOGIA E CONTROLE

# ACTIVITY OF NOVALURON ON COCHLIOMYIA HOMINIVORAX LARVAE (DIPTERA, CALLIPHORIDAE)

*Jéssica D'avilla De Assis (jda.rural@gmail.com)*

*Monique Medeiros (vet.mtm@hotmail.com)*

*Eduardo Fellipe Melo Santos Soares (edu.fellipe@live.com)*

*Diefrey Ribeiro Campos (diefrey8@gmail.com)*

*Thais Ribeiro Correia Azevedo (thaisrca@gmail.com)*

Myiasis is a parasitic condition caused by the larvae of the New World screwworm fly Cochliomyia hominivorax, resulting in significant morbidity and mortality, particularly in domestic animals such as cattle and sheep. This can lead to substantial economic losses in agribusiness and poses health issues. The resistance of these parasites to classical treatments, along with environmental and health problems due to the continuous use of certain insecticides, has prompted the search for new alternatives. Insect growth disruptors (IGDs) have emerged as alternatives, primarily acting on immature forms. Novaluron (a chitin synthesis inhibitor) has proven effective in controlling dipterans. Therefore, the objective of this study was to evaluate the activity of

novaluron on first-instar larvae of C. hominivorax. A total of 330 C. hominivorax larvae were challenged in vitro, they were arranged in 11 groups, with 3 replicates each, from the colony of the Experimental Chemotherapy Laboratory in Veterinary Parasitology (LQEPV) at UFRRJ (CEUA 8634020223).The larvae were subjected to a larval diet (630 mL of distilled water; 225 mL of bovine blood; 3 whole eggs; 40 g of skim milk powder; 30 g of Ecogel; 1 mL of formaldehyde) supplemented with novaluron at concentrations of 0.0001, 0.001, 0.005, 0.01, 0.03, 0.05, 0.07, 0.09, and 0.1µg.mL-1. A control group was prepared with only the larval medium, and a placebo group with the larval medium plus the diluent used in the product formulation, which was prepared with 16% acetone and two drops of Tween 80. The experimental units were maintained in a climate chamber at 35 ºC and 80% humidity for seven days. The biological cycle was monitored from the third to the fourteenth day to determine at which stage the insecticidal effect would be observed at the concentrations used. On the fifth day after incubation, the samples were manipulated and quantified. The data were analyzed (ANOVA and t-test) regarding the larvicidal activity of novaluron, its activity in inhibiting the development from larva to pupa and from larva to adult, considered as larvicidal and pupicidal effects, respectively, and PROBIT analysis was performed to obtain the lethal concentrations with the help of R Studio software. Larvicidal activity was observed starting at 33.3% at a concentration of 0.05 µg.mL?¹, and at concentrations of 0.07, 0.09, and 0.1 µg.mL?¹, the activity was 83.3%, 95.8%, and 83.3%, respectively, interfering with pupation. The most significant pupicidal percentages began with 40% at a concentration of 0.03 µg.mL?¹, followed by 93.3% at 0.05 µg.mL?¹, with the higher concentrations demonstrating 100% inhibition of emergence. The lethal concentration 50 (LC50) for larvae was 0.010 µg.mL-1 (min- 0,005/max-0,02 µg.mL-1). Based on these results, it can be concluded that novaluron has an effect on C. hominivorax larvae, interfering with their developmental cycle and demonstrating larvicidal activity against first-instar larvae of C. hominivorax.

Palavras-chave: myiasis; benzoylphenylurea; novaluron.