RESUMO SIMPLES - ECTOPARASITOS: SISTEMÁTICA, EPIDEMIOLOGIA E CONTROLE

STANDARDIZATION OF BIOASSAYS FOR EVALUATING INSECTICIDE EFFICACY ON COCHLIOMYIA HOMINIVORAX LARVAE (DIPTERA, CALLIPHORIDAE)

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Cochliomyia hominivorax is the main causative agent of myiasis in Latin America. Although a wide range of drugs are currently available to control its parasitic stages, there are reports of reduced efficacy for some of these compounds. In vitro tests are important for detecting resistance to antiparasitic drugs currently used on the market. The method of application can influence drug efficacy, highlighting the need for standardized in vitro testing protocols

that simulate field application conditions as realistically as possible. This study aimed to evaluate the efficacy of different in vitro bioassay methodologies against third-instar larvae of C. hominivorax. Two active ingredients, fluralaner and doramectin were tested using two methodologies: activity by contact with filter paper impregnated with different concentrations of the ectoparasiticides and by immersing larvae for 1, and 3 minutes in solutions containing different concentrations of the same ectoparasiticides. In the impregnation tests, nine concentrations of each active ingredient (1000–1 µg/mL for chlorpyrifos and 5000–1 µg/mL for fipronil) were applied to filter paper discs, along with a control non-impregnated and a placebo composed only of the diluent. After drying, the discs were placed in Petri dishes, and ten third-instar (L3) C. hominivorax larvae were added to each. In the immersion tests, groups of ten larvae were submerged in solutions containing nine different concentrations, in addition to control and placebo groups with the same concentrations used in the impregnation tests. All tests were performed in sextuplicate. After treatments, the tests were incubated at 28°C and 70% relative humidity. Larvicidal effects were evaluated 24, 48, and 72 hours after exposure, and emergence inhibition was assessed ten days after incubation. Estimated lethal concentrations (LC_{50}) were calculated using the RStudios software. The 72-hour LC50 for fluralaner, the corresponding LCs50 were 85,2; 941,1 and 341,9 µg/mL, in the in tests of impregnation, imersion by one minute and imersion by three minutes. For doramectin, the LCs50 founded was 696,6; 348,7 and 249 µg/mL. Regarding emergence inhibition, the LCs50 were 7,1; 1; and 1,2 µg/mL for fluralaner and 4,5; 20,1 and 15,9 µg/mL for doramectin, respectively, using the same methodologies. The results demonstrate that the efficacy of insecticidal compounds varies significantly depending on the in vitro methodology used.

Palavras-chave: control; screwworm; in vitro test; larvicide.