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Natural Plants Extracts As Means to Control Mealworm (*Alphitobius Diaperinus*) in Poultry Production Systems (PR-02)

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Abstract:

Mealworms control using chemical insecticides have been faces challenges, as a developed resistance and concerns about the sustainability of the poultry production system. The experiment objective was to evaluate the insecticidal potential of plants extracts, as an alternative to chemical compounds, through the degree of lethality (LD), for adult insects. Plants extracts (5) were tested: Timbó (Derris urucu), Neem oil (Azadirachta indica), Andiroba (Carapa guianensis), Cinnamon (Cinnamomum verum) and Rotenone. A completely randomized design was used, with 8 treatments, with 10 replications/treatment, totaling 80 experimental units. Two bioassay methodologies were used, Petri plates, lined with filter paper and, 500 ml pots, containing a substrate composed of reused bedding and ration. The compounds were diluted in water (3%) while the positive controls (Pankada and Nokaut) followed the dilution indicated by the manufacturer (0.3%). The results on Petri plates showed 3 distinct groups, in terms of efficiency in controlling the adult insect. Rotenone (95.63%) had the highest insecticidal potential (DL), followed by Neem (83.73%), Andiroba (81.95%), Canela (81.17%) and Timbó (47.26%). In the bioassay conducted on poultry litter, the efficiency of all products was low (DL<50), with Rotenone (40.57%) and Neem (25.44%) showing the best results and Andiroba (10 .75%), Canela (4.06%) and Timbó (3.70%) showing DL<10%. In summary, Rotenone stood out as the most promising compound, suggesting a viable path for the development of new bioinsecticides. The disparity in efficacy between the two methodologies used indicates, however, that the plant extracts showed limitations in field environments. This limitation highlights the importance of developing laboratory methodologies that simulate better the poultry house conditions, besides the need to investigate possible improvements in the formulation and application of botanical compounds.

Keywords: Broiler Chicken; Mealworm; Bioinsecticide; Compounds; Plant Extracts