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Toxicological effect of essential oil of two *Artemisia* species in control *Diaphania hyalinata* (Lepidoptera: Crambidae)

Seixas, P.T.L[1], Demuner, A.J[1], Barbosa, L.C.A[2], Picanço, M.C[1], Farias, E.S[1], Ribeiro, N.C[1,3]

[1]*Universidade Federal de Viçosa – Viçosa, Brazil*
[2]*Universidade Federal de Minas Gerais – Belo Horizonte, Brazil*
[3] *Instituto Federal do Mato Grosso- Campus Rondonópolis, Brazil*
nilton.ribeiro@ufv.br

The genus *Artemisia* (Asteraceae) consists of about 500 species distributed throughout the world [1]. Many species are producers of Artemisia essential oils and widely used in popular medicine for the treatment of various diseases. The caterpillar, *Diaphania hyalinata*, is the key pest of plants of the family Cucurbitaceae, such as watermelon and cucumber. The larvae of this pest feed on various plants tissues (fruits, branchs and leaves) causing serious damages. The caterpillar is controlled mainly by using synthetic insecticides. Frequent applications of these products lead to undesirable consequences, such as the development of resistance in caterpillar populations. Thus, the development of new insecticides molecules becomes important. The objective of the present work was to verify the toxicity of essential oils extracted from *Artemisia annua* (A) and *A. absinthium* (B) to caterpillar. The plants were grown in greenhouse under different doses of NPK fertilizer. The NPK doses used were 0%, 50%, 100% and 150%. Fresh leaves were collected (100 g) and subjected to extraction in a Clevenger type apparatus for 2 h. The essential oils obtained were analyzed by gas chromatography with flame ionization detectors (FID) and mass (GC-MS). The relative proportion of the main constituents of the essential oils oscillated with the dosage of NPK fertilizer applied. To evaluate the insecticidal activity of the synthesized compounds, biological assays were conducted with second-instar larvae of *Diaphania hyalinata*. The experimental design was completely randomized with four replicates. Each experimental unit consisted of a glass Petri dish containing ten larvae. Bioassays were conducted by topical application of the oils dissolved in acetone. The dose used was of 20 µg of essential oil per mg of larvae. In a control experiment, carried out under the same conditions, 0.5 µL of acetone was applied on each insect. After application, the insects were supplied with appropriate food. The mortality counts were made 48 h after treatment. Mortality data were analyzed using Tukey test at 0.05 probability level. The oil (*A. annua*, NPK dosage of 50%) was the one that caused higher mortality (86.11%). The remaining oils caused low mortality of *Diaphania hyalinata* larvae (<31.00%). By these results it can be concluded that the oil of *Artemisia annua* can be used to control this insect species.

[1] Bailen, M. et al. Ind. Crops Prod. 2013: 49-102.