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Tagetes patula: A promising plant species in the control of bed bug (*Cimex lectularius* L.)

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Congress Abstract

The current perspective of resistance to chemicals has influenced in the pharmaceutical researches and the search for alternatives to control the bed bug *Cimex lectularius* have been proposed, such as the use of botanical insecticides. *Tagetes patula* L. (Asteraceae) is a plant native to North America with highlighted biocidal potential [1]. The objective of this work was to analyze the action of the essential oil of this species in adults of *C. lectularius* by Impregnated Paper Disk Test [2]. By GC-MS were identified as major compounds piperitenone (23.5%), piperitone (20.1%), terpinolene (6.6%) and (Z)-tagetone (4.7%). As positive control cypermethrin in acetone (93%, v/v) was used from 100 ppm to 1600 ppm. Three groups for negative control were established: no treatment (NT), Tween 80 (2%) and acetone. The oil was tested at 6.25, 12.5, 25, 50 and 100 mg/mL, applying 20 µl of each solution on filter paper. Petri dishes remained in BOD (80% RH and 27 °C) and the results were observed after 24, 48 and 72 hours, considering killed the insects incapable to move after stimulation. The data were analyzed by Probit, SAS. Were used 10 insects per group, fed 24 hours before the assay. The NT and Tween 80 (2%) control groups showed 100% survival. The group treated with acetone had 20% mortality. The most effective cypermethrin control was obtained at 1600 ppm, with 70% lethality after 24 hours (LC₅₀= 129.59 ppm and LC₉₀= 528.57 ppm), nevertheless, the EO 50 mg/ml eliminated 90% of the bugs after this same time and 100% after 48 hours (LC₅₀= 11.67 mg/mL and LC₉₀= 22.95 mg/mL). This preliminary result is promising, however, dermal toxicity and cytotoxicity assays are required to ensure the safety of using this matrix in humans or in the environment.



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Keywords: *Cimex lectularius*, *Tagetes patula*, essential oil

References:

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