Ain Shams University.
Women's College.
Zoology Department.

Evaluation of the insecticidal potential of some plant extracts against the Sand fly *Phlebotomus papatasi* (Diptera: Psychodidae), the vector of cutaneous leishmaniasis in Egypt

Submitted
By

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In Science
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Abstract

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The sand fly, *Phlebotomus papatasi* (Diptera: Psychodidae) is the vector of *Leishmania major*, the causative agent of zoonotic cutaneous leishmaniasis (ZCL) throughout North Africa, the Middle East, South Asia and North Sinai, Egypt. One of the methods to interrupt disease transmission is to control the vector. Difficulties in controlling *P. papatasi* by traditional methods have stimulated efforts to develop new control measures with reduced environmental impact. Thus, the purpose of the present study was to determine the effect of the plant derived oils of *Eucalyptus globulus*, *Origanum majorana* and *Trigonella foenum-graecum* against larvae and adults of *P. papatasi*. *Trigonella foenum-graecum* showed little or no activity against larvae and adults and accordingly, its data was excluded from this study. *E. globulus* and *O. majorana* oils showed good activity against larvae and adults of *P. papatasi*. *O. majorana* was more potent than *E. globulus* against larvae and adults of *P. papatasi*. Both oils caused changes in the ultrastructural morphology, and damaged the sensory structures in adults, and induced histopathological changes in treated larvae. With the diagnostic doses and diagnostic times employed to assess the insecticidal activity, the bottle bioassay has a great potential to be assimilated into sand fly control programs where other assessing methods are not feasible. The data presented in this study can serve as starting points for determining the susceptibility of field-collected *P. papatasi*. A standardized technique for testing of more plant-derived

insecticides is crucial because it allows control strategies to be effectively implemented.

Keywords: *Phlebotomus papatasi*, *Eucalyptus globulus*, *Origanum majorana,* Histopathology, SEM.

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