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Oral

ID25: Mosquito Larvicidal and *Pupicidal* Activity of Some Plant Methanolic Extracts Against Culex

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Mosquitoes can transmit more diseases than any other group of arthropods and affect millions of people throughout the world. They act as a vector for most of the life-threatening diseases like malaria, yellow fever and dengue fever. The major tool in mosquito control operation is the application of synthetic insecticides such as organochlorine and organophosphate compounds. Use of many of the former synthetic insecticides in mosquito control program has been limited due to high cost, environmental sustainability, harmful effect on human health, and other non-target populations, their non-biodegradable nature, higher rate of biological magnification through ecosystem, and increasing insecticide resistance on a global scale. One of the most effective alternative approaches under the biological control program is to explore the floral biodiversity and enter the field of using safer insecticides of botanical origin as a simple and sustainable method of mosquito control. This study aimed to evaluate larvicidal and *pupicidal* effect of five plant extracts (thyme, peppermint and citronella leaf extracts, clove buds extracts and lemon peels extract). Methanol extracts of thyme, peppermint and citronella leaf, clove buds and lemon peels were tested for their larvicidal and *pupicidal* activity. The standard WHO guideline for larvicides and *pupicides* evaluation was used. Three plant extract concentrations were prepared (25, 50 and 100 mg/ml) and tested on 20 larvae and 20 pupas (3rd and 4th instars) for each concentration on white enamel trays. Mortality percentage were calculated after 24 hrs. where larvae who doesn't show swimming movement considered dead. Adult mosquitoes were identified to genus level. Thyme showed the highest % of yield (56%) followed by clove, peppermint, lemon and citronella with 13, 13, 8 and 5 % of yield respectively. The highest mortality % of larvae were by clove with 100% for the three tested concentrations, followed by thyme, lemon and peppermint. Citronella gave no effect as larvicidal agent. In *pupicida* activity test, thyme showed the highest activity followed by clove. Lemon didn't show any *pupicidal* activity. Mosquito was identified as Culex. This result clearly reveals that buds extract of E. *caryophyllus* and leaf extracts of T. vulgaris and peels extract of C. limonoids could serve as a potential larvicidal agents against the Culex mosquito. The mode of action and larvicidal efficiency of these plant spp. extract should be scrutinized and determined. Besides, further investigation regarding the effect on non-target organism is extremely important and imperative in the near future.

Key words: Mosquito – larvae – pupa - culex.