# FUMIGANT TOXICITY OF ESSENTIAL OILS OF *MENTHA PIPERITA* AND *MENTHA SPICATA* ON ADULTS OF THE BLACK BEAN APHID, *APHIS FABAE* SCOPOLI (HEMIPTERA: APHIDIDAE)

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The black bean aphid, *Aphis fabae* is oligophagous pest and due to direct damage in plant and virus transmission is important in sugar beet. This aphid is vector of 30 virus pathogens in plants [2]. Effective factors in the damage reduction of *A. fabae* are to use of chemical pesticides. But due to the cumulative effect in the living organism tissue, adverse effects are on the environment health and mammals particularly to human. Plant essential oils can be used as effective fumigant against different pests and not only are effective in pest control but rather are compatible with the environment and their adverse effects are less than other methods of chemical control. In this research, insecticidal activity of *Mentha spicata* (Lamiaceae) and *Mentha piperita* (Lamiaceae) was studied on the black bean aphid in the laboratory condition under 25±2°c and 65±5% RH. Leaf disc method was used for colony formation of *A. fabae*. A Number of viviparous female aphids were placed on each leaf. For survival of leaves, end of leaves was placed in wet cotton. The leaves were replaced every two to three days once with fresh leaves. The plant essential oils was obtained using a modified Clevenger-type apparatus with 100 g dry and a liter of water for 3 hours [1]. After performing preliminary experiments, the concentrations creating between 20% and 80% mortality were selected as the lowest and highest effective dose for bioassay experiments. Mortality was evaluated at six different concentrations that ranging from 2.35 to 37.65 µL/L air, and with 6 replications at the interim 24 hours. At the highest concentration (37.65 µL/L air) the mortality were recorded as 75% for every two essential oils. At the lowest concentration (2.35 µL/L air) the mortality were not observed for both essential oils. The results showed that by increasing dose and time, mortality rate was also increased.These results showed that of *M. piperita* oil ($LC_{50}$=19.29 µL/L air) was more toxic than *M. spicata* ($LC_{50}$=11.27 µL/L air) on the black bean aphid, *A. fabae.* So it is better in the struggle against this pest to use more than *M. piperita* essential oil until be more efficiency in pest control. Use of plant essential oils are effective methods and useful in pest control and can be used in IPM program.

**References**

[1] Cavalcanti, E.S.B.; Morais, S.M.; Lima, M.A.A.; Santana, E.W.P. *Memorias do Instituto Oswaldo Cruz.* **2004**. *99*: 541-544.