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INSECTICIDAL ACTIVITY OF TWO MEDICINAL ESSENTIAL OILS
OF *CINNAMOMUM ZELANICUM* AND *FOENICULUM VULGARE* ON
THE CABBAGE APHID, *BREVICORYNE BRASSICAE* L.
(HEMIPTERA: APHIDIDAE)

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Many species in the plant kingdom synthesize a variety of secondary metabolites which play a role in the defense of plants against arthropods. Phytochemicals are usually less environmentally harmful than synthetic agrochemicals [1]. This research was aims to study the insecticidal effects of two essential oils of *Cinnamomum zeylanicum* (Lauraceae) and *Foeniculum vulgare* (Apiaceae) on the cabbage aphid, *Brevicoryne brassicae*. The plant essential oils were obtained using a modified Clevenger-type apparatus through hydro distillation. Mortality was tested at 6 different concentrations that ranging from 0.71 to 26.78 $\mu\text{L/L}$ air, and 6 replications at the interim of 24 hours under conditions of $25\pm 2^\circ\text{C}$ and $65\pm 5\%$ RH. At the highest concentration (26.78 $\mu\text{L/L}$ air), *F. vulgare* and *C. zeylanicum* oils caused 88.3% and 83.3% mortality on the cabbage aphid, respectively. At the lowest concentration (0.71 $\mu\text{L/L}$ air) the mortality were recorded as 6.66% for *F. vulgare* and 1.60 % for *C. zeylanicum* oils. The results showed that by increasing dose and time, mortality rate and insecticidal activity was increased. The essential oil of *C. zeylanicum* ($\text{LC}_{50}=8.39$ $\mu\text{L/L}$ air) has stronger activity than *F. vulgare* ($\text{LC}_{50}=10.32$ $\mu\text{L/L}$ air) on the cabbage aphid, *B. brassicae*. Due to the increasing cost of spraying and harmful effects of chemical pesticides on the environment and the possibility of residual toxins on the cruciferous plant products, other organisms and the environment, botanical insecticides can be used as one of the alternative suitable methods for pest management and reduce environmental pollution.

References

[1] Misra, G.; Pavlostathis, S. G.; Perdue, E. M.; Araujo, R. *Appl. Microbiol. Biotechnol.* **1996**, *45*: 831–838.