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Repellent effect of ethanolic extract of *Melia azedarach* against *Aphis fabae* Scopoli

Aphids are phloem feeders and important assumption has been that reproduction is initiated only after phloem ingestion. *Aphis fabae* Scopoli is found throughout Western Europe, Asia, North and South America. It is a widely distributed pest of agricultural crops. As a result of infestation by the *A. fabae*, leaves of some plants become swollen, roll and cease developing. This aphid is also the vector for certain plant virus diseases. Chemical control is a commonly used management tactic against the aphids. Synthetic insecticides have been widely developed and their extensive use has brought about disadvantages, like environmental disturbance, pest resistance, lethal effects on non-target organisms and toxicity to user and consumers. Natural compounds such as plant derived chemicals might be potential alternative pesticides that are not persistent in the environment and safe to non-target organism and human.

Therefore, the repellent effect of ethanolic extract of melia azedarach (Meliaceae) against *A. fabae* was investigated under laboratory condition. Treatments included the ethanolic plant extract (40 mg/ml and 20 mg/ml) and control (ethanol, 95 %). The repellency of the plant derived was conducted using a spraying bioassay. The result showed that the repellent indexes (RI's) of the extract of *M. azedarach* (20 mg/ml and 40mg/ml) on aphid nymphs (1 - 2 day old) were 52.06 % and 69.95 % after 72 hours, respectively. Moreover, the repellent indexes of *M. azedarach* (20 mg/ml and 40 mg/ml) were estimated 53.05 % and 61.57 % against aphid nymphs (1 - 2 day old) after 72 hours, respectively. These results demonstrated that the significant differences between the mean repellent indexes of nymphal instars 1 - 2 day old and 3 - 4 day old after 24 hours with the extract of *M. azedarach* (20 mg/ml and 40mg/ml). Whereas, there were no significant differences between the mean repellent Index against different ages of aphids after 48 hours and 72 hours.

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Effectiveness of some plant derived chemicals against *Brevicoryne brassicae* (Homoptera: Aphididae) in green house

The cabbage aphid, *Brevicoryne brassicae* is considered one of the most damaging and consistently present pests on cabbage crops in the world. Plant derived chemicals are an important group of natural product that are usually safer to humans, non target organisms and the environment than conventional pesticides, and with minimal residual effects. Therefore, the use of plant extract has been recommended ever more as a suitable alternative of plant protection with minimum negative risks. Biological efficiency of ethanolic plant extracts were determined that were obtained from *Calendula officinalis* (seed) *Otostegia persica* (leaf) and *Cercis siliquastrum* (seed) against *Brevicoryne brassicae* on greenhouse plants. All tested plant extracts showed high efficiency in mortality of the tested pest. The results showed that single application of a relatively high dosage of 80 mg/mL solution of each plant derived caused up to 100 % mortality of the pest. The other tested concentrations, the highest efficiency were determined in *O. persica*.

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Influence of methanolic extract of *Melia azedarach* and acetamiprid on mortality and developmental time of greenhouse whitefly *Trialeurodes vaporariorum*

The greenhouse whitefly, *Trialeurodes vaporariorum* is a serious pest of various vegetable and ornamental crops in greenhouse. It causes damage to crops in many ways such as direct sap feeding, honeydew excretion, virus transmission (tomato yellow leaf curl), causing sooty mould (reduced cosmetic value of fruits and photosynthetic area of plant). Intensive use of synthetic pesticides to control agricultural pests has created numerous problems such as poisoning consumers, and wildlife, resistance to pesticides and outbreaks of pests in populations and negative environmental impacts. In many stances, alternative methods of insect management, natural product offer adequate levels of pest control and pose fewer hazards.

The effects of methanolic extract of *Melia azedarach* and recommended rate of acetamiprid on mortality and developmental stages of the greenhouse whitefly *T. vaporariorum* were tested in laboratory. The leaf discs of bean plants with eggs, maximal amount of nymphs (ca. 90 %) as well as new pupa of the whitefly individually