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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 (Meliacae) 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.

101-Baniadami, Y.; Ahmadi, K.

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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*.

102-Dehghani, M.; Ahmadi, K.

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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

were placed in the round plastic Petri dishes (5 cm diameter) that filled with agar gel. The leaves were separately sprayed with methanolic extract of *M. azedarach* (80 mg/mL) and acetamiprid [70 mg/L (ai)] until run-off, using a hand-held sprayer. In control treatments, distilled water was used. The results indicated that there were no significant different on the hatching time in the treatments (P < 0. 05). The methanolic extract of *M. azedarach* (30.27 %) caused ovicidal effects which was not significantly different from mortality of eggs caused by acetamiprid (28.66 %). Also, the *M. azedarach* (5.32 %) significantly increased the percentage of nymphal development time. The highest mortality of nymphal instars was observed in *M. azedarach* (82.18 %), while the mortality of nymphs was significantly reduced in the acetamiprid (47.23 %). In addition, the percentage of pupal developmental duration (0.53 %) significantly increased in plant extract as compared with acetamiprid treatment (P < 0.05). The percentage of pupa mortality of the whitefly in methanoilc extract (73.90 %) was significantly higher than in acetamiprid treatment (38.52 %). So, this plant extract on different stages of greenhouse whitefly could be affected on population dynamic of the pest.

103-Najmizadeh, H.; Ahmadi, K.; Salari Sabzevaran, A.; Ashrafju, M.

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Evaluation of *Peganum harmala* (ethanolic extract) on the mortality and development time of *Thrips tabaci*

The onion thrips, *Thrips tabaci* Lindeman, is a polyphagous species with a world-wide distribution. It is major pest of vegetables and ornamentals in all over the world. That makes an attack on more than 300 agricultural plants and green houses. The major damages are due to break of leaf parenchyma cells and cells contents feeding. The resistance of the onion thrips to a wide range of insecticides both in green house and field crops was reported. In the experiment, the leaf discs of bean plants were placed on the agar gel (0.7 %) into the plastic Petri dishes (2 cm diameter). Ethanolic extract of *Peganum harmala* (with the 5 µg/ml concentration) was sprayed on the every bean leaf surface and then a larva (1 - 2 hours old) were placed on the every one of bean leaves. Ethanol (95 %) was used as control treatment. The results indicate the plant derived significantly increased the larva and pre pupa developmental time as compared to control treatment while, there was no significantly difference on pupa developmental time in different treatments. The mean total percentage mortality of the thrips was 75 % during their development. The most mortality (%) was estimated during the pre pupa stage with a mean of 72.2 %. This plant extract with the low concentration (5µl/ml) can to manage this pest population by effect on the larva and pre pupa development time as well as mortality.

104-Abou Tara, R.; Rostum, G.; Albalkhi, A.; Albachir, A. A.; Mohamad, A. H.

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Study of Influence deferent temperatures on some biological character of onion thrips *Trips tabaci* Lindemann

The main object of this study was to study the effects of deferent temperatures (20 - 25 - 30 °C) on some biological character of onion thrips *Trips tabaci* Lindeman. The egg hatching occurred in 9.11.39 ± days in 20 °C, 7.4 ± 0.69 days in 25 °C and 2.24 ± 0.3 days in 30 °C. The first instars nymph development was completed in about 7.971.27 ± days in 20 °C, 3.95 ± 0.41days in 25 °C and 1.95 ± 0.41in 30 °C. The second instars nymph development was completed in about 6.68 ± 1.02 days in 20 °C, 4.72 ± 0.75 days in 25 °C and 2.15 ± 0.54 in 30 °C. The prepupa development was completed in about 7.7 ± 1.70 days in 20 °C, 4.20.76 ± days in 25 °C and 1.830.4 ± in 30 °C. The pupa development was completed in about 4.9 ± 0.95days in 20 °C, 2.88 0.22 ± days in 25 °C and 1.86 ± 0.32days in 30 °C. The generation development (on egg to adult emigration) was completed in about 36.391.43 ± days in 20 °C, 20.520.62 ± days in 25 °C and 10.021.65 ± days in 30 °C.

The result showed that Development threshold Ø for egg is 17.4 °C and the Thermal contestant (k) is 29.49 degree/day. The Development threshold for first instars nymph is 17.47 °C and the Thermal contestant (k) is 25.46 degree/day. The Development threshold for second instars nymph is 16.56 °C and the Thermal contestant (k) is 31.25 degree/day. The Development threshold for prepupa is 17.93 °C and the Thermal contestant (k) is 32.8degree/day. The Development threshold for pupa is 14.19 °C and the Thermal contestant (k) is 30.30 degree/day. The Development threshold for on generation (on egg to adult emigration) is 18.33 °C and the Thermal contestant (k) is 125 degree/day.