

تأثير تحميل بعض النباتات الطبية والعطرية ومسافات الزراعة في مكافحة أكاروس
العنكبوت الأحمر ذو البقعتين على نبات الفاصوليا

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**EFFECT OF INTERCROPPING OF SOME MEDICAL AND
AROMATIC PLANTS AS WELL AS SOW SPACING IN KIDNEY
BEAN TO CONTROL THE TWO SPOTTED SPIDER MITE,
TETRANYCHUS URTICAE KOCH.**

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ABSTRACT: An experiment was conducted in a field at Menoufiya Governorate to estimate the effect of intercropping of certain medical and or aromatic plants; as well as sow spacing on kidney bean plantation on the population of the two spotted spider mite, *Tetranychus urticae* Koch in spring period during the two successive seasons (2010 and 2011). Kidney bean plant was cultivated as a control, each plant species of mint, fennel and black cumin was intercropped with the bean plant, and four sow spacing of kidney bean were chosen 10, 20, 30 and 40cm.

The obtained results indicated that the population average numbers of the two spotted spider mite, *T. urticae* was a significantly different among the four different treatments in the both seasons (LSD; $P < 0.05$). The fennel intercropped on bean plant showed the lowest spider mite population, followed by the mint and black cumin whereas; the bean plant alone had the highest spider mite population during the two seasons.

Results showed that there was a significant difference among the population average numbers of the two spotted spider mite, *T. urticae* infesting kidney bean in different spaces in each treatment (LSD; $P < 0.05$). Generally, the functional relationship between sow spacing and infesting was decreasing relationship (as the spacing increases, infesting decreases) so the forty cm spacing was the best spacing treated in reducing the population of the spider mite, *T. urticae*.

In conclusion, the discussion of the experiment suggested that intercropping fennel plants and cultivating in bean at spacing of 40cm are the best for suppression of spider mite which are important tools in integrated control program.

Key words: Two-spotted spider mite, *Tetranychus urticae*, *intercropping*, medical and aromatic plants, *Nigella Sativa* L, *Foeniculum vulgare* Miller, *Mentha Viridis* Hort *kidney bean*, *Phaseolus vulgaris* L.

***A FIELD EXPERIMENT ON THE CONTROL OF PHYTOPHAGUS MITES
INFESTED TWO ORANGE VARIETIES AT MINUFIYA GOVERNORATE***

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ABSTRACT:

The effect of three compounds (Agrin 6.5%, Micronized sulfur 70% Wp, K.Z. oil EC 95%) under field condition to determine the toxicity effect on *Brevipalpus obovatus* and *Tetranychus urticae*, infested Naval orange and Seefi orange trees. The reduction percentages of *Tetranychus urticae* infested leaves of Naval orange were recorded, Micronized sulfur gave 89.4% followed by KZ oil resulting 79.7%, and Agrin treatment which gave 76.9%. As for the grand mean of the reduction percentages of *Brevipalpus obovatus* population, the highest grand mean reduction was recorded with the treatment of Agrin giving 97.4% followed by Micronized sulfur resulting 93.4%, while KZ oil treatment gave 85.8%. To study the effect of these compounds on *Amblyseius swirski* results indicated that, the highest grand mean reduction was recorded with the treatment of Agrin giving 93.6% followed by Micronized sulfur resulting 93.1%, while KZ oil treatment gave 68.1%. *Tetranychus urticae* infested leaves of Seefi orange were lower, where the highest grand mean reduction was recorded with the treatment of Agrin giving 85%, followed by Micronized sulfur resulting (84.6%), while KZ oil treatment gave the least one, (76.4%). As for *Brevipalpus obovatus* infested leaves of Seefi orange, the reduction percentages were 82.8% for Agrin followed by Micronized sulfur (71.5%) and KZ oil (71.44%) treatments. The reduction percentages of *Amblyseius swirski*, recorded the highest mean in the treatment of Agrin (92.5%) followed by Micronized sulfur (87.3%) and KZ oil (78.6%).

Key words: *Tetranychus urticae*, *Brevipalpus obovatus*, *Amblyseius swirski*, citrus varieties, mite control.

***TOXIC EFFECT OF FOUR PLANT EXTRACTS AGAINST MONACHA
OBSTRUCTA UNDER LABORATORY CONDITIONS***

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ABSTRACT:

Four plant extract leaves , Calotropis procera, Melia Adiantum capillus,azadrichta, Solanum nigrum were tested against the land snail Monacha obstructa under laboratory conditions, The concentration 30% was used after preliminary expermint of different concentrations. Four carrier materials for plant extracts were used : lettuce ; cabbage ; potatoes ; and wheat brain, leaf dipping technique was used in lettuce and cabbage while bait technique was used in potatoes and wheat brain . Plant extracts of four plants were tested on Monacha obstructa, these plants are Calotropis procera, Melia azadarach , Adiantum capillus and Solanum nigrum. Results cleared that after one week of Calotropis procera extract application, mortality percentages of Monacha obstructa ranged between 29: 35% raised to 100% mortality percentages after four weeks (when lettuce and potatoes used as carrier material) and five weeks (when cabbage and wheat used as carrier material). As for Melia azadarach extract application after one week of application, mortality percentages of Monacha obstructa ranged between 39: 41% raised to 100% mortality percentages after three weeks (in the case of using lettuce and potatoes) and four weeks (cabbage and wheat). Adiantum capillus gave mortality percentages ranged between 51:81% after one week of application, while the percentages of mortality increased to 100 % after three weeks (when potatoes and wheat used as carrier material) , and after four weeks for the lettuce and cabbage. Regarding to the effect of Solanum nigrum extract, one week after applications mortality percentages ranged between 36:45 % , while these percentages raised to 100 % mortality of the snail after three weeks of application at the treatments of lettuce, potatoes, and wheat , while after four weeks of application for cabbage . The obtained data revealed that all plant extracts gave satisfactory control after one month of application, but both Solanum nigrum and Adautum capillus were more effective than Melia azadarach and the least toxic plant extract was Calotropis procera.

Key words: land snails- slugs - Monacha obstructa – plant extracts

BIOLOGICAL CONTROL OF POTATO TUBER MOTH, PHTHORIMAEA OPERCULELLA BY ENTOMOPATHOGENIC NEMATODE, STEINERNEMA CARPOCAPSAE

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ABSTRACT:

This research was conducted to study the potential effect of different doses of the entomopathogenic nematode, *Steinernema carpocapsae* in the biological control of the potato tuber moth, *Phthorimaea operculella* Zeller under laboratory conditions. Different stages of the potato tuber moth (larvae, pupae, adults) were exposed to five doses of the nematode (500, 1000, 1500, 2000, 2500 IJS). Mortality of insect stages was checked along 5 days for all concentrations, and percentage of mortality was calculated for each insect stage at different concentrations. Results reported that the *S. carpocapsae* nematode greatly controlled the larvae of the potato tuber moth along the five days of the exposure of larvae to nematodes, where it gave 74 % as grand mean of mortality percentages at 2000 infective juvenile individuals per 10 larvae . Regarding to pupal stage, nematode did not have any effect (0%) at all concentrations of nematode. In addition, it did not satisfactorily control the adult stage of the potato tuber moth, where it gave only 16 % as grand mean of mortality percentages at all doses. It could be concluded that the use of the entomopathogenic nematode *Steinernema carpocapsae* in the control of potato tuber moth stages gave the best mortality percentages against larval stage (74%) at the dose of 2000 infective juveniles per ten individuals of larvae.

Key words: Potato tuber moth, Entomopathogenic nematode, *Steinernema carpocapsae*, *Phthorimaea operculella*, boil

***BIOLOGICAL CONTROL OF PLANT PARASITIC NEMATODES INFECTED
CUCUMBER PLANTS UNDER SHIELD PLANTATION CONDITIONS***

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ABSTRACT:

The main purpose of the experiments was to study the abundance of nematode genera in the soil of the commercial plastic houses cultivated with cucumber crop, under controlled conditions and to study the effect of 17 bioagents in the control of plant parasitic nematodes infecting cucumber plants variety (Medina) under plastic house conditions. Results indicated that the highest grand mean reduction percentages of nematodes were recorded with the treatments of Carbufuran (93.3 %); followed by powder of fish bones (92.1 %); and Poultry manure (91.0 %) without significant differences, while the treatments of Compost, 1 part farmyard manure + 2 part poultry manure; Potassium; Saccharomyces; and Streptomyces gave moderate reduction percentages without significant differences, as (85.4 %), (82.5 %), (80.3 %), (80.3 %), (80.1 %), respectively. The lowest grand mean reduction percentages of nematodes were recorded with the treatments of Sulfur, Bacillus thuringiensis, (Zn, Mn, Fe), Demssisa, Neem, resulting (44.6 %), (51.4 %), (51.4 %), (54.4 %), (54.5%), respectively. The highest weights in the cucumber fruit crops were recorded with the treatments of Farmyard manure (130.7 %) (17.3 kg), followed by the treatment of Poultry manure giving (113.3 %) (16.0 kg), Compost (105.3 %) (15.4 kg), powder of fish bones (100.0 %) (15.0 kg), while the least weights in the cucumber fruit crops were recorded with the treatments of Saccharomyces (32.5 %) (9.9 kg), followed by the treatment of Zn, Fe, Mn giving (58.7 %) (11.9 kg), Potassium, (69.3 %) (12.7 kg), Sulfur (70.7 %) (12.8 kg), Streptomyces (72.0 %), (12.9 kg), and finally Beauveria bassiana (78.7 %), (13.4 kg / 10 plants), in comparison with the control which harvested only (7.5 kg).

Key words: Biological control, bioagents, cucumber, organic manures, parasitic nematodes

PROSPECT FOR THE USE OF ENTOMOPATHOGENIC NEMATODES IN THE GRANARY AND RICE WEEVILS CONTROL

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ABSTRACT:

Experiments were conducted at the laboratories of the Economic Entomology and Agricultural Zoology Department , Faculty of Agriculture, Menoufiya University, Shebin Elkom , Egypt to evaluate the possibility of using entomopathogenic nematodes, *Heterorhabditis bacteriophora* and *Steinernema feltiae* in the control of granary and rice weevils under laboratory conditions. Results indicated that the highest average of corrected mortality of *Sitophilus granaries* adult stages was recorded with the treatment of 3000 infective juveniles giving 93.55 % , while the highest average of corrected mortality of the *S. granaries* adult stages was registered with the treatment of 1000 infective juveniles of *H. bacteriophora* giving 64.52 % . As for the toxic effect of *S. feltiae* on *S. oryzae* adult stages, the highest averages of corrected mortality was registered with the treatments of 1000 and 2000 infective juveniles of *S. feltiae* giving 89.19 % , while the highest average of corrected mortality of the adult stages of *S. oryzae* was registered with the treatment of 3000 infective juveniles of *H. bacteriophora* giving 82.35 % . It could be concluded that the use of *H. bacteriophora* and *S. feltiae* in the control of stored insect products i.e. the rice weevil, *Sitophilus oryzae* , and the granary weevil, *Sitophilus granaries* registered good results , but it needs more studies.

Key words: Entomopathogenic nematodes, granary weevil, *Sitophilus granaries*, rice weevil, *Sitophilus oryzae*, b

***THE NATURAL MORTALITY AND THE ASSOCIATED PARASITOIDS OF
THE HOUSE FLY, MUSCA DOMESTICA L. AT MINUFIYA GOVERNORATE,
EGYPT***

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ABSTRACT:

The parasitoids of the house fly, *Musca domestica* L. were examined at three centers of Minufiya Governorate, Egypt. The centers were Shebin Elkom, Quessna and Elbagour. The studies were extended to a whole year from January, 2009 to December, 2009. Three parasitoid species referred to order Hymenoptera were found to be associated with the pupae of *M. domestica*, two parasitoids referred to family Pteromalidae (*Cyrtotypx* sp. and *Spalangia nigroaenea* Curtis) and the third one referred to family Chalcididae (*Dirhinus wohlfahrtiae* Ferriere). The parasitoids: *Cyrtotypx* sp. and *Spalangia nigroaenea* Curtis were recorded on the house fly pupae for the first time in Egypt. The parasitism ratios were 30%, 52% and 30% at Shebin Elkom, Quessna and Elbagour centers, respectively. However, the natural mortalities ranged between (4% to 100%), (0% to 100%), and (0% to 66%) at the same centers in respectively.

Key words: House fly, parasitoids, natural mortality, poultry farm, Egypt.