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SUMMARY

The potato tuber moth, *Phthorimaea operculella* (Zeller). (Lepidoptera, Gelechiidae) is one of the most important insect pests in Egypt and other countries. During the last decades, chemical control with pesticides were considered the only tool which used to suppress the infestation by most pests. We used the biological control to keep the environment clean, in addition to prevent the bad effect of chemical pesticides on plant, human and animal health .

The thesis delt the following pointis :

[1] Effect of six food types on the numbers of laid egg and hatching by potato tuber moth :

The food types affected the number of egg and the treatment of water, sucrose, honeybee, yeast, sucrose + yeast and honeybee + yeast we can concluded that the preferable food was the honeybee followed by the honeybee + yeast which reduced (340, 240 and 210 egg) respecting with hatching percentages (93.7%) followed by (88.5%) and (88%) .

[2] The effect of six types on the duration of potato tuber moth :

The effect of six food types in the duration of *Phthormaea operculella*, the duration of egg stage was 3 ± 1 days on different food types. The highest duration in larval stage was 13 ± 3 and 17 ± 3 days

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for male and female in 10% sucrose. The highest duration in pupal stage for male 8 ± 1 days in 30% honeybee and 8 ± 2 days for female in 10% sucrose. The longest of the adult longevity was 20 ± 5 and 28 ± 6 for male and female in 10% sucrose followed by 19 ± 3 days in 10% honeybee + yeast for male and 27 ± 5 days in 10% honeybee. The longest total life cycle was 40 ± 10 and 56 ± 12 days for male and female in 10% sucrose followed by 38 ± 8 for male in 30% honeybee and 54 ± 10 for female in 10% honeybee .

[3] Effect of six food types on the adult emergence by potato tuber moth :

The food types affected the adult emergence when we used different food types water, sucrose, honey bee, yeast, sucrose + yeast and honeybee + yeast we found that the highest emergence percentage in 20% concentration of honeybee + yeast was (73.9%) followed by (72%) in 10% concentration of honeybee and (71.2%) in 10% concentration of yeast for females and the highest emergence percentages for males was (60.9 and 40%) on 20 and 10% sucrose + yeast, respectively.

[4] The effect of six types on the natural mortality of potato tuber moth :

In this point we can shown that the natural mortality during the egg stage were (6.3%) in 30% concentration of honeybee + yeast it was the lowest natural mortality percentage and the lowest natural

mortality percentage in larvae (5%) when fed in 40% concentration of sucrose and the lowest natural mortality in the pupae (10.5%) on 40% concentration of sucrose.

[5] The effect of *Steinernema carpocapsae* (Wesier) against different stages of the potato tuber moth :

We used the entomopathogenic nematode *S. carpocapsae* in the control of potato tuber moth stages gave different results according to the target stage of the moth as well as the used concentration of the nematodes (500, 1000, 1500, 2000 and 2500), where the highest mortality percentages were recorded with larvae stage (74%), followed by adult stages (16%), while it was Zero% with pupa stage. The most suitable concentration of *Steinernema carpocapsae* nematode was 500 infective juveniles per ten individuals of the insect stages.

[6] The effect of *Heterorhbditis bacteriphora* pioneer against different stages of the potato tuber moth :

We used the entomopathogenic nematode *H. bacteriphora* in the control of potato tuber moth stages gave different results according to the target stage of the moth as well as the used concentrations of the nematodes (500, 1000, 1500, 2000 and 2500), where the highest mortality percentages were recorded with larvae stages (80%), followed by pupa stages (28%), while it was (24%) with adult stages

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of potato tuber moth, the most suitable concentration of *Heterorhbditis bacteriphora* nematode was 2500 infective juveniles per ten individuals of the insect stages.