

20-2 - Kehail, S.; Abdelgader, H.
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Testing of the egg parasitoid *Trichogramma bourarachae* Pintureau and *Trichogramma nerudai* pintureau against some Lepidopterous insect pests in Sudan

Introduction: *Trichogramma* (Hymenoptera, Trichogrammatidae) are extremely tiny wasps playing an important role in controlling many lepidopterous pests. More than one egg may be inserted into each host egg and this is based, at least in part, on the egg size.

Objective: The current study was carried to test the acceptance of two *Trichogramma* species (*Trichogramma bourarachae* Pintureau and *Trichogramma nerudai* Pintureau) against host eggs of different Lepidopterous insect pests.

Materials and Methods: Laboratory work was conducted at Agricultural Research Corporation (ARC) 2008 – 2009, eight species of lepidopterous insect pests (Storage pest, *Sitotroga cerealella*; Cabbage looper, *Trichoplusia ni*; African bollworm, *Helicoverpa armigera*; Rice moth, *Corcyra cephalonica*; Stem borer, *Sesamia cretica*; Spiny bollworm, *Earias insulana*; leaf worm, *Spodoptera exigua* and Date moth, *Ephestia calidella*) were collected at different stages (eggs, larvae and pupae) from the ARC field to the laboratory. The eggs from these pests were exposure to *Trichogramma bouraracha* and *T. nerudai* reared on *Sitotroga cereallela* and *Corcyra cephalonica*.

Result and discussion: The results showed that all eggs of the tested insect pests were accepted as host by females of *Trichogramma bourarachae* and *T. nerudai*. The average emergence rates/ egg of both *Trichogramma* species were clearly highest from *Sesamia cretica* (2.68 and 2.02) for *T. nerudai* and *T. bourarachae*, respectively, whereas the lowest emergence rates were recorded from *Ephestia calidella* (1.07 and 1.00) for *T. nerudai* and *T. bourarachae*, respectively.

However, the storage pests (date moth, *Ephestia calidella*, grain moth, *Sitotroga cerealella* and rice moth, *Corcyra cephalonica*) recorded lower emergence rates (less than 1.5) for both tested *Trichogramma* species compared with other hosts tested. In contrast the highest average female portions was recorded from *Corcyra cephalonica* (84 % and 72 %) and the lowest one obtained from *Ephestia calidella* (38 % and 27 %) for *T. nerudai* and *T. bourarachae*, respectively.

The emergence rate of *Earias insulana* and *Spodoptera exigua* were almost the same (1.57 and 1.58), respectively when parasitized by *T. bourarachae*, whereas emergence rate of *Trichoplosia ni* and *Spodoptera exigua* was approximately the same (1.77 and 1.79), respectively when parasitized by *T. nerudai*.

More than 2 adults per egg (2.68, 2.04) were emerged from *Sesamia cretica* and *Earias insulana* respectively in case of *Trichogramma nerudai*. The same female ratio (64 %) was observed when *Helicoverpa armigera* and *Earias insulana* were parasitized by *T. nerudai* and *T. bourarachae*. Although the *Trichoplosia ni* and *Sesamia cretica* have different egg size, they have the same female ratio (73 %) when parasitized by *T. nerudai*. The host eggs (stem borer, *Sesamia cretica*, leaf worm, *Spodoptera exigua* and grain moth, *Sitotroga cerealella*) have almost the same female ratio (67 %, 68 % and 69 %), respectively when parasitized by *T. bourarachae*. The *Trichogramma nerudai* was found to be more fecund relative to *T. bourarachae*.

20-3 - Salah, F.¹⁾; Elamin, E.²⁾; Eltoun, E.¹⁾; Abdelgader, H.²⁾; Bordat, D.³⁾

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The effects of the leaf miner, *Liriomyza* spp., host plant on the development and efficiency of their two parasitoids, *Hemiptarsenus varicornis* (Girault) and *Opius dissitus* (Muesebeck)

The Hymenopterous parasitoids, *Hemiptarsenus varicornis* (Girault) and *Opius dissitus* (Muesebeck) are associated with the leaf miner, *Liriomyza* spp., populations in Central Sudan. The effects of *Liriomyza trifolii* (Burgess) and *Liriomyza sativae* (Blanchard) reared on common bean, *Phaseolus vulgaris*, on the development and efficiency of their two parasitoids were studied at constant conditions of temperature, relative humidity and photoperiod. No significant differences were found between parasitism percentage of *H. varicornis* or *O. dissitus* on *L. trifolii* or *L. sativae*. However, significant differences were found with respect to adult (male and female) life span as well as the number of adult parasitoids emerged of *H. varicornis* and *O. dissitus*. The life span of *H. varicornis* was shorter than that of *O. dissitus*, but more adults of the later emerged from the pupae than those of *H. varicornis* which might have accounted for their almost equal parasitism percentages. Also, no significant differences were recorded with regard to the development of *H. varicornis* on *L. sativae* reared on four of its host

plants. However, parasitism percentage was significantly higher on gourd (*Cucurbita moschata*) followed by zucchini (*cucurbita pepo*), haricot bean (*Phaseolus vulgaris*) and tomato (*Lycopersicon esulentium*), respectively.

20-4 - Magedy Abd EL Azeam, A.; Abdel-Salam, S.
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Studies on population fluctuation of the whitefly, *Bemisia tabaci* (Genn.), on some soybean varieties

Six soybean genotypes that subjected to be attacked by piercing-sucking insect pestes causing severe damage especially whitefly, *Bemisia tabaci* (Genn.) were cultivated in Sohag Governorate during the two successive seasons of 2004 and 2005. The fluctuation of the pest in relation to the accumulative thermal heat unite was studied in order to predict the peak as well as the effective population with the objective to implemint the timing as well as the methods of application for the pest control. The acumulative thermal heat units were computerized on the basis of the maximum and the minimum temperature. The obtined data revealed that both general mean average of the pest population and the accumulative thermal heat units during the season of 2005 were higher than that assessed during the season of 2004.

The lowest population density of the pest was noticed during July where the mean averaged accumulative thermal heat units recorded, 2843.7 daily degrees. On the other hand, the highest mean average of the population density of the pest ranged between 25.80 and 32.46 numphs/10 leaflets; where the corresponding mean average accumulative thermal heat units recorded 3239.29 daily degrees. The mean averages of the estimated peaks were ranged between 36.00 and 49.67/10 leaflets where the corresponding accumulative thermal heat units were 3173.87 and 3238.82, respectively.

20-5 - Abou-Tara, R.; Rustom, G.; Samara, F.; Jamal, M.; Shalaby, F.
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The optimal release rates of each one of the two parasites *Encarsia formosa* and *Eretmocerus mundus*, aiming to control the whitefly *Bemisia tabaci* in the Syrian environment

The experiences took place in green houses in Latakia, and in open field in Ghab region. Eggplant was used as host plant to the whitefly. Three release rates were used (3, 5, 7) pairs/plant of *Er. mundus*, and (3, 5, 7) of *Er. formosa* female pairs/plant. The results showed that the optimal release rate of *Er. mundus* was 5 pairs/plant, performing 100 % of parasitism rate in green houses. The optimal release rate of *E. formosa* was 5 female pairs/plant, performing 40 % of parasitism rate. As for experiences in open field, the optimal release rate of *Er. mundus* was 5 female pairs/plant performing 81.32 % of parasitism rate. As for *E. formosa* the optimal release rate was 3 female pairs/plant with 5.03 of parasitism rate.

The test showed significant differences among the three release rates for each parasite, alongside with significant differences among parasitism rates performed by the two parasites with the three release rates, equally in green houses and open field. *Er. mundus* surpassed *E. formosa* with a significant difference.

20-6 - Abou-Tara, R.; Rustom, G.; Samara, F.; Jamal, M.; Shalaby, F.
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The effect of some pesticides on the adults and pupaes of two parasits *Eretmocerus mundus* and *Encasia formosa*

The experiences took place with two stages in laboratory. The first stage dealt with the effect on insecticides on adult insects. Two insecticide (Pyridaben and Pimetrozine) were selected alongside with two fungicides (Cimoxanil + Fomoxadon and Copperhydroxide), and two acaricides (Fenpyroximate and Diafenthuiuron) according to the maximum and minimum concentrations recommended by the producer. Female parasites of same age were used in each treatment. Laboratory temperature attained 25 °C. 18 treatments were effectuated for each parasite, alongside with 3 treatments with each pesticide, treating 10 female parasites in each test tube obstructed with a piece of cotton. The numbers of dead parasites were put on record after 6, 12, 24 and 36 hours. The results were analyzed according to Dunkan test, in order to identify the less significant difference with 1 % coefficient of concentration.