METEORUS GYRATOR THUNBERG AND *M.RUBENS* NEES. (HYMENOPTERA : BRACONIDAE) NEW RECORDED PARASITOIDS ON CERTAIN LEPIDOPTEROUS PESTS IN EGYPT.

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Abstract

Survey of the braconid parasitoids, *Meteorus* spp. on certain economic lepidopterous pests in Egypt was studied. Samples of the considered larval species were surveyed mainly on clover, maize and vegetable crops during April - November, 1982 and 1983 . Tow different species belonging to the genus *Meteorus* ; *M. gyrator* Thunberg (solitary species) and *M. rubens* Nees. (gregarious species) were recorded for the first time in Egypt as parasitoids on five main lepidopterous pests. The solitary species, *M . gyrator* was recorded on *Spodoptera littoralis* Boisd. (6 times) with 9.3 % parasitism, *S. exigua* Hb. (22 times) with 12.2 % parasism, *Heliothis armigera* Hb. (2 times) with 5.0 % parasitism and *Sesamia cretica* Led. (8 times) with 1.3 % parasitism .

The gregatious species, *M.rubens* was reared from *Agrotis ipsilon* Rott. (2 times) with 30.8 % parasitism, S. exigua (2 times) with 5.1 % parasitism and *S. cretica* (once) with 0.6 % parastism.

INTRODUCTION

The braconid wasps, *Meteor*us spp. are known in the world as larval endoparasitoids of a wide range of lepidopterous pests (mainly noctuids) .

Available literature showed only one record concerning *M. gyrator* as a larval parasitoid on the gypsy moth, *Ocneria dispar* L. in USSR (kotenko,1976) , while *M. rubens* was recorded mostly as a parasitoid of many cutworms in several countries; on *Euxoa (Agrotis) segetum* Schiff in USSR (Dekhtyarev, 1962); in Bulgaria (Dryenski, 1930), on *E. temera;* in Italy (Monaco *et al.*, 1977.) on *Lobesia batrana*

schiff; in Schweiz (Baggiolini *et al.*, 1966) and Turkey (kisakurek, 1972) and on *Agrotis ipsilon* Rott. in South korea (kim *et al.*, 1980) and USA (Foster and Ruesink, 1984).

In Egypt *M. laeviventris* was reported on *Agrotis ipsilon* Rott. (Bishara 1932; El-Minshawy, 1970) and on *Plutella maculipennis* Curtis (Hassanein, 1985)

M. gyrator and *M. rubens* were observed by the authors in 1981 during a survey of the natural enemies of some lepidopterous pests in vegetables.

The present work was undertaken during 1982 and 1983 with the aim of surveying the main lepidopterous hosts of both species and estimating their percentages of parasitism. The survey concerned mainly the most economic lepidopteruous pests in Egypt i.e. *spodoptera littoralis* Boisd., *S. exigua* Hb., *Heliothis armigera* Hb. *Agrotis ipsilon* Rott., and corn borers in unterated fields of clover (Berseem), maize and vegetables.

MATERIALS AND METHODS

Samples of the considered larval species were collected form clover, maize and vegetables from the fields of Qaluobia and Fayoum Governorates, and partly from Giza Governotate during the two successive seasons 1982 and 1983 (April-November) .

The larvae were placed individually in glas vials. The lepidopterous species *spodoptrea littoralis*, *S. exigua* and *Heliothis armigera* were fed on a semi-synthetic diet prepared in the laboratory (Shorey and Hale,1965). *Agrotis ipsilon* and corn borers were fed on fresh plants of clover and maize, respectively. The larvae were kept under laboratory conditions until the emergence of parasitoid adults. Specimens of emerged parasitoids were identified to the genus level by our Department of Biological Control and to the species level by the Natural History Musem in London.

RESULTS

Field survey of *Meteorus* species in Egypt showed only the two species, *M. gyrator* (solitary parasitoid) and *M.rubens* (gregarious parasitold). Their abundance in the field was as follows:

Meteorus gyrator Thunberg

Initial occurrence of the parasitoid species in 1982 season took place on 28/4 in Qualuobia Governorate. *M. gyrator* was encountered 8 times on clover and maize (1 on *Heliothis*, 5 on *S. exigua* and 2 on *Sesamia*) during a period of time that lasted from April until August . The average percentages of parasitism was clearly higher for *S. exigua* (11.6 %) on maize than for *Heliothis* (3.7 %) on clover or for Sesamia (3.3 %) on maize . This parasitoid was obtained 10 times from maize and vegetables (7 from *S. exigua* and 3 from *S. littoralis*) during the period May-September in Fayoum Governorate. Average of the percentages of parasitism reached 12.9 % for *S. exigua* (on maize) and 7.9 % for *S. littoralis* (on Okra and Cabbage). In Giza Governorate, the parasitoid was found only once on *S. littoralis* infesting Jew's Mallow (Moloukia) on 15 /6 (13.3 % parasitism).

In general, the highest percentages of parasitism during 1982 season were recorded on *S. exigua* and *S. littoralis*, the lowest were recorded on *Heliothis* and *Sesamia.*

The early record of *M. gyrator* in 1983 season was observed in Fayoum Governorate on 20 /4 . During the period from April to September, the parasitoid was reared from 6 samples (1 *Heliothis* and 5 *S. exigua*) collected from clover and maize. The percentage of parasitism reached 7.7 % for *Heliothis* on clover while it reached an average or 13.8 % for *S. exigua* on maize. In Qaluobia , the parasitoid was found 9 times on vegetables and maize (1 on *S. littoralis*, 3 on *S. exigua* and 5 *on Sesamia*) for a duration of two months (end of April until early July) . The highest percentage of parasitism was 11.1 % for *S. littoralis* on vegetables (mainly Okra). In maize fields, the averages of percentage parasitism were 4.2 % and 0.8 % for *S. exigua* and *Sesamia*, respectively. In Giza, only one record of *M. gyrator* was obtained in July from *S. littoralis* on Jew's Mallow (Moloukhia) with 2.3 % parasitism. In agreements with the results of the 1982 reason, the highest percentages of parasitism were recorded on *S. exigua* and *S. littoralis* and the lowest was on *Sesamia.*

Meteorus rubens Nees

This parasitoid was encountered twice in Fayoum governorate from the same sample of *S. exigua* in 1982 season. Percentage of parasitism reached 5.4 %.

In 1983 season, *M rubens* was reared from 4 sampes, two from *Agrotis ipsilon* in Giza on clover, one from *S. exigua* and one from *Sesamia* on maize. The percentages of parasitism were 22.2 % and 50.0 % on *Agrotis*, 4.5 % on *S. exigua* and 0.6 % on *Sesamia* . The numbers of emerged parasitoids were in proporion to the size of host larvae. In case of *Agrotis* and *Sesamia* the number of emerged adults were 19-45 and 22/ larva, respectively, while it was 7 - 11 individuals/larva in case of *S. exingua.*

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تسجيل جديد للطفيليين *Meteorus gyrator* Th., *M. ruben* Nees. غشائية الإجنحة براكونيدى علي الآفات الرئيسية من حرشفية الأجنحة فى مصر.

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تناولت الدراسة حصر لأنواع الطفيليات من عائلة براكونيدي ، جنس متيورس التي تتطفل علي الآفات الأقتصادية الرئيسية من رتبة حرشفية الأجنحة في مصر . جمعت عينات من أنواع اليرقات المعنية من الحقول المصابة من محاصيل البرسيم والذرة والخضر خلا الموسمين (إبريل – نوفمبر ١٩٨٢ ، ١٩٨٣) . سجل لأول مرة في مصر نوعين مختلفين يتبعان الجنس *Meteorus* وهما *M. gyrator* Thunberg (نوع فردى) و *M. rubens* Nees (نوع جماعى) كطفيليات علي خمس آفات رئيسية من حرشفية الأجنحة.

سجل النوع الفردي علي دودة ورق القطن (٦ مرات) بنسبة تطفل متوسطها ٣ر٩ ٪ ، علي دودة ورق القطن الصغرى (٢٢ مرة) بنسبة تطفل متوسطها ٥ ٪ وعلى دودة القصب الكبيرة (٨ مرات) بنسبة تطفل متوسطها ٣ر١ ٪ ، وسجل النوع الجماعى على الدودة القارضة (مرتين) بنسبة تطفل متوسطها ٨ر٣٠ ، علي دودة ورق القطن الصغري (مرتين) بنسبة تطفل متوسطها ١ر٥ ٪ ، علي دودة القصب الكبيرة (مرة واحدة) بنسبة تطفل ٦ر٠ ٪ .