

SCIENTIFIC NOTE

PINK HIBISCUS MEALYBUG, *Maconellicoccus hirsutus* (Green),
PARASITOIDS IN EGYPT. 1- PRELIMINARY RECORDMousa, S. F., A. H. El-Heneidy, A. S. Hendawy, Dalia Adly, D. Gonzalez*
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Most of the biological control literature refers to this species under the genus, *Phenococcus*. For many years, the pink hibiscus mealybug, (PHMB), *Maconellicoccus hirsutus* (Green) was the most injurious mealybug species occurring in Egypt, following its introduction to Egypt about 1908, presumably from India, and by 1926 it was generally distributed over the country. Attempts were undertaken to control it with *Cryptolaenus montrouzieri* Muls., introduced from France (Hall, 1925). Periodic releases of insectary-reared material were not wholly satisfactory and, although the coccinellid finally became permanently established, it was of little benefit because it over-wintered poorly. The importation of parasitoids of other mealybugs from Java was undertaken during 1934-39. The encyrtid *Anagyrus kamali* Moursi, obtained in 1934, was well adapted to attack *M. hirsutus* and became established. Also, *Achrysopophagus* sp. was introduced at the same time and became established on the pest (Kamal, 1951). In recent years, PHMB has become almost fully controlled by effective naturally occurring bio-control agents, mainly parasitoids (Hamed and Hassnein, 1991, and Meyerdirk, 2000) following up the earlier studies of Moursi 1948 a, b, c and d. The present study focuses on survey of PHMB parasitoids in Egypt.

Among the 60 ornamentals, medicinal and aromatic host plants of *M. hirsutus* recorded in Egypt, *Hibiscus rosa-sinensis* seems to be one of the main host plants (Assem 1982). Infested samples were collected biweekly from 11

locations representing Upper-, Middle-Egypt and Delta, 3, 3, 5 governorates, respectively, during the period from April through November 2000. Sampling was focused on the *Hibiscus* plants because many of the economic host plants are subject to be treated with insecticides. Samples were kept under the laboratory conditions ($25 \pm 2^\circ\text{C}$ and $60 \pm 5\%$ R.H.) until emergence of parasitoid adults. Parasitoid species were counted, classified, preserved in 70 % alcohol and sent to the Entomology Research Museum, Department of Entomology, University of California, Riverside, USA for identification. Total number of PHMB samples collected from the 11 considered governorates, throughout the period of sampling, reached 193 samples, 66.3 % were parasitized (130 samples).

The study revealed the presence of 8 primary and 4 secondary parasitoid species, respectively. The primary parasitoid species are: *Allotropa* sp., most probably *A. mecrida* (Walker) (Platygastridae) *Gyranusoidea indica* Shafee, Alam and Agarwal, *Leptomastidea abnormis* (Girault), *Leptomastix algerica* Trjapitzin, *Leptomastix* sp., *Anagyrus kamali* Moursi, and *Anagyrus* sp., and *Clausenia* sp. (all Encyrtidae). The secondary parasitoids are: *Chartocerus* sp. (Signiphoridae), *Marietta* sp. (Aphelinidae), *Pachyneuron* sp. (Pteromalidae), and *Prochiloneurus bolivari* Mercet (Encyrtidae). Unidentified encyrtid species were present from the male sex only therefore, their positive identification to the species will be possible only after the females are obtained.

Primary parasitoids made up 94.9 % of the total parasitoids emerging and 5.1 % were secondary. Active period for both, *M. hirsutus* and its parasitoids lasted from April to November on *Hibiscus* plants in different areas. Highest populations of the pest and its parasitoids occurred in September. The primary species, *A. mecrida* and *G. indica* dominated all the surveyed species by 69.5 and 25 %, respectively, while *Marietta* sp. and *Chartecerus* sp. dominated the secondary ones by 2.8 and 2 %, respectively. Percentage of parasitoid emergence was the highest in the Delta (80 %) and the lowest (40 %) in Upper Egypt. Average percentage of hyperparasitism reached 1.9, 9.4 and 1.4 % in Upper-, Middle-Egypt, and Delta, respectively. In Beni-Suef, it was the highest (25.8 %), whereas it was the lowest (0.7 %) in Menoufia among the considered governorates. Further publications on the seasonal abundance and geographical distribution of PHMB primary and secondary parasitoid species are prepared.

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