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SCIENTIFIC NOTE

A SURVEY OF PRIMARY AND SECONDARY PARASITOID SPECIES OF CEREAL APHIDS ON WHEAT IN EGYPT

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Wheat is the most important cereal crop in Egypt. It is constrained by a variety of insect pests, vertebrates and diseases. Aphids are the major insect pests attacking wheat plants in Egypt. *Rhopalosiphum padi* L., *R. maidis* F., *Schizaphis graminum* R. and *Sitobion avenae* F. were recorded as main aphid species on wheat plants (El-Hariry 1979). The Russian species, *Diuraphis noxia* (Kurdj.) was recently added to the Egyptian aphid fauna in wheat fields (Attia and El-Kady 1988). *R. padi* is the most common and important cereal aphid species in Egypt (El-Heneidy 1994). The routine pesticide treatments have adversely influenced the natural enemy's population, particularly the parasitoids, and their potential to control the pest.

Parasitoid species attacking cereal aphids in wheat fields in Egypt were previously recorded by several authors in particular areas; Aly and Morsy 1983 and Abdel-Rahman *et al.* 2000 in Upper Egypt, Ibrahim, 1990 in Middle Egypt, and El-Heneidy1994 and 1998 in Upper- and Middle Egypt.

The present study is a recent survey of the parasitoid species, primary and secondary, on key wheat aphid species covers most of the wheat regions in the country. The survey was proposed as objective of the Egyptian - American / collaborative project, Agricultural Technology Utilization and Transfer (ATUT), "Wheat crop protection based on plant resistance and biological control" financed by the USAID.

Infested samples of wheat plants were collected regularly from 12 Egyptian Governorates, represented different agro-ecosystems in the country; Sohag and Assuit (Upper Egypt), Beni-Suef, Fayoum and Giza (Middle Egypt), Menoufia, Gharbia, Behaara, Dakhalia and Sharkia (Lower Egypt: (the Delta)), and Dakhla and Kharga (New Valley), throughout the four seasons 1997/98 - 2000/2001. Samples were kept in transparent jars under laboratory conditions until emergence of parasitoid adults. Emerged adults were collected daily and preserved in alcohol 70% for identification. Specimens were identified by P. Stary, Institute of Entomology, Academy of Science of the Czech Republic. Recovered parasitoid species were classified and counted. Seasonal occurrence and numbers of different species, in the particular habitats, were recorded. The following list reveal the hymenopterous primary and secondary parasitoids emerged from the key cereal aphids in wheat fields in Egypt during the aforementioned four-growth seasons:

Primary parasitoids:

Aphidiidae: *Aphidius matricariae* Haliday, *A. colemani* Viereck, *Diaeretiella rapae* M'Intosh, *Praon necans* Mackauer, *Ephedrus persicae* Haliday, and *Trioxys sp.*

Aphelinidae: *Aphelinus* sp.

Secondary parasitoids:

Cynipidae: *Alloxysta* (=*Charips*) sp. and other cynipids.

Chalcididae: chalcids and pteromalids (*Asaphes* and *Pachyneuron*).

Encyrtidae: *Aphidencyrtus* sp.

Megaspilidae: *Dendrocerus* (formerly *Lygocerus*) sp.

Among the recorded parasitoid genera and species, the aphidiids and the aphelinids represented 96.3 and 3.2 %, respectively. Genus *Aphidius* (*A. matricariae* and *A. colemani*) predominated slightly the other genera of aphidiids (35.5 %), followed by *Diaeretiella* (34.4 %). *D. rapae* ranked first (34.4 %), among the species, followed by *P. necans* (25.6 %). The cynipids were the most dominant secondary parasitoid species (78.1 %), followed by the chalcids (9.7%).

Obtained data showed that the total percentage of hyperparasitism all over the country reached 21.2 %. Highest percentage (51.5 %) was found in the New Valley during 1997/98 season, whereas the lowest (2.8%) was recorded in Menoufia Governorate during the same season. Highest population of the parasitoids was counted during February and March, in all sampling localities, to synchronize the peak population of cereal aphid species on wheat plants (El-Heneidy 1994). Peaks were recorded during February, in Upper, Middle Egypt and the New Valley and few weeks later during March in Lower Egypt (the Delta).

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