

*Halil BOLU, Cumali ÖZASLAN*<sup>1</sup>

**MANTIS RELIGIOSA L. (MANTODEA: MANTIDAE) A  
NEW HOST FOR PODAGRION PACHYMERUM WALKER  
(HYMENOPTERA: TORYMIDAE) IN TURKEY**

**SUMMARY**

The present survey was carried out in Şanlıurfa province in rice fields during 2013-2014 on *Xanthium strumarium* L. and *Cyperus glomeratus* L. infested with the ootheca of European mantid *Mantis religiosa* L. (Mantodea: Mantidae). Torymid parasitoid, *Podagrion pachymerum* (Walker) (Hymenoptera: Torymidae) was obtained from *M. religiosa* ootheca collected from *X. strumarium* and *C. glomeratus* species in Şanlıurfa province. *M. religiosa* is a new host record for *P. pachymerum* in Turkey. In addition, *P. pachymerum* is a new record for the insect fauna of Turkey.

**Keywords:** *Mantis religiosa*, *Podagrion pachymerum*, new host, new record, Turkey

**INTRODUCTION**

*Mantis religiosa* with the common name praying mantis or the European mantis belongs to order Mantodea, family Mantidae. It is one of the most well-known and widespread species within this family and genus Mantis. The European mantis is usually 5–7.5 cm in length and has shades of bright green to tan. It can be distinguished easily by a black-ringed spot beneath the fore coxae (Anonymous, 2014a).

Although a carnivore and an impressive predator, *M. religiosa* is harmless to humans and beneficial as well, because eats many pest species such as aphids, grasshoppers, the gypsy moth caterpillar, flies, mites. The European mantis is solitary species coming together only when mate, once per year. Females are known to eat the males after mating. Additionally, when an individual comes upon another mantis, cannibalistic behavior is performed. Females lay about 100 eggs in a white hardened foam ootheca is cemented to a tree branch or leaf. The larvae hatches in early spring and could be wind dispersed, or serves as nourishment for their siblings (Anonymous 2014b).

The family Torymidae with 986 described species (Noyes 2012) placed in about 70 genera are found worldwide. With wide range of hosts it is considered as important family of the superfamily Chalcidoidea from the biological and morphological perspective. The family contains two subfamilies, Toryminae with

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<sup>1</sup> Halil Bolu, Cumali Özasan, (corresponding author: cumali.ozaslan@dicle.edu.tr), University of Dicle, Faculty of Agriculture, Department of Plant Protection–Diyarbakır, Turkey.

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55 genera and Megastigminae with 12. Members of this family are both entomophagous and phytophagous (Grissell 1995).

The Torymidae wasps are recognized by attractive metallic coloured species with enlarged hind legs and generally long ovipositors. They are also recognized as one of the few groups of Chalcidoidea in which the cerci are visible (Anonymous 2014c). Many species are parasitoids on gall-forming insects and some are phytophagous sometimes usurping the galls formed by other insects.

The aim of this study was to determine the natural enemies of an impressive predator *Mantis religiosa* in Şanlıurfa.

### MATERIAL AND METHODS

The oothecae of *M. religiosa* were collected from weeds (*Xanthium strumarium* L. and *Cyperus glomeratus* L.) in rice field in the provinces of Şanlıurfa (Siverek-Karacadağ) during October and November 2013, and were brought to the laboratory for rearing. During the course of the study, a total of 2 oothecae were collected.

The ootheca were reared in boxes containing *X. strumarium* and *C. glomeratus* branches from the same rice field. Distilled water was provided. The ootheca were reared at a temperature of  $26\pm 1^{\circ}\text{C}$ , relative humidity of  $65\pm 5\%$ , and illumination of 3500 lux for 16 hours per day. The boxes were checked daily. The last mantis nymph and torymid wasp emerged.

Material examined: Şanlıurfa (Siverek-Karacadağ) ( $37^{\circ}42'N$ ,  $40^{\circ}11'E$  at altitude of about 1084 m.). Total: 31♀♀, 6♂♂ from ootheca of European mantid *Mantis religiosa*.

### RESULTS AND DISCUSSION

As a result of this survey, a parasitoid *P. pachymerum* (Fig. 1) was recorded from ootheca of *M. religiosa* (Fig. 2).

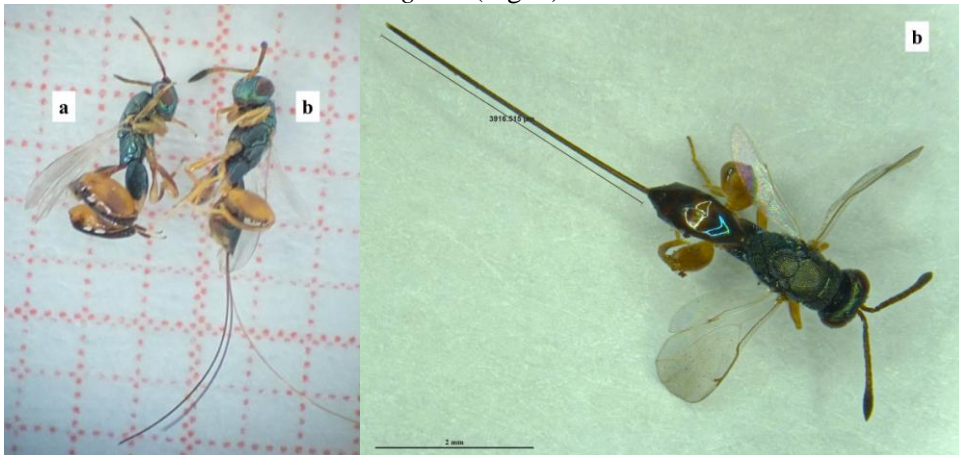


Figure 1. *Podagrion pachymerum* male (a) and female (b)



Figure 2. *Mantis religiosa* the ootheca on *Xanthium strumarium*

*Distribution:* Recorded in Austria (Giraud 1863, Westwood 1847), Bulgaria (Delvare 2005), Caucasus (Grissell 1995, Nikol'skaya and Zerova 1978), Croatia (Bouček 1977, Delvare 2005), Czechoslovakia (Bouček 1977), Czech Republic (Delvare 2005, Kaina 1989), Germany (Detzel and Ehrmann 1998), Algeria, Spain (Delvare 2005), Europe (Nicol'skaya and Zerova 1978), France (Delvare 2005, Grissell 1995, Herting 1971; Thorette 1992, Walker 1833), Hungary (Delvare 2005, Erdős 1946), India (Farooqi 1986, Grissell 1995, Popescu 2009), Iran (Fallahzadeh et al. 2009), Italy (Delvare 2005) Moldova ((Nicol'skaya and Zerova 1978), Palearctic (Popescu 2001), Poland (Delvare 2005, Wisniowski 1992), Romania (Fusu 2008, Popescu 2001-2009), Slovakia (Delvare 2005, Kaina 1989), Syria and Ukraine (Delvare 2005).

*Distribution in Turkey:* New record to Turkey.

*Host plants:* *Xanthium strumarium* L. and *Cyperus glomeratus* L.

*Recorded hosts:* *Empusa egea* (Charpentier 1841) (Mantodea: Empusidae) (Herting 1971); *Iris oratoria* (Mantodea: Tarachodidae) (Delvare 2005, Thorette 1992); *Mantis religiosa* (Mantodea: Mantidae) (Delvare 2005, Farooqi 1986, Fusu 2008, Popescu 2001-2009, Popescu, et al. 2002, Thompson 1958).

*New record host:* In the present study *Mantis religiosa* was recorded as a new host of *Podagrion pachymerum* for Turkey.

## CONCLUSION

The family Torymidae is an important group because of its role as agricultural pests or biocontrol agent pests in many ecosystems. *Mantis religiosa* is a new host record for *Podagra pachymerum* in Turkey which was first determined in this study. In addition, *P. pachymerum* is a new record for the insect fauna of Turkey.

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## REFERENCES

- Anonymous, (2014a): [http://en.wikipedia.org/wiki/European\\_mantis](http://en.wikipedia.org/wiki/European_mantis) (Last update, 09.12.2014).
- Anonymous, (2014b): <http://eol.org/pages/487055/overview> (Last update, 09.12.2014).
- Anonymous, (2014c): [http://en.wikipedia.org/wiki/European\\_mantis](http://en.wikipedia.org/wiki/European_mantis) (Last update, 09.12.2014)
- Bouček, Z. (1977): A faunistic review of the Yugoslavian Chalcidoidea (Parasitic Hymenoptera). *Acta Entomologica Jugoslavica* 13(Supplement): 23.
- Delvare, G. (2005): A revision of the west-Palaearctic Podagrion (Hymenoptera: Torymidae), with the description of *Podagrion bouceki* sp.nov. *Acta Societatis Zoologicae Bohemoslovenicae* 69(1-2): 84.
- Detzel, P. & Ehrmann, R. (1998): *Mantis religiosa*. Die Heuschrecken Baden-Württembergs. pp.186.
- Erdős, J. (1946): Additamento ad cognitionem faunae chalcidoidarm (Hym.) in alveo Carpathorum I. *Fragmenta Faunistica Hungarica*, 9(3/4): 56.
- Fallahzadeh, M., Narendran, T.C. & Saghaei, N. (2009): Insects, Hymenoptera, Chalcidoidea, Eurytomidae and Torymidae in Iran. *Check List, Campinas*, 5(4): 835.
- Farooqi, S.I. (1986): Family Torymidae. (In: Subba Rao, B.R.; Hayat, M. (Eds) - *The Chalcidoidea (Insecta: Hymenoptera) of India and the adjacent countries. Part II.*) *Oriental Insects*, 20: 271.
- Fusu, L. (2008): Chromosomes of two Podagrion species (Hymenoptera, Chalcidoidea, Torymidae) and the evolution of high chromosome numbers in Chalcidoidea. *Analele Stiintifice ale Universitatii "Al. I. Cuza", Sectiunea Genetica si Biologie Moleculara*, 9: 61.
- Giraud, J. (1863): Note sur quelques Hyménoptères très rares découverts en Autriche, et description d'un chalcidien nouveau (*Dirrhinus imperialis*). *Verhandlungen der Zoologisch-Botanischen Vereins in Wien* XIII.
- Grissell, E.E. (1995): Toryminae (Hymenoptera: Chalcidoidea: Torymidae): a redefinition, generic classification and annotated world catalogue of species. *Memoirs on Entomology, International*, 2: 244.
- Herting, B. (1971): Arachnida to Heteroptera. A catalogue of parasites and predators of terrestrial arthropods. Section A. Host or Prey/Enemy. 1: 66-67.
- Kalina, V. (1989): Checklist of Czechoslovak Insects III (Hymenoptera). Chalcidoidea. *Acta Faunistica Entomologica Musei Nationalis Pragae*, 19: 100.
- Nikol'skaya, M.N. & Zerova, M.D. (1978): Hymenoptera II. Chalcidoidea 9. Torymidae (Callimomidae). *Opredeliteli Nasekomykh Evropeyskoy Chasti SSR* 3: 360.
- Noyes, J. (2012): Universal Chalcidoidea Database.—World Wide Web electronic publication. <http://www.nhm.ac.uk/entomology/chalcidoids> (Update: 09.12.2014).
- Popescu, I.E. (2001): Contributions to the knowledge of the torymid wasps (Hymenoptera, Chalcidoidea, Torymidae) from the "Maritime Dune Natural Reserve from Agigea" (Constanta, Romania). *Analele Stiintifice ale Universitatii "Al. I. Cuza" din Iasi (Seria Noua) Viata in apa pe pamant in mileniulo III, 19-20 octombrie*.
- Popescu, I.E., Andriescu, I. & Fusu, L. (2002): Contributions to the knowledge of the torimid [sic] wasps (Torymidae, Hymenoptera, Chalcidoidea) from 'Valea Lui David' meadows natural reserve, Iasi, Romania. *Memoriam 'Professor Dr. Doc. Vasile Gh. Radu' Corresponding Member of Romanian Acaademy of Sciences, 'Babes-Bolyai' University, Department of Zoology*, pp. 28.

- Popescu, I.E. (2009): Torymidae and Eurytomidae (Hymenoptera: Chalcidoidea) from Bucuresti city and the surrounding area. Travaux du Muséum d'Histoire Naturelle 'Grigore Antipa', Bucuresti, 52: 464.
- Thompson, W.R. (1958): A catalogue of the parasites and predators of insect pests. Section 2. Host parasite catalogue, Part 5. pp.664 Commonwealth Agricultural Bureaux, Commonwealth Institute of Biological Control, Ottawa, Ontario, Canada.
- Thorette, J. (1992): Deuxieme note sur les parasites d'ootheques de mantides de notre region. Annales de la Société des Sciences Naturelles et d'Archeologie de Toulon et du Var, 44(4): 267-270.
- Walker, F. (1833): Monographia Chalciditum. (Continued.) Entomological Magazine 1(2): 118.
- Westwood, J.O. (1847): On the economy of the genus Palmon of Dalman with descriptions of several species belonging thereto. Transactions of the Entomological Society of London (4) 4:259.
- Wisniewski, B. (1992): *Podagrion pachymerum* (Walker) - a species new to the Polish fauna (Hymenoptera, Torymidae). Annals of the Upper Silesian Museum in Bytom (Entomology), No 3:31-35.