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AN ANNOTATED LIST OF THE PLATYGASTROIDEA (HYMENOPTERA) FROM THE ARASBARAN BIOSPHERE RESERVE AND VICINITY, NORTHWESTERN IRAN

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Four species of Platygasteridae and 12 species of Scelionidae are listed from the Arasbaran Biosphere Reserve. *Platygaster demades* (Walker) is recorded for the first time from Iran.

KEY WORDS: Platygasteridae, Scelionidae, fauna, Arasbaran, Iran.

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Из Арасбаранского биосферного заповедника приведены 4 вида Platygasteridae и 12 видов Scelionidae. *Platygaster demades* (Walker) указывается впервые для Ирана.

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INTRODUCTION

The Platygastroidea includes two families of parasitoids, Scelionidae and Platygastriidae, and numbers about 4500 described species. They parasitize a diverse array of insects as well as spiders. Idiobiont endoparasitism of eggs is the putative ground plan biology, as reflected by all scelionids, but most Platygastriidae are koinobiont endoparasitoids of immature Auchenorrhyncha, Sternorrhyncha (Homoptera), and Cecidomyiidae (Diptera). Many hosts of platygastroids are pests of considerable importance in agriculture, forestry, and both human and animal health, e.g., the gypsy moth (*Lymantria dispar* L.), locusts (*Locusta migratoria* L., *Chortoicetes terminifera* Walker), hessian fly (*Mayetiola destructor* Say), the sunn pest (*Eurygaster integriceps* Puton), southern green stink bug (*Nezara viridula* L.), kissing bugs (*Triatoma* Laporte, *Rhodnius* Stal), and horse flies (*Tabanus* spp.). A number of species have been used as biological control agents with notable success (Caltagirone, 1981; Clarke, 1990; Drooz *et al.* 1977; Orr, 1988).

The biology of several large genera of Scelionidae have been reviewed in detail as part of contemporary taxonomic studies [*Telenomus* Haliday (Johnson, 1984), *Ceratobaeus* Ashmead (Iqbal & Austin, 2000), and *Scelio* Latreille (Dangerfield *et al.*, 2001)], and these include many aspects that relate more generally to other members of the family. In addition, several texts on Hymenoptera provide useful overviews of platygastroid biology (Godfray, 1994; Masner, 1993, 1995). The most detailed biological studies have been undertaken on scelionids, for example, *Trissolcus*, *Telenomus*, and *Scelio*. As a consequence, information is strongly biased toward the Telenominae, and care should be taken in extrapolating from these taxa to other members of the Scelionidae that are associated with different hosts (Austin *et al.* 2005).

Arasbaran biosphere reserve is located in the north of Iran (East Azerbaijan prov.) at the border to Armenia and Azerbaijan and belongs to the Caucasus Iranian Highlands. In between the Caspian, Caucasus and Mediterranean region, the area covers mountains up to 2200 m, including high alpine meadows, semi-arid steppes, rangelands and forests, rivers and springs. The location of Arasbaran is 38°40' to 39°08'N; 46°39' to 47°02'E and its elevation is 250–2887 m.

MATERIALS AND METHODS

A survey was conducted in some localities of Arasbaran region and vicinity for study the fauna of platygastroid wasps. The scelionid specimens were obtained mainly by rearing of egg masses of Pentatomidae (Heteroptera) which were collected from some Poaceae plants especially wheat fields and weeds of surrounding areas. For the rearing of parasitoids inside the host, egg masses of pentatomids were placed in

plastic bags and in optimum condition (26 ± 2 °C, 65 ± 5 %RH, 14 : 10 L : D) in incubator. Also, some specimens (especially Platygastriidae) were collected with sweeping net in different regions. The materials were studied in the laboratory using stereo zoom binocular microscope. After the preliminary study by the first author, the parasitoids transfer into vials of 70% ethanol and sent to E. Koçak for the final identification.

In this paper, the classification and nomenclature of Platygastriidae follow Vlug (1985, 1995), Masner & Huggert (1989), and Buhl (2001), and of Scelionidae follow Kozlov & Kononova (1983), Johnson (1992), and Masner (1993, 1995).

LIST OF THE SPECIES

Family Platygastriidae Subfamily Sceliotrachelinae Genus *Amitus* Haldeman, 1850

Amitus minervae Silvestri, 1911

MATERIAL. East Azerbaijan prov.: Jolfa, 2 ♀ ex *Aleurochiton acerinus* Haupt (Homoptera: Aleyrodidae), IX.2004.

DISTRIBUTION. Palaearctic.

Subfamily Platygastriinae Genus *Inostemma* Haliday, 1833

Inostemma mediterraneum (Kieffer, 1916)

MATERIAL. East Azerbaijan prov.: Horand, 1 ♀, VI.2004.

DISTRIBUTION. Palaearctic, Ethiopia.

Genus *Platygaster* Latreille, 1809

Platygaster demades (Walker, 1835)

MATERIAL. East Azerbaijan prov.: Kaleibar, 5 ♀, 3 ♂, IV.2007, leg. M. Havaskary, det. P.N. Buhl.

DISTRIBUTION. Australian and Palaearctic regions. This species is newly recorded from Iran

Platygaster laticeps Thomson, 1859

MATERIAL. East Azerbaijan prov.: Ahar, 1 ♀, IX.2004.

DISTRIBUTION. Palaearctic.

Family Scelionidae
Subfamily Telenominae
Genus *Telenomus* Haliday, 1833

***Telenomus acrobates* Giard, 1895**

MATERIAL. East Azerbaijan prov.: Aras boundary, 2 ♀, VIII.2008.

DISTRIBUTION. France (Giard, 1895), Italy (Kieffer, 1926), Roumania (Fabricius, 1974), Azerbaijan, Moldova, Ukraine, Kazakhstan, Central Asia, Russia (North Caucasus, East Siberia) (Kozlov & Kononova, 1983; Kononova, 1995), Japan (Ryu & Hirashima, 1985).

***Telenomus busseolae* Gahan, 1922**

MATERIAL. East Azerbaijan prov.: Khodafarin, 3 ♀, VII.2008.

DISTRIBUTION. South Africa (Polaszek & Kimani 1990), Israel (Kozlov & Kononova, 1983), Greece, Iraq, Iran, Egypt, Sudan, Cameroon, Ghana, Kenya, Mauritius, Nigeria, Reunion, Senegal, Uganda, Bangladesh, (Polaszek & Kimani 1990).

***Telenomus chloropus* (Thomson, 1861)**

MATERIAL. East Azerbaijan prov.: Kaleibar, 2 ♀, IX.2007.

DISTRIBUTION. Ukraine (Kieffer, 1926), Turkey (Lodos, 1961), England (Javahery, 1968), Russia (European part, Altai, Far East), Moldova, Azerbaijan, Armenia, Georgia, Kazakhstan, Russia (European part, Altai, Far East) (Kozlov & Kononova, 1983; Kononova, 1995), Ireland (O'Connor & Mineo, 2009), France, Hungary, Spain, Sweden, Japan, USA (Mississippi) (Johnson, 1984).

***Telenomus chrysopae* Ashmead, 1893**

MATERIAL. East Azerbaijan prov.: Abshahmad, 3 ♀, X.2008.

DISTRIBUTION. Palaearctic, Nearctic, and Oriental regions (Johnson, 1992).

Genus *Trissolcus* Ashmead, 1893

***Trissolcus basalis* (Wollaston, 1858)**

MATERIAL. East Azerbaijan prov.: Ahar, 5 ♀, 2 ♂, VIII.2009.

DISTRIBUTION. Afrotropical, Australasian, Nearctic, Neotropical, Oriental, and Palaearctic regions (Johnson, 1992). Iran, Russia (European part) (Kozlov & Lê, 1978).

***Trissolcus djadetshko* (Rjachovsky, 1959)**

MATERIAL. Ardabil prov.: Pars-Abad, 2 ♀, VI.2008.

DISTRIBUTION. Armenia, Azerbaijan, Kazakhstan, Moldova, Russia (European part, Altai, Primorskii krai), Ukraine, Uzbekistan, Mongolia (Kozlov & Lê, 1978; Kononova, 1995), Turkey (Koçak & Kılınçer, 2000, 2003).

***Trissolcus festiva* (Viktorov, 1964)**

MATERIAL. Ardabil prov.: Aslanduz, 4 ♀, 2 ♂, VI.2008.

DISTRIBUTION. Moldova, Ukraine, Azerbaijan, Armenia, Uzbekistan, Turkmenistan, Kazakhstan, Russia (North Caucasus, European part, Altai), Mongolia (Kozlov & Lê, 1978; Kozlov & Kononova, 1983), Romania (Fabritius, 1974), Turkey (Tarla, 1997).

***Trissolcus grandis* (Thomson, 1861)**

MATERIAL. East Azerbaijan prov.: Khomarloo, 6 ♀, 2 ♂, VI.2009.

DISTRIBUTION. Denmark (Thomson, 1861), Moldova, Ukraine, Russia (South of Far East), Kazakhstan, Middle Asia, Armenia (Kozlov & Kononova, 1983; Kononova, 1995), Belgium (Debauche, 1947), Syria (Remaudière & Skaf, 1963), Morocco (Voegelé, 1964), England (Javahery, 1968), Romania (Fabritius, 1974), Italy (Viggiani & Mineo, 1974), Turkey (Koçak, 2007).

***Trissolcus rufiventris* (Mayr, 1908)**

MATERIAL. East Azerbaijan prov.: Khodafarin, 2 ♀, VII.2008.

DISTRIBUTION. Morocco (Voegelé, 1964), Romania (Fabritius, 1974), Moldova, Ukraine, West Kazakhstan, Middle Asia, Mongolia, West Europe, Russia (North Caucasus, European part, Altai), Turkey, Iran, Africa (Kozlov & Kononova, 1983; Kononova, 1995),

***Trissolcus semistriatus* (Nees, 1834)**

MATERIAL. East Azerbaijan prov.: Kaleibar, 3 ♀, 1 ♂, IX.2007; Aynalo, 2 ♀, VI.2007; Horand, 4 ♀, 3 ♂, VI.2009. Ardabil prov.: Gergy, 2 ♀, VIII.2008. West Azerbaijan prov.: Maco, 5 ♀, 2 ♂, IX.2008.

DISTRIBUTION. Austria, Denmark, France, Germany, Azerbaijan, Armenia, Moldova, Ukraine, Russia (European part, Altai, Primorskii krai), Iran (Kozlov & Kononova, 1983; Kononova, 1995), England (Javahery, 1968), Romania (Fabritius, 1974), Turkey (Lodos, 1961), Morocco (Voegelé, 1964).

***Trissolcus simoni* (Mayr, 1879)**

MATERIAL. Ardabil prov.: Meshkinshahr, 2 ♀, IX.2007. East Azerbaijan prov.: Aynalo, 2 ♀, 1 ♂, VI.2008.

DISTRIBUTION. Austria (Kieffer, 1926), Ukraine, Russia (European part) Azerbaijan, (Kozlov & Kononova 1983), Morocco (Voegelé, 1964), Syria (Remaudière & Skaf 1963), Romania (Fabritius, 1974), Turkey (Koçak & Kılınçer 2003).

***Trissolcus vassilievi* (Mayr, 1903)**

MATERIAL. East Azerbaijan prov.: Ahar, 1 ♀, VII.2007.

DISTRIBUTION. Turkey (Lodos, 1961), Syria (Remaudière & Skaf, 1963), Morocco (Voegelé, 1964), Armenia, Moldova, Russia (European part) North Caucasus, European part), Ukraine, Iran, Turkey, Central Asia, Mongolia (Kozlov & Kononova, 1983; Kononova, 1995).

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REFERENCES

- Austin, A. D., Johnson, N. F. & Dowton, M. 2005. Systematics, evolution, and biology of scelionid and platygastriid wasps. *Annual Review of Entomology*, 50: 553–582.
- Buhl, P. N. 2001. Taxonomical notes on Platygastriidae (Hymenoptera, Platygastroidea). *Entomofauna*, 22: 17–40.
- Caltagirone, L.E. 1981. Landmark examples in classical biological control. *Annual Review of Entomology*, 26: 213–32.
- Clarke, A. R. 1990. The control of *Nezara viridula* L. with introduced egg parasitoids in Australia. A review of a 'landmark' example of classical biological control. *Australian Journal of Agricultural Research*, 41: 1127–46.
- Dangerfield, P., Austin, A. & Baker, G. 2001. *Biology, Ecology and Systematics of Australian Scelio (Hymenoptera: Scelionidae)*. Melbourne: CSIRO. 254 pp.
- Debauche, H. R. 1947. Scelionidae de la faune belge (Hymenoptera Parasitica). *Bulletin et Annales de la Societe Entomologique de Belge*, 83: 255–285.
- Drooz, A. T., Bustillo, A. E., Fedde, G. F. & Fedd, V. H. 1977. North American egg parasite successfully controls a different host genus in South America. *Science*, 197: 390–91.
- Fabritius. 1974. Die Telenominen (Hymenoptera: Scelionidae) Rumaeniens, eine faunistische Studie in unmittelbarer Verbindung mit der biologischen Schaedlingsbekaempfung. *Folia Entomologica Hungarica*, 27, Suppl.: 339–344.
- Giard, A. 1895. Sur quelques especes nouvelles d'Hymenopteres parasites. *Bulletin de la Société Entomologique de France*, 1895: 74–80.
- Godfray, H. C. J. 1994. *Parasitoids: Behaviour and Evolutionary Ecology*. Princeton, NJ: Princeton University Press. 473 pp.

- Iqbal, M. & Austin, A. D. 2000. Systematics of *Ceratobaeus* Ashmead (Hymenoptera: Scelionidae) from Australasia. *Records of the South Australian Museum Monograph Series*, 6: 1–164.
- Javahery, M. 1968. The egg parasite complex of British Pentatomoidea (Hemiptera): taxonomy of Telenominae (Hymenoptera: Scelionidae). *Transactions of the Royal Entomological Society of London*, 120: 417–436.
- Johnson, N. F. 1984. Systematics of Nearctic *Telenomus*: classification and revisions of the *podisi* and *phymatae* species groups (Hymenoptera: Scelionidae). *Bulletin of the Ohio Biological Survey*, 6(3): 1–113.
- Johnson, N. F. 1992. Catalog of world Proctotrupoidea excluding Platygastriidae. *Memoirs of the American Entomological Institute*, 51: 1–825.
- Kieffer, J. J. 1926. *Scelionidae. Das Tierreich. Vol. 48*. Berlin: Walter de Gruyter & Co. 885 pp.
- Koçak, E. 2007. Egg parasitoids of sunn pest in Turkey: a review. Proceedings of Second International Conference on Sunn Pest (19–22 July 2004, Aleppo, Syria). In: Parker, B.L., Skinner, M., Bouhssini, M.E., Kumari S.G. (Eds). *Sunn Pest Management, A Decade of Progress, 1994–2004*. Beirut: The Arab Society for Plant Protection, pp. 225–235.
- Koçak, E. & Kılınçer, N. 2000. *Trissolcus* species (Scelionidae, Hymenoptera) new records for the beneficial fauna of Turkey. *Plant Protection Bulletin*, 40(3–4): 169–177.
- Koçak, E. & Kılınçer, N. 2003. Taxonomic studies on *Trissolcus* sp. (Hymenoptera: Scelionidae), egg parasitoids of sunn pest (Hemiptera: Scutelleridae: *Eurygaster* sp.), in Turkey. *Turkish Journal of Zoology*, 27(4): 301–317.
- Kononova, C.V. 1995. Fam. Scelionidae. In: Lehr P. A. (Ed.). *Key to the insects of Russian Far East. Vol. 4, pt. 2*. Vladivostok: Dalnauka, pp. 57–121. (In Russian)
- Kozlov, M. A. & Kononova, S. V. 1983. *Telenominae of the fauna of the USSR (Hymenoptera, Scelionidae, Telenominae)*. Leningrad: Nauka, 336 pp. (In Russian)
- Kozlov, M. A. & Lê, X. H. 1978. *Trissolcus*. In: Medvedev, G.S. (Ed.). *Keys to the insects of the European part of the USSR. Vol. 3. Hymenoptera, pt. 2*. Leningrad, Moscow: Nauka, pp. 629–638. (In Russian).
- Lodos, N. 1961. *Some notes on the sunn pest (Eurygaster integriceps Put.) problem in Iraq, Iran, Syria and Turkey*. Faculty of Agriculture Press, Ege University, 115 pp. (In Turkish).
- Masner, L. 1993. Superfamily Platygastroidea. In: Goulet, H., & Huber, J. T. (Eds). *Hymenoptera of the World: An Identification Guide to Families*. Ottawa: Agric. Canada, pp. 558–565.
- Masner, L. 1995. The proctotrupoid families. In: Hanson, P. E. & Gauld, I. D. (Eds). *The Hymenoptera of Costa Rica*. Oxford: Oxford University Press, pp. 209–265.
- Masner, L. & Huggert, L. 1989. World review and keys to genera of the subfamily Inostemmatinae with reassignment of the taxa to the Platygastriinae and Sceliotrachelinae (Hymenoptera: Platygastriidae). *Memoirs Entomological Society of Canada*, 147: 1–214.
- Mayr, G. 1879. Ueber die Schlupfwespengattung *Telenomus*. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, 29: 697–714.
- O'Connor, J. P. & Mineo, G. 2009. *Telenomus chloropus* (Thomson) new to Ireland and second Irish records of *T. nitidulus* (Thomson) and *Trissolcus flavipes* (Thomson) (Hym., Scelionidae). *Entomologists Monthly Magazine*, 145: 106.
- Orr, D. B. 1988. Scelionid wasps as biological control agents: a review. *Florida Entomologist*, 71: 506–28.

- Polaszek, A. & Kimani, S. W. 1990. *Telenomus* species (Hymenoptera: Scelionidae) attacking eggs of pyralid pests (Lepidoptera) in Africa: a review and guide to identification. *Bulletin of Entomological Research*, 80: 57–71.
- Remaudière, G. & Skaf, R. 1963. Analyse du complexe des Hyménoptères parasites oophages d'*Eurygaster integriceps* Put. [Het. Pentatomidae] en Syrie. *Revue de Pathologie végétale et de Entomologie Agricole de France*, 42(1): 15–25.
- Ryu, J. & Hirashima, Y. 1985. Taxonomic studies on the genus *Telenomus* Haliday of Japan and Korea (Hymenoptera, Scelionidae). Part II. *Journal of the Faculty of Agriculture, Kyushu University*, 30: 31–51.
- Tarla Ş. 1997. *Antakya ve Çevresinde Süne, Eurygaster integriceps* Put. Yumurta Parazitoidlerinin Tespiti ve Bunların Kitle Üretim Olanakları Üzerinde Araştırmalar. Mustafa Kemal Üniversitesi, Fen Bilimleri Enstitüsü Müdürlüğü, Yüksek Lisans Tezi, 57 s. (In Turkish).
- Thomson, C. G. 1861. Sverges Proctotruper. Tribus IX. Telenomini. Tribus X. Dryinini. *Öfversigt af Kongliga Ventenskaps-Akademiens Förhandlingar*, 17: 169–181.
- Viggiani, G. & Mineo, G. 1974. Identificazione dei parassitoidi del *Gonocerus acuteangulatus* (Goeze). *Bollettino dell'Istituto di Entomologia Agraria e dell'Osservatorio di Fitopatologia di Palermo*, 8: 143–163.
- Vlug, H. J. 1985. The types of Platygastriidae (Hymenoptera, Scelionoidea) described by Haliday and Walker and preserved in the National Museum of Ireland and in the British Museum (Natural History). 2. Keys to species, redescriptions, synonymy. *Tijdschrift voor Entomologie*, 127: 179–224.
- Vlug, H. J. 1995. Catalogue of the Platygastriidae (Platygastroidea) of the world (Insecta: Hymenoptera). Hymenopterorum Catalogus. Amsterdam: SPB Acad., 19: 1–168.
- Voegelé, J. 1964. *Asolcus bennisi* n. sp. (Hymenoptera, Proctotrupoidea) parasite oophage de *Raphosoma lineata* L. (Het. Pentatomidae). *Entomophaga*, 9: 119–122.

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