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FIRST REPORT OF *ECTOPSOCUS BRIGGSI* AND *TRICHOPSOCUS DALII* (PSOCOPTERA: PSOCOMORPHA: ECTOPSOCIDAE AND TRICHOPSOCIDAE) FROM IRAN

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Two species of Psocoptera, *Ectopsocus briggsi* McLachlan 1899, and *Trichopsocus dalii* (McLachlan 1867) have been found for the first time on citrus leaves in 2 agricultural regions of Iran: Gonbad-e Kavous of Golestan Province and Sari of Mazandaran Province. The biology of psocid insects are poorly known, but in the year 2000, 4408 described species belonging to 371 genera and 41 families were known world wide (Lienhard & Smithers 2002), and by the end of 2005, 103 new genera and 1149 new species were added (García Aldrete 2006). Only 5 species have been previously recorded in Iran, all belonging to the genus *Liposcelis* Motschulsky 1852, from Liposcelidae, infraorder Nanopsocetae and suborder Troctomorpha. Shah Hosseini & Kamali (1989) reported only 1 species, *L. divinatorius* (Müller) sensu Pearman 1946, on flour, seeds of kanaf, maize, corn flakes, and cereals from Uromieh (in West Azarbaijan Province), Ahwaz (in Khuzestan Province), Bandar Anzali (in Gilan Province) and Karaj (in Tehran Province). Modarres Awal (2001) mentioned this species in his insect checklist of Iran. Ahadiyat (2004) found *L. keleri* Günther 1974 as a new record for the insect fauna of Iran from the galleries of the almond bark beetle, *Scolytus amygdali* Guerin-Meneville 1847. It also was found under bark of some rosaceous fruit trees, including cherry, apricot, and plum, in Kamaal-shahr region of Karaj, Tehran Province. Jalalizand et al. (2005) reported 4 psocid species including *L. bostrychophila* Badonnel 1931 and *L. corrodens* (Heymons 1909), respectively, on 10-IV- and 3-VI-2003 in holes of undetermined elm bark beetles, and *L. decolor* (Pearman 1925) and *L. keleri*, respectively, on 16-VI- and 5-IX-2003 in holes of undetermined elm bark beetles and also from holes of an economically importance long-horned beetle, *Aeolesthes* sp., all from Isfahan city, Isfahan Province. Recently, Ahadiyat et al. (unpublished data) found another new psocid family of the suborder Psocomorpha for the insect fauna of Iran.

Two species were collected by 2 collectors, mentioned below, and thereafter identified by Charles Lienhard, Museum of Natural History, Geneva, Switzerland, as *Ectopsocus briggsi* from Ectopsocidae, and *Trichopsocus dalii* from Tri-

chopsocidae, both families belonging to the infraorder Homilopsocidea, and suborder Psocomorpha (= Eupsocida).

Ectopsocus briggsi was first collected from the upper surface of concave and webby elder leaves of orange and sour orange by Hemra Khozeini, on 23-III-2006. Additional specimens of *E. briggsi* and all of the specimens of *Trichopsocus dalii* were collected by Golsa Abbaskhani from the infested tangerine leaves in early May 2006.

A description of the species is briefly as follows:

***Ectopsocus briggsi* McLachlan 1899**

Ectopsocus limbatus Navás 1909

Peripsocus parvulus Kolbe, Enderlein 1927

Wings large, long and membranous, forewing without vein Cu1a; head and thorax and its appendages brown; abdomen yellowish-cream; tarsi two-segmented; gnaphophyses with 3 valvulae.

Distribution: This is a cosmopolitan species and has been previously recorded from western Palaearctic (Algeria, Belgium, Cyprus, former Czechoslovakia, England, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Luxemburg, Morocco, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Tunisia, former USSR (European part) and former Yugoslavia), Atlantic Ocean Islands (Azores, Canary Islands, Gough Island, Madeira, Saint Helena), North America (USA), Central America (Mexico), South America (Argentina, Chile and Venezuela), Africa (Congo, Kenya, Nigeria, South Africa, Tanzania and Zimbabwe), Indian Ocean Islands (Mascarene Islands), Asia including eastern Palaearctic and Oriental (India, Indonesia, Japan, Mongolia and Nepal), Australia, New Zealand, and Pacific Ocean Islands (Micronesia and Pacific) (García Aldrete 1991; Lienhard & Smithers 2002).

Ectopsocus briggsi moves quickly from leaf upper surface to lower surface when disturbed. The species is found on both living and dead leaves of various broad-leaf trees and occurs occasionally on conifer foliage (Mockford 1993).

Material Examined: Total specimens: 6 ♂♂ and 8 ♀♀. The numbers of specimens and their sexes, plant host, locality, date of collecting and collector name are as follows:

1 ♂ and 2 ♀♀; on the upper surface of orange and sour orange leaves; Gonbad-e Kavous, Gole-

stan Province, north of Iran; 23-III-2006; Hemra Khozeini.

5 ♂♂ and 6 ♀♀; on tangerine leaves; Sari, Mazandaran Province, north of Iran; early May 2006; Golsa Abbaskhani.

***Trichopsocus dalii* (McLachlan 1867)**

Caecilius dalii McLachlan 1867

Caecilius hirtellus McLachlan 1877

Trichopsocus hirtellus var. *angulata* Navás 1916

Trichopsocus hirtellus (McLachlan) Badonnel 1938

Trichopsocus dalii (McLachlan) Badonnel 1943

Wings membranous with distinct venation, fore wing large and long with vein Cula; subgenital plate with two distal processes; tarsi 2-segmented; ovipositor valvulae complete.

Distribution: This is a cosmopolitan species and is found in western Palaearctic (Algeria, Austria, Belgium, Cyprus, former Czechoslovakia, Egypt, England, France, Germany, Greece, Hungary, Israel, Italy, Luxemburg, Morocco, the Netherlands, Poland, Portugal, Spain, Switzerland, Tunisia, former USSR and former Yugoslavia), Atlantic Ocean Islands (Canary Islands), North America (USA), Central America (Mexico), and it doesn't exist in Australia, New Zealand, South America, Africa, Indian Ocean and Pacific Ocean Islands, eastern Palaearctic and Oriental (Lienhard & Smithers 2002). The species is associated with bay leaves and citrus leaves (Mockford 1993).

Material Examined: 1 ♂ and 1 ♀; on tangerine leaves; Sari, Mazandaran Province, north of Iran; early May 2006; Golsa Abbaskhani.

We are not sure that these two psocid species are, or could be, agricultural pests on *Citrus* trees in Iran and we did not particularly study their role on their hosts, but we have observed them, specifically *E. briggsi*, in relatively high densities on *Citrus* leaves, so more studies are needed to determine the biology, ecology, and food habits of them and also reveal their role in agricultural ecosystems.

Individuals of *E. briggsi* are partly deposited in the ICDE (Insect Collection of the Department of Entomology, College of Agriculture and Natural Resources, Science and Research Branch, Islamic Azad University, Tehran, Iran), partly in the senior author's personal collection and at the Museum of Natural History, Geneva, Switzerland. Individuals of *T. dalii* are partly deposited in the ICDE and partly in the senior author's collection.

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Museum of Natural History, Geneva, Switzerland, for identifying our psocid specimens that were sent to him. We are also grateful to Prof. Alfonso Neri García Aldrete, Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, México, for sending his valuable publications, and to 2 reviewers for their constructive comments and suggestions on the manuscript and for improving the text.

SUMMARY

In 2006 investigations of psocid species in the north of Iran revealed 2 species identified as *Ectopsocus briggsi* McLachlan from Ectopsocidae and *Trichopsocus dalii* (McLachlan) from Trichopsocidae both in the suborder Psocomorpha. This is the first record of the suborder, these 2 families, genera, and species for the insect fauna of Iran. Also, this is the first report of winged psocids from Iran.

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