Redescription of the little-known psyllid Cacopsylla dissimilis (Baeva, 1963) comb. nov. (Hemiptera: Psyllidae) from Iran
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Abstract
During a faunistic survey of the jumping plant-lice (Hemiptera: Psylloidea) in the Iranian province of Kerman in spring 2015, Cacopsylla dissimilis (Baeva) comb. nov. was collected on Salix pycnostachya. This species was previously known only from Tajikistan. It is reported here for the first time from Iran. The host species, Salix pycnostachya, is also newly recorded. We provide detailed morphological descriptions of adults and fifth instar immatures, and discuss differences to closely related species, in particular Cacopsylla nigrita (Zetterstedt).

Key words: Kerman, Palaearctic, Cacopsylla nigrita, Salix pycnostachya, description.

Introduction

Cacopsylla Ossiannilsson (Psyllidae: Psyllinae) is a large genus with over 450 described species (Ouvrard, 2017). The majority of species occur in the Holarctic region but there are also some species in the Oriental, Afrotropical and Neotropical regions. So far 12 species have been recorded from Iran (Burckhardt & Lauterer, 1993; Zendedel et al., 2016): eight species from Rosaceae [C. bidens (Šulc, 1907), C. crataegi (Schrank, 1801), C. notata...
(Flor, 1861), C. pruni (Scopoli, 1763), C. permixa Burckhardt and Hodkinson, 1986, C. pyri (Linnaeus, 1758), C. pyricola (Foerster, 1848), C. pyrisuga (Foerster, 1848), two each from Rhamnaceae [C. incerta (Baeva, 1972), C. suturalis (Horváth, 1897)] and Salicaceae [C. ambiguus (Foerster, 1848), C. saliceti (Foerster, 1848)] and one without known host [C. iranica Burckhardt and Lauterer, 1993]. The record of C. pyricola is almost certainly a misidentification of C. bidens, C. permixa or both.

The predominantly Holarctic genus Salix L. with around 400 species hosts a rich psyllid fauna, belonging to the genera Cacopsylla (about 100 species; Jensen, 1951; Loginova, 1967; Lauterer & Burckhardt, 1997; Ouvrard, 2017) and Bactericera Puton (Triozidae) (about 30 species; Burckhardt & Lauterier, 1997; Ouvrard, 2017). From Iran, in addition to the two Cacopsylla species, the following Bactericera species are associated with Salix: B. alibiventris (Foerster, 1848) and B. striola (Flor, 1861).

During a recent faunistic survey in Kerman province, another Salix-feeding psyllid species, Psylla dissimilis Baeva, 1963, was discovered. The species was previously known only from Tajikistan (Gegechkori & Loginova, 1990). Here, we report the species for the first time from Iran and transfer it to the genus Cacopsylla. We also provide a redescription of the adult and, for the first time, a description of the fifth instar immature.

Material and Methods

Adult psyllids were collected in the field on the plants using an aspirator. Immatures were collected on the leaves and later reared in the laboratory until the emergence of adults. The specimens are preserved dry mounted on pins, dissected and permanently mounted on microscopical slides or placed in 70% ethanol. The material is deposited in the following institutions: Graduate University of Advanced Technology, Kerman, Iran; Hayk Mirzayans Insect Museum, Insect Taxonomy Research Department, Iranian Research Institute of Plant Protection, Tehran, Iran; Naturhistorisches Museum Basel, Switzerland. Additional species were examined from the last mentioned institution.


Results

Cacopsylla dissimilis (Baeva, 1963), com. nov. (Figs 1–5, 7–11)


Material examined: IRAN: many ♂♂ and ♀♀, Kerman province, Bardsir, Hararoon, N 29°29’57”44”, E 56°41’08”, 2789 m, June 2015, Salix pycnostachya (M. Lashkari); 5 ♂♂, 5 ♀♀, same data but April 2016; 1 ♂, 1 ♀, same but Qaleaskar, N 29°29’44”, E 56°41’08”, 2628 m, June 2015 (dry and slide mounted, preserved in 70% ethanol).
Description


Structure: Body (Fig. 1) including folded wings 3.4–3.7 mm long. Head (Figs 3 and 4), in dorsal view, approximately as wide as thorax; in profile, strongly inclined downward; vertex trapezoidal, sparsely covered in microscopical setae; genal processes slightly longer than vertex along mid-line, axes subparallel, strongly narrowing in basal half, with subparallel margins in apical half, subacute apically, beset with long setae. Antenna 10-segmented, 1.41–1.45 times head width, with each a subapical rhinarium on segments 4, 6, 8 and 9; relative lengths of antennal segment 10, longer terminal seta and shorter terminal seta as 1.0: 1.1: 0.6. Rostrum short, tip hardly visible, in lateral view. Pronotum, in dorsal view, U-shaped; propleurites narrow with oblique suture. Metatibia 0.64–0.66 times as long as head width, with small basal spine and five (1+2+1+1) sclerotised apical spurs. Metabasitarsus with two lateral sclerotised spurs. Forewing (Fig. 2) oval, widest in apical third, around 4 times as long as head width, 2.51–3.21 times as long as wide; pterostigma long, slightly widened in the middle, then more or less evenly tapering to apex, ending above apical quarter of vein Rs; vein Rs weakly bent towards fore margin in the middle; cell m1 irregularly triangular; cell cu1 longer than high; surface spinules present in all cells, forming irregular squares or rhombs of 0.02 mm distance, leaving spine free-stripes along the veins; fields of surface spinules not tapering towards apical wing margin. Hindwing slightly shorter than forewing. Terminalia as in Figs 5, 7–11. Male proctiger 0.47–0.59 times as long as head width, tubular, in profile, weakly sinuous. Male subgenital plate subglobular. Paramere, in profile, lamellar, truncate apically; outer face (Fig. 8) densely beset with long fine setae and inner face (Fig. 9) with bristles; apex forming small, forward directed tooth anteriorly. Distal portion of aedeagus (Fig. 10) long with sickle-shaped apical inflation; sclerotised end tube of ductus ejaculatorius short, weakly sinuous. Female terminalia (Fig. 5) cuneate; proctiger 0.52–0.65 times as long as head width, 3.10–4.00 times as long as circumanal ring, in profile with almost straight dorsal margin, 1.12–1.32 times as long as subgenital plate, with narrowly rounded apex; long setae forming an irregular longitudinal row on either side; apical half with densely set peg setae.
Measurements (in mm; 5 ♂♂, 5 ♀♀): head width 0.80–0.82; antenna length 1.14–1.21; forewing length 2.45–2.55; male proctiger length 0.38–0.47; paramere length 0.31–0.35; length of distal segment of aedeagus 0.20–0.25; female proctiger length 0.42–0.52.


Structure: Body strongly dorso-ventrally flattened, 1.09–1.10 as long as wide. Antenna 7-segmented, 1.18–1.20 times as long as forewing pad; with each a single rhinarium on segments 3 and 5 subapically, and two rhinaria on segment 7. Thoracic tergites small. Tibiae with a long fine capitate seta on outer margin subapically; tarsal arolium broadly fan-shaped on long petiole. Forewing pad elongate oval, margin with 9 long capitate setae and in each interval a short capitate seta. Hindwing pad margin with 2 long capitate setae. Abdomen with two large free tergites, each bearing 3–8 capitate setae. Caudal plate broadly rounded, 0.54–0.57 times as long as wide; margin with at least 9+9 capitate setae, lacking sectasetae, dorsum with about 10+10 capitate setae. Anus ventral. Outer circumanal ring comprised of a single row of pores; close to abdominal margin: distance between hind margins of circumanal ring and abdomen shorter than that between fore and hind margin of circumanal ring.

Measurements (in mm; 10 specimens): body length 1.30–1.38; body width 1.19–1.23; antenna length 0.78–0.84; forewing pad length 0.66–0.70; metatibiotarsus length 0.40–0.46; caudal plate length 0.48–0.55; caudal plate width 0.88–0.95; circumanal ring width 0.10–0.15.
Distribution

*Cacopsylla dissimilis* has been reported only from Tajikistan (Gissar and Kuramin Ranges) (Baeva, 1963, 1985). This species is new to Iran and it is its first report from outside Tajikistan.

Host plant

*Salix pycnostachya* Andersson (Salicaceae).

Discussion

*Cacopsylla dissimilis* is similar to *Cacopsylla nigrita* (Zetterstedt, 1828), another species associated with *Salix* spp. *C. dissimilis* differs from *C. nigrita* in the absence of a dark stripe along vein Cu16 in the forewing and details of the paramere. The apical half in *C. nigrita* (Figs 12 and 13) is more slender than in *C. dissimilis* (Figs 7 and 11). The female terminalia (Figs 5 and 6) and the immatures are similar in both species and probably not diagnostic as this is the case in many *Cacopsylla* species associated with *Salix*. *C. dissimilis* differs from the other two *Salix*-feeding *Cacopsylla* species reported from Iran, *C. saliceti* and *C. ambigua*, respectively, in shape of the paramere, from the latter also in the more spaced surface spinules of the forewing (2–10 in *C. ambigua* and 20 in *C. dissimilis*).
Our study suggests that the Iranian psyllid fauna associated with Salix requires further research to improve its currently poor state of knowledge.

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