

Iranellinae (Orthoptera: Catantopidae) species recorded in Iran

S. H. Hodjat*

Professor, Jalal Afshar Zoological Museum, Faculty of Agriculture, University of Tehran, Karaj, Iran

Abstract

Iranellinae Mishchenko 1951 is a new subfamily raised from Iranellini. Characters of Iranellini and the species, recorded in Iran are listed. Taxonomic position of, *Iraniola elbursiana* (Ramme, 1929) which was classified in the genera *Iranella* and *Iranobia* is clarified. Synonymy and keys are given to identify valid genera and species recorded in Iran.

Key words: Iran, Iranellinae, Iranellini, *Iranella*, *Iranobia*, *Iraniola*

Introduction

Acridoidea is now divided into many families such as Acrididae, Catantopidae and Dericorythidae (Eades & Otte, 2011). Dericorythidae is a new family which was previously a tribe of Acrididae. Iranellinae and Conophyminae are also two additional subfamilies that do not belong to Acrididae. The phallic structures of Dericorythidae, including Iranellinae and Conophyminae, resemble more to those of Romaleidae than Acrididae, therefore Iranellinae is another new subfamily within Dericorythidae. It could be argued that Dericorythini, Conophymini and Iranellini deserve only tribal rank within a subfamily Dericorythinae, but that subfamily does not belong in Acrididae or any other family. For this reason Eades (2000) is sure that Iranellinae is a new subfamily in Dericorythidae. Therefore Dericorythidae should be raised to the rank of family.

Presently, Dericorythidae is classified into the following three subfamilies:

- Conophymatinae Mishchenko, 1951
- Iranellinae Mishchenko, 1951
- Dericorythinae Jacobson and Binachi, 1902

In this paper I have explained the characters of Iranellinae and its species in Iran. Iranellinae is a new subfamily raised from Iranellini Mishchenko, 1951 by Eades (2000). Shumakov (1963) made a list of Acridoidea in Iran and Afghanistan. Keys for identification of Acridoidea of U.S.S.R and adjacent countries describe characters for *Iranella* Uvarov 1922 and three species (Bei-Bienko and Mishchenko, 1951). I have extracted characters from various references and compared them with museum specimen to clear the taxonomic position of *Iraniola elbursiana* (Ramme, 1928).

Characters of Iranellini

Body flattened and thickened with small head and without foveolae. Pronotum is with a low median carina. Tegmina is wide and 2.5-3 times longer than its greatest width.

* Corresponding Author, E-mail: seyedhossein.hodjat@yahoo.com
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Wings divided into sectors. Hind femur is with a rounded lower genicular lobe and without spine. Hind tibiae with 8-10 spines on the outer margin, shorter spines are in the lower parts. Prosternal process wide and wedge shaped with an apical notch. Mesosternal lobes are not contiguous, space between lobes 2.25-3 times greater than its length. Metasternum wide, its highest width is more than the length of meso and metasternum together.

Eight species is described in three genera; *Iranella* Uv., *Iraniola* B. Bienko and *Iranobia* B. Bienko.

List of species

Iranella Uv., 1922

1- *I. eremiaphila* Uvarov 1922

2- *I. rugosa* Shumakov 1956

Iranobia Bei-Bienko, 1954.

1- *I. pavlovskii* Bey-Bienko 1954

2- *I. salavatiani* Bey-Bienko, 1957

3- *I. mesopsara* Bey-Bienko 1954

4- *I. myrzayani* Descamp 1957

5- *I. zarudnyi* (Uvarov, 1933)?= *Xenocheila zarudnyi* Uvarov, 1933

Iraniola Bei-Bienko, 1954

Iraniola elbursiana (Ramme, 1929)

Characters of species (Bei-Bienko and Mishchenko, 1951)

Iranella Uvarov, 1922

- Body flat and thick set. Head small and shorter than pronotum Without foveolae.
- Pronotum with a low median carina.
- Tegmina wide, 2.5-3 times longer than its greatest width.
- Wings sectored.
- Hind tibiae with 8-10 spines on the outer margin.
- Prosternal process wide and wedge-shaped, usually with apical notch.
- Mesosternal lobes not contiguous.
- Metasternum wide, its width greater than the length of meso-plus meta-sternum.
- Dorsal valves of ovipositor narrowed towards the tip. Dorsal outer margin of dorsal valve entire and without median incision.
- Among four species described, two is recorded from Iran.

Iranella eremiaphila Uv.

- Pronotum with a low or effaced median carina in the anterior part.
- Hind tibiae are red with 8-10 spines.
- Prosternal process wide, its narrowest part is 1.5 times greater than the greatest width of the fore-coxae.
- Hind femur with red interior part.
- Superanal plate of the male wide.
- Frontal ridge in the female at about the median ocellus flat and with coarse punctuation.
- Body length; male; 15.0-22.2 mm; female; 21.4-30.7 mm.

I. elbursiana Rme.

Syn.=*Iraniola elbursianum* (Ramme, 1929)

Iranella predtetschenskyi Mistshenko 1937.

Syn. *Farsinella predtetschenskyi* Bey-Bienko, 1448.

Iranella eremiaphila Uvarov, 1922.

- Pronotum with a low or effaced median carina in the anterior part.
- Hind tibiae are red with 8-10 spines.
- Prosternal process wide, its narrowest part is 1.5 times greater than the greatest width of the fore-coxae.
- Hind femur with red interior part.
- Superanal plate of the male wide.
- Frontal ridge in the female at about the median ocellus flat and with coarse punctuation.
- Body length; male; 15.0-22.2 mm; female; 21.4-30.7 mm.

Iranella rugosa Shum, 1963.

- Collected from Isfahan and Yazd in central regions of Iran.
- Pronotum rugose but body is not flat.
- Tegmina and wings short not covering 2-3 last abdominal tergites.
- Body length; about the same for male and female.
- Antennae 15 segmented and shorter than head plus pronotum.

Iranella predtetschenskyi Mistshenko 1937

Syn. *Farsinella predtetschenskyi* Bei-Bienko 1448

***Iranobia* B.-Bienko, 1951**

- Prosternal process strongly pressed in front.
- Prosternal process may be retracted towards the both ends.
- If prosternal process not crescent or sickle shaped, then posterior tibia is red.

Iranobia mesopsera Bei-Bienko, 1951

- Recorded from Baluchestan and Kerman regions (Shumakov, 1963).
- Tegmina is not very long and does not pass the posterior end of hind femur.
- Original description, Bei-Bienko, 1951; Zool Journal Moskou, 33: 426.

I. myrzayani Descamps, 1967

- Recorded from Iranian Baluchestan (Descamps, 1967).
- Prosternal tubercle not strongly compressed.
- Prosternal process not significantly enlarged at sides. They are nearly conical.
- Posterior tibia yellow to orange.

I. pavlovskii Bei-Bienko, 1954

- Prosternal tubercle strongly compressed.
- Prosternal tubercle not enlarged at sides.
- Prosternal process is compressed.
- Posterior tibia red.

I. salavatiani Bei-Bienko

- Prosternal tubercle is compressed.
- Prosternal tubercle is a little enlarged in the sides.
- Posterior tibiae are dirty grey.

I. zarudnyi (Uvarov, 1933)=*Xenocheila zarudnyi* Refer to Uvarov 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932).

= *I. zarudnyi* Bei Bienko 1954; Refer to Bei-Bienko(1954); Zool. Jour. Moskau, 33: 462.

- *Xenocheila zarudnyi* Uvarov 1933 is recorded from Khorassan and North of Iran (Bei Bienko and Mishchenko, 1951)
- *Iraniola zarudnyi* Bei Bienko 1954 is recorded from Khash and Zahedan.

Key to Iranellini

1- Prosternal process wedge shaped, wide, and elevated at both ends (Fig.1-a). Metasternum with a wide space between the two parts (Fig.1-b). Pronotum is with low or affected median carina,

- lateral carina in the posterior part present. Body is flat; Tegmina wide. Wings sectored.....
 **Iranella Uvarov, 1922**
 - Prosternal process is narrow (Fig.1-c), sometimes with a median triangular notch. If prosternal process is crescent or wedge shaped, is with short elevation at two ends.2
 2- Prosternal process is crescent, not much elongated and not narrow. Hind tibia is yellow, orange or red if grey then frontal ridge under median ocellus not parallel..... **Iranobia Bei Bienko**
 - Prosternal process is narrow (Fig.1-c). Metasternum is with a narrow space between lobes (Fig. 1-d). **Iraniola Bei Bienko**

Key to species of Iranobia Bei-Bienko, 1954

- 1- Tegmina is shorter and does not pass the posterior end of hind femur.....
 **I. mesoptera Bei-Bienko**
 - Tegmina longer and reach or pass the posterior end of hind femur.....2
 2- Prosternal process strongly pressed in front.....3
 - Prosternal process not pressed, or slightly pressed in front, Frontal ridges not much separated under the median ocellus. anterior tibia Yellow or orange..... **I. mirzayani Descamp**
 3- Prosternal tubercle straight, not crescent or sickle shaped, Posterior tibia is red.....
 **I. pavlowskii Bei-Bienko**
 - Prosternal tubercle sickle or crescent in shaped, a little larger at two ends, Hind tibiae is dirty grey..... **I. salavatiani Bei-Bienko**

Key to species of Iranella UV. 1922

- 1- Pronotum without lateral carina or prosternal process with a distinct median triangular notch.....2
 - Median carina in the anterior part is not distinct, Prosternal process is wide, Frontal ridge above the median ocellus in female is flat in the female with coarse punctures..... **I. eremiaphila Uvarov**
 - Median carina of pronotum distinct and entire, In male pronotum is without lateral carina in the posterior part, Superanal plate of male with extra ridge and wide (Fig.1-f) **I. turcmena Bei Bienko**

Iraniola Bei-Bienko

Pronotum with distinct median and with a lateral carinas in the posterior part, Prosternal processes narrow, its narrowest part less than or equal to the greatest width of forelegs coxa and with a distinct median triangular notch on the distal end, Metasternum with a narrow space between the lobes; its narrowest part is equal to its length.

In the male the super-anal plate narrow, its greatest width less than its length (Fig.1-e).

Characters of Iraniola elbursiana (Ramm, 1929)

Recorded from southern Gorgan and Kerman, Pronotum is with distinct lateral carinae in the posterior part, Prosternal process is narrow, its narrowest part less than or equal to the greatest width of coxa, The process is with distinct median triangular notch. Metasternum is with narrow space between them, Body length; male: 16.7-18.2mm; female: 21.8-24.6 mm.

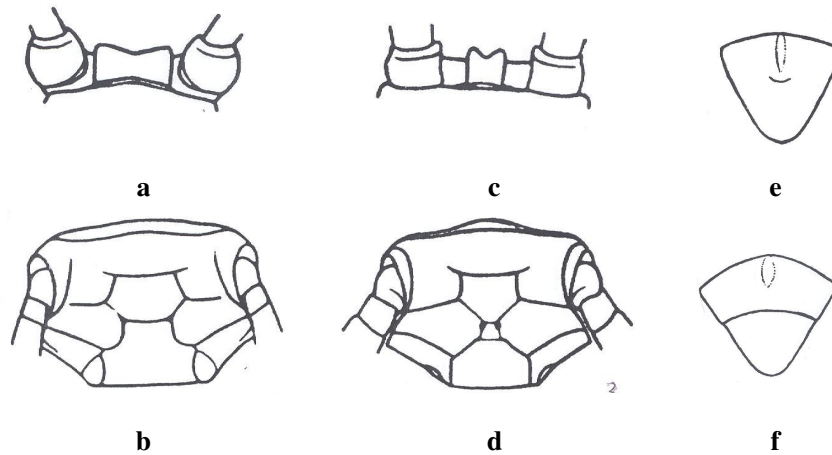


Fig. 1- a- Wide prosternal process of *Iranella eremiphiella* Uv.; b- Wide metasternal space of *Iranella eremiphiella*; c- Narrow prosternal process of *Iraniola elbursiana*; d- Narrow metasternal space of *Iraniola elbursiana* (Ramme, 1929); e- Elongated superanal plate of *Iraniola elbursiana*; f- Superanal plate of *Iranella turcomana* (Figures extracted from Bei-Bienko and Mishchenko, 1951.)

Discussion

Iraniola elbursiana (Ramme, 1929) is characterized by a narrow prosternal process and a median triangular notch. Metasternum is with a narrow space between lobes. In *Iranella eremiaphila* Ramme, the prosternal process is wide but not notched. Mirzayans (1959) recorded *Iranella eremiaphila* from Sistan and *Iranella rugosa* Shumakov, from Kerman. He recorded five species of *Iranobia* Bei-Bienko which are *I. pavlovskii* B. Bienko, *I. mesoptera* B. Bienko, *I. zarudnyii* B. Bienko, *I. salavatiani* B. Bienko, and *I. elbursiana* Ramme. *I. zarudnyi* Bei-Bienko 1954 is recorded from Khash and Zahedan which is different from *Xenocheila zarudnyi* Uvarov 1933. Bei-Bienko and Mishchenko (1951) gave a key for identifying three species of *Iranella* Uvarov i.e. *I. eremiaphila*, *I. turcmeba* B. Bienko, and *I. elbursiana*. Our list which is also valid in Orthopterist site is taken from Shumakov (1963) and one species, *Iranobia mirzayani* Descamps, is added to the list. Therefore *Iraniola elbursiana* (Ramme, 1929) is valid name. In order to improve our knowledge of Iranellinae species a complete revision of this subfamily is required.

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References

- Bei-Bienko, G. Y. and Mishchenko, L. L. 1951.** Locusts and Grasshoppers of the USSR and Adjacent Countries. Zoological Institute of the USSR, Academy of Sciences, No 38; Part 1, Translated edition (1963), pp:165-168.
- Descamps, M. 1967.** Revue et diagnose preliminaire de quelques Pamphagidae et Acrididae d'Iran (Orth. Acridoidea). *Entomologie Systematique*, 72: 27-37.
- Eades, D. C. 2000.** Evolutionary relationships of phallic structures of Acridomorpha (Orthoptera) *Journal of Orthoptera Research*, 9:181-210.
- Eades, D. C., Otte, D., Cigliano, M. M. and Braun, H. 2011.** Orthoptera species file online. version 2.0/4.0. available in: <http://Orthoptera.speciesfile.org>.
- Mirzayans, H. 1959.** Liste des Orthopters et leurs distribution en Iran. *Entomologie et phytopathologie appliqués*, 18:10–28.
- Shumakov, E. M. 1963.** Acridoidea of Afghanistan and Iran. *Academie des Science de L' URSS*. 284 pp.

گونه‌های Iranellinae گزارش شده از ایران

سید حسین حجت *

استاد، موزه استاد جلال افشار، گروه گیاه‌پزشکی پردیس کشاورزی و منابع طبیعی، دانشگاه تهران

چکیده

فهرستی از خصوصیات شکلی گونه‌های Iranellinae گزارش شده از ایران، ارائه شده است. وضعیت تاکسونومیک *Iraniola elbursiana* (Ramme) که در جنس‌های *Iranella* و *Iranobia* رده‌بندی شده بود، مشخص شده است. کلید شناسایی گونه‌ها و نام‌های گزارش شده از ایران نیز داده شده است.

واژه‌های کلیدی: Iran, Iranellinae, Iranellini, *Iranella*, *Iranobia*, *Iraniola*

* نویسنده رابط، پست الکترونیکی: seyedhossein.hodjat@yahoo.com

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