

# First record of the family Meenoplidae (Hemiptera: Fulgoromorpha) from Pakistan

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**Abstract:** Pakistan has a rich fauna of planthoppers but members of the family Meenoplidae have not been reported from this region. In this study *Nisa atrovenosa* of the family Meenoplidae is recorded for the first time from Khyber Pakhtunkhwa Province of Pakistan. A morphological description and illustrations are provided.

**Key words:** Fulgoroidea; *Nisa atrovenosa*; taxonomy; morphology; distribution

## 巴基斯坦粒脉蜡蝉科一新纪录种(半翅目: 蜡蝉亚目)

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**摘要:** 巴基斯坦蜡蝉种类丰富, 但鲜有粒脉蜡蝉科种类的报道。本文首次报道采自巴基斯坦开伯尔-普赫图赫瓦的粒脉蜡蝉科雪白粒脉蜡蝉, 并提供了形态描述和特征图。

**关键词:** 蜡蝉总科; 雪白粒脉蜡蝉; 分类; 形态; 分布

## Introduction

Meenoplidae is a small family of planthoppers (Hemiptera) with about 161 described species in 23 genera (Bourgoin 2018) distributed in the tropics and subtropics of the world (Emeljanov 1984; Bourgoin 1997). It is divided into two subfamilies, Meenoplinae Fieber and Kermesinae Kirkaldy. This family was first established by Fieber (1866) with a single species from Greece. Several taxonomists have contributed to this family and increasing the number of genera and species. Kirkaldy (1906) and Muir (1925) studied the Pacific area; Distant (1906), Muir (1927) and Jacobi (1917) sampled the Ethiopian region; Kirkaldy (1907) and Woodward (1957) collected in Australia and Synave (1957) sampled in Africa; Fennah (1956; 1971; 1978) explore variety of regions; Van Stalle (1982) added species from Belgium, and Matsumura (1938) collected in Taiwan and Japan; Bourgoin (1997) added species from France. Tsuar *et al.* (1987) provided a revision of this family for Taiwan. Wilson (2010) also recorded some species from United Arab Emirates. Melichar (1903) recorded this family from the Oriental

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region in 1903, including the type species *Meenoplus atrovexus*. Distant (1906) later placed this species within the genus *Nisia*. However, the planthopper fauna of Pakistan has been less studied. This family has not previously been recorded from Pakistan. *Nisia atrovexosa* described herein is the first record for this family from Pakistan.

## Material and Methods

Fresh specimens were collected from Pakistan and deposited at the Entomological Museum of Northwest A&F University (NWAUFU). Specimens mounted on card points were used for the description and illustration. Morphological terminologies for descriptions follow Tsuar *et al.* 1986. Morphological characters were observed using Olympus SZX10 stereomicroscope. Measurements of the examined characters are given in millimeters (mm). The genital segments were removed from the examined specimens and macerated in 10% NaOH for 10–12h at room temperature. The genitalia were then placed in water for a few minutes and then transferred to a depression slide filled with glycerin for further study. Illustrations were made using Nikon SMZ1500 stereomicroscope. Photographs of the adults were taken by a Zeiss CCD, AxioCam ICc5. Adobe Photoshop was used for labeling and plate composition of the obtained images.

## Taxonomy

### Family Meenoplidae Fieber, 1872

#### Genus *Nisia* Melichar, 1903

*Nisia* Melichar, 1903: 53. Type species: *Meenoplus atrovexus* Lethierry, 1888.

Distribution. Australia; Carolina Islands; China; Democratic Republic of the Congo; Egypt; Fiji; France; Greece; Indonesia; Iran; Iraq; India; Israel; Italy; Japan; Ryukyu Islands; Palau; Philippines; Seychelles; Solomon Islands; South Korea; Sumatra; United Arab Emirates; United States of America; Vanuatu; Vietnam; Pakistan.

#### *Nisia atrovexosa* (Lethierry, 1888) (Figs 1–12), new record to Pakistan

*Meenoplus atrovexosus* Lethierry, 1888: 466

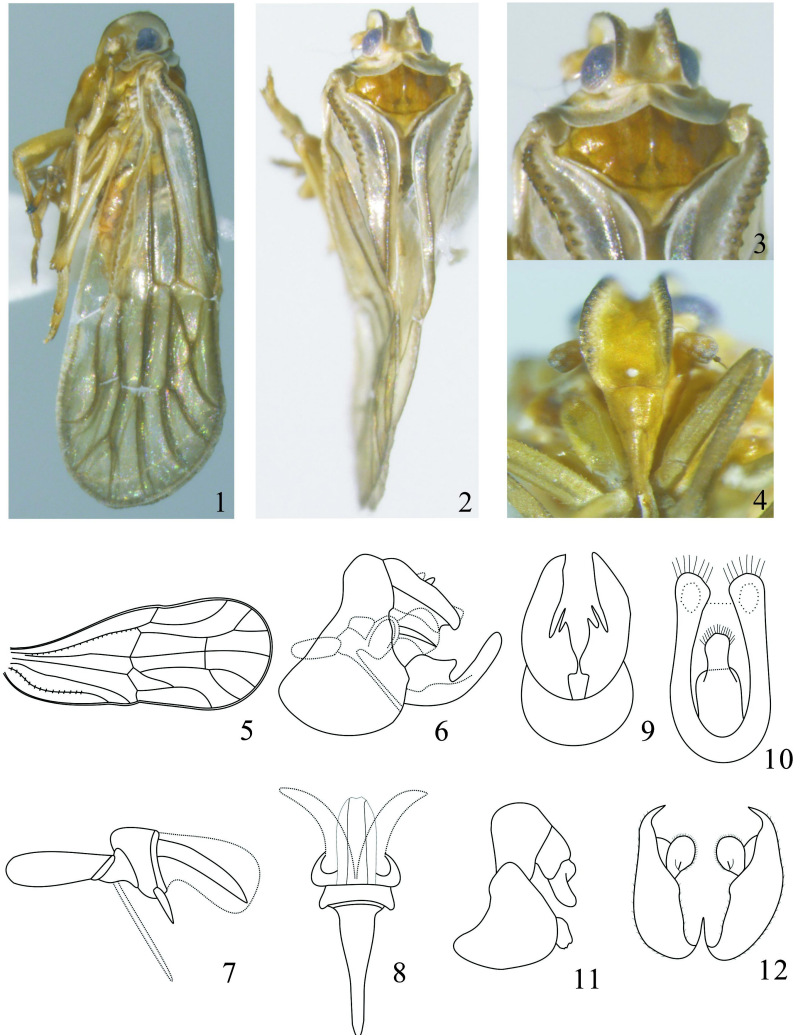
*Nisia atrovexosa* (Lethierry, 1888), Distant, 1906: 309.

Small sized meenoplids, body length (from apex of vertex to tip of forewing): male 2.90–3.10 mm; female 3.10–3.65 mm.

General color yellow, vertex, frons, antennae pale yellow, pronotum white, scutellum dark brown, ocelli dark, legs yellowish, tegmina white with veins brown, abdomen yellow.

In ventral view, frons longer than wide, lateral carina deeply grooved with 26 or 27 sensory pits on inner side including a few on vertex. Post-clypeus centrally longer, basally wide, Median carina not reaching basal third, rostrum with relative segments equal in length. First antennal segment wide, second segment more than 2x longer than first. Tegmina about 2x as long as wide, below Sc+R vein about 19 or 20 sensory pits (Fig. 5), and 14 sensory pits on claval vein (Fig. 5) on each side. Post tibia with 9 or 10 spines apically, basal metatarsal segment with 9 teeth, second segment with five.

Male genitalia. In dorsal view, lateral margins of anal segment nearly parallel, lateroapically each margin rounded at apex. Phallus sclerotized on both sides reaching anal segment in lateral view, apex curved down ward tapering to a slender end. At ventral margin of phallobase, tip of phallus arched at the same angle, process of phallobase bi-lobed, membranous, slightly longer than phallus (Tsuar *et al.* 1986). In lateral view genital style convex with long round lob with smooth margin (Fig. 6), a stout process dorsally at about half of lobe. In posterior view, inner margins of styles strongly sclerotized with two processes near base, inner one short, stout thumb like, outer one needle like longer than inner one.



Figures 1–12 *Nisia atrovenosa* (Figs 6-12 reproduce from Tsuar *et al.* 1986). 1. Lateral view; 2. Dorsal view; 3. Vertex, pronotum and mesonotum, dorsal view; 4. Frons and vertex, ventral view; 5. Tegmina; 6. Male genitalia, lateral view; 7. Aedeagus, lateral view; 8. Same, dorsal view; 9. Male genitalia, caudal view; 10. Male anal segment, dorsal view; 11. Female genitalia, lateral view; 12. Same, ventrocaudal view.

Female genitalia. Anal segment nearly square, anal style longer than anal segment, ventral

valvifer shorter than combined length of the two. In caudal view ventral valvifer wider in middle apically acuminate with hairs on whole valvifer with a wart-like valvula on the inner side of valvifer.

**Specimens examined.** 2♂2♀, **Pakistan**, Malamjabba, Swat, Khyber Pakhtunkhwa Province, N 34°50'4.01", E 72°33'19.77", 1574.03 m, 21-VI-2018, coll. Kamran SOHAIL.

Host plant. Unknown

Distribution. Carolina Islands; China (Sichuan, Zhejiang, Taiwan); Democratic Republic of the Congo (Katanga); Egypt; Fiji; France (New Caledonia); Greece; Indonesia (Jawa); Iran; Iraq; India; Israel; Italy; Japan; Morocco; Palau; Solomon Islands (South Solomons); South Korea; United States of America (Mariana islands); Vietnam (Tonkin); Pakistan.

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