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## ***Solenoxyphus* Reuter, 1875 (Hemiptera: Heteroptera: Miridae: Phylinae): revised diagnosis, a new species and new generic synonym**

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### **Abstract**

*Solenoxyphus kazakhstanicus* sp. n. is described from the vicinity of Dzhezkazgan, Western Kazakhstan. The generic name *Voruchia* Reuter, 1879 is synonymized with *Solenoxyphus* Reuter, 1875. Illustrations of the male and female genitalia, photographs of the dorsal habitus, host, and distributional records are given for the new species and *S. vittiger* comb. nov., the type species of *Voruchia*. Female genitalia of *Solenoxyphus* and *Boopidocoris* spp. are studied for the first time and an updated generic diagnosis of the former genus is provided. The placement of both genera within the tribe Nasocorini sensu Schuh & Menard (2013) is briefly discussed.

**Key words:** Heteroptera, Miridae, Phylini, Nasocorini, systematics, diagnosis, host plant, Palearctic

### **Introduction**

*Solenoxyphus* Reuter, 1875 is a principally Central Asian phylinae genus currently containing 16 species. Virtually all known species of the genus inhabit saline lands, deserts or semideserts and are specialized feeders on various Chenopodiaceae (Konstantinov 2008a). The genus is most closely related to *Boopidocoris* Reuter, 1879 which is evidenced by the peculiar shape of the vesica with a step-like subapical projection and a row of characteristic teeth near the secondary gonopore (Linnavuori 1995).

Konstantinov (2008a) recently revised *Solenoxyphus* and provided updated diagnoses for the genus and all included species, as well as an illustrated key, species descriptions, data on distribution and hosts. However, the female genitalia of the group and a discussion of the diagnostic features of *Solenoxyphus* and *Boopidocoris* require elucidation.

The present paper provides a description of a new species based on specimens from Kazakhstan which were previously unavailable for investigation. Examination of female genitalia in *Solenoxyphus* and *Boopidocoris* spp. allowed us to provide an updated diagnosis for the former genus. While working on the generic diagnosis, we examined a number of genera apparently related to *Solenoxyphus*, including *Voruchia* Reuter, 1879, a monotypic genus from Central Asia that has not been studied since the original description. Careful examination of the male and female genitalia of *Voruchia* clearly shows that it is congeneric with *Solenoxyphus*; a redescription and discussion on revised generic assignment of the single species belonging to the former genus is given below.

Until recently, *Solenoxyphus* had been placed within the nominotypical tribe Phylini, one of the six tribes belonging to the second largest subfamily of the plant bug family Miridae (Schuh 2002–2013). The tribe comprise more than a half of phylinae species and was long considered to be an artificial group (e.g. Schuh 1984, Schuh & Slater 1995). In the Palearctic region the tribe is represented by more than 1000 species from 134 genera, with many genera lacking adequate diagnoses (Kerzhner & Josifov 1999, Konstantinov 2008b).

Menard *et al.* (2013) and Schuh & Menard (2013) provided a total-evidence phylogenetic analysis of the Phylinae. This thorough and long-awaited analysis resulted in recognition of eight tribes, nine subtribes and a redefinition of Phylini in a more restricted sense, with *Solenoxyphus* being placed within the tribe Nasocorini Reuter, 1883 along with other 58 genera previously classified in Phylini. Menard *et al.* (2013) did not find any

milky whitish; sometimes darkened part of clavus and corium with minute and indistinct pale brown spots at bases of simple setae.

**SURFACE AND VESTITURE:** Dorsum shiny, smooth, with dense, somewhat curved adpressed simple setae, brown on medial darkened stripe and on cuneus, silver elsewhere; tibial spines whitish, rarely pale brown.

**STRUCTURE:** Elongate, parallel-sided, total length 3.8–4.8 mm, body 3.4–4.0 × as long as basal width of pronotum. **Head:** Strongly projecting anteriorly and ventrally; eyes relatively small, vertex 1.3–1.6 × as wide as dorsal width one eye; antennal fossa contiguous to inferior angle of eye, second antennal segment 0.9–1.0 × as long as basal width of pronotum, 1.2–1.3 × as long as width of head; labium reaching or slightly surpassing apex of hind coxa. **Thorax:** Pronotum 2.1–2.4 × as wide as long; calli slightly raised; metathoracic scent-gland evaporative area narrowly triangular, with somewhat extended dorso-posterior angle. **Legs:** Long and slender, tarsus thin, segment III slightly longer than segments II combined, claw long and slender, pulvillus small, not surpassing midpoint of claw, attached to claw along entire length.

**MALE GENITALIA:** **Genital capsule:** About 30 % of total area of abdomen, elongated, without keel or distinctive ornamentation. **Parameres:** Shape typical for Phylini, right paramere broadly oval, with contrastingly long and thin, straight apical process (Fig. 24); left paramere as in Figs. 22 and 23, with triangular, gradually tapering sensory lobe and straight apical process. **Apex of theca:** As in Fig. 21. **Vesica:** S-shaped, long and thin; secondary gonopore subapical, with well-developed sculpture and a few comparatively large teeth laterally; apex of vesica distal of secondary gonopore with distinct step-like narrowing at base of apical blade (Figs. 11–13); apical blade long, with somewhat curved apex covered with minute teeth and not pointed, distinctly longer than width of vesica proximal to secondary gonopore.

**Female.** **COLORATION, SURFACE AND VESTITURE** (Fig. 4): Similar to male; longitudinal pale brown medial stripe on hemelytron frequently less distinct, sometimes clearly expressed only on membrane.

**STRUCTURE:** Similar to male but shorter, total length 3.7–3.9 mm, body 3.2–3.4 × as long as width of pronotum. **Head:** With somewhat wider vertex than in male; vertex 1.6–1.8 × as wide as dorsal width one eye; second antennal segment 0.7–0.8 × as long as basal width of pronotum, equal in length to width of head; labium surpassing apex of hind coxa and usually reaching base of ovipositor. **Thorax:** Pronotum 2.1–2.3 × as wide as long.

**FEMALE GENITALIA:** Dorsal labiate plate with small, strongly upturned dorsally sclerotized rings and a pair of thin symmetric sclerites running from each sclerotized ring to central part of labiate plate (Fig. 29); sclerotized ring roughly triangular, with small, weakly sclerotized medial extension (Fig. 34); sclerites encircling vulva symmetric, of typical phylina shape; vestibulum entirely membranous; posterior wall (Fig. 36) with distinct lancet-shaped sclerites at sides; first valvula finely serrate and gradually tapering, second valvula somewhat sagittate.

**Host.** Unknown.

**Distribution.** This species is known from deserts and semideserts of Central Asia and currently reported from all five Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) and northern Iran (Konstantinov & Namyatova 2008).

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