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New genus and species of brachypterous planthopper of the tribe Elicini (Hemiptera: Fulgoroidea: Tropiciduchidae) from Chile

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Abstract

Selamorpha variegata **gen. et sp. nov.** is described from Coquimbo Region, Chile. It is characterized by the body dorsally saddle-shaped, brachypterous, tegmina with moderate reticulation, metope elongate, and terga caudally elevated. The new taxon is the second genus of Elicini in Chile and the third of South America. It was found associated with *Calceolaria polifolia* Hook. (Calceolariaceae).

Key words: Auchenorrhyncha, Fulgoromorpha, Elicinae, taxonomy, Andean Region

Resumen

Se describe *Selamorpha variegata* **gen. et sp. nov.** de la Región de Coquimbo, Chile. Se caracteriza poseer el cuerpo dorsalmente en forma de silla de montar, ser braquíptero, presentar tégmenes con reticulación moderada, metopa alargada, y tergos caudalmente elevados. El nuevo taxón es el segundo género de Elicini en Chile y el tercero en Sudamérica. Se encontró asociado a *Calceolaria polifolia* Hook. (Calceolariaceae).

Palabras clave: Auchenorrhyncha, Fulgoromorpha, Elicinae, taxonomía, Región Andina

Introduction

Elicini is one of the three extant tribes that comprise the subfamily Elicinae together with Bucini and Parathisciini (Gnezdilov, 2013b; Gnezdilov *et al.*, 2016). Representatives of this group have been once classified under families Issidae or Lophophidae. Fennah (1978) established the subtribes Elicina and Gaetuliina under the Bladinini (Nogodinidae), but Gnezdilov (2007), based on morphology of male and female genitalia and supported with the data provided by Urban & Cryan (2006), transferred Gaetuliina to the Tropiciduchidae as a distinct tribe. Later, with the study of the representatives of Elicina (genera *Elica* Walker and *Conna* Walker), Gnezdilov (2013b) merged this group with the Gaetuliini establishing the tribe currently known as Elicini.

The Elicini Melichar can be recognized by the hemisphaeric gonoplacs without teeth or with denticles, metatibiae with lateral teeth and second metatarsomere with symmetrical spinulation (Gnezdilov, 2013b; Gnezdilov *et al.*, 2016). While in North America several genera and species have been described (especially those treated by Doering, 1939), in Central America the tribe is only represented by *Gaetulia* Stål (Melichar, 1898; Fowler, 1900; Schmidt, 1912, 1932; Ballou, 1936), and in South America is composed by two genera: *Nubithia* Stål, with one species in Brazil and three species in Chile; and *Acrisius* Stål, with four species in Brazil and one species in Perú (Spinola, 1852; Melichar, 1906; Brèthes, 1913). Among the South American Elicini, only the male genitalia of the Brazilian species *Nubithia griseescens* Stål have been described (Prates Jr. & Carvalho, 2002).

Materials and methods

Morphological terminology mainly follows Anufriev & Emeljanov (1988) with consideration of Gnezdilov *et al.*

(2014). Terminology of female genitalia follows Bourgoïn (1993) with consideration of Gnezdilov (2002). Bourgoïn *et al.* (2015) were followed for terminology of wing venation. Specimens were dry-mounted glued to points. The last abdominal segments of one male and female were removed and macerated in a KOH solution. Then, they were placed in glycerine for study under stereoscopic and compound microscope. Finally, genitalia were stored in microvials pinned below the respective specimens. Photographs were taken by a digital camera adapted to the respective microscope and processed with Adobe Photoshop®. Type specimens are deposited in the collection of Museo Nacional de Historia Natural, Santiago, Chile (MNNC).

Taxonomy

Tropiduchidae Stål, 1866

Elicinae Melichar, 1915

Elicini Melichar, 1915

Selamorpha gen. nov.

(Figs 1–24)

Type species. *Selamorpha variegata* sp. nov., here designated.

Diagnosis. Body (Figs 1, 5) dorsally strongly saddle-shaped: head and abdomen elevated. Metope (Fig. 4) elongate. Superior margin of clypeus slightly convex, not distinctly produced into metope. Tegmina (Figs 1–5) small, not surpassing tergum VI; reticulation moderate, not dense neither strongly marked. Hind wings (Fig. 6) rudimentary. Each tergum (Figs 1, 5) caudally elevated in relation to fore side of the consequential. Phallus (Figs 13–14) symmetrical.

Description. Body (Figs 1–5) dorsally strongly saddle-shaped, depressed at level of scutellum, elevated at head and midlength of abdomen.

Head. From lateral view (Figs 1, 5) dorsocranially angulate, elevated in diagonal dorsal line continuing from thorax. Eyes (Figs 1–5) prominent and rounded. Coryphe (~vertex; Figs 2–3) quadrangular; hind margin concave; fore margin straight or indistinctly convex. Metope (~frons; Fig. 4) elongate, about 2 times longer than wide; median carina distinct, complete; lateral margins indistinctly converging dorsally. Metopoclypeal suture (Fig. 5) gently arcuate. Clypeus (Fig. 5) with median carina; lateral carinae not developed. Rostrum reaching metacoxae.

Thorax. Pronotum (Figs 2–3) with fore margin strongly produced into rounded lobe, reaching near level of midlength of eyes; paradiscal fields narrow, laterally declivous; median carina present; hind margin concavely arcuate. Paranotal lobes with apical margin bent cranially. Mesonotum (Figs 2–3) with median and lateral carinae; lateral fields declivous.

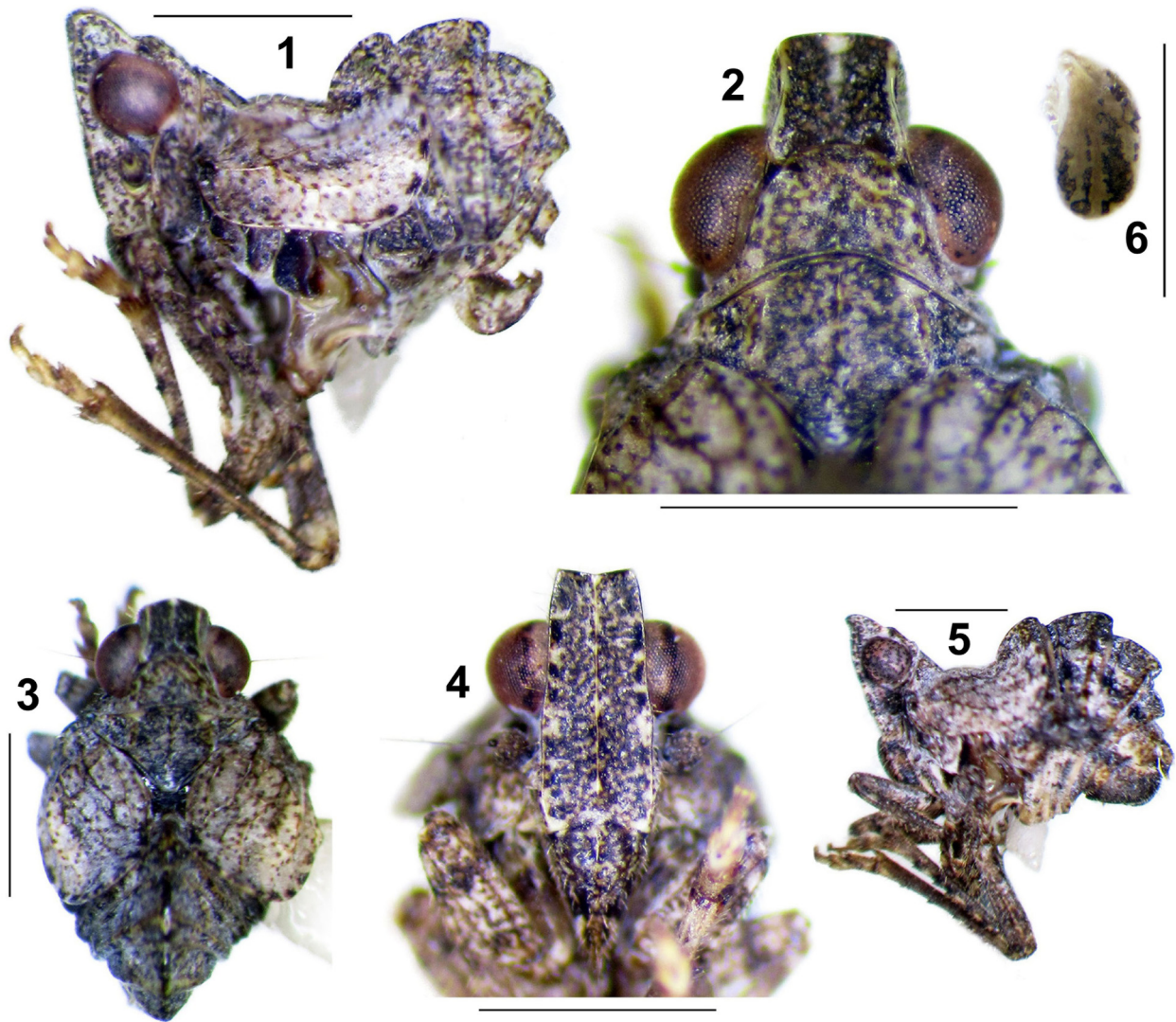
Wings. Tegmina (Figs 1, 3, 5) short and oblong, not surpassing tergum VI, strongly sclerotized, bent at apex; ScP+R+M+Cu distinct; ScP+R and MP distinct, forked near apex; CuA not visible or indistinct; Pcu and A1 distinct and fused into Pcu+A1; crossveins moderately marked. Hind wings (Fig. 6) rudimentary, with no distinct venation but zones where it should occur rather hyaline; rest of area opaquely marked.

Legs. Femora somewhat flattened. Tibiae triangular in cross section. Metatibia with (4–) 5 (–6) lateral teeth distally increasing in size and distance within each other; apex with 9–10 teeth. Basal metatarsomere subtriangular with (9–) 10 (–11) apical teeth decreasing in size medially. Second metatarsomere subtriangular with pair of latero-apical teeth distinct.

Abdomen. Terga (Figs 1, 3, 5) medially somewhat carinated; each tergum (particularly V–VII) dorsally smoothly arcuate (lateral view) and caudally elevated in relation to fore side of the consequential.

Male genitalia. Phallus (Figs 13–14, 23–24) symmetrical, in form of cylindrical curved tube. Styli (Figs 9–12) distally broadened, with dorsocranial capitulum bearing lateral tooth.

Etymology. Combination of the greek words σέλα (= *séla*, saddle) and μορφή (= *morphí*, form). This due to the form of the dorsal side of the body. The noun is feminine in gender.



FIGURES 1–6. *Selamorpha variegata* **gen. et sp. nov.** 1–4. Male holotype. 1. Habitus, lateral view. 2. Head and thorax, dorsal view. 3. Habitus, dorsal view. 4. Head, frontal view. 5–6. Female. 5. Habitus, lateral view. 6. Hind wing. Scale bars = 1 mm.

***Selamorpha variegata* sp. nov.**

(Figs 1–24)

Type material. Holotype: Male from: Chile, [Coquimbo reg.] Choapa prov., Cuesta El Espino, 31°21'S. 71°05'W., 1320 m., 29.VII.2017, J.F. Campodonico leg., On *Calceolaria polifolia* (MNNC). Paratypes: Chile, [Coquimbo reg.] Choapa prov., Cuesta El Espino, 31°21'S. 71°05'W., 1320 m., 19.IX.2017, J.F. Campodonico leg., On *Calceolaria polifolia*, 2 females (MNNC).

Description. *Measurements.* Length: male, 2.60 mm; female, 3.01–3.07 mm. Maximum width: male, 1.65 mm; female, 1.71–1.77 mm.

Coloration. General body (Figs 1–5) variegated with testaceous, brown and blackish. Blackish markings intercalated with pale zones at apex of tegmina, sides of metope and at teeth of metatibiae (Figs 1, 4–5). Pair of lateral, sometimes inconspicuous, pale abdominal fringes at sides of terga (Figs 1, 5) intercalated with slightly darker band.

Head. Coryphe (Figs 2–3) somewhat narrowed from sides near midlength; disc depressed at median line; median length about 4/5 of basal width; fore margin slightly concave, indistinctly narrower than hind margin. Metope (Fig. 4) with maximum width slightly before metopoclypeal suture, slightly less than 1/2 of median length;

sides craniad to maximum width straight, indistinctly convergent; superior and inferior margins gently incised obtusely; median and marginal carinae sharp.

Thorax. Pronotum (Figs 2–3) with median length about 1/2 of basal width of median lobe and 2/7 of total width of pronotum; median carina distinct but not reaching anterior margin; lateral margins of median lobe somewhat elevated. Mesonotum (Figs 2–3) with median length about 3/5 of width; median carina distinct but fading apically; lateral carinae coarse, straight and slightly diverging caudad; disc caudally depressed; hind margins and scutellum somewhat elevated.

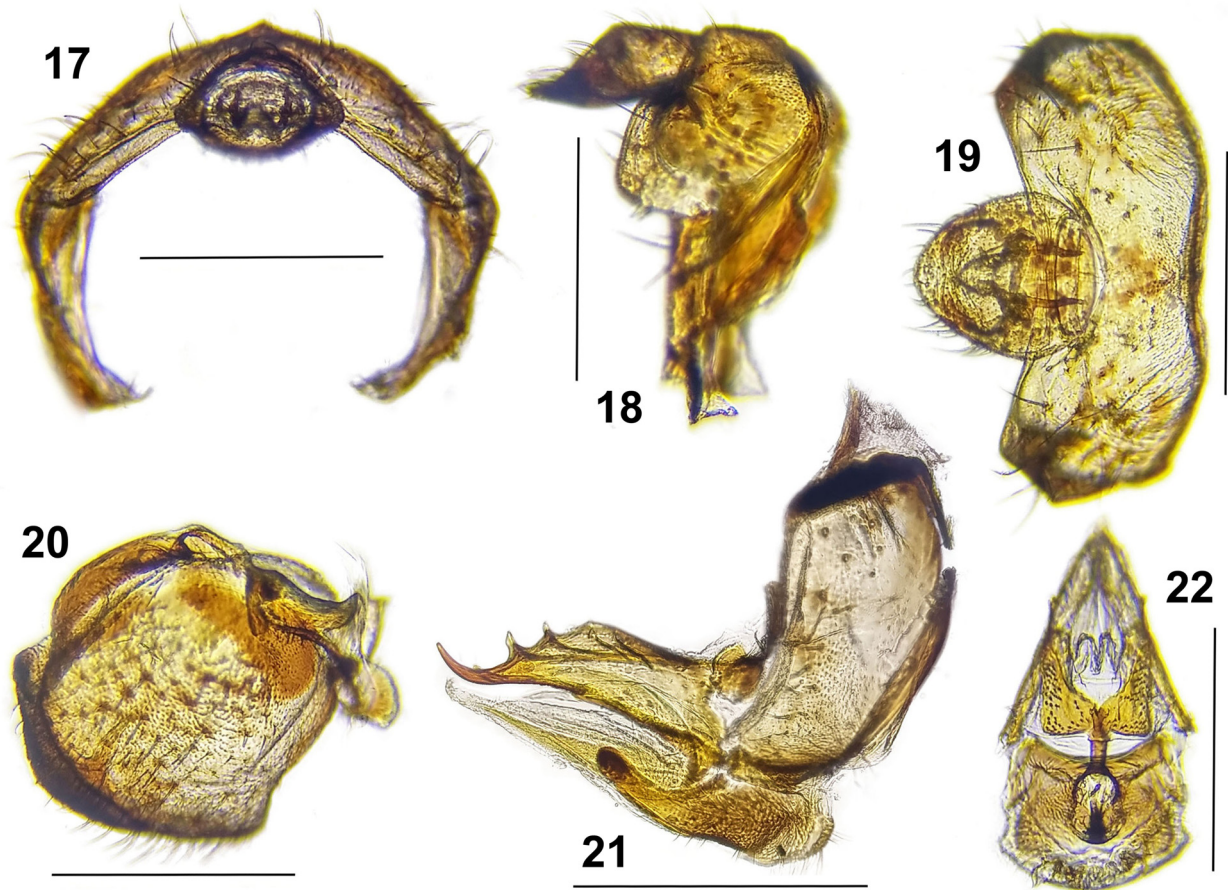
Male genitalia. Pygofer (Figs 7–8) in caudal view laterally compressed, about 2 times as tall as wide; in lateral view with total length about 1/3 of basal height; hind margins with superior 3/4 as broad lobe. Phallus (Figs 13–14, 23–24) first curved, then straight; phallobase enclosing most of aedeagus as phalotheca with two pairs of parallel spine-like processes; ventral pair slightly longer than dorsal, apices somewhat divergent; apex of aedeagus with pair of perpendicular acute projections at inner side. Styli (Figs 9–12) subtriangular (lateral view), concave from inner side; caudodorsal angle slightly obtuse, rounded; capitulum apically narrowed (lateral view) in tooth slightly curved, with lateral tooth short and directed caudad, and inner short tooth directed craniad. Segment X (Figs 15–16) in dorsal view with sides parallel, about 3/4 as wide as long; hind margin broadly concave; in lateral view subtrapezoidal. Segment XI (Fig. 15) with paraproct not surpassing segment X, apex acute.



FIGURES 7–16. *Selamorpha variegata* gen. et sp. nov., male holotype genitalia. 7–8. Pygofer. 7. Caudal view. 8. Lateral view. 9–12. Styli. 9. Frontal view. 10. Caudal view. 11. Lateral view. 12. Dorsal view. 13–14. Phallus. 13. Lateral view. 14. Ventral view. 15–16. Postgenital segments. 15. Dorsal view. 16. Lateral view. Scale bars = 0.5 mm.

Female genitalia. Tergum IX (Figs 17–19) from dorsal view about 3 times wider than long, maximum wide subdistally, then sides abruptly convergent; from lateral view with broad zone at superior half, then sides abruptly

narrow. Gonoplacs (Fig. 20) slightly longer than broad; distinct caudoventral and caudodorsal angles present. Gonocoxae VIII (Fig. 21) slightly broadened at dorsal half; fore margin convex; hind margin slightly concave. Anterior connective lamina of gonapophyses VIII with 2 basal lateral teeth not surpassing margin, the following 2 well developed; 2 apical teeth, main somewhat long and moderately upcurved, other small, indistinct, positioned at side of main. Gonospiculum bridge (Fig. 22) wide, convex and quadrangular. Posterior connective lamina of gonapophyses IX (Fig. 22) with proximal part with pair of sclerotized plates; distal parts converging towards apex at acute angle; median membranous field small, bilobed; lateral fields flat. Segment X (Figs 18–19) with flanges somewhat developed; from dorsal view ovate, slightly longer than wide; from lateral view with dorsal surface length about 1/2 of ventral. Segment XI (Fig. 19) with paraproct not surpassing segment X, apex acute.



FIGURES 17–22. *Selamorpha variegata* gen. et sp. nov., female genitalia. 17–19. Tergum IX and postgenital segments. 17. Caudal view. 18. Lateral view. 19. Dorsal view. 20. Gonoplac, lateral view. 21. Gonocoxa VIII and gonapophysis VIII, lateral view. 22. Gonapophyses IX and gonospiculum bridge, dorsal view. Scale bars = 0.5 mm.

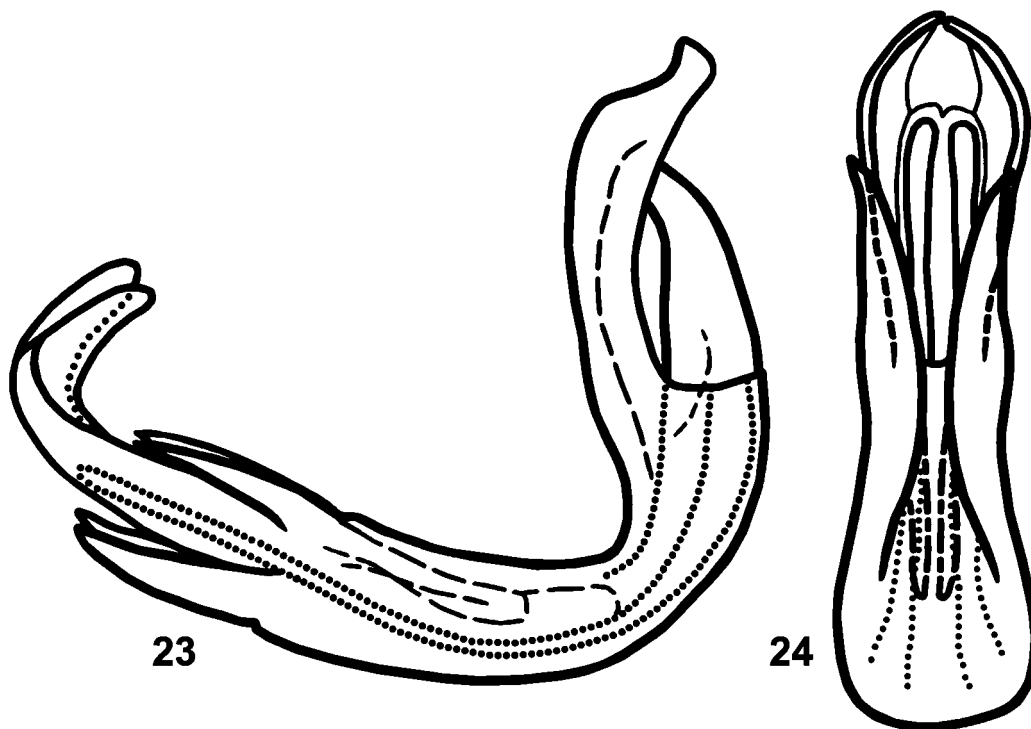
Etymology. The specific name is a Latin adjective and means “variously colored”. This due to the general coloration of this species.

Natural history. The new species was collected in the semi-arid climatic zone of Chile (transition between Mediterranean and Desert climates) in habitat of inland steppe matorral (Gajardo, 1994). Biogeographically, this locality belongs to the Coquimban Province of the Central Chilean Sub-Region, Andean Region (Morrone, 2015). Specimens were found beating foliage of the sub-shrub *Calceolaria polifolia* Hook. (Calceolariaceae).

Key to genera of the tribe Elicini known from South America

1. Tegmina covering entire abdomen; hind wings as developed as tegmina *Acrisius* Stål
- Tegmina reduced, not surpassing abdomen; hind wings rudimentary 2

2. Tegmina surpassing tergum VI, coarsely and densely reticulated; dorsal line of abdomen smooth. *Nubithia* Stål
 - Tegmina not surpassing tergum VI, reticulation moderate; abdomen with terga caudally elevated. *Selamorpha* **gen. nov.**



FIGURES 23–24. *Selamorpha variegata* **gen. et sp. nov.**, phallus. 23. Lateral view. 24. Ventral view.

Discussion

In South America, *Selamorpha* can be easily separated from *Acrisius* by the size of tegmina and hind wings; and from *Nubithia* by the size and reticulation of tegmina, and shape of terga (Melichar, 1906). *Selamorpha variegata* resembles the North American species *Osbornia cornuta* Ball due to the brachyptery and elevated abdomen with produced terga; these may be considered convergent similarities as *O. cornuta* differs by the shorter and wider metope, superior margin of clypeus strongly produced into metope, and asymmetrical phallus (Doering, 1939, Pl. 15, Figs 3–5).

Selamorpha is the second genus of Elicini known for Chile and the third of South America. The knowledge of South American Elicini is insufficient as most descriptions of taxa were published about hundred years ago and without major contribution of local researchers. Apparently further research in this region should result in the description of several new species and genera, especially from arid, semiarid and Mediterranean-type ecosystems (i.e. the Arid Diagonal and Central Chile) where box-like body with brachyptery or subbrachyptery, features frequent in Elicini and described as “issidisation”, are advantageous (Gnezdilov, 2013a).

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