REVISION OF THE GENUS SYMPLANA KIRBY, 1891 (HEMIPTERA: FULGOROMORPHA: CALISCELIDAE), WITH NOTES ON GENITALIC MORPHOLOGY OF AUGILINI AND DESCRIPTION OF THREE NEW SPECIES FROM VIETNAM AND SUMATRA

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The caliscelid genus Symplana Kirby, 1891 is revised, with the type species S. viridinervis Kirby, 1891, is redescribed based on the lectotype. Three new species are described: Symplana maurici sp. n. and S. vieta sp. n. – from northwestern and central Vietnam and S. sultana sp. n. – from eastern Sumatra. Symplana elongata Meng, Qin et Wang, 2020 is placed in synonymy under S. brevivstrata Chou, Yuan et Wang, 1994. Key to species of the genus is given. Peculiarities of connective structure and its connection with an aedeagus as well as fusion of endogonocoxal lobes in ovipositor are discussed and illustrated for different Augilini taxa and compared with other Caliscelidae.

Key words: Augilini, Ommatidiotinae, larva, morphology, new species, new synonymy, southeastern Asia, taxonomy.

INTRODUCTION

The genus Symplana Kirby, 1891 belongs to the tribe Augilini Baker of the subfamily Ommatidiotinae. The tribe Augilini is mainly Oriental group in its distribution (GNEZDILOV 2021). The genus was erected for a single species, Symplana viridinervis Kirby, 1891, described after three females from Pundaloya in Central Sri Lanka (KIRBY 1891).

FENNAH (1963) was the first who revised Symplana and designated the lectotype for S. viridinervis as well as described another species, S. major Fennah, 1963, from southern India, Tamil Nadu State (FENNAH 1963). Since Fennah’s study, four more new species from China were added to the genus: Symplana brevivstrata Chou, Yuan et Wang, 1994; S. elongata Meng, Qin et Wang, 2020 (in ZHANG et al. 2020); S. lii Chen, Zhang et Chang, 2014; S. longicephala Chou, Yuan et Wang, 1994. Below I describe two new species from northwestern and central Vietnam, Hòa Bình and Ðăk Lăk Provinces, and one new species from eastern Sumatra, Riau Province, and place S. elongata in synonymy under S. brevivstrata. Thus currently, the genus Symplana comprises eight species distributed in south and southeastern Asia.

Studying of male and female genitalia structure of the genera Augilina Melichar, 1914, Polychornum Gnezdilov, 2021, Symplana Kirby, and Symplanel-
la Fennah, 1987 revealed two morphological trends of Augilini – reduction of phallobase and fusion of connective with an aedeagus in males and the fusion of endogonocoxal lobes of gonocoxae VIII in a single lobe in females.

MATERIAL AND METHODS


The genital segments of male specimens examined were macerated in 10% KOH and figured in glycerine jelly (Brunel Micro Ltd, UK). The drawings were made using Leica MZ9.5 light microscope with camera lucida attached. The photos of external views were taken using Canon EOS 5D Mark IV camera with the lens Canon-MP-E-65 mm f/2.8 1-5× Macro and the flash Canon Macro Twin-Lite MT-26EX-RT. Images were produced using Helicon Focus v. 7.6.4 and Adobe Photoshop CC 2019 software.

The type specimens examined are from the collections of the: BMNH – Natural History Museum, London, United Kingdom; ZIN – Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia.

The label information for old specimens is quoted, with ‘/’ indicating a new line and ‘///’ indicating the next label.

TAXONOMY

Family Caliscelidae Amyot et Serville, 1843
Subfamily Ommatidiotinae Fieber, 1875
Tribe Augilini Baker, 1915

Genus Symplana Kirby, 1891

Symplana Kirby, 1891: 136. Type species: Symplana viridinervis Kirby, 1891, by monotypy.

Diagnosis. Head elongate, with bendable apical part (Figs 15, 41). Metope long and narrow, slightly narrowing above the eyes, with distinct median carina running from its upper margin throughout postclypeus and sublateral carinae running from its upper margin, but not reaching metopoclypeal suture, which is convex (Figs 3, 8, 14, 17, 38, 40, 52). Coryphe with rounded apex and acutely angulate posterior margin. Apical part of coryphe (above bend line) as long as its basal part (below bend line) (Figs 39, 41, bl) or nearly twice longer (Figs 15, 16, bl). Ocelli present. Pedicel elongately cylindrical, without apical projection. Rostrum reaching hind coxae, with cylindrical, not narrowing apically, 3rd segment, 0.5 as long as 2nd one. Pronotum with wide paradiscal fields and paranotal lobes. Each paranotal lobe with a strong carina behind the eye (Fig. 15). Anterior margin of pronotum sharply convex, with

rounded apex, posterior margin widely concave. Tegulae large. Forewings semitransparent (matte), with narrowly oval or elongately triangular basal cell, distinct nodal line and nearly straight or weakly concave costal margin. Forewings long and narrow, 6–7 times as long as wide medially, narrowing apically after the nodal line, with narrow membrane (Figs 18, 42, 62, 63); clavus long, four times as long as whole wing; R and M with short common stem. Forewing vein sequence: R 3, furcating before nodal line, with the anterior branch (R₁) running after the nodal line; r–m 1; M 3–8, furcating after the nodal line; m–cua 1; CuA 1–3, furcating after the nodal line (Figs 18, 42, 62). Hind wings well developed, 3-lobed, with very weak cubital cleft and deep vannal cleft; anal lobe wide. Hind wing vein sequence: R 2, shortly furcating apically; M 2–3; CuA 2; CuP 1; Pcu 1; A₁ 1; A₂ 1. A₂ not reaching wing margin. Hind tibia with a single lateral spine above its middle. First metatarsomere as long as second and third ones combined; first and second metatarsomeres without spines. Ventral surface of first metatarsomere with short thick setae. Aedeagus often with rows of denticles dorso-laterally. Gonopore subapical, in shape of long trough ventrally (Figs 22, 23). Connective fused with an aedeagal basement (Fig. 68). Phallobase reduced. Styles attached behind the aedeagal shaft. Style with capitulum and sometimes with additional process. Gonoplac shortly triangular (in lateral view) (Fig. 28). Endogonocoxal lobes (GxL) of gonocoxae VIII fused in a large single lobe (Figs 30, 32–35).

Composition. Eight species are distributed from Ceylon and southern India to Sumatra, Vietnam, and China.

**Key to species of Symplana**

1. Apical part of coryphe (above bend line) nearly as long as its basal part (below bend line) (Fig. 39, bl)  
   - Apical part of coryphe 1.2–2.0 times as long as its basal part (Fig. 16, bl)  

2. Pedicel with a black spot. Female sternite VII with widely concave hind margin, fused endogonocoxal lobes widely concave apically (Fig. 35). Sri-Lanka  
   - Pedicel without black spot. Female sternite VII with deeply concave or notched medially hind margin, fused endogonocoxal lobes convex or notched apically (Figs 32–34)  

*S. viridinervis* Kirby, 1891
3 Hind margins of male pygofer with a large nearly triangular process below the anal tube; anal tube elongate, narrowing apically (in dorsal view) (Chen et al. 2014, Figs 2–97 H, G; Zhang et al. 2020, Fig. 42 g, e). Hind margin of female sternite VII semicircularly notched, fused endogonocoxal lobes convex apically (Zhang et al. 2020, Fig. 42k). SE China

\textit{S. brevistrata} Chou, Yuan et Wang, 1994

\textbf{–} Hind margins of male pygofer with short and wide process below the anal tube (Fig. 44); anal tube wide, not narrowing apically (in dorsal view) (Fig. 43). Hind margin of female sternite VII trapezoidally concaved, fused endogonocoxal lobes notched apically (Figs 32, 33). NW Vietnam

\textit{S. vieta} sp. n.

4 Aedeagus with wide shaft (in lateral and ventral views) (Chen et al. 2014, Figs 2–98 K, L)

5 Aedeagus with narrow shaft (in lateral and ventral views)

5 Hind margins of male pygofer convex, without processes (Fennah 1963, Fig. 2E). Southern India

\textit{S. major} Fennah, 1963

\textbf{–} Hind margins of male pygofer with distinct process medially (Chen et al. 2014, Figs 2–98 I). Southern China

\textit{S. lii} Chen, Zhang et Chang, 2014

6 Style with massive and long capitulum (Figs 36, 56, \textit{cpt})

7 Style with short capitulum (Chou et al. 1994, Fig. 2c, b). Southern China

\textit{S. longicephala} Chou, Yuan et Wang, 1994

7. Hind margins of male pygofer with a large triangular-shaped process below the anal tube (Fig. 19). Denticles of aedeagal shaft well visible laterally (Fig. 23). Male anal tube nearly truncate apically (in dorsal view) (Fig. 20). Central Vietnam

\textit{S. maurici} sp. n.

\textbf{–} Hind margins of male pygofer with rounded process below the anal tube (Fig. 55). Denticles of aedeagal shaft weakly visible laterally (Fig. 57). Male anal tube distinctly convex apically (in dorsal view) (Fig. 61). Sumatra

\textit{S. sultana} sp. n.

\textit{Symplana viridinervis} Kirby, 1891

(Figs 1–5, 35)

\textit{Symplana viridinervis} Kirby, 1891: 136.
\textit{Symplana viridinervis}: Distant 1906: 254, Fig. 112.
\textit{Symplana viridinervis}: Fennah 1963: 726, Fig. 1a–e.
Supplementary description (Figs 1–5). Generally as mentioned for the genus. Metope with distinct median carina reaching the anteclypeus (Fig. 3). Lateral margins of metope turned to lateral margins of coryphe (in lateral view) (Fig. 1). Coryphe long, four times as long as wide between the eyes, slightly narrowing after bend line, with truncate apex (Fig. 2). Coryphe and metope joined at a very acute angle (in lateral view) (Fig. 1). Pronotum without carinae. Mesonotum twice as long as pronotum at midline, apparently with weak lateral carinae (not well visible because of pin). Forewing vein sequence: R 3; M 3; CuA 1. Arolium of pretarsus not surpassing claw apices, with straight hind margin (in dorsal view).


Male. Unknown.

Female genitalia. Hind margin of sternite VII widely concaved, fused endogonocoxal lobes wide, concave apically (Fig. 35). Anal tube short, cylindrical (Fig. 4).

Total length (from head apex to the apices of forewings): 8.3 mm.


Note. Chou et al. (1994) recorded this species from Mengyang in Yunnan Province of China, however, according to Prof. Dr. Yinglun Wang (Northwest A & F University, Yangling, China, pers. comm.) the specimen listed as S. viridinervis in this publication has no abdomen, thus species identification was made after some external characters only and accordingly I would not treat it as correct one until the males from Pundaloya and Yunnan are examined and compared. The same is apparently true for Melichar’s record of this species from the Philippines (Luzon Island) (Melichar 1914).

Symplana brevistrata Chou, Yuan et Wang, 1994

Symplana brevistrata Chou, Yuan & Wang, 1994: 46, Fig. 1. 
Symplana brevistrata: Zhang et al. 2020: 155, Fig. 43, Pl. 8 g–i. 
Symplana elongata Meng, Qin et Wang, 2020 (in Zhang et al. 2020): 154, Fig. 42, Pl. 8 d–f, syn. n.

Note. The species was described after a female collected at Dinghushan Mt. in Guangdong Province of southeastern China (Prof. Dr. Yinglun Wang, pers. comm.) and no male was examined from the type locality since the original description (Chou et al. 1994). However, 20 years later, Chen et al. (2014) illustrated the material identified as S. brevistrata from the neighbouring areas of Guizhou, Guangdong, and Guangxi Provinces. I accept here Chen et al. (2014) treatment of S. brevistrata and suggest placing S. elongata Meng, Qin et
Wang, 2020 (in Zhang et al. 2020), described from Fujian Province of southeastern China, in synonymy under S. brevistrata according to the identity of male genitalia structure illustrated by Chen et al. (2014, Figs 2–97) and Zhang et al. (2020, Fig. 42).

*Symplana lii* Chen, Zhang et Chang, 2014

*Symplana lii* Chen, Zhang & Chang, 2014: 170, Fig. 2–98 A–K.
*Symplana lii*: Zhang et al. 2020: 150, Fig. 40, Pl. VII j–l.

Note. The species was described from Yunnan Province in China (Chen et al. 2014).

Comparison. It is closely related to *S. major* Fennah, 1963 by wide aedegal shaft (in lateral and ventral views), simple style with short and rounded capitulum, and semicircularly notched hind margin of female sternite VII, with rounded apically fused endogonocoxal lobes (Fig. 34), but well differs by hind margins of male pygofer with a process medially (Fennah 1963, fig. 2E, Chen et al. 2014, figs 2–98 I, L; Zhang et al. 2020, fig. 40j).

*Symplana longicephala* Chou, Yuan et Wang, 1994

*Symplana longicephala* Chou, Yuan & Wang, 1994: 47, Fig. 2 a–c, e–f.
*Symplana longicephala*: Zhang et al. 2020: 149, Fig. 39, Pl. VII g–i.

Note. The species is known from Yunnan Province in China (Chou et al. 1994, Chen et al. 2014). It is well distinguished within long-headed species of the genus by its style with very short capitulum, which brings it closer to *S. vieta* sp. n., while in furcating apically fused endogonocoxal lobes the species is close to *S. maurici* sp. n.

*Symplana major* Fennah, 1963

(Figs 6–10, 34)

*Symplana major* Fennah, 1963: 726, Fig. 2 a–e.

Supplementary description. Female genitalia. Hind margin of sternite VII sharply concave medially, fused endogonocoxal lobes wide, rounded apically (Fig. 34).

Total length: 11.5 mm.

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Figs 1–5. Symplana viridinervis Kirby, 1891, female, lectotype: 1 = lateral view (scale bar: 10 mm); 2 = dorsal view (scale bar: 10 mm); 3 = frontal view (scale bar: 1 mm); 4 = abdomen, ventral view (scale bar: 1 mm); 5 = labels

Figs 6–10. *Symplana major* Fennah, 1963, female, holotype: 6 = lateral view (scale bar: 10 mm); 7 = dorsal view (scale bar: 10 mm); 8 = frontal view (scale bar: 1 mm); 9 = abdomen, ventral view (scale bar: 1 mm); 10 = labels
Note. The species was collected from unspiked sandal (Fennah 1963). In the original description Fennah (1963) indicated male as the holotype, however, the female from Ayur is marked as the holotype in the collection of the Natural History Museum in London (Figs 6–10), which I accept here as the holotype.

**Symplana maurici** sp. n.
(Figs 11–31)

Diagnosis. Head with long apical part (after bend line), twice as long as the part of the head before this line (Figs 11, 12, 15, 16). Style with long capitulum. Hind margins of male pygofer with large triangular-shaped process below the anal tube. Female sternite VII with sharply concave medially hind margin and large furcating apically fused endogonocoxal lobes (Figs 29–31).

Description. Generally, as mentioned for the genus. Coryphe long, more than five times as long as wide between the eyes, grooved at midline, narrow, slightly narrowing at bend line and apically; anterior margin rounded (Fig. 16). Coryphe and metope joint at very acute angle (in lateral view) (Fig. 15). Pro- and mesonotum with distinct lateral carinae. Mesonotum three times as long as pronotum medially. Forewing vein sequence: R 3; M 5; CuA 2 (Fig. 18). Hind tibia with six apical spines. Arolium of pretarsus wide, nearly reaching claw apices (in dorsal view).


Male genitalia (Figs 19–27). Anal tube as wide as long (in lateral view), nearly truncate apically (in dorsal view) (Figs 19, 20). Anal column short. Pygofer wide, elongate vertically (in lateral view), with widely concave medially ventral margin (in ventral view) (Figs 19, 21). Hind margins of pygofer with large triangular-shaped process below the anal tube (Fig. 19). Aedeagus strongly curved (in lateral view), with denticles dorso-laterally and with pointed apical bifurcation (in ventral view) (Figs 22, 23). Style with wide plate and long capitulum (Figs 24, 25) and with large and rounded lateral process below the capitulum (Figs 26, 27).

Female genitalia (Figs 13, 28–31). Sternite VII with sharply concave medially hind margin, fused endogonocoxal lobes furcating apically. Anal tube short.

Total length: males – 8.0–9.0 mm, females – 9.0–10.0 mm.

4th instar larva. It was illustrated by Emeljanov (1999, Fig. 17) as Symplana sp.

Structure. Metope with seven (3 + 4) sensory pits in two rows above the eye and three pits along sublateral carina in front the eye at each side. Median carina of metope reaching metopoclypeal suture only. Rostrum reaching hind coxae. Coryphe long, more than three times as long medially as wide between the eyes. Disc of pronotum with five (4 + 1) pits on each side. Each paranotal lobe of pronotum with a single pit at basal margin. Anterior wing pads of mesothorax each with four (3 +1) pits. Posterior wing pads of metathorax each with two sensory pits. Hind tibia with a single lateral spine above its middle and with six spines apically. Tergites IV–VI each with four (two on each side) pits near to its posterior margins.

Tergite VII with four (two on each side) pits near to its posterior margin, one pit in each hind corner dorsally and one pit in each hind corner ventrally (not visible in dorsal view). Tergite VIII with two pits dorsally and one pit ventrally (not visible in dorsal view) in each hind corner. Segment IX with four pits—two dorsal and two ventral ones. Metatarsomeres with two segments, first one with two latero-apical and a single intermediate spines. Body length: 4.0 mm.

Type material. Holotype, ♂, Vietnam, Đăk Lăk Province, Yok Don National Park, 20 km NE of Buôn Đôn village, 12º56.301´N 107º43.471´E, 194 m, 19–20.VI.2014, V. M. Gnezdilov leg. (ZIN). Paratypes: Vietnam, Đăk Lăk Province, Yok Don National Park: 3 ♂, 6 ♀, 20 km NE of Buôn Đôn village, 12º56.301´N 107º43.471´E, 194 m, 18–20.VI.2014, V. M. Gnezdilov leg. (ZIN – 2 ♂, 5 ♀; BMNH – 1 ♂, 1 ♀); 3 ♂, 3 ♀, 1 larva, near Buôn Đôn village, 23.XI.1993, A. V. Gorokhov leg. (ZIN).

Figs 11–14. Symplana maurici sp. n., female, paratype: 11 = lateral view; 12 = dorsal view; 13 = abdomen, ventral view; 14 = frontal view. Scale bars: 10 mm for figs 11–12, 1 mm for figs 13–14
Etymology. The species is named in honour of the well-known French botanist Dr. Maurice Schmid (1922–2018), who spent his professional life studying Indo-Chinese vegetation and soils. Our meetings with Maurice in his latest lifetime gave me and my family great pleasure.

Note. The species is swept from bamboo in dry Dipterocarpus forest on a water reservoir bank (Figs 69, 70).

Comparison. It is closely related to *S. longicephala* Chou, Yuan et Wang, 1994 by furcated apically fused endogonocoxal lobes (*Zhang et al.* 2020, Fig. 39m).

Figs 15–18. *Symplana maurici* sp. n., female, paratype: 15 = head and pronotum, lateral view; 16 = same, dorsal view; 17 = face, frontal view; 18 = forewing. Abbreviations: bl = bend line. Out of scale
**Symplana vieta** sp. n.  
(Figs 32, 33, 36–49)

Diagnosis. Head with short apical part (after bend line), 0.8 times as long as the part of the head before the line (Figs 36, 37, 39, 41). Style with short capitulum (Figs 47–49). Female sternite VII trapezoidally concaved medially; fused endogonocoxal lobes notched apically (Figs 32, 33).

Description. Generally, as mentioned for the genus. Coryphe three times as long as wide between the eyes, slightly narrowing apically, with distinct bend line (Figs 37, 39). Pro- and mesonotum with smooth lateral carinae. Mesonotum twice as long as pronotum medially. Forewing vein sequence: R 3; M 4; CuA 2 (Fig. 42). Hind tibia with six (2 + 4) apical spines. Hind femora and tibiae 10 % longer than middle and fore ones.

Coloration (Figs 36–38). Generally light yellow (apparently light green when alive). In a better pigmented female metope reddish above the clypeus and between the sublateral

Male genitalia (Figs 43–49). Anal tube short, longer than wide (in lateral view) (Fig. 44), truncate apically (in dorsal view) (Fig. 43). Hind margins of pygofer strongly protrud-
ing in its basal halves, with wide and rounded process below the anal tube (in lateral view) (Fig. 44). Ventral margin of pygofer below the styles widely concave medially (Fig. 43). Aedeagus strongly curved, with two rows of denticles dorso-laterally and rounded apical furcation (in ventral view) (Figs 45, 46). Style with vertically elongate and narrow plate and short capitulum, with deep spoon-shaped concavity below it (Figs 47–49). Capitulum of style with fine curved lines dorsally (Fig. 47).

Female genitalia (Figs 32, 33). Hind margin of sternite VII trapezoidally concaved medially, fused endogonocoxal lobes slightly narrowing apically, notched.

Total length: male – 8.0 mm, female – 9.2 mm.


Etymology. The species is named after “việt” – the most numerous nationality in Vietnam.

**Symplana sultana** sp. n.
(Figs 50–63)

Diagnosis. Head with long apical part (after bend line), 1.2 times as long as its basal part (before bend line) (Fig. 50). Style with large capitulum and large process below it (Figs 55, 57).

**Figs 36–38. Symplana vieta** sp. n., holotype: 36 = lateral view; 37 = dorsal view; 38 = frontal view. Scale bars: 10 mm for figs 36–37, 1 mm for fig. 38
Description. Generally, as mentioned for the genus. Median carina of metope reaching basal half of anteclypeus. Coryphe five times as long as wide between the eyes. Pro- and mesonotum with distinct lateral carinae. Forewing vein sequence: R 3; M 6; CuA 2–3 (Fig. 62). Hind wings slightly shorter than forewings (Fig. 63). Hind femora 20% and hind tibiae 10% longer than middle and fore ones.

Coloration (Figs 50–53). Generally light yellow (apparently light green when alive). Coryphe, pro- and mesonotum with wide light red median stripe. Forewings with light red claval margins.

Male genitalia (Figs 55–63). Anal tube short (in lateral view) (Fig. 55), convex apically (in dorsal view) (Fig. 61). Pygofer elongate vertically, wide, hind margins with short and rounded process below the anal tube (Fig. 55), ventral margin concave medially (Fig. 56).

Figs 39–42. Symplana vieta sp. n., holotype: 39 = head and pronotum, dorsal view; 40 = face, frontal view; 41 = head and pronotum, lateral view; 42 = apex of right forewing (membrane is shaded). Abbreviations: bl = bend line. Out of scale
Aedeagus strongly curved, with two rows of denticles dorso-laterally and pointed apical furcation (Figs 57, 58). Style with large and wide capitulum and large process below it (Figs 57, 59, 60).

Female. Unknown.
Total length: 8.5 mm.

Etymology. The species name is derived from “Sultan” as the holotype was collected in the territory of former Sultanate Siak Sri Indrapura – a kingdom that was located in the Siak Regency of Riau Province of Eastern Indonesia from 1722 to 1946.

DISCUSSION

The distribution of the genus Symplana Kirby covers a large territory of south and southeastern Asia from Sri Lanka and southern India to southern China via Vietnam and Indonesia where the species of the genus occur on bamboo (Figs 69, 70) widely distributed in Old World tropics and subtropics. The habitually similar Quizqueiplana alexbrowni Bourgoin et Gnezdilov, 2016 is

Figs 43–49. Symplana vieta sp. n., holotype, male genitalia: 43 = genital block (without aedeagus), ventral view; 44 = genital block, lateral view; 45 = aedeagus, lateral view; 46 = aedeagus, ventral view; 47–49 = style. Out of scale
the only known fossil caliscelid taxon described from the Miocene Dominican amber in New World (Bourgoin et al. 2016). The latter is close to Symplana species by long coryphe, however, well differs by the pedicel with an apical projection, wider forewing apices, and the presence of two latero-apical spines on first metatarsomere (Bourgoin et al. 2016, Figs 2A, C, E, 3C, E).

Within the Augilini there are two groups of genera according to the presence or absence of spines on first and second metatarsomers in imago. The presence of spines is a character of already mentioned fossil Quizqueiplana

Figs 50–54. Symplana sultana sp. n., holotype: 50 = lateral view; 51 = dorsal view; 52 = frontal view; 53 = abdomen, ventral view; 54 = labels. Scale bars: 10 mm for figs 50–51, 1 mm for figs 52–53
Bourgoin et Wang, 2016, with the spines only on first metatarsomere, and Madagascan *Signoreta* Gnezdilov et Bourgoin, 2009 and *Cano* Gnezdilov, 2011 and Asian *Tubilustrium* Distnat, 1916 and *Symplanodes* Fennah, 1987, having spines on both metatarsomeress. These five genera may be treated as primitive taxa of the tribe as was already suggested for *Symplanodes* and *Signoreta* missing forewing nodal line (Gnezdilov 2011). Other genera of Augilini have no spines on first and second metatarsomeres in imago, but as mentioned above, 4th instar larva of *Symplana maurici* sp. n. has two latero-apical and one intermediate spines on first larval metatarsomere still not divided into first

Figs 55–63. *Symplana sultana* sp. n., holotype (55–61 = male genitalia; 62, 63 = forewing): 55 = genital block, lateral view; 56 = pygofer, ventral view; 57 = aedeagus, connective, and style, lateral view; 58 = aedeagus, ventral view; 59 = style, caudal view; 60 = style, dorsal view; 61 = anal tube, dorsal view; 62 = right forewing; 63 = apex of left forewing, with apical margin of hind wing marked by dotted line. Out of scale
and second imaginal ones. The same spine pattern of the first larval metatarsomere was discovered during our study in 5th instar larva of *Discote scutifer* (Fennah, 1963). Thus, the absence of spines on the metatarsomeres in the imago of most Augilini genera in the modern fauna may be treated as an advanced condition of this character compared to spiny metatarsomeres in the fossil Miocene genus and few other genera discussed above.

Figs 64–68. Caliscelidae, male genitalia: 64 = *Calampocus sphaeroides* Gnezdilov et Bourgoin, 2009, penis, connective and style, lateral view (after GNEZDILOV & BOURGOIN 2009, modified); 65 = *Augilina longipes* Melichar, 1914, penis and connective, lateral view (after GNEZDILOV 2021); 66 = *Symplanella yokdona* Gnezdilov, 2020, aedeagus and connective, lateral view (after GNEZDILOV 2020, modified); 67 = *Polychornum namboinum* (Gnezdilov, 2013), aedeagus and connective, lateral view (after GNEZDILOV 2021); 68 = *Symplana sultana* sp. n., aedeagus, connective, and style, lateral view. Abbreviations: aed = aedeagus, cc = connective cup, ch = connective handle, phb = phallobase. Out of scale
Within currently known Augilini Symplana species are close to the members of the genus Polychornum Gnezdilov, 2021. Symplana species are distinguished by peculiar subapical gonopore in the shape of a long trough on the aedeagal shaft ventrally, the presence of denticles on the aedeagal shaft, and style with capitulum and an additional process while Polychornum species have the aedeagal shaft smooth, without denticles, short apical gonopore, and style with several large processes.

The species of the genera Symplana Kirby, Symplanella Fennah, 1987, and Polychornum Gnezdilov are characterized by connective fused with an aedeagal basement and reduced phallobase (Figs 65–68). Thus, in Symplanella yokdona Gnezdilov, 2020 connective handle is still in shape of a stick, while in Symplana and Polychornum species, it became wider and not easily recognizable. In Augilina longipes Melichar, 1914 the phallobase is still recognized as two long processes near to the aedeagal basement, and the connective is still separate structure with a cup and handle (Fig. 65, cc, ch). In other caliscelid tribes, such as Caliscelini, Peltonotellini, Adenissini, and Ommatidiotini, the phallobase and connective are well developed and separate structures (Anufriev & Emeljanov 1988, Figs 390-1, 394-2, Gnezdilov 2017, Figs 9, 10) (Fig. 64).

Another character discovered in Symplana species is the fusion of endogonocoxal lobes of gonocoxae VIII in a single large lobe (Figs 28, 30, 32–35). Within the tribe Augilini such lobe is known also for Symplanella yokdona (Gnezdilov 2020, Fig. 7), Polychornum namboinum (Gnezdilov, 2013) (Gnezdilov 2013, Fig. 17), and Anthracidium albosignatum Emeljanov, 2013 (Emeljanov 2013, Fig. 13). In other studied Augilini species, e.g. Discote scutifer, Pseudosymplanella nigrifasciata Che, Zhang et Webb, 2009, Tubilustrium typicum Distnat, 1916, and Augila angulata Baker, 1915, as well as in the tribes Caliscelini and Adenissini the endogonocoxal lobes are separate (Gnezdilov 2003, Figs 13, 14). In Ommatidiotus acutus Horváth, 1905 of the tribe Ommatidiotini

Figs 69–70. Yok Don National Park, water reservoir bank, type locality of Symplana maurici sp. n.
the endogonocoxal lobes are weakly sclerotized and apparently fused, but without distinct lobe visible.

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