

NEW SPECIES OF SCAPHISOMA LEACH (COLEOPTERA:  
STAPHYLINIDAE: SCAPHIDIINAE) FROM MT. WILHELM,  
PAPUA NEW GUINEA

I. LÖBL

*Muséum d'Histoire naturelle, rte de Malagnou 1, 1211 Geneva 6, Switzerland*

*E-mail: ivan.lobl@mhn.ville-ge.ch*

Five new scaphidiines are described from Mt. Wilhelm, Papua New Guinea: *Scaphisoma coeruleum* sp. n., *S. fenestratum* sp. n., *S. infirmum* sp. n., *S. frontale* sp. n. and *S. medium* sp. n. *Metalloscapa* Löbl is placed in synonymy of *Scaphisoma*, and *Metalloscapa papua* Löbl is transferred to *Scaphisoma*.

Key words: Coleoptera, Staphylinidae, Scaphidiinae, New Guinea, systematics

INTRODUCTION

At present only 20 species of *Scaphisoma* LEACH are recorded from New Guinea (LÖBL 1975). That this number reflects rather inadequate knowledge than the diversity of the group is shown by the present study. A collection of *Scaphisoma* taken at high altitudes of the Mount Wilhelm, Papua New Guinea, consists of five species, all new to science. The aedeagal characters of these species indicate relationships to members of the *S. unicolor* group that is widely distributed in the Oriental realm but unknown from Australia, New Caledonia and Fiji. As in members of the *S. unicolor* the aedeagi are highly derived, with the basal bulb of the median lobe comparatively small, the apical process flattened and asymmetrical, the internal sac consisting of a membranous tube and a long flagellum that is free to large extend, and the parameres weakly sclerotized. The new species coming from the Mount Wilhelm may be distinguished from the Asian allied by the median lobe of the aedeagus lacking prominent articular process, the shape of the body that is weakly narrowed apically and comparatively parallel, the short metasternum and the large head. In addition, they share narrow subcoxal areas, elytra lacking basal striae, very fine punctation, and apical abdominal segments with punctulate microsculpture. Obviously they form a distinct species group. *Metalloscapa* LÖBL that is based on a single species, *M. papua* LÖBL, exhibits characters of the latter group. *Metalloscapa papua* was separated from the species-rich and widely distributed *Scaphisoma* LEACH mainly because of its conspicuously elongate 3rd antennal segments and the body shape. However, the length of the 3rd antennal segment and the shape of the body are more variable than former presumed. The study of large

collections of *Scaphisoma* yield species with comparatively elongate 3rd antennal segment, notably in *S. solutum* LÖBL from Thailand and *S. parasolutum* LÖBL from China (LÖBL 2000).

*Acronyms used* – HNHM: Hungarian Natural History Museum, Budapest; MHNG: Muséum d'histoire naturelle, Geneva.

## SYSTEMATICS

*Metalloscapa* LÖBL, 1975 is junior subjective synonym of *Scaphisoma* LEACH, 1815, **syn. n.**

*Metalloscapa papua* LÖBL, 1975 is transferred to *Scaphisoma* LEACH, 1815, **comb. n.**

This species is known only from high altitudes of the Mt. Abilala, Finisterre Mts, Papua New Guinea. It may be distinguished from its congeners, the new species described below included, by the metallic shine of its body, the comparatively parallel body shape and the parameres of the aedeagus bearing each a large, membranous, apical lobe, in combination.

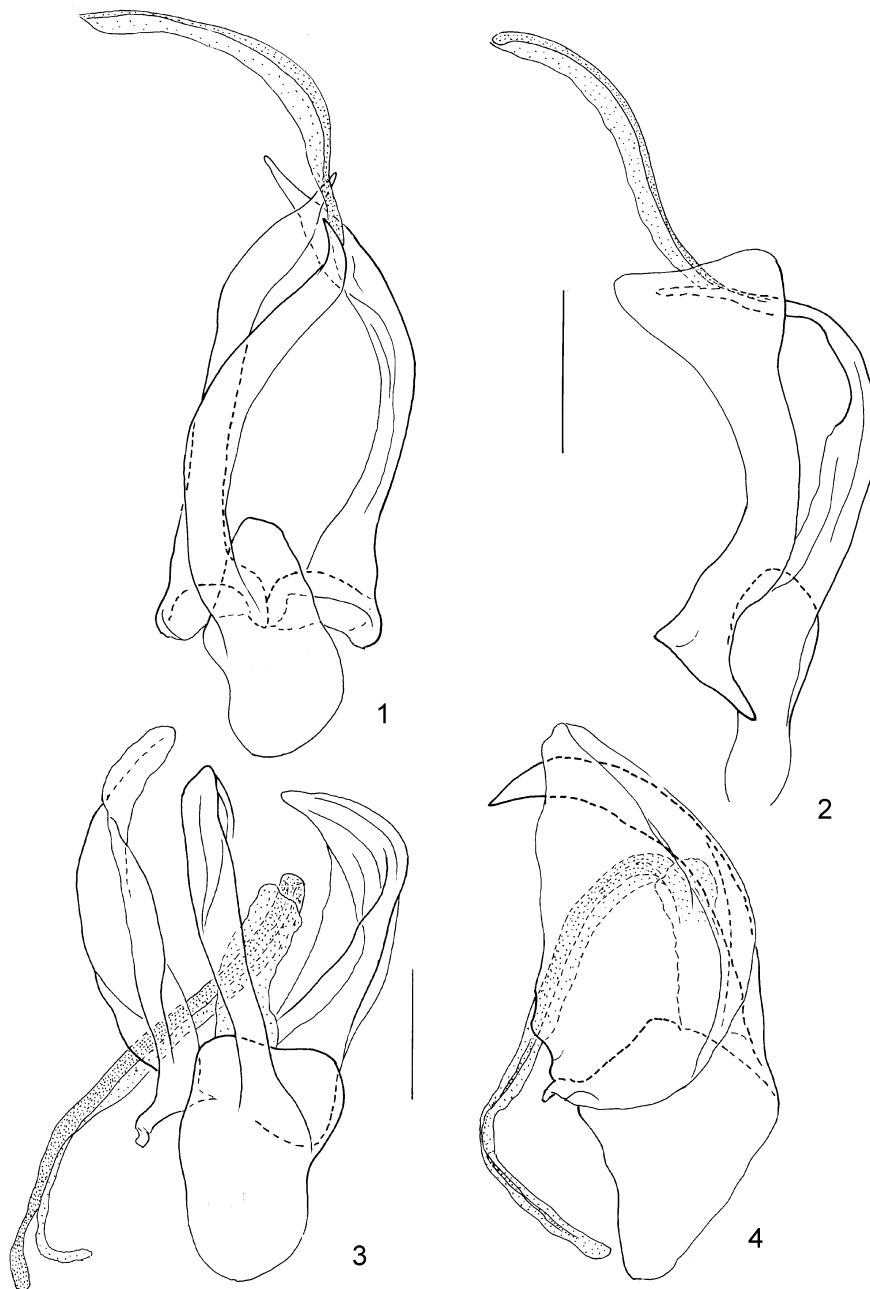
### ***Scaphisoma coeruleum* sp. n.**

(Figs 1–2)

Holotype male, labelled: New Guinea /NE/ Mt. Wilhelm, Field Station, 16.IX.1968 /No. NG-M.R.25/ leg. Dr. I. Loksa (HNHM).

Paratypes with same data as holotype but: 3200 m, 14.IX. /No. NG-M.R. 20 and 21/, 2 males and 4 females (HNHM, MHNG); Mt. Wilhelm 3600 m, Iambuka Ridge, 18.IX.1968 /No. NG-M.R.29–31/ leg. I. Loksa, 2 females (HNHM, MHNG).

*Description.* Length 1.5 mm. Head, pronotum and most of elytra dark, with distinct blue or green metallic shine. Apices of elytra and of abdomen, and legs dark brown. Ventral side of thorax and most of abdomen black. Antennae ochreous, with apical segments darkened. Length ratio of antennal segments as: III 6, IV 8, V 11, VI 11, VII 14, VIII 10, IX 10, X 13, XI 17 (holotype); segment III comparatively wide, only 1.5 times as long as wide, segment IV almost 3 times as long as wide, narrower than segment III; segments V and VI each about as wide as segment IV, almost 4 times as long as wide; segment VII almost 3 times as long as wide, much wider than segment VI; segment VIII about 2.5 times as long as wide, segment XI about twice as long as wide. Eyes conspicuously large, covering lateral parts of head. Pronotum long, moderately narrowed anteriorly, with lateral contours oblique near base, slightly arcuate in anterior half. Lateral pronotal ridges not visible in dorsal view. Pronotal punctation dense, extremely fine and shallow. Pubescence very short but well visible. Scutellum completely covered by pronotal lobe. Elytra very weakly narrowed toward base, widest



**Figs 1–4.** Aedeagus of *Scaphisoma* species: 1–2 = *S. coeruleum* sp. n., scale bar = 0.1 mm; 3–4: *S. fenestratum* sp. n., scale bar 0.2 mm

posterior basal third, from widest point moderately narrowed toward apices. Lateral elytral contours slightly arcuate in apical half. Sutural margin not raised. Inner apical angle lying posterior level of outer apical angles; apical margins edentate, arcuate. Sutural striae fine, diverging from apices toward middle third of sutural length, parallel in anterior third of sutural length, ending posterior line of pronotal lobe, not curved laterally. Lateral margin ridge not visible at dorsal view. Lateral striae curved at base, not extending along basal margin. Punctuation of elytra similar to that on pronotum. Metathoracic wings strongly reduced, present as filament-like rudiments. Ventral side of thorax lacking microsculpture and very finely punctate. Mesepimeral ridge slightly longer than interval to mesocoxa. Metasternum comparatively short, convex between mesocoxae, flattened between metacoxae, lacking impressions. Mesocoxal lines parallel to coxae, indistinctly punctate. Mesocoxal areas narrow, 0.02 mm long, about as long as one-third of shortest interval to metacoxae. Metepisterna wide apically, strongly narrowed anteriorly, with inner margin slightly arcuate, hardly impressed below plane of metasternum. Abdomen very finely punctate and with punctulate microsculpture, latter absent from 1st exposed sternite. Metacoxal lines parallel, 0.03 mm long, with distinct marginal punctures. Tibiae straight, slender.

Male sexual characters. Protarsi hardly widened. Aedeagus (Figs 1 & 2) 0.35–0.40 mm long. Median lobe with very long, sinuate apical process and basal bulb weakly sclerotized, prominent and narrowed apically. Apical process of median lobe strongly curved ventrally and very thin (lateral view), tapering at dorsal view. Parameres symmetrical, strongly widened apically. Internal sac with extruded part of flagellum very long.

Comments. *Scaphisoma coeruleum* resembles *S. papua* by its metallic shine of its body. These two species are the only known Scaphisomatini that have a metallic shine. The other scaphidiines with body having a metallic shine are members of the genus *Scaphidium* OLIVIER. *S. coeruleum* may be easily distinguished from *S. papua* by the blue pronotum and elytra, the shorter antennal segment 3 and the parameres comparatively longer, widened apically and lacking membranous lobes.

### **Scaphisoma fenestratum** sp. n.

(Figs 3–4)

Holotype male, labelled: New Guinea /NE/ Mt. Wilhelm Field Stat. 3200 m, 14.IX.1968 /No. NG-M.R.21/ leg. Dr. I. Loksa (HNHM).

Paratypes: 1 male 4 females with same data as holotype (HNHM, MHNG), 1 female with same data but NG-M.R.20 (HNHM).

Description. Length 2.0–2.1 mm. Body dark brown to black. Elytra each with one small, round, ochreous spot situated posterior mid-length, in outer part of disc. Anterior margin of spots reaching elytral mid-length, posterior margin of spot reaching apical third of elytron; apical fourth of elytra ochreous. Apical abdominal segments lighter than most of body surface. Femora and tibiae reddish-brown or ochreous, antennae and tarsi ochreous. Length ratio of antennal segments as: III 6, IV 8, V 13, VI 13, VII 22, VIII 16, IX 18, X 17, XI 28; segment IV narrow, cylindrical, about 3 times as long as wide, narrower than segment III; segments V and VI subequal, each about 3 times as long as wide, distinctly wider than segment IV, segment VII moderately widened, about 4 times as long as wide, segment VIII comparatively narrow, 4 times as long as wide; segment XI oval, 3 times as long

as wide (holotype). Eyes conspicuously large, covering lateral parts of head. Pronotum moderately long, widest at base, strongly narrowed anteriorly, with lateral contours oblique near base, slightly arcuate in anterior half. Lateral pronotal ridges not visible in dorsal view. Pronotal punctation sparse, extremely fine and shallow. Tip of scutellum exposed. Elytra very weakly narrowed toward base, widest posterior basal fourth, from widest point moderately narrowed toward apices. Lateral elytral contours slightly arcuate in apical third, straight in middle third. Sutural margin raised in apical half to apical two-thirds. Inner apical angle posterior level of outer apical angles; apical margins edentate, arcuate. Sutural striae fairly deep, diverging from apices about up to mid-length, parallel in most of anterior half, extending anteriorly almost to or up to line of scutellar tip, not or shortly curved outwards, if curved not extending along basal margins of elytra. Lateral margin ridge visible in dorsal view; lateral striae curved at base, extending shortly along basal margin. Punctation of elytra similar to but slightly less fine than that of pronotum. Metathoracic wings strongly reduced, present as filament-like rudiments. Ventral side of thorax lacking microsculpture and very finely punctate. Meseplimeral ridge about as long as interval to mesocoxa. Metasternum comparatively short, very weakly convex in median part, lacking impressions. Mesocoxal lines parallel to coxae, indistinctly punctate. Mesocoxal areas narrow, 0.02–0.03 mm long, about as long as third of shortest interval to metacoxae. Metepisterna wide, moderately narrowed anteriorly, with inner margin straight, hardly impressed below plane of metasternum. Abdomen very finely punctate and with punctulate microsculpture, latter absent from 1st exposed sternite. Metacoxal lines parallel, 0.03 mm long, with distinct marginal punctures. Tibiae straight, slender.

Male sexual characters. Protarsi hardly widened. Aedeagus (Figs 3 & 4) 0.75 mm long. Median lobe with long, arcuate apical process (lateral view) and basal bulb weakly sclerotized, prominent and widened apically. Apical process strongly curved ventrally, about equally wide at dorsal and lateral views, tapering at lateral view. Parameres asymmetrical, strongly widened and weakly sclerotized. Internal sac with extruded part of flagellum very long.

Comments. This species resembles *S. papua* and *S. coeruleum* in most diagnostic characters but lacks metallic shine, has a characteristic small elytral spot, comparatively shorter 3rd antennal segment and larger body. The aedeagus of *S. fenestratum* differs conspicuously from that of its allied *S. frontale* except, by the very large, weakly sclerotized parameres.

### **Scaphisoma infirmum** sp. n.

(Figs 5–6)

Holotype male, labelled: New Guinea /NE/ Mt. Wilhelm Field Station 16.IX.1968. /No. NG-M.R. 25/ leg. Dr. I. Loksa (HNHM).

Paratype female: New Guinea /NE/ Mt. Wilhelm Kambugomambuno 17.IX.1968. /No. NG-M.R. 26/ leg. Dr. I. Loksa (MHNG).

Description. Most external diagnostic characters as in *S. fenestratum*. It differs as follows: Length 1.8–2.0 mm. Body dark brown, elytra each with subapical, oblique ochreous fascia. Latter entire or interrupted at middle, extended almost to sutural stria and, outwards, almost touching lateral stria. Apices of elytra lighter than most of elytral disc. Apex of abdomen slightly lighter than remainder of body. Femora as dark as body, tibiae, tarsi and antennae lighter. Length ratio of antennal seg-

ments as: III 6, IV 10, V 17, VI 16, VII 20, VIII 14, IX 17, X 15, XI 20; segments IV, V and VI narrow, V and VI only hardly wider than segment IV, segment V almost 6 times as long as wide, segment VI well 5 times as long as wide; segment VII about 3 times as long as wide; segment VIII much wider than segment VI, about 3 times as long as wide; segment XI oval, about twice as long as wide. Elytral punctation slightly coarser than in *S. fenestratum*, coarser than pronotal punctation. Metathoracic wings well developed. Metasternum longer than in *S. fenestratum*. Mesocoxal areas 0.03 mm long, about as one fifth of shortest interval to metacoxae. Metacoxal lines subparallel.

Male sexual characters. Protarsal segments hardly widened. Aedeagus (Figs 5 & 6) 0.50 mm long. Apical process of median lobe similar to that in *S. fenestratum*, but basal bulb oval and parameres strongly asymmetrical. Left paramere strongly widened, right paramere narrow.

### **Scaphisoma frontale** sp. n.

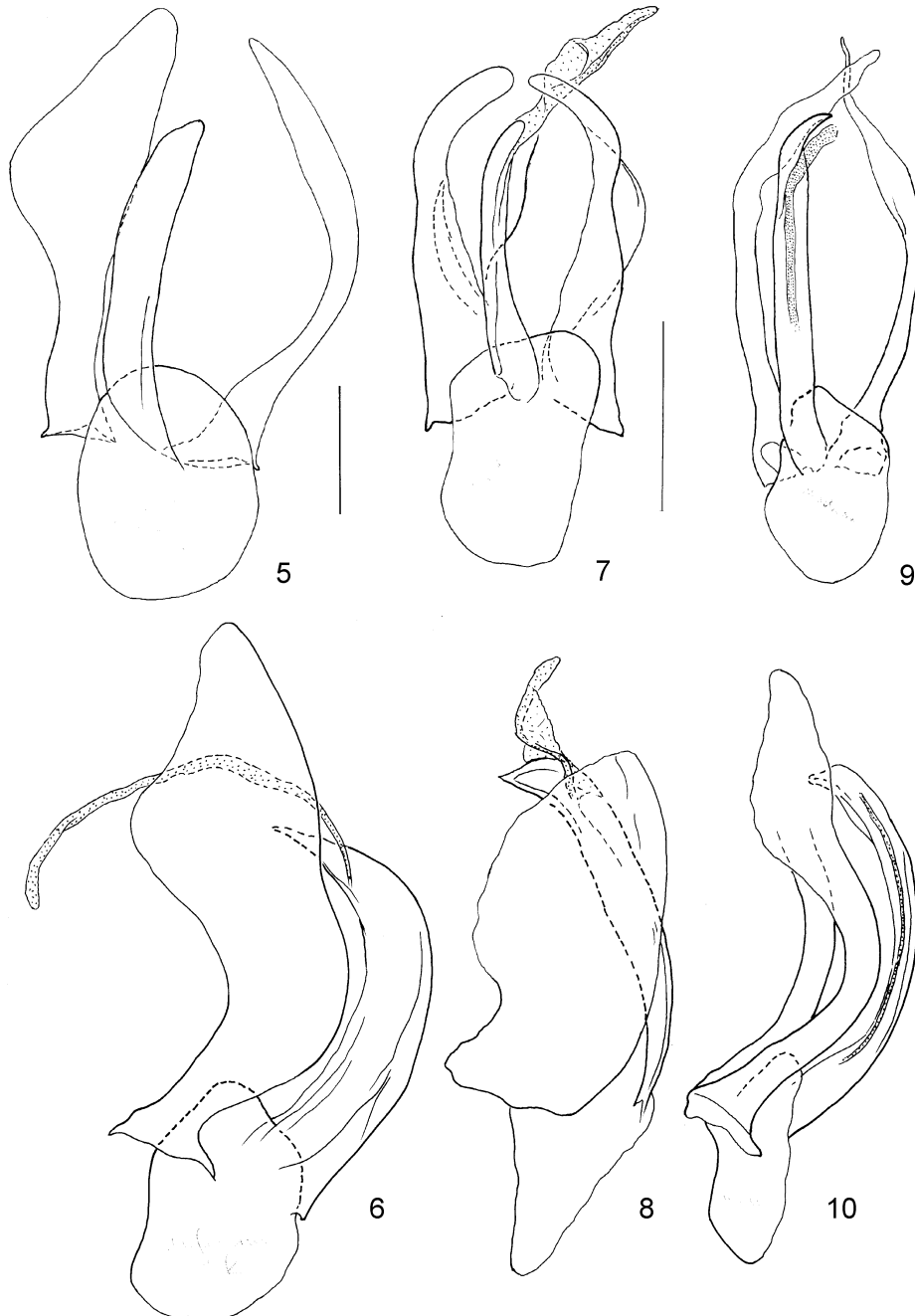
(Figs 7–8)

Holotype male labelled: New Guinea /NE/ Mt. Wilhelm 3600m Imbuka ridge 18.IX.1968 /No. NG-M.R.30/ leg. Dr. I. Loksa (HNHM).

Paratypes: same data as holotype, 1 male (MHNG); same data but No. NG-R. 31 leg. Dr. I. Loksa, 3 females (HNHM, MHNG); Mt. Wilhelm 4–9.VIII.1969 /No. NGMt-B39/ leg. Dr. J. Balogh, 1 male (MHNG).

Description. Length 1.55–1.65 mm. Body black or very dark reddish-brown, elytra dark brown along apices, apical abdominal segments, femora and tibiae reddish-brown. Tarsi and antennae lighter than tibiae. Length ratio of antennal segments as: III 5, IV 6, V 10, VI 11 VII 16, VIII 12, IX 14, X 13, XI 16 (holotype); segment III cylindrical, narrow, slightly narrower than segment IV, segment V about as wide as segment III, segment VI thickened apically, slightly wider than segment V; segment VII much wider than segment VI, segments VII and VIII each about 3 times as wide as long, segment XI oval, broad, hardly twice as long as wide. Eyes not conspicuously large, not entirely covering lateral parts of head. Pronotum moderately long, strongly narrowed anteriorly, with lateral contours arcuate. Lateral pronotal ridges not visible in dorsal view, or exposed at middle. Pronotal punctation sparse, extremely fine and shallow. Exposed tip of scutellum minute. Elytra distinctly narrowed toward base, widest posterior basal fifth, from widest point moderately narrowed toward apical third of lateral length, distinctly narrowed in apical third. Lateral elytral contours arcuate in apical third, straight in middle third. Sutural margin raised in apical half to apical two-thirds. Inner apical angle of elytra situated posterior line of outer apical angles; apical margins edentate, arcuate. Sutural striae shallow, almost parallel, extending anteriorly almost to line of scutellar tip, slightly curved outwards. Punctuation of elytra similar to that of pronotum although slightly less fine. Metathoracic wings almost completely atrophied. Ventral side of thorax lacking microsculpture and very finely punctate. Mesepimeral ridge shorter than interval to mesocoxa. Metasternum short, weakly convex in median part, lacking impressions. Mesocoxal lines parallel to coxae, indistinctly punctate. Mesocoxal areas narrow, 0.03 mm long, about as long as half of shortest interval to metacoxae. Metepisterna wide, strongly narrowed anteriorly, with inner margin almost straight, impressed below plane of metasternum. Abdomen very finely punctate and with punctulate microsculpture, latter absent from 1st exposed sternite. Metacoxal lines parallel, 0.03 mm long, with distinct marginal punctures. Tibiae straight, slender.

Male sexual characters. Frons with a large impression covered by a patch of adpressed, very dense, light pubescence. Protarsi weakly widened. Aedeagus (Figs 7 and 8) 0.54–0.55 mm long, sim-



**Figs 5–10.** Aedeagus of *Scaphisoma* species: 5–6 = *infirmum* sp. n., scale bar = 0.1 mm; 7–8 = *S. frontale* sp. n., scale bar = 0.2 mm; 9–10 = *S. medium* sp. n., scale bar = 0.2 mm

ilar to that in *S. fenestratum*. Apical process of median lobe strongly inflexed laterally and less curved ventrally.

Comments. The pubescent frontal impression in males in *S. frontale* is a unique feature within the scaphidiines. In addition, this species may be distinguished from its allied by the comparatively short fourth antennal segment, in combination with the colour patten of the body. The aedeagus is similar to that in *S. fenestratum* but the apical process of the median lobe is less curved in *S. frontale*. The aedeagal characters indicate close relationships to *S. fenetratum*. These two species can be easily distinguished by the elytral colour pattern.

### **Scaphisoma medium** sp. n.

(Figs 9–10)

Holotype male labelled: New Guinea /NE/ Mt. Wilhelm 3600 m Imbuka Ridge 18.IX.1968 /No. NG-M.R.28/ leg. Dr. I. Loksa (HNHM).

Paratypes: Mt. Wilhelm 3200 m Field Station 14.IX.1968 /No. NG-M.R.20/ leg. Dr. I. Loksa 3 females (HNHM, MHNG; ); same data but NG-M.R.22, 1 male, 1 female (HNHM, MHNG); same data but NG-M.R.23, 1 female (MHNG); same data but 16.IX.1968, NG-M.R.25, 1 female (HNHM); Mt. Wilhelm field Station, 20.IX.1968 /No. NG-M.R.32/ leg. Dr. I. Loksa 3 females (HNHM, MHNG); Mt. Wilhelm, 4000m, 15.IX.1968 /No. NG-M.R. 24/ leg. Dr. I. Loksa, 2 females (HNHM); Mt. Wilhelm, 3900m, 13–24.IX.1968 /No. NG-M-B. 106 and 132/ leg. Dr. J. Balogh 1 male, 1 female (MHNG).

Description. Length 1.60–1.95 mm. With most external diagnostic characters as *S. frontale* but the antennal segment 4 longer (the holotype with the length ratio of the antennal segments as: III 5, IV 8 V 14, VI 13, VII 17, VIII 12, IX 15, X 14, XI 18), the scutellum completely covered by the pronotal lobe, the metasternum flattened in the middle, the microsculpture on the abdominal sternites 2 to 4 indistinct, the frons in male not impressed and lacking setal patch, and the aedeagus very distinct. Metathoracic wings present as narrow rudiments reaching about up to abdominal base. Male lacking frontal impression and setose patch.

Aedeagus (Figs 9 and 10) 0.65–0.67 mm long. Median lobe with basal bulb asymmetrically narrowed apically, apical process arcuate, at tip curved. Parameres asymmetrical, narrow, arcuate (lateral view), widened in apical parts, right paramere wider than left paramere. Extruded part of flagellum long.

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