

NEW SPECIES OF *SARCOSOLOMONIA* BARANOV
FROM NEW GUINEA AND THE SOLOMONS
(Diptera: Sarcophagidae)¹

By Satoshi Shinonaga² and Hiromu Kurahashi³

Abstract: Four new species belonging to the genus *Sarcosolomonina* Baranov are described and figured from New Guinea and the Solomon Islands. These are *S. maai*, *S. papuensis*, *S. sedlaceki*, and *S. lopesi*.

Sarcosolomonina maai Shinonaga and Kurahashi, new species

♂. Body length 5.5-9.0 mm. *Head*: Frons 0.22-0.25 of head width; frontal vitta black; frontal bristles 11-12, lower 3 or 4 pairs divergent; parafrofrontalia and parafacialia silvery to golden pruinulent, with a row of fine hairs and 3 moderate bristles; antennae dark brown, apical part of 2nd and base of 3rd segment reddish brown, length of 3rd segment about 1.5× that of 2nd segment; arista plumose on basal 2/3; palpi black; gena and metacephalon with grayish pollinosity, posterior part of gena and metacephalon with yellowish-white hairs; gena about 1/7 of eye height; 1st and 2nd rows of postocular setae black, 1st row regular.

Thorax: Scutum gray or golden pollinose with 3 dark longitudinal stripes; *ac* 6-7 (fine) +1; *dc* 4+4; *ia* 1+3; *h* 3; *ph* 2; *np* 4; *sa* 5 (2 fine); *pa* 2; *prs* 1; *aps* 1; *ds* absent; *ls* 2; *st* 1+1+1; upper part of propleuron bare; prosternum with fine hairs posteriorly; meso- and metathoracic spiracles dark brown.

Wings: Hyaline, anterior margin infuscated; *R*₁ bare; *R*₄₊₅ with about 10 short setae between basal node and *r-m*; section III of costa about 7/8 of section V; costal spines extending on basal 1/2 of section V; epaulet black; basicostal scale and subcostal sclerite yellow; upper and lower squamae yellowish white; halter brown.

Legs: Black; fore tibia with 2 or 3 short *ad* and 1 *pv*; mid tibia with 1 strong submedian *ad*, 1 *av* and 3 *pd*; hind tibia with 2 *ad*, 2 *pd* and 1 *av*, without long hairs.

Abdomen: Gray or golden pollinose; 2nd tergite black; 3rd tergite with a pair of strong median marginal bristles; 4th and 5th tergites with several pairs of marginal bristles; 1st to 4th sternites with numerous long hairs; apical 1/4 of cerci sharply narrowed and with strong spines as shown in fig. 2, parameres and phallosome as shown in fig. 1.

♀. Body length 7.0-9.0 mm. General characters similar to that of the ♂. Frons 0.25-0.27 of head width; 2 proclinate and 1 reclinate fronto-orbital bristles present; outer vertical bristles well developed; 7th sternite with only a pair of bristles, 8th sternite without long bristles; genitalia as shown in fig. 3.

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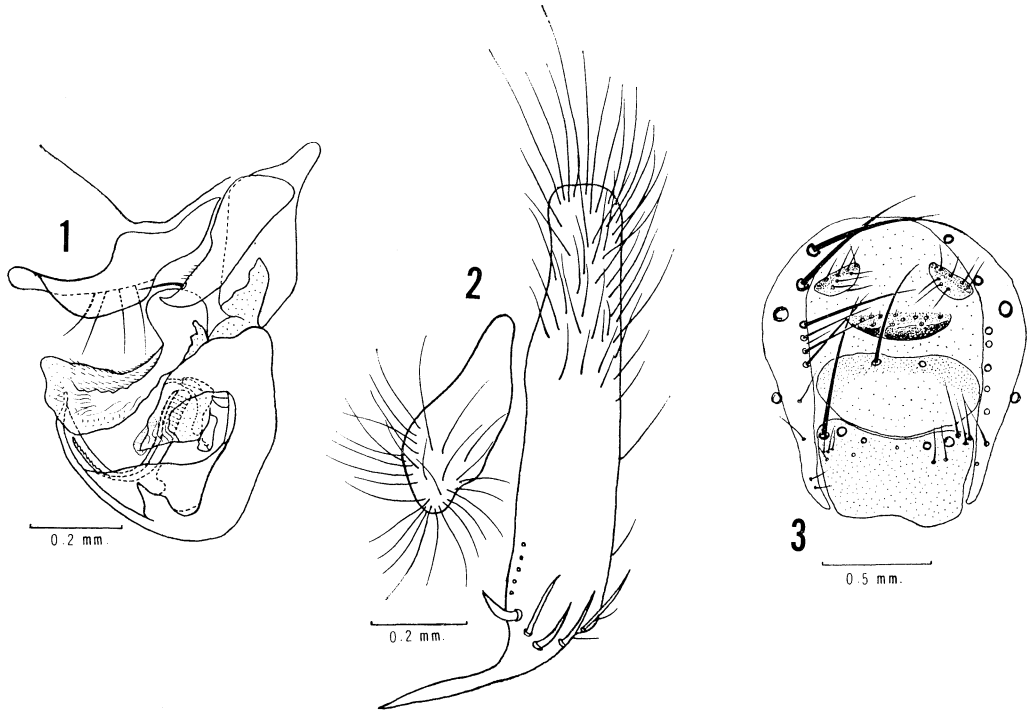


Fig. 1-3. *Sarcosolomonía maai* n. sp. (1) ♂: phallosome and paramere; (2) ♂: cerci; (3) ♀: genitalia.

Holotype ♂ (BISHOP 8883), Buka Agric. Station, Buka I., Bougainville Distr., Solomon Is., 6-10.XII.1959, T.C. Maa. Allotype ♀ (BISHOP) Vella Lavella I., Kow, 30 m, 28. XI. 1963, P. Shanahan. Paratypes: 1 ♂, San Cristobal I. Kira-Kira, 0-50 m, 10. XI. 1964, R. Straatman; 1 ♂, 1 ♀, Vella Lavella, Pusisma, XI.1963, Shanahan, Malaise trap; 1 ♀, Vella Lavella, Ulo crater, 10 m, XII.1963, Shanahan; 1 ♀, 17. XII. 1963, 1 ♀, 21. XII. 1963, Vella Lavella, Ulo crater, 10 m, Shanahan; 1 ♀, Choiseul I., Malangona, 30 m, Solomon Is., 14. III. 1964, Shanahan; 1 ♀, Florida Is., Nggela I., Solomon Is., 17. X. 1964, R. Straatman; 1 ♀, same data as holotype.

Remarks: This species is closely allied to *S. sumunensis* (Lopes) from Bismark Is. in its very elongated cerci, but differs by the apical spines of cerci and by the shape of phallosome. Bionomics are unknown.

Sarcosolomonía papuensis Shinonaga and Kurahashi, new species

♂. Body length 5.5-9.0 mm.

Head: Silvery pollinose; frons about 0.3 of head width; frontal vitta dark brown; frontal bristles 8-11 pairs, lower 2 or 3 pairs divergent; parafrofrontalia and parafacialia silvery pollinose with numerous fine hairs; antennae dark brown, 2nd and base of 3rd brown; length of 3rd segment about $2 \times$ that of the 2nd segment; arista plumose on basal $2/3$; palpi dark brown; gena

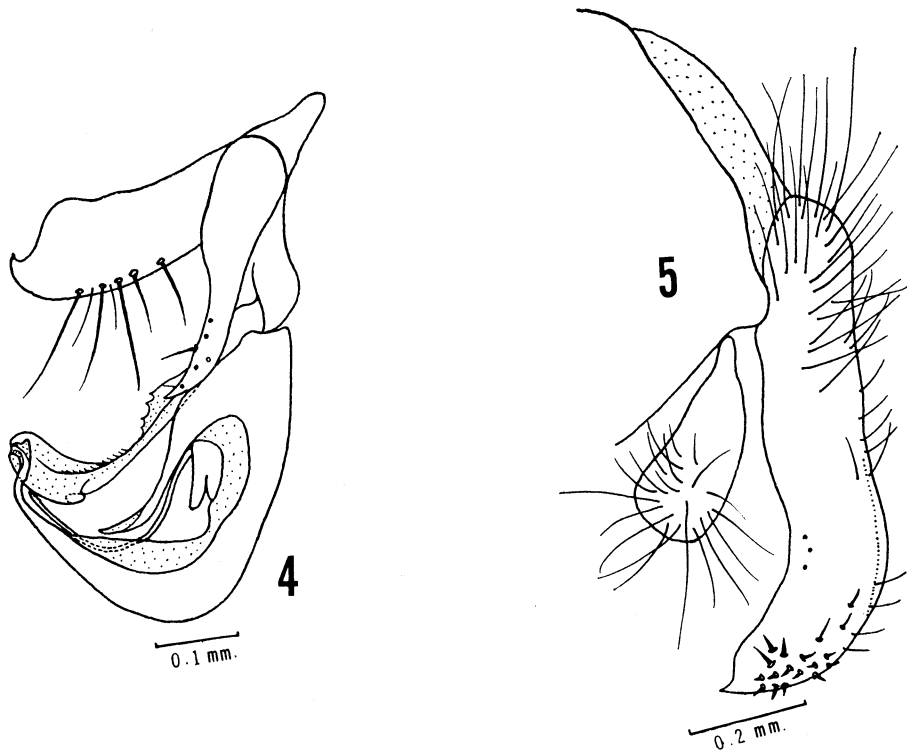


Fig. 4-5. *Sarcosolomonina papuensis* n. sp. (4) ♂: phallosome and paramere; (5) ♂: cerci.

and metacephalon with grayish pollinosity, posterior part of gena and metacephalon with white hairs; gena about 1/7 of eye height; postocular setae black; 1st row regular.

Thorax: Scutum grayish, slightly golden pollinose with 3 dark longitudinal stripes; *ac* 6-7 (fine)+1; *dc* 3-6+4; *ia* 1+3; *h* 3-4; *ph* 2-3; *prs* 1; *np* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; upper part of propleuron bare; prosternum hairy posteriorly; mesothoracic and metathoracic spiracles dark brown.

Wings: Hyaline; *R*₁ bare; *R*₄₊₅ with several setae from basal node to middle way of *r-m*; section III of costa 4/5 of length of section V; costal spines extending about basal 2/3 of section V; upper and lower squamae creamy white; halter brown.

Legs: Black; fore tibia with 2 *ad* and 1 *pv*; mid tibia with submedian *ad* and *av*, 3 *pd*; hind tibia with 1 strong submedian *ad* and 3 *ad*, 1 *av* and 2 or 3 *pd*, without long hairs.

Abdomen: Black and silvery gray checkered pattern; 2nd tergite black; 3rd tergite with a pair of median marginal bristles; 4th and 5th tergites with strong marginal bristles; 1st to 4th sternites with moderate sparse hairs; cerci broad, pointed at apices, with short spines on apical parts (fig. 3); anterior and posterior parameres and phallosome as shown in fig. 4.

♀. Unknown.

Holotype ♂ (BISHOP 8884), Ifar, NW New Guinea, VII.1958, J. van den Assem. Paratopotype: 1 ♂, same data as holotype.

Remarks: This species is closely related to *S. lopesi* and *S. sedlaceki*, but differs from the former by having more rounded phallosome and different abdominal markings, and from the latter easily recognized by the shape of cerci.

***Sarcosolomonía sedlaceki* Shinonaga and Kurahashi, new species**

♂. Body length 5.0-6.5 mm.

Head: Frons about 0.25-0.26 of head width; frontal vitta dark brown; parafrontalia and parafacialia silvery pollinose with fine hairs; antennae grayish brown, length of 3rd segment about $1.5 \times$ that of 2nd segment; arista plumose on basal $2/3$; palpi dark brown; gena and metacephalon with grayish pollinose, posterior part of gena and metacephalon with white hairs; gena about $1/5$ of eye height; 1st to 3rd row of postocular setae black, 1st row regular.

Thorax: Scutum grayish pollinose with 3 dark longitudinal stripes; *ac* 4-5+1; *dc* 4+3-4; *ia* 1+3; *prs* 1; *h* 3; *ph* 2-3; *np* 4; *sp* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; upper part of propleuron bare; prosternum hairy posteriorly; mesothoracic and metathoracic spiracles dark brown.

Wings: Hyaline; R_1 bare; R_{4+5} with several setae between basal node and *r-m*; section III of costa about same length of section V; section V of costa with short spines along basal $2/3$; epaulet black; basicostal scale and subcostal sclerite yellow-orange; upper and lower squamae creamy white; halter brown.

Legs: Black; fore tibia with 3 *ad* and 1 *av*; mid tibia with 2 *ad*, 2 *pd*, and 1 *av*; hind tibia with 2 *ad*, 2 *pd*, and 1 *av*, without long hairs.

Abdomen: Black and silvery gray checkered pattern; 2nd tergite black; 3rd tergite with a pair of median marginal bristles; 4th and 5th tergites with strong marginal bristles; 1st to 4th sternites with numerous black hairs; 2nd to 4th with differentiated bristles on hind margins; 5th sternite V-shaped; cerci and phallosome as shown in fig. 6 and 7.

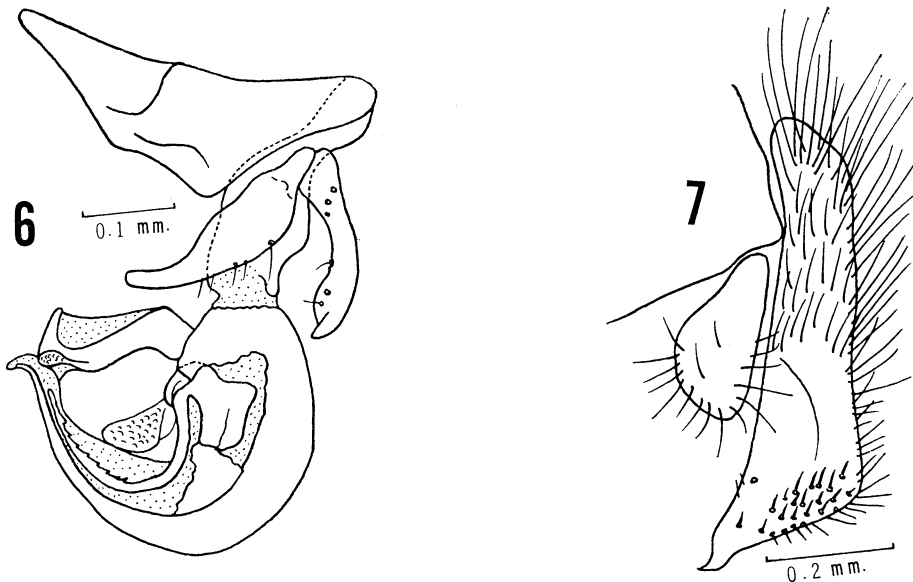


Fig. 6-7. *Sarcosolomonía sedlaceki* n. sp. (6) ♂: phallosome and paramere; (7) ♂: cerci.

♀. Unknown.

Holotype ♂ (BISHOP 8885), Tomba, slope of Mt. Hagen, 2450 m, New Guinea, 23.V. 1963, J. Sedlacek. Paratypes: 1 ♂, Wisselmeren, 1700 m, Waghete, Tigi L., NW New Guinea, 16.VIII.1955, J.L. Gressitt; 1 ♂, Swart Vall., Karubaka, 1500 m, NW New Guinea, 20.XI.1958, Gressitt.

Sarcosolomonina lopesi Shinonaga and Kurahashi, new species

♂. Body length 5.0-8.5 mm.

Head: Golden; frons about 0.38 of head width; ocellar bristles strong; 2 frontal bristles below level of base of antennae; parafrofrontalia and parafacialia golden pruinose, with fine hairs; 1 or 2 differentiated bristles on parafacialia; gena and metacephalon with yellow hairs; several hairs on anterior part of gena black; gena about 1/6 of eye height; antennae grayish brown, 2nd segment dark brown, 3rd segment reaching 0.88 of distance to vibrissae; occiput with a series of black hairs besides postocular setae and some more black hairs near vertex; palpi blackish brown.

Thorax: Golden pruinose; scutum with 3 black longitudinal stripes, median stripe narrower than lateral ones; *ac* 5-6 (fine) +1; *dc* 3+4; *ia* 1+3; *prs* 1; *h* 3; *ph* 2; *np* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 3; *st* 1+1+1; propleuron bare; mesothoracic and metathoracic spiracles dark brown.

Wings: Hyaline; R_1 bare; R_{4+5} with about 10 short setae from basal node to near *r-m*; sec-

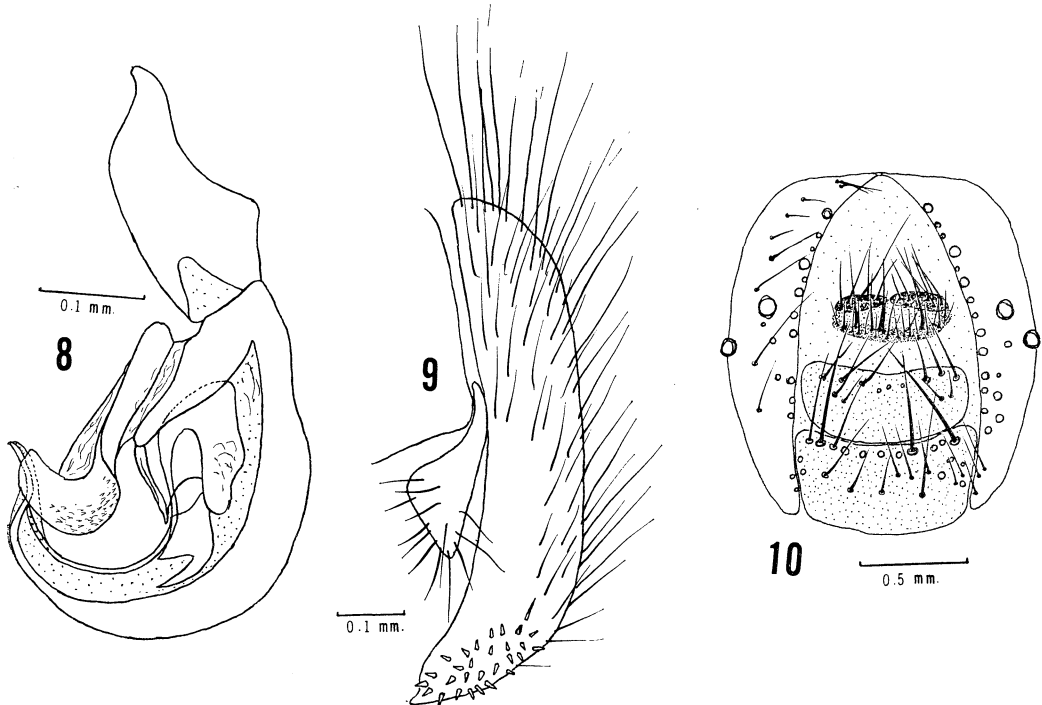


Fig. 8-10. *Sarcosolomonina lopesi* n. sp. (8) ♂: phallosome and paramere; (9) ♂: cerci; (10) ♀: genitalia.

tion V of costa a little shorter than that of section III; costal spines extending to middle part of section V; epaulet black; basicostal scale and subcostal sclerite orange-yellow; upper and lower squamae yellowish brown; halter brown.

Legs: Black; fore tibia with 3 *ad*, 1 *pd* and 1 *pv*; mid tibia with 1 strong submedian *ad*, 1 *ad*, and 1 *av*; hind tibia with 2 *ad*, 2 *pd*, and 1 *av*, without long hairs.

Abdomen: Golden or yellowish gray; 2nd tergite black; 3rd and 4th tergites with median dark vittae and cone-shaped marginal pattern posteriorly; 3rd tergite with strong median marginal bristles; marginal bristles on 4th and 5th tergites well developed; 2nd to 4th sternites with marginal bristles which are stronger on the 2nd, cerci curved forward and pointed at apices, subapical spines small and numerous (fig. 9); apical part of paraphallus long and strongly curved, ventralia well developed, style slender (fig. 8).

♀. Body length 7.5-8.5 mm. General character similar to that of ♂. Frons about 0.3 of head width; 1 proclinate and 2 reclinate fronto-orbital bristles well developed; outer vertical bristles developed. Genitalia as shown in fig. 10.

Holotype ♂ (BISHOP 8886), Vella Lavella I., Kow, 30 m, Solomon Is., 28.XI.1963, P. Shanahan, Malaise trap. Allotype ♀, Vella Lavella, Ulo Crater, 10 m, Solomon Is., 17.XII.1963, P. Shanahan, Malaise trap.

Paratypes: 2 ♂♂, same data as allotype; 3 ♂♂, 21.XII.1963, same data as allotype; 1 ♂, XII.1963, same data as allotype; 1 ♂, Russel Is., Yandin-Banika I., 100 m, Solomon Is., 26.VII.1964, R. Straatman; 1 ♀, Florida Is., Nggela I., 250 m, Solomon Is., 17.X.1964, R. Straatman, Malaise trap.

Remarks: This species is near *S. stricklandi* (Hall & Bohart) by having bristles on abdominal sternites and small and numerous subapical spines on cerci. However, it differs from the latter by some features of phallosome and by the lack of intense yellow on the base of wing. This species was collected at the same locality with *S. maai*.

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**A comment on the color forms of *Frankliniella schultzei*
(Thysanoptera: Thripidae) in relation to transmission
of the tomato-spotted wilt virus**

Frankliniella schultzei (Trybom) has been known to transmit the tomato-spotted wilt virus in South Africa, Australia, and South America. This species was previously called *F. lycopersici* Steele in Australia, and *F. paucispinosa* Moulton in South America. Recent synonymies of *schultzei* discovered by Mound (1968: 39) include *interocellaris* Karny, *sulphurea* Schmutz, *delicatula* Bagnall, and *dampfi* Priesner. The first species is brown to dark brown as *schultzei* is, but the last three species are yellow. Since no other morphological difference was found between both color groups, Mound considered them to be different color forms of a single polymorphic species, *F. schultzei* (Trybom).

The dark form is distributed mainly south of the Equator; in Africa, from south of the Sahara and Sudan to the Cape; India; western Pacific-Australia, from the Philippines through New Guinea to the south shore of Australia; South America, from the Caribbean shore in Colombia to Buenos Aires and probably a little further south in Argentina. The pale form is distributed mainly north of the Equator; in North Africa including Egypt-Sudan-Uganda-Kenya; Near East; Indo-Malay-Papua-Oceania, including Hawaii. Both color forms seem basically allopatric in distribution, but have been known so far to make contacts in India, probably in the Philippines, in New Guinea and probably northern Australia, and in Sudan-Uganda-Kenya, where mixed colonies of both color forms were often found on some host plants (Mound 1968: 39).

In North America the same virus is transmitted by either the dark or pale form of another polymorphic species, *Frankliniella occidentalis* (Pergande) (Sakimura 1962). The two color forms are sympatric in distribution and interbreed freely, and the intermediate form is common. They are both arrhenotokous-parthenogenetic (virgin females produce only male offspring; mated females, female offspring), and body color expression is both sexually limited to females, and males are both pale (Bryan & Smith 1956).

Males of the two color forms of *schultzei* are, however, different in color, and the body color expression seems not to be sex-limited, contrary to the case of *occidentalis*. Although the dark form of *schultzei* transmits the virus, the pale form probably does not. *Sulphurea* was conclusively demonstrated to be a non-vector of the virus, when samples from populations present in Hawaii were tested with locally available strains of the virus (Sakimura 1946). To verify this inability of the pale form through its entire distribution, more testing should be conducted at some other localities.

It should be an extremely interesting research project to determine how much further the color forms of *schultzei* are different from those of *occidentalis* in genetics, type of reproduction,