

## TWO NEW SPECIES OF DROSOPHILIDAE (DIPTERA) FROM CENTRAL EUROPE

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*Leucophenga hungarica* L. PAPP, sp. n. and *Stegana (Steganina) consimilis* L. PAPP et MÁCA, sp. n. are described from the 1999 collectings from Hungary (additional specimens are from the Czech and the Slovak Republics). With 20 original figures.

Key words: *Leucophenga*, *Stegana (Steganina)*, new species, Drosophilidae, Hungary

In the frame of the project “Large blank spots in the Diptera fauna of Hungary” species representing dipterous families formerly not recorded from Hungary are to be collected and published. Furthermore, species representing not recorded genera are also targets of our activity.

In 1999, the first year of the project, these collectings resulted in capturing specimens of numerous genera and species new for the fauna of Hungary. Very much to our surprise, also two species of Drosophilidae new to science were captured.

Specimens below are preserved in the Diptera collection of the Department of Zoology, Hungarian Natural History Museum, Budapest (below: HNHM), if not specified otherwise. The specimens were mostly collected by LÁSZLÓ PAPP, so this name is not given below, only if I collected them together with ZSUZSANNA BAJZA or ALBERT SZAPPANOS. The year 1999 is also omitted. The months are given as on the collection labels, i.e., May: május, 5., June: június, 6., July: július, 7.; on labels which are written in Hungarian, months come first. The following Hungarian words are on numerous labels: “patak fölött”: over the brook, “patak fölött és mellett”: over and along/beside the brook.

Some abbreviations used also on collection labels: TK: Tájvédelmi Körzet [Landscape Protection Area], TT: Természetvédelmi Terület [Nature Reserve], p., patak [brook], v., völgy [valley].

Abbreviations used in the text are: *dc*: dorsocentral setae, *ifr*: interfrontal bristles, *kepst*: katepisternal setae/hairs, *ors*: upper orbital setae, M: medial vein, R: radial veins, S: abdominal sternite, T: abdominal tergite.

### *Leucophenga (L.) hungarica* L. PAPP, sp. n. (Figs 1–5, 7–9)

Holotype male (HNHM): [Hungary], K-Mecsek TK: Óbánya, Óbányai-völgy, tapló korhadat bükkön [tinder fungus on mouldy oak] – patak fölött, 1999. május 29., leg. PAPP LÁSZLÓ.

Paratypes: Hungary: 9 males, 23 females (HNHM): same as for the holotype; 1 male: K-Mecsek TK: Komló, Zobákpusztá, Hidasi-völgy, Petasitetum, május 28.; 1 female (HNHM): *ibid.*,

patak fölött, május 26.; 21 males, 45 females (HNHM; 1 male, 1 female in the Zoologisches Museum, Universität Zürich, 1 female in the Muséum d'Histoire naturelle Genève): Zempléni TK: Regéc, Ördög-v., patak fölött korhadó bükkön tapló [tinder fungus on mouldy oak], június 8., PAPP L., SZAPPANOS A.; 2 females: ibid., patak fölött; 1 female: ibid., patak fölött, június 29., PAPP L., BAJZA Zs.: 1 female: Nagyhuta, Senyő-völgy, patak fölött és mellett, június 9., PAPP L., SZAPPANOS A.; 3 females: Nagyhuta [correctly: Regéc], Vajda-v., patak fölött, június 8., PAPP L., SZAPPANOS A.

Czech Republic (coll. J. MÁČA): 1 male: Bohemia mer., Hluboká n. Vlt., JAN MÁČA leg., 23. 6. 99; 1 male: Moravia sept., Hradec u Opavy env., J. ROHÁČEK leg. – on rotting tree trunks, 31. 5. 1990; 1 male: Moravia sept., Silhorovce, Cerny les (distr. Opava), J. ROHÁČEK leg. – on rotting tree trunks, 10. 7. 1991.

Slovak Republic (coll. J. MÁČA): 1 male: Slovakia or., Nová Sedlica env., Stuzica reserve, J. ROHÁČEK leg. – on tree fungi, 10. 7. 1973, F3; 1 female: ibid., sweeping undergrowth of deciduous forest, 10. 6. 1994.

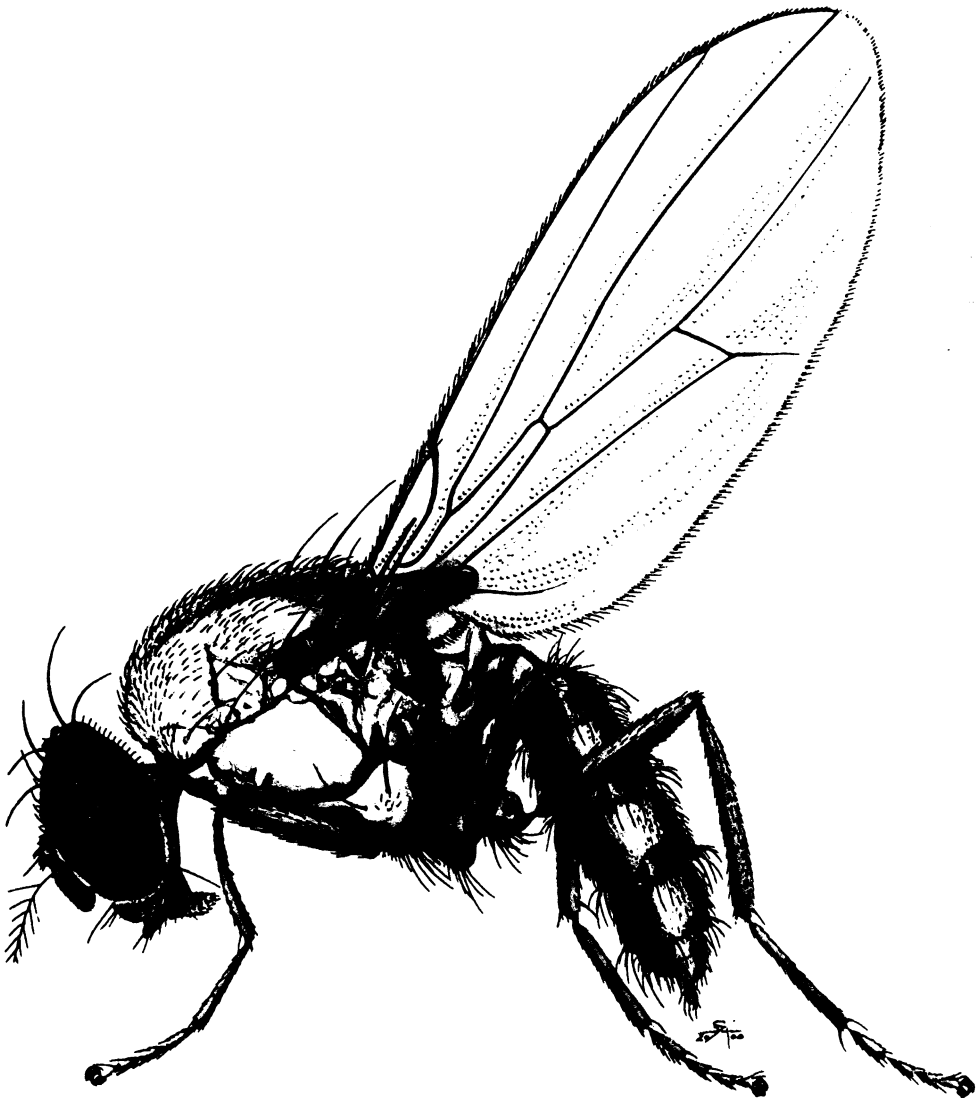


Fig. 1. *Leucophenga hungarica* sp. n., paratype male (del. A. SZAPPANOS)

One female (seriously damaged, left wing lost) with label data "Slovakia or., Stakcín env. (distr. Humenné), J. Roháček leg. – sweeping undergrowth of deciduous forest, 20. 6. 1986" was also seen but not included in the type series.

Measurements in mm: body length 3.67 (holotype), 2.71–4.13 (paratype males), 3.54–4.33 (paratype females), wing length 4.37 (holotype), 3.80–4.71 (paratype males), 4.01–4.96 (paratype females), wing width 1.56 (holotype), 1.38–1.80 (paratype males), 1.54–1.85 (paratype females).

Body colour honey-yellow, eyes vivid red (Fig. 1), legs unicolourous, somewhat greyish yellow, abdominal segments 2–4 with black (dark brown) caudal marginal crossbands and with a sagittal longitudinal band of the same colour. The dark marginal band on tergite 2 is extended anteriorly near the lateral side of abdomen and so the dark colour forms a transverse "E" on this tergite.

Frons at middle 0.38 times as broad as head (holotype) or 0.44 times as broad (females); lateral sides of orbits more or less parallel, i.e. frons not narrowed anteriorad.

Frontal chaetotaxy peculiar (cf. BÄCHLI 1998): proclinate fronto-orbital almost as long as posterior *ors*, the second (reclinate) *ors* placed caudally (well behind) and slightly laterally to the proclinate one; anterior reclinate *ors* half as long as posterior *ors*; posterior reclinate fronto-orbital definitely nearer to anterior one than to inner vertical (Fig. 1). Some short unpaired *ifr* and some other similar short hairs over lunule. Orbitalia with some additional short hairs, postoculars stronger, uniserial. Ocellars long and strong, ocellar triangle with a pair of laterocline hairs, postocellars long and crossing, vertical pairs long and thick. Vibrissal pair strong but peristomials short, comparatively thin and uniserial. Gena very narrow, 0.22–0.028 mm below longitudinal axis of eye. Gena posteriorly with 1 strong ventrally directed seta.

Scape and pedicel with short thin hairs, pedicel with a pair of long hairlike setae. First flagellomere covered with short thin ca. 0.011 mm long cilia. Arista with long branches: 6–7 dorsal and 4(5) ventral branches, ventral ones not shorter than dorsal ones. Palpi with 1(2) medium long (0.056–0.073 mm) apical and 3–4 other short setae.

Two pairs of *dc*; ca. 8 badly arranged rows of acrostichals, prescutellar pair comparatively strong, 2/5 length of posterior *dc*. Scutellum rather convex with 2 pairs of strong scutellars, otherwise bare.

Two strong katepisternals, and some minute *kepst* hairs, pleura otherwise bare.

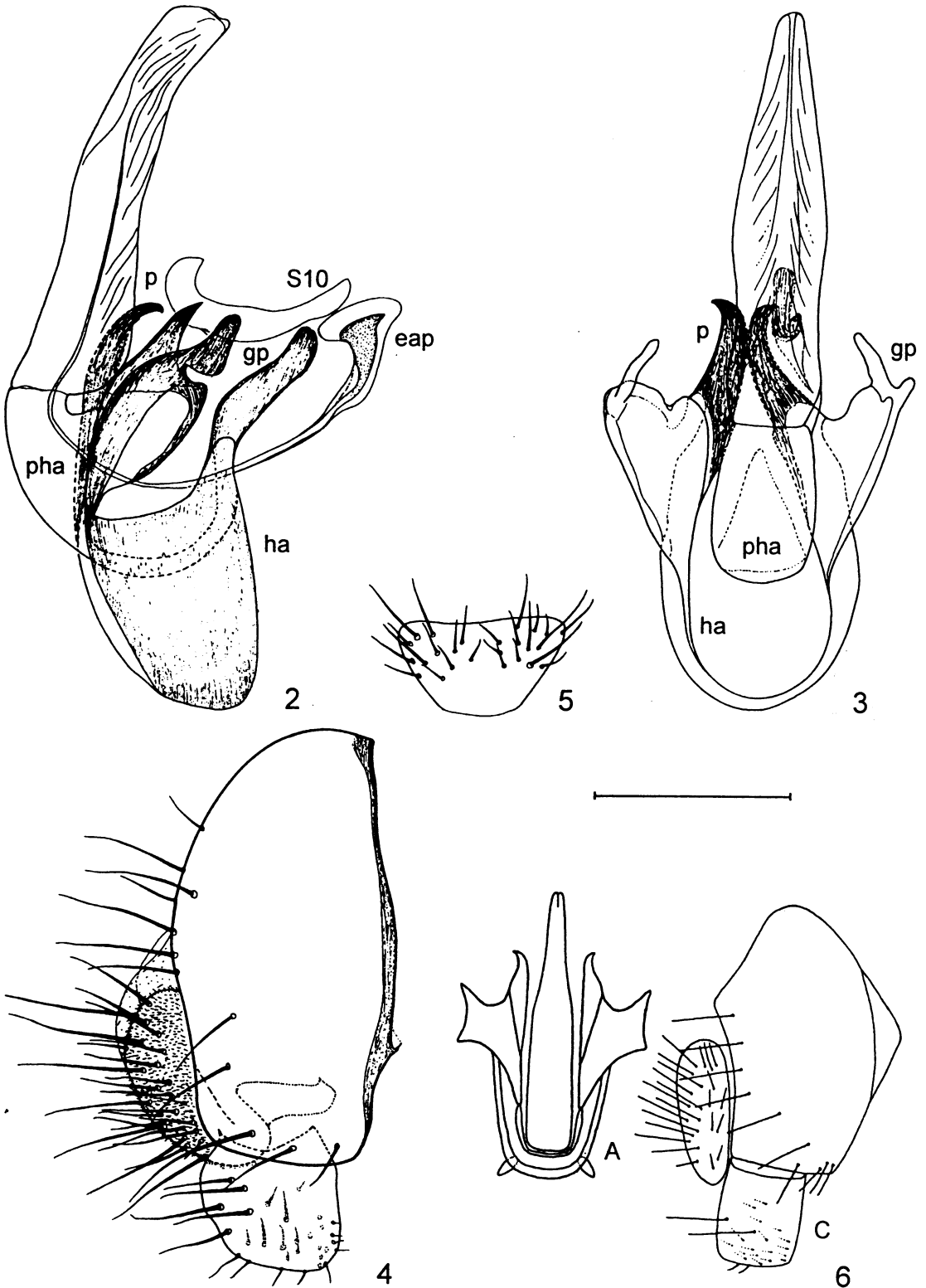
Legs incl. tarsi long, tibiae with weak dorsal preapicals, but without any more special armature. Mid tarsi posterodorsally with a row of small peg-like bristles, but no such row on hind tarsi (contrary to a majority of the species in the subfamily Steganinae, e.g. to *L. maculata*).

Wings clear yellowish without any darker hue anywhere (e.g. not even on the cross-veins), veins ochreous yellow. Costa reaching apex of M; stronger fringe on costa between R<sub>2+3</sub> and R<sub>4+5</sub> is on its 11/16 to 2/3; thornlike spines below costa absent as in *Paraleucophenga*, though this new species definitely belongs to *Leucophenga*. Discal and second basal cells confluent as in other species of *Leucophenga*.

Abdomen comparatively small. Male genitalia rather small, female postabdomen strongly telescoping (Fig. 1).

Male genitalia: pregenital sternite (S6) simple, trapezoidal (Fig. 5); epandrium small compared to the preabdomen, short and rounded dorsally; cerci (Fig. 4) rather ventrally placed with numerous long setae and covered with trichia; surstylus (Fig. 4) short, comparatively very broad, apex widely rounded; long surstylar setae on caudal half of the lateral surface only, medial surface with some medium-long setae. Hypandrium with large lateral walls but open ventrally (Figs 2–3); gonopods ventrally fused to hypandrium, comparatively short, tip remains behind that of the parameres; parameres (paraphyses) subsymmetrical, long and slender with slightly curved and sharp apex; phallus comparatively long and robust, medial part as broad as basal part (Fig. 3), contrary to that of *L. sorii*; phallopodeme (aedeagal apodeme) widely curved from phallobase to over the gonopods; ejaculatory apodeme distinct though less sclerotized.

Female tergite 8 rather small (Fig. 7), epiproct not divided, itself slightly, its armature strongly asymmetrical. Sternite 8 (Fig. 8) short and broad, not divided with stronger setae on its



**Figs 2–6.** 2–5. *Leucophenga hungarica* sp. n., paratype male. 2 = inner genitalia, lateral view, 3 = same, ventral view, 4 = epandrium, cercus and surstylus, lateral view, 5 = pregenital sternite. 6 = *Leucophenga sorii* KANG, LEE et BAHNG, 1965, inner genitalia, ventral view (A) and epandrium with cercus and surstylus, lateral view (C) (abbreviations: eap: ejaculatory apodeme, gp: gonopod, ha: hypandrium, p: paramere, pha: phallapodeme, S10: decasternum; 6 after KANG *et al.*). Scale: 0.2 mm for Figs 2–4, 0.4 mm for Fig. 5

caudal margin only, covered with minute hairlets. Cerci long and slender, well-sclerotized, with several long setae and with an extremely long pair of dorsal subapical setae. Spermathecae (Fig. 9) long, slender, two- or rather tripartite, proximal part black, very long without annulation (cf. BÄCHLI 1971: Fig. 10 h-t), proximal half of medial part also black, distal half of medial part brown, distal part yellow, weakly sclerotized with inner annulation.

*L. hungarica* sp. n. is a peculiar species; in keys for drosophilid genera (e.g. BÄCHLI 1998) it keys out to the subfamily Drosophilinae as regards the position of fronto-orbitals. It is without a close relative in the western Palaearctic fauna. Its closest relative is probably *Leucophenga sorii* KANG, LEE et BAHNG, 1965 (Fig. 6) known from South Korea. However, as seen on Fig. 6, the surstylus of this species is longer and more quadrate (Fig. 6: "C") when compared to the new species; its cerci seem comparatively larger and also inner genitalia are different. KANG et al. (1965) did not demarcate phallus and phallapodeme but the apical half of the phallus seems thinner in *L. sorii*; as for the parameres (paraphyses), those of the *L. hungarica* are more slender in their medial portion; the ratio of the hypandrium and gonopods to the phallus is convincingly different (Figs 2–3, cf. Fig. 6: "A"). *L. sorii* has always a dark band on its 5th tergite, though medially interrupted. It is seldom that the caudal margin of the 5th tergite is somewhat darkened in *L. hungarica* but this difference in colour is probably not a safe character that would make it possible to differentiate these two species.

### *Stegana (Steganina) consimilis* L. PAPP et MÁCA, sp. n. (Figs 10–21)

Holotype male (HNHM): Zempléni TK: Nagyhuta, Vajda-v., Kemence-patak fölött és mellett, 1999. június 28., PAPP L., BAJZA ZS.

Paratypes: Hungary (HNHM): 7 males: data as for the holotype; 3 males: *ibid.*, patak fölött, június 8., PAPP L., SZAPPANOS A.; 5 males: Zempléni TK: Regéc, Ördög-v., patak fölött és mellett, 1999. június 28., PAPP L., BAJZA ZS.; 1 male: *ibid.*, június 8., PAPP L., SZAPPANOS A.; 1 male: *ibid.*, Füzér: Alsó-patak fölött és mellett, június 29.; 1 male: K-Mecsek TK: Óbánya, Óbányai-völgy, patak fölött és mellett, május 28.; 1 male: *ibid.*, Komló, Zobákpuszt, Hidasi-völgy, patak fölött, május 26.; 1 male: *ibid.*, Kisújbánya, patak fölött és mellett, május 30.; 1 male: Melegmányi-völgy TT: Pécs: Nagy-mély-völgy, patak fölött, május 27. 1 male: Börzsöny TK: Szokolya, Szén-patak fölött, július 4.

Slovak Republic (coll. JAN MÁCA): 1 male: Slovakia or., Vihorlat Mt., Sninsky kamen Mt., J. ROHÁČEK leg. – sweeping undergrowth of deciduous forest, 21. 6. 1983; 1 male: Slovakia or., Stacin env. (distr. Humenne), J. ROHÁČEK leg. – sweeping undergrowth of deciduous forest, 20. 6. 1986.

Measurements in mm: body length: 2.79 (holotype), 2.50–3.00 (paratypes), wing length 2.96 (holotype), 2.63–3.21 (paratypes), wing width 1.28 (holotype), 1.21–1.49 (paratypes). That is, as a mean same as *S. similis*.

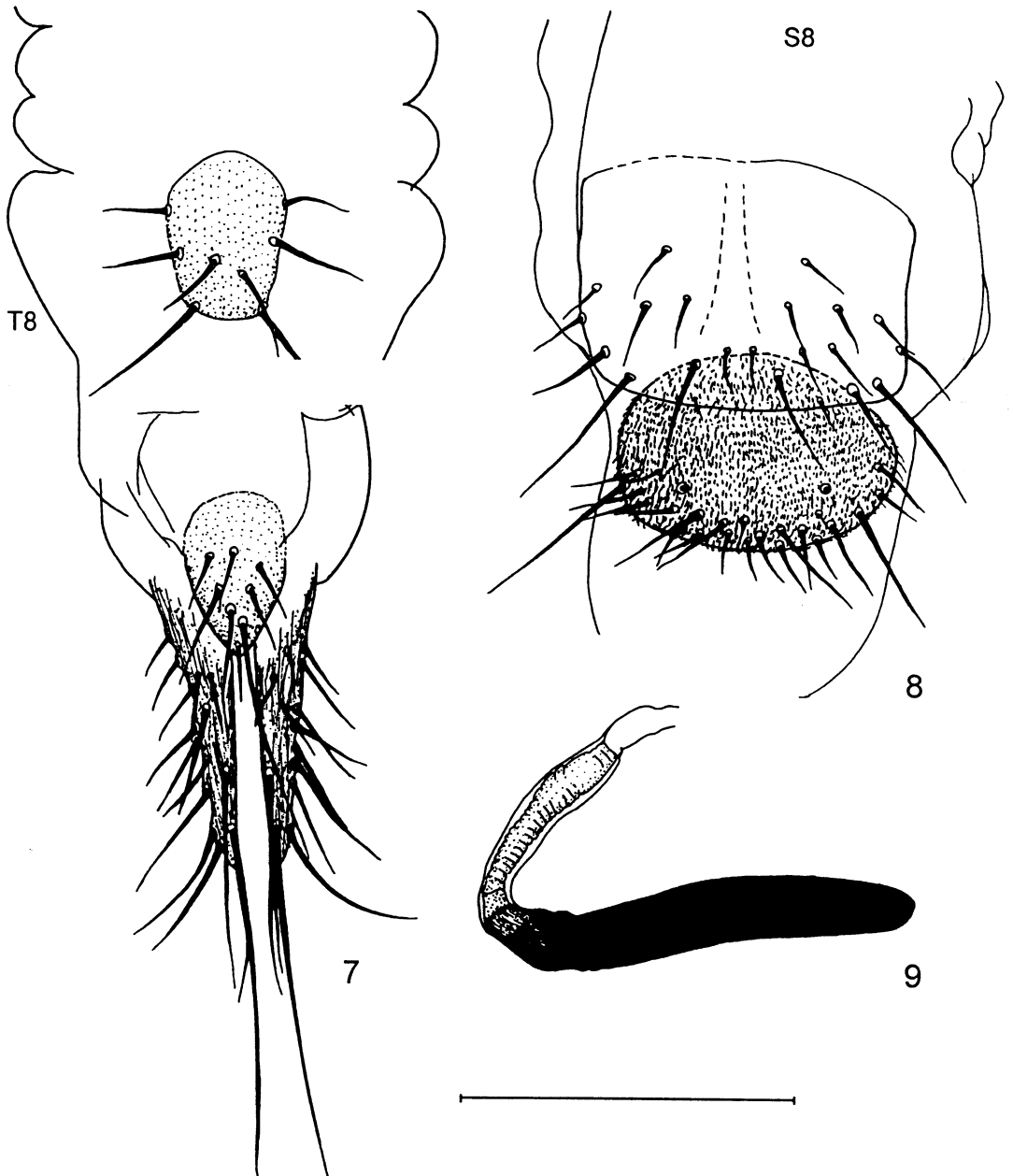
In most body characters it is similar to *S. similis* LAŠTOVKA et MÁCA, 1982, and this new species keys out to *S. similis/S. wheeleri* in the key of LAŠTOVKA and MÁCA (1982). The differences found (incl. some of the male genitalia) are tabulated as follows:

	<i>S. similis</i>	<i>S. consimilis</i>
first flagellomere	shorter, dorsal length/max. width ratio: 18:12, 17: 12	longer, dorsal length/max. width ratio: 21:13, 21:14.5
arista	6–7(8) ventral rays with long ventral rays also in basal third arista rays in medial third > 2nd dorsal apical ray	4–5 ventral rays only without long ventral rays in basal third arista rays in medial third ≤ 2nd dorsal apical ray
gena	medial height < 1st flagello-mere width	medial height > 1st flagello-mere width
genal setae	short behind and above posterior seta	much longer behind and above posterior seta
surstylus	as in L. et M.'s Fig. 42: medial edges 90°, tapering apically with a lower apical tooth	medial edges smaller than 90° (Figs 10–11), broader, also apex rather broad ± truncated
ejaculatory apodeme	with short robust stalk	with very long slender stalk
paramere	short broad without a medial apex	anterior margin deeply emarginate, posterior margin with a triangular process bent caudally
legs	yellow, or fore "knees" and apical part of f2 and basal part of t2 darkened to brown	a subapical ring of f2 and a broad apical ring of t2 dark brown

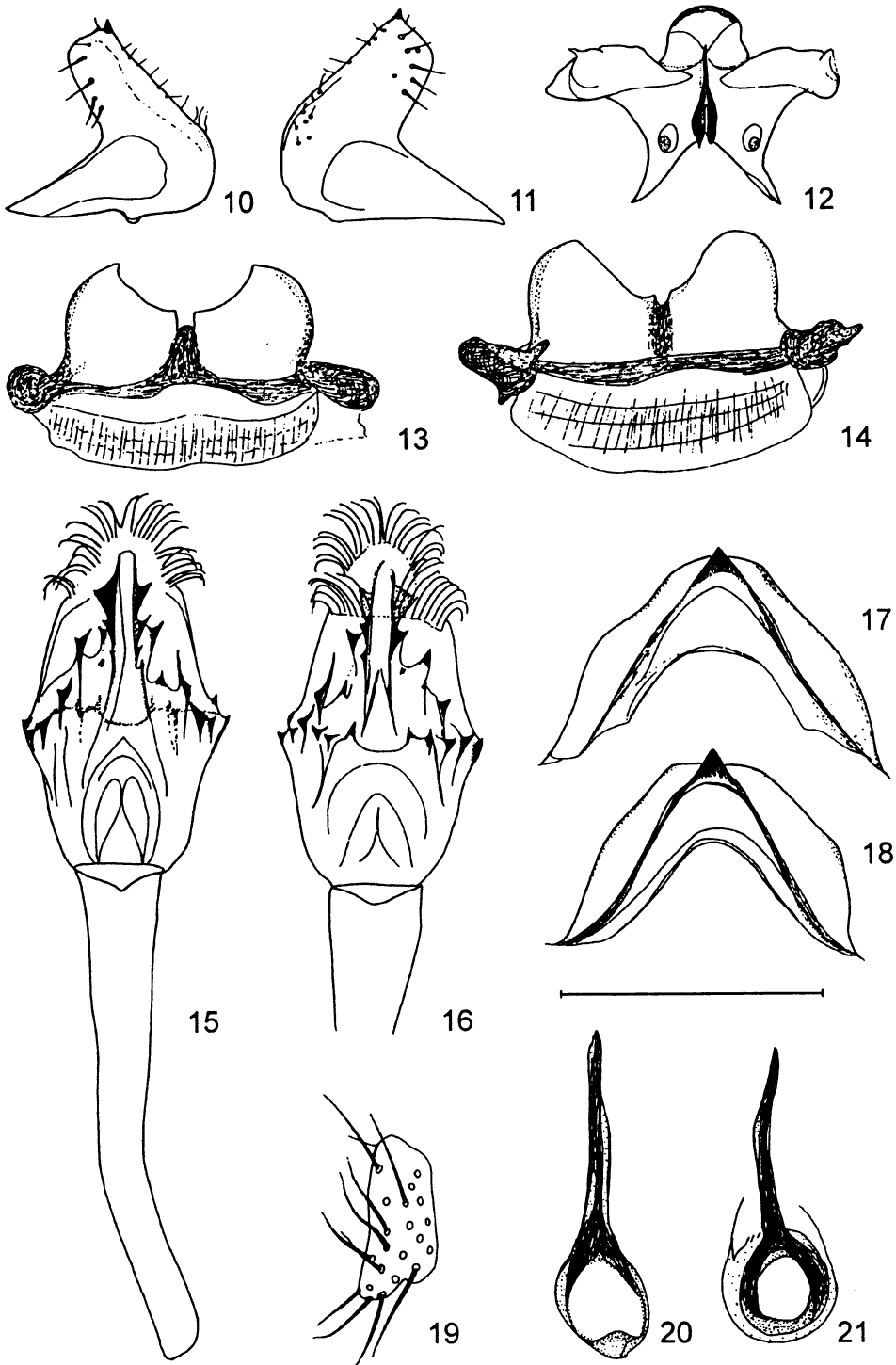
While *S. consimilis* sp. n. is similar to *S. similis* LAŠTOVKA et MÁCA, 1982 in its body characters, its genitalia show a peculiar set of characters, where the different genital structures are similar to those of different species. This is why we do not think that *S. consimilis* would be a sister-species of *S. similis*.

Male cerci (Fig. 19) tend to be bilobed ventrally (apically). Surstyli sub-symmetrical (Figs 10–11), broad, medial edges smaller than 90, apex rather broad and truncated; all in all surstyli are more similar to those of *S. nigrithorax* (see Fig. 48 of LAŠTOVKA & MÁCA (1982)), than to those of *S. similis* or *S. wheeleri*, which are probably more closely related. Decasternum (Fig. 12) not similar to that of the two species (cf. LAŠTOVKA & MÁCA (1982): Figs 58–59) and distinctly differs from any of the known species. Hypandrium (Figs 13–14) broad and comparatively short, less characteristic. Phallapodeme (Fig. 15) was found as slightly asymmetrically curved in all the specimens prepared. Phallus short and broad (Figs 15–16) with strongly sclerotized teeth on both dorsal and ventral surface, apically and ventrally-subapically with numerous curved hairlike

setae as characteristic for the *Steganina* spp; phallus again not similar to that of *similis* or *wheeleri* but reminiscent to that of *S. longifibula* (cf. Figs 72, 74 to Fig. 79, and Figs 84, 86 to Fig. 90 of LAŠTOVKA et MÁCA (1982)). Paramere (paraphyses) (Figs 17–18) with cranial margin deeply emarginate, caudal margin with a triangular (caudally bent) process, similar to that of *S. longifibula* TAKADA (see Fig. 98 of LAŠTOVKA & MÁCA (1982)); paramere of both *S. similis* and *S. wheeleri* are short, broad, without a medial apex). The stalk of the ejaculatory apodeme is the longest (most slender) among the Holarctic species of *Steganina*



**Figs 7–9.** *Leucophenga hungarica* sp. n., paratype female. 7 = postabdomen, dorsal view, 8 = sternites 7 and 8, ventral view, 9 = one of the spermathecae. Scale: 0.2 mm for all



**Figs 10–21.** *Stegana (Steganina) consimilis* L. PAPP et MÁCA, sp. n., paratype males. 10 = left surstylus, broadest extension, 11 = right surstylus, broadest extension, 12 = decasternum, ventral view, 13 = hypandrium, anterior view, Regéc: Ördög-völgy, 14 = hypandrium, anterior view, Nagyhuta, 15 = aedeagus and aedeagal apodeme, dorsal view, 16 = aedeagus, ventral view, 17 = paramere, dorsal view, Slovakia, 18 = paramere, dorsal view, Nagyhuta, 19 = cercus (anal plate), broadest extension, 20 = ejaculatory apodeme, Nagyhuta, 21 = ejaculatory apodeme, Slovakia (not the same view). Scale: 0.2 mm for all



(Figs 20–21); that of both *S. similis* and *wheeleri* is short and thicker; the ejaculatory apodeme of the new species resembles that of *S. dentifera* (Fig. 115 of LAŠTOVKA & MÁCA (1982)).

Female not known (at least we did not dare identify females captured together with males of *S. similis* and *S. consimilis*).

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