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SALEMEA SORORIA SP. N. AND *HETERONYCHIA OBVIA* SP. N., TWO NEW SPECIES OF FLESH-FLIES FROM SICILY (DIPTERA, SARCOPHAGIDAE)

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Abstract

POVOLNÝ, D.: *Salemea sororia sp. n. and Heteronychia obvia sp. n., two new species of flesh-flies from Sicily* (Diptera, Sarcophagidae). Acta univ. agric. et silvic. Mendel. Brun., 2004, LII, No. 1, pp. 7-14

Salemea sororia sp. n. and *Heteronychia obvia* sp. n. are next two new discoveries of flesh-flies from Erico arboreae-Quercetum Ilicis formation above Trabia (Palermo). These two obviously very rare taxa were collected near the hilltop of Pizzo Onofrio-Casina (Trabia) near Palermo at 773 m a.s.l., where the flesh-flies were systematically captured in a hilltopping situation at the turn of May/June of the years 1997 –2003. In connection with the description of *Salemea sororia* sp. n. the complicated taxonomy, synonymy and distribution of *Salemea ferox* (Villeneuve, 1908) are discussed. As for *Heteronychia obvia* sp. n., its description is completed by the comparison with three related species of the genus *Heteronychia* Brauer & Bergenstamm, 1889. Male genitalia and last abdominal segments are figured (partly in colour).

flesh-flies, Sarcophagidae, Sicily, spp. n., insular endemics, taxonomy, distribution

During the seventh collecting trip to Sicily (May 22nd – June 6th 2003) due to the inventory research of its flesh-flies two obviously undescribed flesh-fly species were captured on a stony plateau between the ruins of a deserted ancient farm. This habitat is situated on the margin of a *Quercus suber* stand at about 750 m a. s. l. where occasionally cows pasture. The day (May 22nd) was rather windy and cold (approx. 17 ºC), but numerous flesh-fly males exhibited their ritual preconnubial interactions (Povolný & Verves, 1997) on sunlit walls of the ruins (protected from the wind). The flesh-fly association consisted of the following taxa (numbers of individuals in parenthesis) *Sarcophaga panormi* Povolný, 1998 (36), *Heteronychia consanguinea* (Rondani, 1860) (16), *Ctenodasypygia minima* (Rondani, 1862) (10), *Myorhina nigriventris* (Meigen, 1826) (10), *Helicophagella novercoides* (Böttcher, 1913) (10), *Myorhina sorror* Pape, 1995 (9), *Helicophagella hirticrus* (Pandellé, 1896) (7), *Pandelleana siciliae* Povolný, 1998 (4), *Liopygia crassipalpis* (Macquart, 1939) (3), *Heteronychia pandellei* (Rohdendorf (1937) (3), *Sarcophaga variegata* (Scopoli, 1763) (3), *Liopygia argyrostoma* (Robineau-Desvoidy, 1830) (2), *Discachaeta cucullans* (Pandellé, 1896) (2), *Bercaea africa* (Wiedemann, 1824) (2), *Thyrsocnema incisilobata* (Pandellé, 1896) (2), *Myorhina socrus* (Rondani, 1860) (1), *Salemea ferox* (Villeneuve, 1908) (1), *Parasarcophaga hirtipes* (Pandellé, 1896) (1), *Wohlfahrtia vigil* (Walker, 1849) (1). Such species as *H. pandellei*, *D. cucullans*, *S. ferox*, *P. hirtipes* characterize the „mediterranean" character of this habitat, whereas *S. panormi*, and *P. siciliae* are Sicilian endemics. The secondary impact is reflected in such species tending towards the synanthropy as *L. crassipalpis*, *B. africa* and *Th. incisilobata*. The generic status of *Salemea sororia* sp. n. remains unclear and is based on some characters of the genitalia (see description). *Heteronychia obvia* sp.

n. is possibly an endemic species of the *Heteronychia vagans* (Meigen, 1826) - group of species treated in my previous paper dealing with its so-called red-tailed species (Povolný, 2003).

Salemea sororia sp. n.

(Figs. 1, 2, 3, 4, 6, 7, 9)

Description: Holotype ♂, Sicilia, Pizzo Onofrio-Casina (Trabia) near Palermo, 773 m, May 22, 2003). The holotype male is preserved in the Department of Entomology, Moravian Museum, Brno, Czech Republic.

Head. Frons at narrowest part corresponding to about 0.28, at vertex to about 0.30 and at antennal base about 0.33 of head width ; vitta frontalis frontoventrally approximately 0.45 broader; frons middle about 0.45 wider than one parafrontal; 3rd antennomere approx. 1.5 x longer than 2nd; arista very long, distinctly longer than 3 rd antennomere, moderately inflated towards its base, hairless apically at more than last 1/3 of its length; parafacial at level of antennal base about 1/3, gena more than 1/3 of eye length; palpus long, rather parallelsided to moderately clavate; 3 rows of postorbitals, vte absent; 8-9 pairs of strong frontal bristles (*fr*); 1 row of comparatively stout distinct parafacial bristles, the longest nearly as long as parafacial width; facial ridge distinctly haired.

Thorax. Generally strongly haired, *ac* 0 + 1, *dc* 2 + 3, humeral bristles *(hm)* concealed behind first femur of holotype; notopleural bristles *(npl)* 1 – 2; scutellum with *ap* delicate, *ds* strong, lateroscutellars *(lts)* strong; ctenidium indicated, all femora and t_3 strongly haired; t_3 with anterodorsals (2), postdorsals (3) and with anteroventrals distinct.

Wing. Costal spine minor but distinct; *m-cu* vein distinctly sigmoid; ratio between 3rd and 5th costal section as 1 : 1.2

Abdomen. Abdominal tergite III with mediomarginals, sternite III without brush, tergite VII-VIII with poorly visible mediomarginals.

Body colouration corresponds generally to the colour pattern characteristic of nearly all species of the tribe *Sarcophagini*, the three blackish central stripes on thorax are distinct, whereas the abdominal checquered pattern is less distinct, rather obscure and dark. Head, antenna and mouth parts are velvety black, orbital parts with strong silverish lustre. The genital (anal) tergite is orange and its dorsal wall is moderately vaulted; the preabdominal (8th) tergite is lustrous black.

Body length approximately 9.8 mm.

Male genitalia

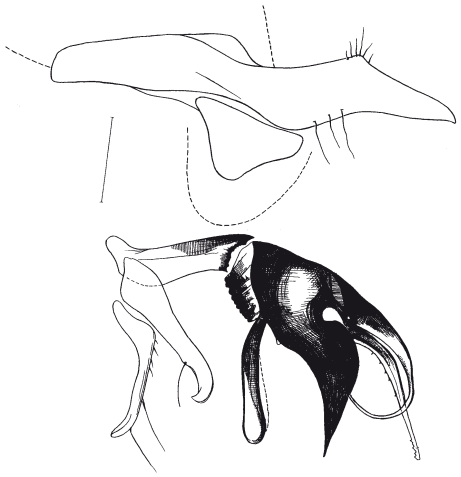
Generally stout and showing several striking specific characters. Cercus slender tapering towards comparatively acute tip. Its dorsal edge forms a minor but very striking haired bump followed by a wave-shaped concavity transiting into vaulted second half of cercus. Aedeagus robust, paraphallus very stout and broad contrasting with slender basiphallus; apical plate forms an obtuse tip; harpe crescent-shaped, very long and protruding to form an acute tip, it occupies essential part of paraphallus and is strongly sclerotized similarly as the paraphallus base; harpe in ventral view broadly v-shaped, its arms especially on their margins heavily sclerotized; the stilet is so short and stunted that it is invisible in lateral view being concealed in the membraneous center between the membraneous bases of the harpal branch and becomes visible only in ventral view; membrane ventral bulgy, districtly sclerotized; both gonites rather short with obtuse tips. The fifth sternite (not figured here to avoid unnecessary breaking of the next abdominal segment) resemble to the relations observed in some species of the genus *Helicophagella (*e.g. *H. maculata, H. rosellei* or *H. novercoides)*.

Differential diagnosis

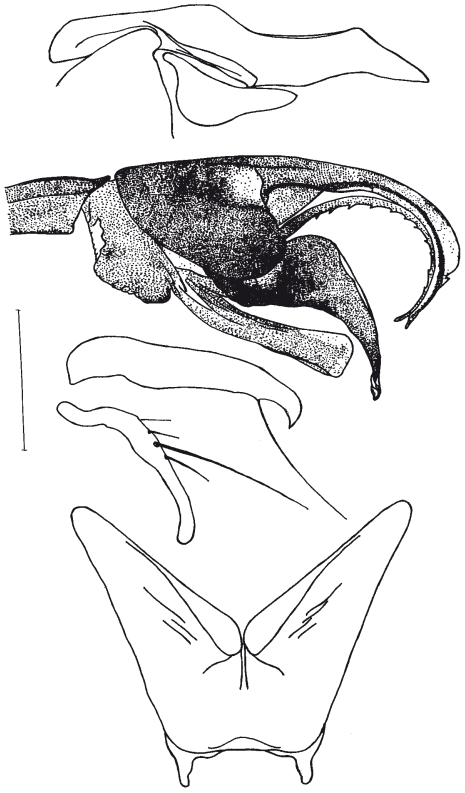
Compared with *Salemea ferox* the male genitalia show striking differences so that the congenericity of both taxa remains doubtful. The most striking differences are visible in the form of the cercus, in the absence of the curious elongate parallel-sided process arising from the membranal plate of *S. ferox*, in the striking figre-shaped distinctly serrate stilet (stunted in *S. sororia*), in minor stilet etc.

Taxonomy

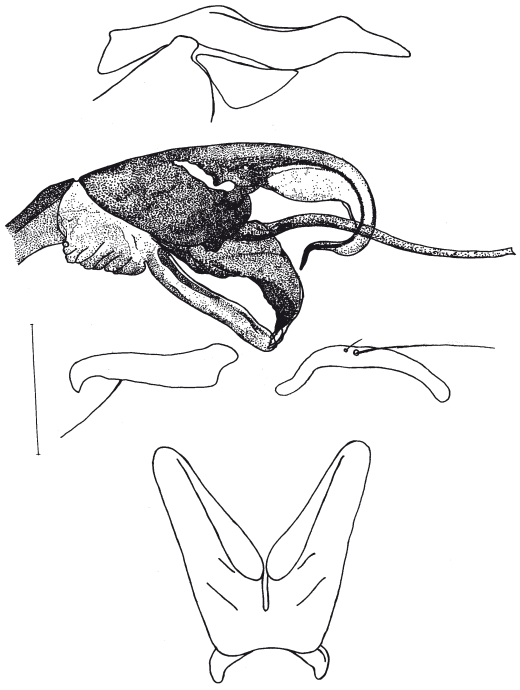
The genus *Salemea* has been constituted by Rohdendorf (1965) as a monobasic genus, with *Sarcophaga strenua* Robineau-Desvoidy, 1863, as the type species. This is a doubtful species of which probably no authentic specimens are in existence. Also, the generic name, *Hartigia* Robineau-Desvoidy, 1863, in which the species *strenua* was included later, is inapplicable because of being homonymous (Pape, 1996). Therefore, Pape (1996) synonymised the genus *Hartigia* with the genus *Heteronychia* Brauer et Bergenstamm, 1884 (type species, *Sarcophaga dissimilis* Meigen, 1826). However, the species *Sarcophaga ferox* Villeneuve, 1908 is apparently not congeneric with *Heteronychia dissimilis* (Meigen, 1826). This inspired Lehrer (1995) to constitute his new genus *Devriesia* (type species *Salemea ferox*). This situation conflicts with the fact that the genus *Salemea* Rohdendorf, 1965 has remained to be valid, since the name *Hartigia* has become a *nomen nudum* and the species *strenua* cannot be traced (see above). Moreover, in his revision of the genus *Salemea*, Lehrer (1995) has described another species of his genus *Devriesia*, viz. *Devriesia weberi* which obviously is conspecific with



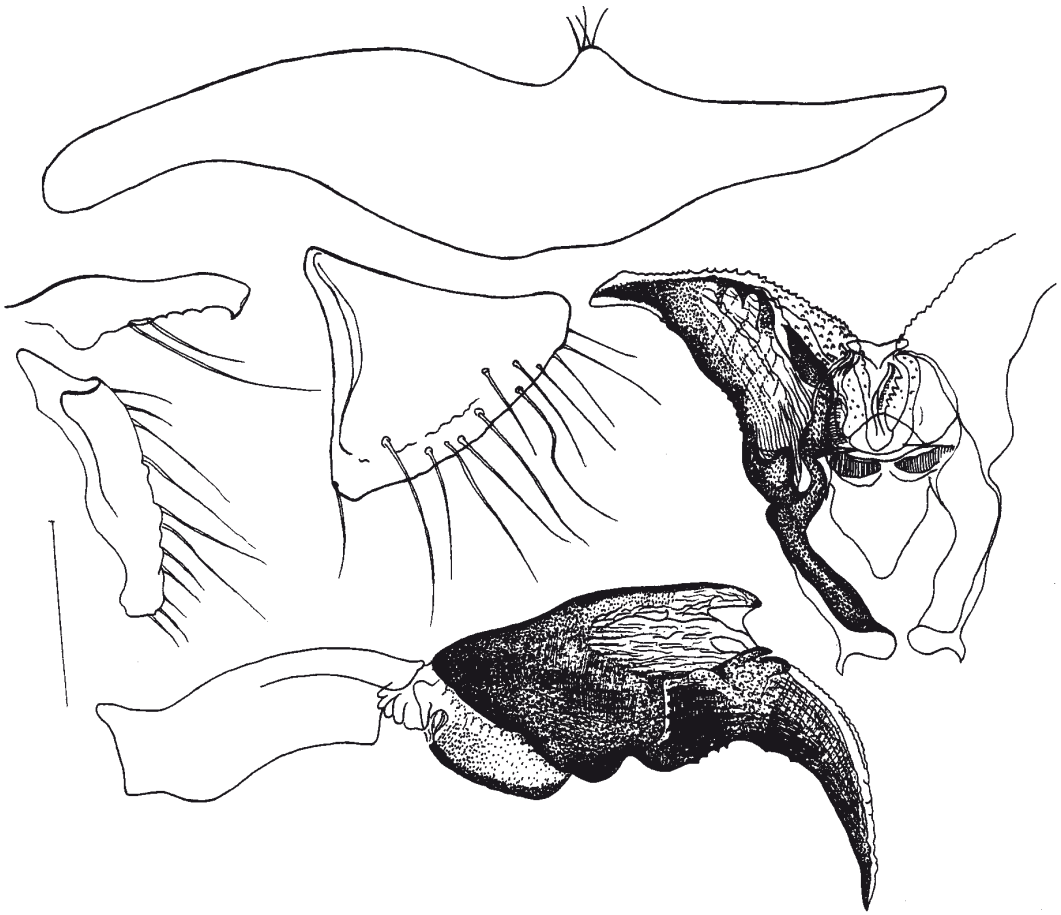
1: *Salemea ferox (Villeneuve, 1908). Lateral view of the male genitalia (of a male from Sardinia, Costa Rei, Monte Nai, 239 m, May 29, 1996). - Cercus (above) and aedeagus (paraphallus with gonites) (bottom). The bar corresponds to 0.25 mm in all following figure (2 – 5). (Original figure).*



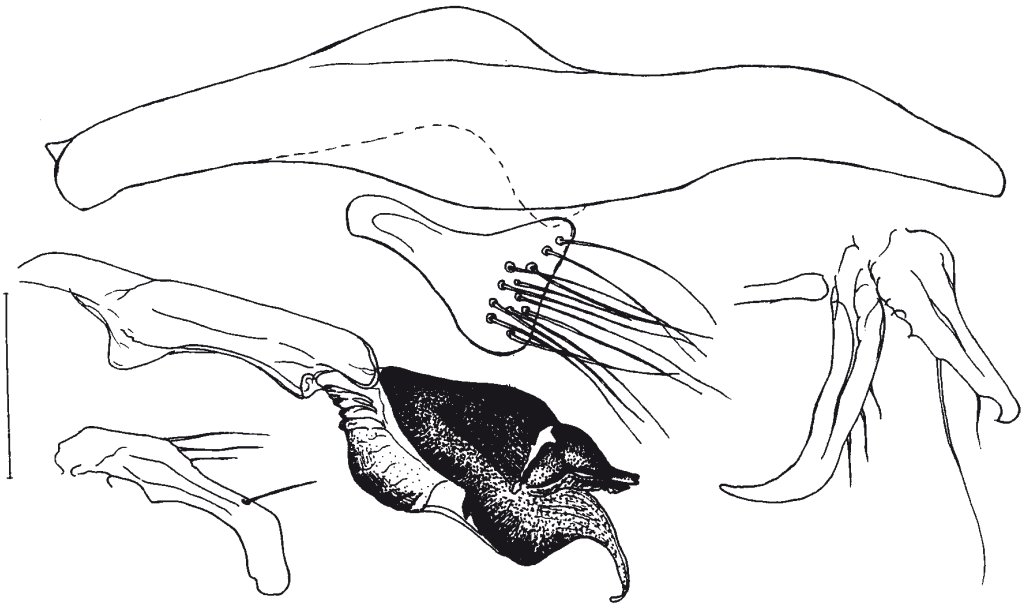
2: *Salemea ferox (Villeneuve, 1908). Lateral view of male genitalia (according to Lehrer, 1995) (From ESPAŇA, Malaga, Benaojan, 1. VI. 1967). - Cercus (above), paraphallus and gonites (middle). 8th sternite (bottom).*



3: *Salemea ferox (Villeneuve, 1908). Lateral view of holotype male genitalia (Devriesia weberi Lehrer, 1995), according to Lehrer, 1999 (from ISLAS BAEARES, Menorca, CALA EN PORTER, 25. IX. 1973). - Cercus (above), paraphallus and gonites (middle), 8th sternite (bottom).*



4: *Salemea sororia sp. n. Lateral view of holotype male genitalia (from Sicilia, Pizzo Onofrio-Casina (Trabia), Palermo, 773 m, May 22, 2003). - Cercus (above), gonites (left), distiphallus (right), aedeagus (bottom).*



5: *Heteronychia obvia sp. n. Lateral view of holotype male genitalia (from Sicilia, Pizzo Onofrio-Casina (Trabia), Palermo, 773 m, May 22, 2003). - Cercus (above), gonites (right), aedeagus with gonite (under aedeagus in lateroventral view).*

Salemea ferox (compare Figs. 1 and 2, 3). This absurd situation becomes still more evident, considering that Lehrer (1995) based his revision (of the genus *Salemea* Rohdendorf), on a mere two (!) specimens of the same species (one from Málaga, Spain, the other from Menorca Island). Another error is the constitution of the genus *Salemiophalla* Lehrer, 1995 in that same paper. The species *Sarcophaga desertorum* Salem, 1935, the type species of the genus *„Salemiophalla"*, is notorious in being congeneric with the genus *Heteronychia* (see e.g., Pape, 1996). Thus, on the basis of a mere two specimens, both congeneric and conspecific, Lehrer (1995) has described two genera and one new species.

The differences between the genitalia figure of *Salemea ferox* by Lehrer (1995) and *Devriesia weberi* Lehrer, 1995 (compare figs. 2 and 3 – both according to Lehrer, 1995) show only seeming differences resulting from slightly different orientation of the individual male genitalia structures, both emphasizing, on the contrary, essential conformity of all of them. The seemingly elongate slender flagellate stilet in *„Devriesia weberi"* results from the chemical composition of the medium in which the genitalia were fixed.

Distribution and ethology of Salemea ferox

This appears to be a widely distributed western Mediterranean sarcophagine taxon, known from the Canary Islands, southern France (Provence), Sardinia, Italy (Sicily), Spain, Algeria, and Tunisia (Pape, 1996). I have collected numerous males of this species in Sardinia (Costa Rei; Monte Nai, 239 m; Bellavista, etc. on the nearby hilltops): 14 oo, May 14, 1995; 7 ♂♂, May 15, 1995; 5 ♂♂, May 17, 1995; 1 ♂, May 21, 1996; 6 ♂♂, May 22, 1996; 4 ♂♂, May 23, 1990;2 ♂♂, May 24, 1990; 6 ♂♂, May 26, 1996; 6 ♂♂, May 29, 1996; 6 ♂♂, ♂ May 31, 1996; 6 ♂♂, June 1, 1999; 4 ♂♂, June 5, 1999; 6 ♂♂, June 6, 1996; 4 ♂♂, June 6, 1996; 4 ♂♂, June 8, 1996; 7 ♂♂, June 8, 1996; 1 ♂, June 15, 1997; 1 ♂, June 17, 1997; 1 ♂, June 22, 1997. The males concentrate exclusively on prominent, sunlit rocky hilltops stained with the faeces of sea gulls and birds of prey, on which stains they suck. They are extremely shy and prefer hot, sunny days, above all, the hottest midday hours. They are strictly heliophilous, avoiding shaded places.

On the rocky hilltops in Sicily, in particular on those of Pizzo Cane (882 m a.s.l.) and Casina (773 m a.s.l.) near Altavilla Milicia, the males of *Salemea ferox* were common locally (Povolný, 1999). I also observed and captured them at the turn of May and June of the subsequent years (2000-2003). I discovered the males also on the hilltop of Mt. Catalfano (180 m a.s.l.) near the harbour of Bagheria, one of the most deserted habitats in Sicily near Palermo. The highest lying habitat of *Salemea ferox* was at Pizzo San Angelo (Madonie Mts.), 1081 m a.s.l., while the species was virtually absent from the sunlit habitats of Pizzo Piombino (Monte Cervi), 1620 m a.s.l. Apparently, the males do not frequent hilltops at elevations higher than 1000m not exceeding, thus, altitudes above the Mesomediterranean zone (Cullotta, 2002). The behaviour of the males was the same as observed in Sardinia: they preferred treeless, isolated groups of rocks on hilltops, individually resting on their peaks in full sunshine. Since the males of this species are rather stout they will scan their immediate environs and attack other flies that attempt alighting in their close neighbourhood. Another specific trait of their hilltopping behaviour was their sucking on bird faeces, since the birds, above all, sea gulls, also preferred alighiting on such hilltos. Although I have never observed many males at any one time it is possible to capture several males a day, provided that the weather is sunny and warm.

***Heronychia* obvia sp. n.**

(Figs. 5, 8)

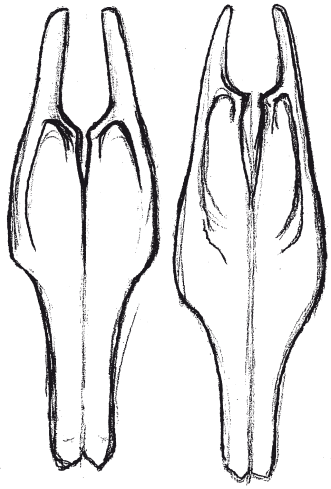
Description: Holotype ♂, Sicilia, Pizzo Onofrio-Casina (Tribia) near Palermo, 773 m, May 22, 2003. The holotype is preserved in the Department of Entomology, Moravian Museum, Brno.

Head. Frons at narrowest part 0.28, at vertex 0.32 and at antennal base 0.34 of head width; vitta frontalis widening twice frontoventrally; frons middle nearly same broad as broadest part of one parafrontal; 3rd antennomere nearly same long as 2nd; arista nearly same long as 2nd and with basis moderately inflated, terminal half without hairs; parafacial at antennal base about 0.26, gena about 0.31 of head length; palpus top widened; three rows of postorbital bristles *(pob)*; *vti* distinct (obviously broken in holotype), ocellar bristles *(ocb)* rather distinct; reclinate frontoorbitals *(rfro)* distinct; frontal bristles *(fr)* 7(8), very distinct, parafacials *(prfcl)* 3 rows (very delicate and hair-shaped), last four (at narrowest of parafacial) stronger and exceeding width of facial; facial ridge bristled.

Thorax. Acrostichal bristles *(acr)* 0 + 1, dorsocentral bristles *(dc)* 2 + 3; supraaral bristles *(sal)* 1; humeral bristles *(hb)* 1 (distinct) + 1; notopleurals 2 (strong); scutellum with delicate short and crossed apicoscutellars *(ap)*, dorsoscutellars *(ds)* strong; ctenidium absent; all femora and tibia (t_3) with dense ventral hairs and bristles; t_3 with 2 strong anterodorsals *(ad)*.

Wing. Costal spine practically absent; r_1 without distinct bristles basally; ratio between 3rd and 5th costal section as 1: 0.8(0.9); *m-cu* vein moderately sigmoid.

Abdomen. Abdominal tergite III without mediomarginals; sternite V as usual in most species of the



9: *Dorsal view of cercus: Salemea sororia (left) and Salemea ferox (right), in an outline.*

genus *Heteronychia* (see, e.g. Povolný, 2000, p. 27, fig. 8).

Body colouration as usual in most Sarcophagini, black thoracal stripes very broad and deeply lustrous; abdomen darker, probably with less distinctive pattern. Head, antenna and mouth parts deeply black, orbital parts only moderately silverish lustrous. The genital (anal) tergite comparatively short, its dorsobasal wall distinctly vaulted, colouration orange, preabdominal (8th) tergite lustrous black. Body length 10.2 mm.

Male genitalia

Cercus very slender and elongate, tip narrow and obtuse; dorsal edge of cercus before its caudal half provided with a striking keel vaulted above the cercus level; aedeagus with basiphallus very slender and distinctly longer than distiphallus (paraphallus proper); apical plate of distiphallus runs out to form a short obtuse tip, under which the moderately elongate stilet is visible; harpe with shortly rounded base forms a distinctly downwards curved ledge not exceeding distiphallus width; membranal lobe longer than broad, distinct and sclerotized; gonites distinctive, postgonite comparatively short, apically narrowed and curved like a short hooklet; pregonite rather robust, tip distinctly curved, tip appears to be acute in lateral postition, rounded in ventral position.

The holotype male is preserved in the Department of Entomology, Moravian Museum, Brno, Czech Republic.

Differential diagnosis

Heteronychia obvia sp. n. belongs into the neighbourhood of such mediterranean taxa of the genus *Heteronychia* as *Heteronychia pandellei* (Rohdendorf, 1937), *Heteronychia consanguinea* (Rondani, 1860) and/or *Heteronychia siciliana* (Enderlein, 1928) – group of mediterranean species showing reddish anal and lustrous black 8th abdominal tergite I have recently reviewed (Povolný, 2003). It shows, however, very characteristic differences (very long and slender cercus with a dorsal keel, and exceeding the length of the aedeagus; distiphallus short, heavily sclerotized – for other details see Povolný, 2003, figs. 3 – 13).

6: *Salemea ferox (Villeneuve, 1908). Lateral view of 8th abdominal tergite (black) and anal (genital) tergite with outline of male genitalia (from Sicilia, Pizzo Onofrio-Casina (Trabia), Palermo, 773 m, May 22, 2003.*

7: *Salemea sororia sp. n. Lateral view of 8th abdominal tergite (black) and anal (genital) tergite with outline of genitalia. Holotype.*

8: *Heteronychia obvia sp. n. Lateral view of 8th abdominal tergite (black) and anal (genital) tergite with outline of genitalia. Holotype.*

SOUHRN

Salemea sororia sp. n. a Hyteronychia obvia sp. n., dva nové druhy masařek ze Sicílie (Diptera Sarcophagidae)

Během sedmého inventarizačního výzkumu masařek (Sarcophagidae) na Sicílii byly na hřebeni Pizzo Onofrio-Casina (Trabia), 773 m n.m. u Palerma uloveny dne 22. května 2003 dva neznámé druhy masařek. Toto stanoviště je zbytek nádvoří starosicilské kamenné farmy, z níž dosud zbývají trosky. Okolní porost tvoří převážně korková doubrava. Přes poměrně chladný den bylo za jinak slunečného počasí mezi troskami zdí dosti teplo, takže předsnubní (prekonnubiální) společenstvo masařek bylo plně rozvinuté. V tomto bohatém materiálu byli objeveni také samečci obou dosud nepopsaných druhů, a to *Salemea sororia* sp. n. a *Heteronychia obvia* sp. n. Jejich popis a s tím spojené otázky faunisticko-taxonomické jsou předmětem této práce. Popisy jsou doprovázeny příslušnými ilustracemi.

masařky, Sarcophagidae, Sicílie, spp. n., ostrovní endemismy, taxonomie, rozšíření

REFERENCES

CULLOTTA, S., 2003: Forest and Pre-forest Types of Sicily (Italy). –Mendel. Univ. Agric. Mendel. Univ. Agric. For., Fac. Forest. Wood Techn. Brno, 370 pp. (Ph.D. thesis)

LEHRER, A. Z., 1995: Révision du genre *Salemea* Rohdendorf et description de deux genres et d´une espéce Palaéartiques nouveau (Diptera, Sarcophagidae). Ent. Ber. Amst., 55: 157–162

PAPE, Th., 1996: Catalogue of the Sarcophagidae of the World (Insecta: Diptera). – Assoc. Publ. Gainesville FL. U.S.A., 558 pp.

POVOLNÝ, D., 1999: Three new mediterranean taxa of the flesh-flies and additional notes on their synecology (Diptera, Sarcophagini). – Acta Univ. Agric. Silvic. Mendel. Brun. (Brno), 47: 7–21

POVOLNÝ, D., 2000: *Liosarcophaga simulatrix* sp.n. and *Heteronychia fugitiva* sp. n. – the next two unknown species of flesh-flies from Sicily (Diptera, Sarcophagini). – Acta Univ. Agric. Silvic. Mendel. Brun. (Brno), 48: 21–28

POVOLNÝ, D., 2003: The second male of *Heteronychia (Pandelleola) volcanoaetnica* (Povolný,

2002) from Sicily and the synonymy of *Heteronychia consanguinea* (Rondani, 1860) from Sicily (Diptera, Sarcophagidae). – Acta. Univ. Agric. Silvic. Mendel. Brun. (Brno), 51: 19–32

ROHDENFORF, B. B., 1965: Composition of the tribe Sarcophagini (Diptera, Sarcophagidae) of Eurasia. – Ent. Obozr. 43: 80 -85

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