

**Two new species of *Coproica* Rondani, 1861 (Diptera: Sphaeroceridae)  
from the Afrotropical region\***

L. PAPP

*H-1182 Budapest, Beremend u. 43, Hungary. E-mail: flyer.papp@gmail.hu*

**Abstract** – Two new species of *Coproica* Rondani, 1861 are described from the Afrotropical region: *Coproica ashleyi* sp. n. (Republic of South Africa, Nigeria) and *C. paraunispinosa* sp. n. (Kenya, Tanzania). Both are sister species (“vicariants”) of Oriental species. A revised key for the *C. serra* species group is given. With 16 figures.

**Key words** – Sphaeroceridae, *Coproica*, new species, Afrotropical region

#### INTRODUCTION

It was only six years ago, when the revision of the Old World species of *Coproica* Rondani, 1961 was published (PAPP 2008a). The species of *Coproica* are among the most abundant flies in the world, and with 21 known species in the Old World the genus is well represented in collections. As it has repeatedly been published, some *Coproica* species are dominant or even overwhelming in dipterous communities of stables, dung heaps, in various kinds of pasture dung (like cow pats), in litter of corals, etc., while other species develop in decaying vegetable material.

Thus, it was with some surprise that two additional species were found in the last years, which are described below.

#### MATERIAL AND METHODS

This paper is based on *Coproica* specimens in the National Museum of Bloemfontein (Nasionale Musium wa Setjhaba), R.S.A. (BMSA) and in the Hungarian Natural History Museum, Budapest (HNHM).

---

\* The paper is dedicated to Dr László Móczár, doyen of the Hungarian hymenopterists, celebrating his 100th birthday.

Species identifications were based mainly on features of the male genitalia; before studying them, the whole abdomen of the male specimens was removed and prepared. For details of the procedure see PAPP (2008a).

The dissected body parts were positioned under an OLYMPUS SZ-ST stereo-microscope, usually under 100× magnification; figures were made using an OLYMPUS BX40 microscope plus an OLYMPUS U-DA device. Most of the figures were made at 667× magnification.

*Coproica* Rondani, 1861

*Coproica* RONDANI, 1861: 10.

*Type species* – *Limosina acutangula* Zetterstedt, 1847 (subsequent designation by the ICZN 1996: 136). For details see ROHÁČEK *et al.* (2001: 135) and PAPP (2008a).

*Remarks* – The genus was satisfactorily characterised and divided to species groups by PAPP (2008a: 3–5). The grouping of the species seems to be a useful tool in their identification, which is corroborated here.

***Coproica ashleyi* sp. n.**

(Figs 1–8)

*Type material* – Holotype male (BMSA): Malaise traps, broad-leafed deciduous forest – RSA: KZN, Ndumo Game r., main camp area at: 26° 54.652' S, 32° 19.718' E, 27–30. xi. 2009, A. H. Kirk-Spriggs – [blue] Entomology Dept., National Museum, P. O. Box 266, Bloemfontein 9300, South Africa.

Paratypes: 54 males, 31 females (BMSA, including 2 males and 2 females in HNHM): same data as holotype; 1 female (BMSA): *ibid.*, Malaise trap, grassy flood plain – pan at: 26°54.299' S, 32°19.974' E, 9–10. xii; 1 male (HNHM): Nigeria, Yangui [= Yankari] Reserve, Wikki, Aug. 14.1978, leg. A. Demeter, No. 18.

*Description* – Measurements in mm: 1.52 (holotype), 1.48–1.60 (male paratypes), 1.26–1.71 (female paratype), wing length 1.21 (holotype), 1.28–1.50 (male paratypes), 1.20–1.79 (female paratypes), wing width 0.55 (holotype), 0.57–0.64 (male paratypes), 0.52–0.75 (female paratypes).

Entire body dark, fore coxae, mouth margin, gena and inner surface of fore femur occasionally yellowish.

Head with 4 pairs of interfrontals, anterior pair shorter. Vibrissa short, 0.12 mm on holotype, 1 row of short genal setae, additional setulae present only exceptionally. Gena only 0.05 mm wide and maintaining this width posteriorly for more than half of its length. Arista cilia 0.01 mm only.

Thorax dark grey, microtomentose. Only 1 posterior dorsocentral seta, which rather long, prescutellar acrostichal pair long. Scutellum with medium-long sparse discal setae, only 8 to 12 countable. Subapical scutellar discal seta very long, longer than apical pair.

Wing membrane almost clear (very light brownish), veins, incl. costa, light brown. Second costal section distinctly shorter than third. Intra-crossvein section of M 0.115 mm, hind crossvein 0.093 mm, ratio 1.23. Alula narrow.

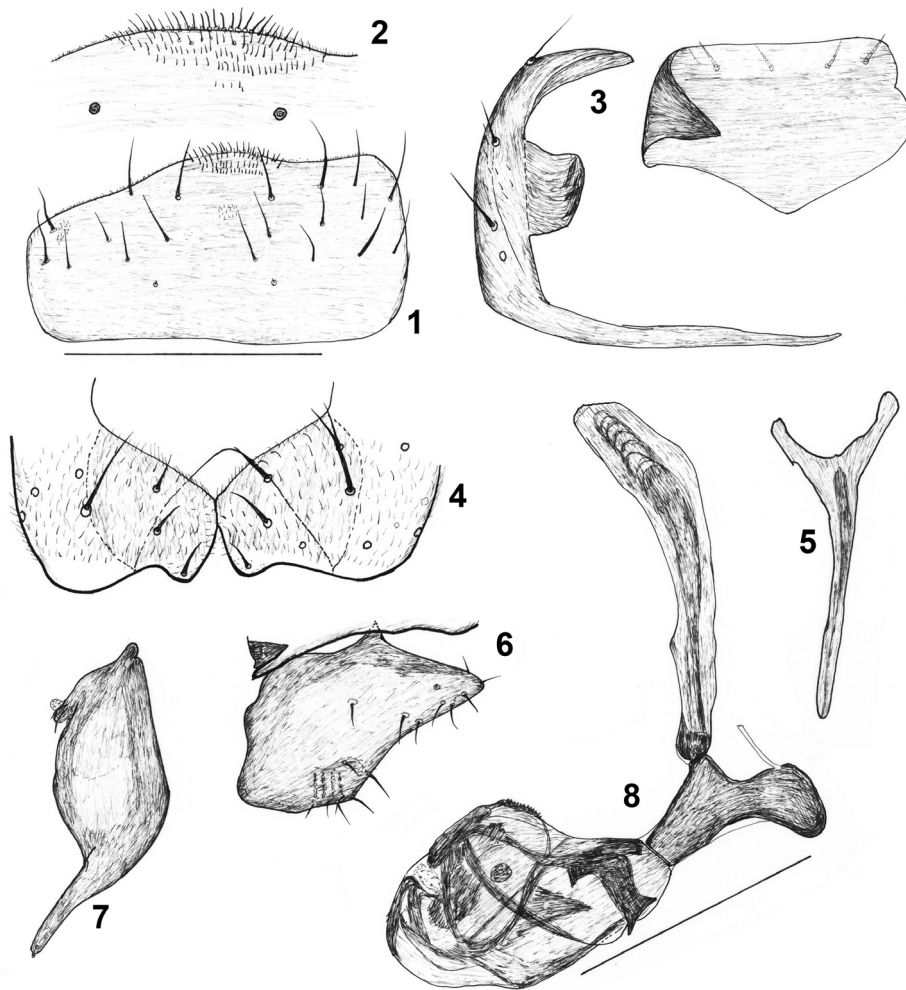
Legs dark greyish brown, fore coxa and tarsi yellowish. Femora dark but inner basal half of fore femur yellowish, tibiae all greyish brown. Posterior apex of mid tibia with a long, distally directed, "*L. salatigae*" type of setae. Fore basitarsus shorter and straight, slightly shorter than tarsomeres 2–3 combined. Mid basitarsus shorter (only half of mid tibial length), ventrally without longer setae. Hind basitarsus only slightly shorter than 2nd tarsomere, the latter swollen.

Abdominal sclerites slightly reduced, tergites narrower than abdomen. Tergite 1 desclerotised medially, tergite 2 partly not desclerotised but demelanised in its medial 1/3. Male sternite 5 comparatively long (Fig. 1), similar to that of *C. thaii*, with minute and not dense thin setae on its medio-caudal part (Fig. 2). Sternite 6 and tergite 7 part of syntergosternite (Fig. 3) "confluent", i.e. medial ventral parts rather well sclerotised. Sternite 8 part of the syntergosternite (Fig. 3) rather long with short subcaudal setae.

Epandrium nearly symmetrical, cercal part – unlike *C. thaii* – with a blunt ventral process only (Fig. 4, cf. Papp 2008a: fig. 36). Its macrosetal pair is most cranial. Hypandrium with comparatively long but narrow medial part (Fig. 5). Subepandrial sclerite (Fig. 4) rather broad and less sclerotised. Surstylus (Fig. 6) long and much higher than in *C. thaii*, caudally *without* large thick thorn, ventrally with several pairs of medium-long and short setae; anterior part of surstylus free of setae. Postgonite (Fig. 7) much different from that of *C. thaii*: rather broad basally, apical part very narrow, straight but anteriorly directed. Phallapodeme comparatively short and rather robust (Fig. 8). Basiphallus (Fig. 8) with a large, subcaudally directed ventral processes, which is rounded caudally, distiphallus rather high compact and definitely shorter than that of *C. thaii* (cf. Papp 2008a: fig. 37).

Female preabdomen as in male: c. 0.54–0.60 mm at broadest, sternite 2 0.11 mm broad and 0.03 mm long, sternite 3 to sternite 5 c. 0.17 mm broad, female sternite 6 slightly broader (0.19 mm). Female cercus 0.10 mm long, 0.03–0.032 mm broad; its apical seta 0.095–0.10 mm, there is a long subapical seta of 0.094–0.097 mm, and 2 lateral setae of 0.063–0.07 mm. In addition, 6 shorter (0.04–0.05 mm) cercal setae discernible. Epiproct 0.058 mm long, 0.065 mm broad, its setal pair 0.028 mm. Hypoproct 0.115 mm broad and 0.05 mm long, it forms half of a ring with minute setulae. Spermathecae almost globular with a diameter of 0.033 mm, their sclerotised duct not long but own duct of paired spermatheca nearly 0.10 mm.

*Etymology* – The species is named after Dr. Ashley H. Kirk-Spriggs (Bloemfontein, Republic of South Africa, formerly Namibian Insect Collection, Windhoek), the collector of numerous sphaerocerids, including the types of this species.



**Figs 1–8.** *Coproica ashleyi* sp. n., paratype male, postabdomen and genitalia. 1 = sternite 5, ventral view, 2 = caudal part of sternite 5 in higher magnification, 3 = synsternite, sternite 6 & 7 part and sternite 8 part separated, in two slightly different ventral views, 4 = cercal part of the epandrium-cerci complex, caudal view, 5 = medial part of hypandrium, ventral view, 6 = left surstylus at its broadest (in a sublateral view), 7 = left postgonite, broadest (sublateral) view, 8 = phallus and phallopodeme, lateral view. Scales: 0.2 mm for Figs 1, 3, 0.1 mm for Figs 2, 4–8

*Remarks* – The species is closely related to an Oriental species, *C. thaii* L. Papp, 2008. The differences are summarised in the key below.

#### A revised key to the *Coproica serra* species group

*Diagnostic features of the group* – Anal vein angularly sinuate; second costal section shorter than third; mid tibia apically with a long ventrally directed ventral seta; costa with short setae, apex of  $R_{4+5}$  and of  $M_{1+2}$  equidistant from wing apex; 1 (exceptionally 2) minute katepisternals (see PAPP 2008a).

- 1 (2) Fore basitarsus long, slightly curved, longer than tarsomeres 2-4 combined. Genal setae short but cover almost all of gena. Antenna wholly yellow but first flagellomere in apical 1/3 contrasting dark grey. Male surstylus (Papp 2008a: figs 15-17) ventrally with 2 very long, thick and J-curved setae but without prensisetae apically. Afrotropical ..... *C. flavifacies* L. Papp, 2008
- 2 (1) Fore basitarsus shorter and straight, slightly shorter than tarsomeres 2-3 combined.
- 3 (4) Alula narrow. Scutellum with sparse discal setae, only 8 to 12 countable. Prescutellar acrostichal pair long. Whole body dark, fore coxae, mouth margin, gena and inner surface of fore femur sometimes yellowish.
- 4 (3) Alula broad. Scutellum with more (20 or so) setae. Prescutellar acrostichal pair variable.
- 5 (6) Gena 0.06 mm below eye and strongly widening posteriorad. Hind basitarsus much shorter than 2nd tarsomere, the latter flattened. Mid basitarsus thin and long (2/3 of mid tibial length), without longer anteroventral or posteroventral setae. Subapical scutellar distal seta shorter than apical pair. Oriental ..... *C. thaii* L. Papp, 2008
- 6 (5) Gena only 0.05 mm wide and maintaining this width posteriorly for more than half of its length. Hind basitarsus only slightly shorter than 2nd tarsomere, the latter swollen. Mid basitarsus shorter (only half of mid tibial length). Subapical scutellar discal seta very long, longer than apical pair. Afrotropical ..... *C. ashleyi* sp. n.
- 7 (8) Fore coxae brown. Frons, face, parafacialia and gena completely dark. Mid basitarsus anteroventrally with very strong basal seta, a similarly strong one at middle, a small one at basal 1/3 (shorter than half of basal seta); only a small seta posteroventrally below middle. Male surstylus (PAPP 2008a: figs 28-29) with some longer setae and also with prensisetae apically ..... *C. serra* (Richards, 1938)
- 8 (7) Fore coxae yellow. Anterior part (up to 1/3) of frons, face, parafacialia and gena (partly) yellow or reddish yellow. Anteroventral seta of mid basitarsus between basal and middle setae strong, longer than half of basal one. Male genitalia very small; surstylus (PAPP 2008a: figs 22-23) with short setae only ..... *C. ruwenzoriensis* (Vanschuytbroeck, 1950)

*Biology* – The species of the *C. serra* group occur frequently on elephant dung (PAPP 2008b). The collection of the type series of *C. ashleyi* sp. n. by Malaise trap does not exclude such a life habit.

#### ***Coproica paraunispinosa* sp. n.**

(Figs 9-16)

*Type material* – Holotype male (HNHM): KENYA, Shimba Hills Nat. Park, 2003. 02. 20-25., leg. Mahunka S.[ándor]-Papp L.[ujza].

Paratypes (HNHM): 4 males (one of them with abdomen and genitalia prepared and kept in a polyethylene microvial): same data as holotype. 1 male: (gen. prep.): Tanzania, Meru, 1979. II.-III., leg. Eöry-Sipos [= M. Eöry & Gy. Sipos].

*Description* – Measurements in mm: body length 1.18 (holotype), 1.16–1.27 (paratypes), wing length 1.22 (holotype), 1.21–1.38 (paratypes), wing width 0.55 (holotype), 0.54–0.59 (paratypes).

Body dark greyish brown, wing light greyish yellow.

Head with frons dark, face, cheeks and anterior part of genae reddish yellow. 4 genal setae present in 1 row, with 1 or 2 additional genal setae below the row. Antennae reddish, apical 2/3 of first flagellomere dark grey. Arisital cilia nearly 0.02 mm.

Thorax with 1 pair of comparatively strong posterior dorsocentral seta; prescutellar acrostichal pair 0.10 mm long. Scutellum with discal setae sparse but medium long, caudal ones slightly enlarged. 2 pairs of comparatively small and rather thin katepisternals, however, anterior one almost as long as posterior pair.

Wing membrane almost clear, very light greyish-yellowish, veins light yellow, costal vein ochre. First costal section with medium-long setae only, sub-basal costal seta only 0.10 mm on holotype. Second costal section about as long as third. Discal cell rather long, since intra-crossvein section distinctly longer than hind crossvein, 0.10 vs. 0.08 mm on holotype, 0.18 vs. 0.10 mm on a paratype female. Alula not particularly narrow, 0.07–0.08 mm wide.

Legs dark, but fore coxa, medial basal half of fore femur and tarsi reddish or light brown. Middle tibia with 3 pairs of anterodorsal setae but only 1 posterodorsal seta present at distal third. Middle basitarsus ventrally with a single long ventral seta at about basal 5/42, i.e. more basally situated than in *C. unispinosa* (where at basal 1/5); at middle an anteroventral and a posteroventral seta of the same length present, its subapical posteroventral seta longer than its anteroventral pair.

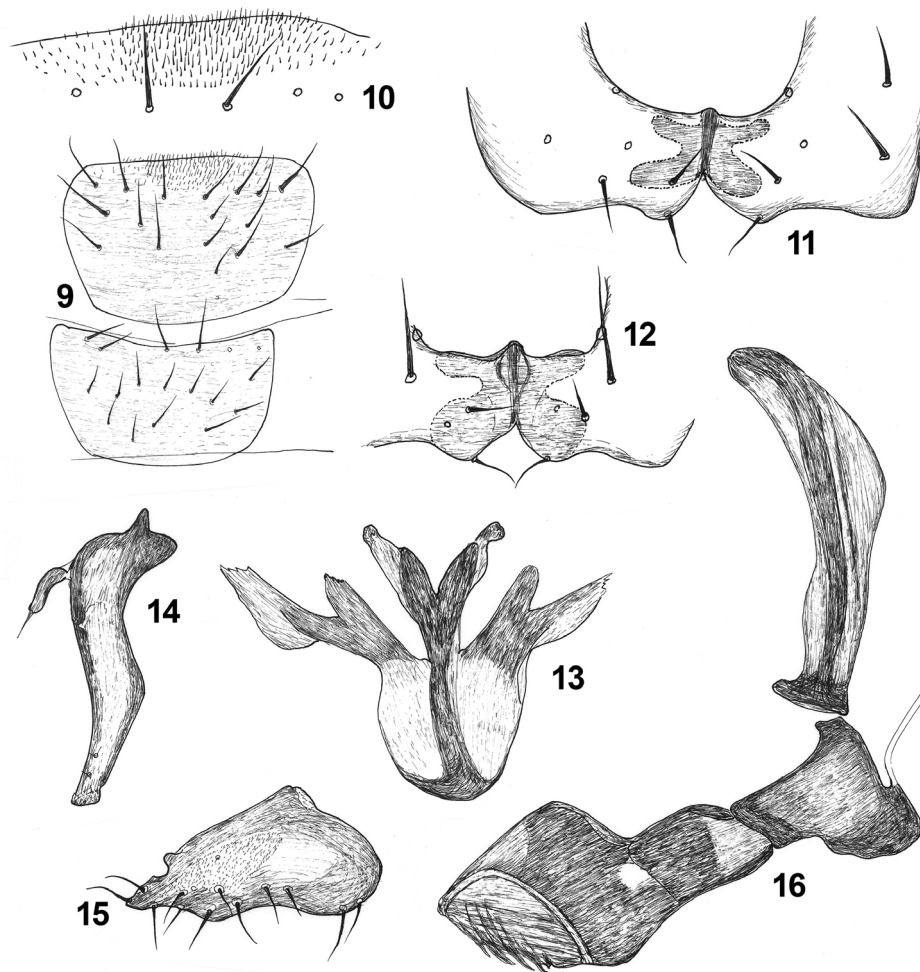
Abdomen with sternites small (narrow), their breadth not much more than 1/3 of that of tergites. Mediocaudal, less sclerotised, lighter part of male sternite 5 (Fig. 9) longer but narrower than in *C. unispinosa*; medially (Fig. 10) with small black pointed setulae in loosely ordered rows. These small setulae are surrounded by 3 pairs of medium long black setae; medial pair of setae farther from caudal edge than in *C. unispinosa*.

Male genitalia symmetrical. Epandrium almost symmetrical (right side slightly larger). Cercal part broadly rounded (Figs 11–12). Subepandrial sclerite (Figs 11–12) butterfly-shaped. Surstylus (Fig. 15) broad, widely rounded cranially; *dorso-caudal* edge with 3 long setae, other surstylar setae sparse and mostly on its ventral part. Postgonite (Fig. 14) similar to that of *C. unispinosa* (cf. PAPP 2008a: fig. 92), narrowed in its apical 1/3, apex sharp, triangular. Basiphallus (Fig. 16) robust but without the large ventrally directed ventral process of *C. uni-*

*spinosa* (cf. PAPP 2008a: fig. 93). A large dorsal apical part of distiphallus mostly membranous, dorsoventral part with fine membranous processes.

Female unknown.

*Etymology* – The specific epithet of this new species refers to its closest relative, *C. unispinosa* L. Papp.



**Figs 9–16.** *Coproica paraunispinosa* sp. n., paratype, male postabdomen and genitalia. 9 = sternite 4 and sternite 5, ventral view, 10 = caudal part of sternite 5 in higher magnification, 11 = cerci and subepandrial sclerite (covered), caudal view, a male from Kenya, 12 = same, a male from Tanzania, 13 = hypandrium, dorsal view, 14 = postgonite, broadest (sublateral) view, 15 = right surstylus, broadest (sublateral) view, 16 = phallus and phallapodeme, left lateral view. Scale: 0.2 mm for Fig. 9, 0.1 mm for Figs 10–16

*Remarks* – *C. paraunispinosa* sp. n. keys out to *C. unispinosa* L. Papp, 2008 in the key of the *C. hirtula* group (no paired seta ventrally sub-basally on mid basitarsus, male genitalia symmetrical or nearly so, mid basitarsus with 1 very strong sub-basal posteroventral seta and ventrally without other long setae, discal cell of wing usually longer, wing not darkened, male genitalia not enlarged, surstylus normal and not enlarged). It differs from its Oriental congener by characters in male genitalia, namely, its basiphallus is with a robust broad ventral process instead of a long digitiform process; its surstylus is strongly narrowed caudally; medial part of sternite 5 with a longer but less broad lighter less sclerotised setulose part.

#### New records of other *Coproica* species

*Coproica albiseta* L. Papp, 2008 – 1 male, 2 females (BMSA): Malaise traps, sand & broad-leaved deciduous forest – RSA: KZN, Ndumo Game R., main road at 26°54.288' S, 32°17.974' E, 4–8. xii. 2009, A. H. Kirk-Spriggs – [blue] Entomology Dept., National Museum, P.O. Box 266, Bloemfontein 9300, South Africa [reverse side] BMSA(D) 18869, 18866, 18871.

*Coproica ruwenzoriensis* (Vanschuytbroeck, 1950) – Namibia (BMSA, all with the blue label: Namibian National Insect Collection, P. O. Box 1203, Windhoek, Namibia): 4 males: KHORIXAS DISTRICT, Ae-ams/Hoanib confluence, 19°14'44" S, 13°20'34" E, 28. xii. 1999, Marais, Mann & Newman, MMN33 – elephant dung; 3 males: ex freshly dropped dung of *Loxodonta africana* (Blumenbach, 1797) (Elephantidae) – KHORIXAS DIST., Huab River at Vrede 19, 20°24'00" S, 14°10'16" E, 26. x. 1998, A. H. Kirk-Spriggs; 2 females: TSUMKWE DISTRICT at 19°51'30" S, 20°57'41" E / 19°09'53" S, 20°57'40" E, 23. x./ 25. xii. 1998, A.H. Kirk-Spriggs, *Loxodonta africana* dung; 1 female: ETOSHA NAT. PARK, Teëspoed, 3 km E, 18°58'43" S, 15°04'18" E, 26. xii. 1999, Marais, Mann & Newman, MMN 25 – elephant dung. Although it has not been found in South Africa (PAPP 2008b), it must occur also there. A species new for the fauna of Namibia.

\*

*Acknowledgements* – I am grateful to Dr Ashley H. Kirk-Spriggs (Bloemfontein, Republic of South Africa), for the loan of numerous sphaerocerid specimens, including those of *Coproica* species.

#### REFERENCES

- ICZN = INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE 1996: Opinion 1839. *Coproica* Rondani, 1861 and *Ischiolepta* Lioy, 1864 (Insecta, Diptera): conserved by the designation of *Limosina acutangula* Zetterstedt, 1847 as the type species of *Coproica*. – *Bulletin of Zoological Nomenclature* 53(2): 136–137. Online: <http://www.biodiversitylibrary.org/page/12250327#page/156/mode/1up> [Accessed 10 September 2014.]



- PAPP L. 2008a: A review of the Old World *Coproica* Rondani (Diptera, Sphaeroceridae), with description of twelve new species. – *Acta Zoologica Academiae Scientiarum Hungaricae* 54(Suppl. 2): 1–45. Online: [http://actazool.nhmus.hu/54/Suppl2/azh54\\_S2\\_Coproica.pdf](http://actazool.nhmus.hu/54/Suppl2/azh54_S2_Coproica.pdf) [Accessed 10 September 2014.]
- PAPP L. 2008b: Will the elephant dung flies go extinct after the elephants disappear? – *Folia entomologica hungarica* 69: 221–228.
- ROHÁČEK J., MARSHALL S. A., NORRBOM A. L., BUCK M., QUIROS D. I. & SMITH I. 2001: *World Catalog of Sphaeroceridae (Diptera)*. – Slezské zemské muzeum, Opava, 414 pp.
- RONDANI C. 1861: *Dipterologiae italicae prodromus. Vol. IV. Species italicae ordinis dipterorum in genera characteribus definita, ordinatim collectae, methodo analitica distinctae, et novis vel minus cognitis descriptis. Pars Tertia. Muscidae Tachininarum complementum*. – Alexandri Stocchi, Parmae, 174 pp.