

ORIENTAL SPECIES OF CHAETOPODELLA DUDA
(DIPTERA: SPHAEROCERIDAE)

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Four new species of the genus *Chaetopodella* DUDA, 1920: *Ch. latitarsis* sp. n. (Thailand and Viet Nam), *Ch. nigrinotum* sp. n. (Pakistan, Sri Lanka, India, Nepal, Bangladesh, Thailand, Viet Nam and China (Hong Kong and Taiwan)), *Ch. orientalis* sp. n. (Sri Lanka, India, Nepal, Bangladesh, Thailand, Viet Nam, Malaysia, Singapore and Indonesia (Sulawesi)) and *Ch. ornata* sp. n. (Nepal) are described. The Palaeartic species, *Ch. scutellaris* (HALIDAY) is used for comparison. With 24 original figures.

Key words: Sphaeroceridae, Limosiniinae, *Chaetopodella*, new species, taxonomy, key, Oriental Region

INTRODUCTION

The Oriental species of Sphaeroceridae are rather little known (HACKMAN 1977), although some significant contributions were published in the last two decades. Several genera, which formerly were thought to be Afrotropical, were reported from Oriental areas: e.g. *Achaetothorax* HEDICKE, 1923, *Metaborborus* VANSCHUYTBROECK, 1948, etc. (cf. ROHÁČEK *et al.* 2001).

We found four new species in the Oriental region, where *Chaetopodella* has not been recorded formerly. At the same time, our record represents the first record of this genus from that Oriental region.

Terminology of male genitalia follows SINCLAIR (2000) whenever possible; in some cases ROHÁČEK (1998) was consulted.

Our annotations of label data and those of the preservation of the specimens are given in brackets below. The type specimens are deposited in the collection of the Department of Medical Entomology, The National Institute of Infectious Diseases, Tokyo (NIID), Zoological Division, Museum Zoologicum Bogoriense, Indonesian Institute of Sciences, Bogor (MZB) and in the Diptera Collection of the Department of Zoology, Hungarian Natural History Museum, Budapest (HNHM).

Chaetopodella DUDA, 1920

Limosina (*Chaetopodella*) DUDA, 1920: 435. – Type species: *Limosina scutellaris* HALIDAY, 1836: 329 (mon.).

Leptocera (*Chaetopodella*) DUDA; DUDA, 1925: 75.

Chaetopodella DUDA, 1920: HACKMAN (1969: 203), ROHÁČEK (1983: 112), etc., as genus.

ROHÁČEK (1983) discussed correctly its morphology, including that of the genitalia. This time we summarise only some of the most characteristic features (for more details see ROHÁČEK 1983, 1998):

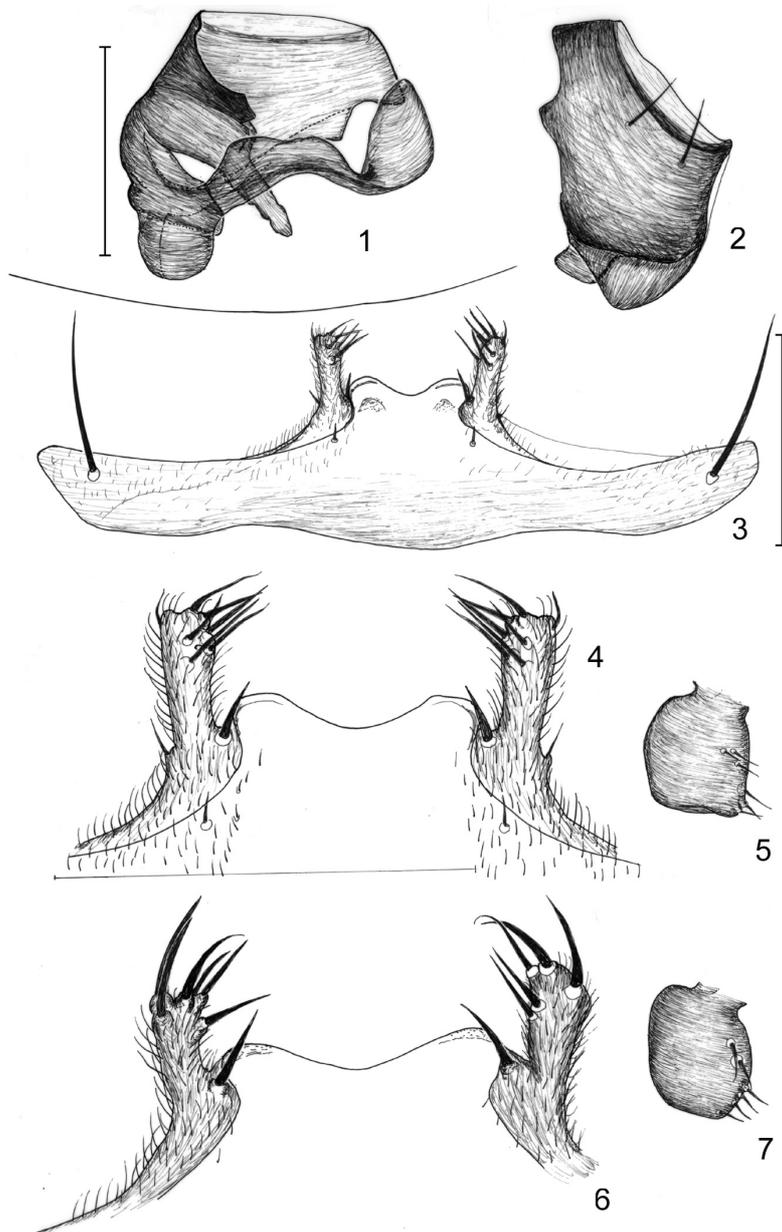
A genus of Limosinini. Outer and inner occipital pairs of setae strong, inner occipitals almost crossing. No inner orbitals on frons. Two pairs of strong fronto-orbitals, or, anterior pair reduced to short thin setae. Vibrissa not strong, gena with 2 rows of short proclinate setae above peristomals. Three to four pairs of post-sutural dorsocentral setae. Scutellum deep velvety black, 2 pairs of scutellar setae only. Wings clear, definitely shorter than body and comparatively narrow. First costal section of wing with medium-long setae, subbasally with paired strong setae. Mid trochanter with an extremely long anterior (lateral) seta apically. Mid tibia without ventral preapical seta, ventroapical seta distinct. Mid basitarsus with a distinct (though usually thin) anteroventral seta.

Abdomen with very long setae on lateral caudal edge of tergites, particularly so for females.

Male preabdomen of four normal segments only: even 5th segment strongly modified: tergite 5 very short, forms half of a ring, medially (sagittally) desclerotised in most of the species. Male sternite 5 short with a pair of setose caudal processes. Syntergosternite 6–8 complex of an intricate form (Figs 1–2, 8, 13). Surstylus usually consists of two lobes. Postgonites join directly to aedeagal apodeme (dorsally) and through a pair of laths to phallobase (Figs 11, 15, 19, 22). Ejaculatory apodeme not discernible in most of the species (except for *Ch. nigrinotum*).

Female individuals generally larger than males; abdominal sternites comparatively small (not broad) and not strongly melanised, except for sternite 8. Female cerci short, oblique to the body axis, usually with short thin setae only. Spermathecae semiglobular: globular in water but since they have a large desclerotised part (“hole”) apically, they become flat in glycerol.

The *Chaetopodella* species are distributed in the Palaearctic and the Afro-tropical regions – and as we would like to make known through this paper – also in the Oriental region. The status of the *Leptocera* (*Chaetopodella*) *albocincta* RICHARDS, 1964 (from the Solomon Islands, Vanuatu) needs revision. Hitherto five species have been described: *Ch. cursoni* (RICHARDS, 1939) from South Africa, *Ch. denigrata* (DUDA, 1925) from Tanzania and Zaire, *Ch. impermissa* (RICH-



Figs 1–7. *Chaetopodella scutellaris* (HALIDAY), male postabdomen and genitalia. 1–5 = a male from England: 1 = preabdominal sternites, ventral view, 2 = same, left lateral view, 3 = 5th sternite, ventral view, 4 = medial part of 5th sternite, higher magnification, 5 = surstylus, lateral process at broadest; 6–7 = a male from North Korea: 6 = medial part of 5th sternite, higher magnification, 7 = surstylus, lateral process at broadest. Scales: 0.2 mm for Figs 1–2, 0.1 mm for Figs 3, 5, 7 and for Figs 4, 6, respectively

ARDS, 1980) (syn. *Ch. congoensis* VANSCHUYTBROEK, 1950) from Zaire, *Ch. lesnei* (SÉGUY, 1933) from Mozambique and *Ch. scutellaris* (HALIDAY, 1836) from Ethiopia and the Palearctic Region. However, several other species still await description in the Afrotropical Region. The Neotropical species *Leptocera biseta* DUDA, 1925 has been transferred to the genus *Gyretria* ENDERLEIN, 1938 (cf. ROHÁČEK *et al.* (2001). *Leptocera (Chaetopodella) tonsa* DUDA, 1925 from Costa Rica belongs to an undescribed genus (see MARSHALL 2001).

This paper includes notes and some figures also for the only Palearctic species, *Ch. scutellaris* (HALIDAY, 1836).

Chaetopodella scutellaris (HALIDAY, 1836) – In the HNHM there are more than 800 specimens from Hungary and from a number of European countries, as well as from Turkey, Georgia, Afghanistan, the Russian Far East (Amur region, Zeya zapovednik) and North Korea. This time we studied the male genitalia of a male from England (its type locality) and those of a male from North Korea. As one can see while comparing details of the genitalia (Figs 1–5, cf. Figs 6–7, see also figs 823–827 of ROHÁČEK 1983), that there are distinct differences. We are afraid that a subspecific splitting of this species is unavoidable, but now we do not want to do it.

If we compare the genitalia (Figs 1–7) to those of the Oriental species, it is obvious that none of the Oriental species is close to *Ch. scutellaris*. Hopefully closer relatives will be found among the Afrotropical species.

***Chaetopodella latitarsis* sp. n.**

(Figs 8–12)

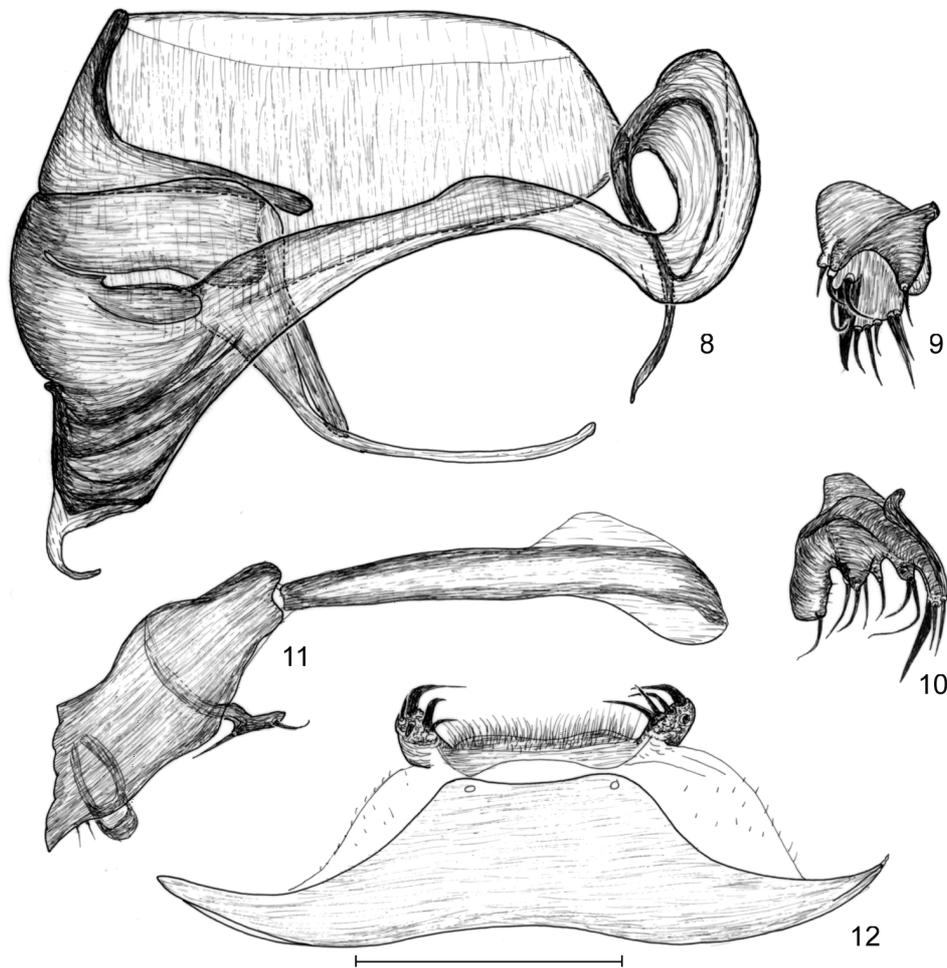
Holotype male (NIID): VIET NAM, Mt. Phang Si Pang, N. rdg., 1,950–1,970 m, Lai Chau Prov., Oct. 4–6, 1999, T. Hayashi – Cattle dung.

Paratypes VIET NAM: 36 males, 16 females, same data as holotype (NIID, 2 males, 2 females HNHM); 33 males, 19 females, Mt. Phang Si Pang, N. rdg., 1,950–1,970 m, Lai Chau Prov., Oct. 3–4, 1995, H. Kurahashi (NIID); 1 female, De O Quy Ho, 1,750 m, Sa Pa, Lao Cai Prov., June 3, 1999, H. Kurahashi (NIID); 10 males, 3 females, ditto, Oct. 5, 1999, T. Hayashi (NIID); 1 male, 2 females, Sa Pa, 1,500 m, Lao Cai Prov., Oct. 2, 1995, H. Kurahashi (NIID); 2 males, 1 female, Sin Chai, “Legendary place” GEOCODE??, Nov. 15, 2003, No. 6, along forest path & creek, leg. Földvári, Peregovits, Kőrösi (HNHM, 1 male gen. prep.). THAILAND: 1 male, 2 females, Chiang Dao, 1,200 m, Oct. 25, 2001, T. Hayashi (NIID); 1 female, Doi Angkhang (nr. Fang), 1,700 m, Oct. 27, 2001, T. Hayashi (NIID).

Measurements in mm: body length 2.20 mm (holotype), 2.09–2.25 mm (paratype males), 2.09–2.58 mm (paratype females), wing length 2.30 mm (holotype), 2.20–2.35 mm (paratype males),

2.31–2.51 (paratype females), wing width 0.92 (holotype), 0.88–0.97 (paratype males), 0.96–1.01 (paratype females).

Head: Mostly blackish brown, heavily microtrichose; silvery spots around bases of macrochaetae; anterior part of frons reddish brown; ocellar triangle silvery; gena pale yellow in male and reddish brown in female, face pale yellow in male and brown to dark brown in female; gena with a batch of dark minute setae directed downwards near posterior end, they are especially prominent in male; 3 weak *ifr*; anterior *ors* about as long as 1/2 length of posterior *ors*; eye oval, its longest diameter about 3.0 times as long as smallest genal width; antenna dark brown, base of 1st flagellomere reddish brown; arista long, about 4.2 times as long as antenna, shortly ciliate.



Figs 8–12. *Chaetopodella latitarsis* sp. n., paratype male, genitalia. 8 = postabdominal sclerites, ventral view, 9 = surstylus, broadest lateral view, 10 = same, broadest ventral view, 11 = postgonite and phallapodeme laterally, 12 = 5th sternite, ventral view. Scale: 0.1 mm for all

Thorax: Mostly blackish brown; mesonotum with 3 broad velvety stripes on dorsocentral lines and acrostichal area, other part heavily greyish microtrichose, 6 rows of *ac* microsetae in front of suture, 4 *dc*, posterior 3 very strong; anepisternum, katepisternum, anepimeron and meron dark brown, strongly microtrichose; pale yellowish line on notopleura; 2 *kepst*, both weak; scutellum velvety black, somewhat wider than long; 2 *sc* long, apical one about 1.8 and lateral one about 1.0 times as long as scutellum.

Wing: Yellowish, veins yellowish brown; C somewhat darker, not extended beyond apex of R4+5, first sector with a little stronger setae than those of second and third sectors; R4+5 gently bent up to C; C-index (Cs2 : Cs3) = 1.55–1.85; R-M – dM-Cu : dM-Cu = about 2.5; alula broad and rounded; halter yellowish brown to reddish brown.

Legs: Yellowish brown to dark brown (generally darker in female). Male fore tibia somewhat swollen, with anterior incision on apical 1/3 as in that of *Spelobia clunipes* (MEIGEN), fore tarsus dark brown and flattened, each tarsomere with long dense lateral setae. Fore femur with a dorsal seta on basal 2/3; mid femur with a ventral row of 5 setae on basal 1/5 in male; mid tibia with 3 dorsal setae on basal 1/4, 1/3 and 3/4, 1 rather strong anterodorsal seta on 2/3, 2–3 weak posterodorsal setae on 1/3–1/2, rather strong posterodorsal seta on 2/3, 1 strong apicoventral seta, no ventral seta in male, and a strong ventral seta on basal 1/2 in female.

Abdomen: Preabdominal sternites broad, sternite 4 quadrate (0.30×0.30 mm). Male tergite 5 forms half-of-a-ring, bare but with a pair of long (0.175–0.20 mm) strong setae on lateral caudal edge; tergite 5 divided or at least strongly desclerotized sagittally. Sternite 5 (Fig. 12) comparatively long, processes short and symmetrical with 4 pairs of thick setae. Pilosity of medial platelet rather long.

Synergosternite 6–8 (Fig. 8) long dorsally, with a large thin ventral process emerging dorsally to the ventral medial S6 part. S6 part of the complex short (as for the body axis), continued into a comparatively broad right lateral part, which continued into a ventrally and cranially directed thin process. Epandrium subdorsally with a pair of long (0.22 mm) thick setae. Male cerci large, almost as large as anal “cavity” of epandrium, cerci membranous, microsetose only. Surstylus (Figs 9–10) small, of an intricate form, with a long thorn on basal lobe and with several strong setae. Postgonite (Fig. 11) bifid apically with a subapical, lateral, broad based ridge (cf. Fig. 22 for *Ch. ornata*) and with a rather sharp apex. Phallapodeme comparatively short with blunt apex.

Lateral caudal setae on female abdominal tergites extremely long, 0.31 mm on tergite 7. Female cerci very short, longest seta 0.017 mm.

Etymology. The specific epithet refers to the flattened male fore tarsus.

***Chaetopodella nigrinotum* sp. n.**

(Figs 13–17)

Holotype male (NIID): SRI LANKA, Ratnapura, July 28–30, 1989, T. Hayashi & K. Kanmiya.

Paratypes: SRI LANKA: 161 males, 134 females (NIID, 2 males, 2 females HNHM): same as for holotype [genitalia of one male and female each in a plastic microvial with glycerol]; 1 male, Ella, July 24, 1989, K. Kanmiya (NIID); 1 male, 2 females, Diyaluma Falls, July 26, 1989, T. Hayashi & K. Kanmiya (NIID). NEPAL: 1 male, Begnas Lake (nr. Pokhara), Oct. 18, 1992, T. Hayashi (NIID); 5 males, 1 female, Bungamati (nr. Kathmandu), Oct. 16, 1992, T. Hayashi (NIID); 2 males, Chandrakot, July 29, 1990, K. Kanmiya (NIID); 1 male, 2 females, Pathlaiya (Hetauda-Birganj), Oct. 28–30, 1992, T. Hayashi (NIID). BANGLADESH: 6 males, 5 females, Sylhet, Oct. 9, 1988, M.

Iwasa (NIID); 22 males, 17 females, Jaydepur, Sept. 29, 1988, M. Iwasa (NIID); 3 males, Tangail, Sept. 30, 1988, M. Iwasa (NIID); 10 males, 10 females, Chittagon, Oct. 2, 1988, M. Iwasa (NIID). PAKISTAN: 2 males, 5 females, Abbottabad, NWFP, July 31, 1988, T. Hayashi (NIID); 6 males, 5 females, Taxila, Punjab Prov., Sept. 4, 1988, T. Hayashi (NIID). INDIA: 7 males, 3 females, Jabarpur to Amarkantak, Sept. 8–9, 1987, M. Iwasa (NIID); 6 males, 2 females, Jabarpur, Sept. 6, 1987, M. Iwasa (NIID); 11 males, 5 females, Jabarpur to Piparia, Sept. 13, 1987, M. Iwasa (NIID). THAILAND: 2004, leg. L. Papp & M. Földvári: 18 males 17 females: Pak Thang Salwang, ca. 30 km N Chiang Mai, pine plantation, on cow pats, Oct. 29, No. 4; 9 males, 6 females, Mae Taeng Elephant Camp, 50 km N of Chiang Mai, on elephant dung, Oct. 29, No. 5; 12 males, 6 females, Prov. Fang, 5 km N of Mae Ai, on cow pats, Nov. 2, No. 16; 2 males, Nan Prov., Mae Charim waterfall, No. 22, over and along rivulet, Nov. 06, No. 22; 2 males, 8 females: Ban Yong Sata, on cow pats, Nov. 16, No. 33; 1 male, Khao Pu – Khao Ya N. P., along a forest brook below the (Pak Yam) waterfall, Nov 21, No. 42. VIET NAM: 10 males, 4 females, Yen Bai, 200 m, Sept. 30, 1995, H. Kurahashi (NIID); 1 male, Hanoi, Kim-lien, May 6–18. 1966, leg. Topál (HNHM). CHINA: 4 males, 8 females, Lowu, Hong Kong, Oct. 22, 1985, M. Iwasa (NIID). TAIWAN: 1 male, 3 females Pingtung, Hsien, Kenting National Park, grassy hillside, on cow pats, October 5, 2000, No. 17, leg. L. Papp (HNHM); 8 males, 11 females, Hatsushika, Taiwan, Mar. 20, 1981, M. Iwasa (NIID).

Measurements in mm: body length 1.35 (holotype), 1.32–1.60 (paratype males), 1.43–1.73 (paratypes females), wing length 1.15 (holotype), 1.10–1.26 (paratype males), 1.20–1.54 (paratype females), wing width 0.49 (holotype), 0.45–0.53 (paratype males), 0.48–0.62 (paratype females).

Head: Mostly blackish brown, heavily microtrichose; silvery spots around bases of macrochaetae; anterior part of frons somewhat brownish, indistinct silvery stripe on central part of frontal vitta; gena brown, lunule and face brown to yellowish brown; 3 *if*; upper setae somewhat stronger; anterior *ors* very weak, in less than 1/2 length of posterior *ors*; eye large and rounded, its longest diameter about 3.5 times as long as smallest genal width; antenna dark brown; arista long, about 3.6 times as long as antenna, shortly ciliate.

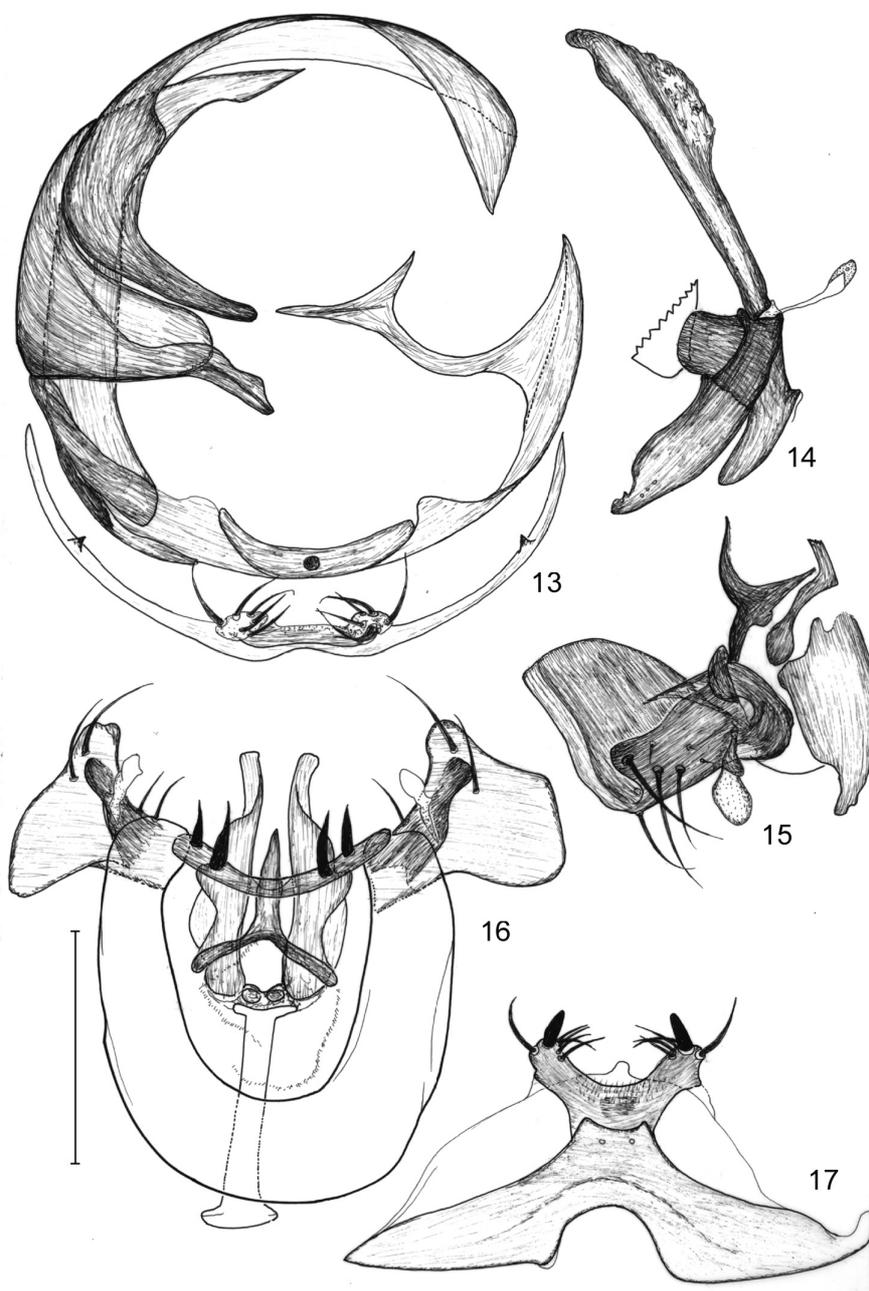
Thorax: Mostly blackish brown, without light yellowish stripe on notopleura; silvery spots around bases of macrochaetae large; 6 rows of *ac* microsetae in front of suture; 3 *dc*; 2 *kepst*, posterior one very strong; scutellum velvety black, somewhat wider than long; 2 *sc* long, apical one about 2.0 and lateral one about 1.1 times as long as scutellum.

Wing: Milky whitish, veins whitish except for light brown C; C not extended beyond apex of R4+5, first sector with distinctly stronger setae than those of second and third sectors; apical part of R4+5 rather strongly bent up to C; C-index = 1.40–1.45; R-M-dM-Cu : dM-Cu = about 3.0; alula broad and rounded; halter yellowish brown.

Legs: Generally brown, fore coxa somewhat paler; fore tibia and tarsus not thickened; fore femur with 2–3 dorsal setae; mid femur without a ventral row of setae on basal 1/5 in male; *t2* chaetotaxy similar to that of *Ch. latitarsis*, but ventrally with a strong seta on basal 1/2 in male.

Abdomen: Male tergite 5 short (0.04 mm only), not divided sagittally, sclerotization not weaker than laterally. Sternite 5 (Fig. 17) long (as for the body axis) and peculiar with its narrowed apical part. Paired caudal processes close to each other, with a thick long blunt thorn caudally and a pair of thick setae laterally on apex; other four pairs of setae present on medial caudal edge. Syntergosternite 6–8 (Fig. 13) short dorsally (as regards body axis), right lateral (T7) part comparatively large with a ventrally curved, well-sclerotized “process”. Ventralmost part of the complex (comparatively weakly sclerotized) with a central “tit”. Ventral plate of subepandrial sclerite (Fig. 16) with 2 pairs of thick thorns.

Epandrium with dorsal setal pair of 0.16 mm, plus a ventral pair of 0.095 mm and some other shorter setae. Surstylus (Figs 15–16) consists of two lobes (both bear some long setae): a sail-like lat-



Figs 13–17. *Chaetopodella nigrinotum* sp. n., paratype male, genitalia. 13 = postabdominal sclerites, caudal view, 14 = postgonite, phallophore and phallapodeme, lateral view; 15 = surstylus, inner view (with paramere), 16 = male genitalia, caudal view, 17 = 5th sternite, ventral view. Scale: 0.1 mm for all

eral and a small medial lobe, plus a colourless basal process. Surstylus with strong basal connection to postgonites (Fig. 15). Postgonite (Fig. 14) seems slender in lateral view, however actually broad basally (Fig. 16) and characteristic with its blunt apex and a small subapical process. Phallopore robust and narrowing apically, almost pointed in caudal view. Phallus much shorter than phallopodeme.

Female abdominal tergites with long setae on caudal lateral edges, longest on tergite 6, 0.165 mm; cerci very short, only 0.07 mm long, 0.02 mm broad, oblique, longest setae 0.08 mm. Spermathecae globular, paired ones with flat (not sclerotized) apical part in glycerol.

Etymology. The specific epithet (noun) refers to the unicolorous dark (black) thorax and frons of the new species.

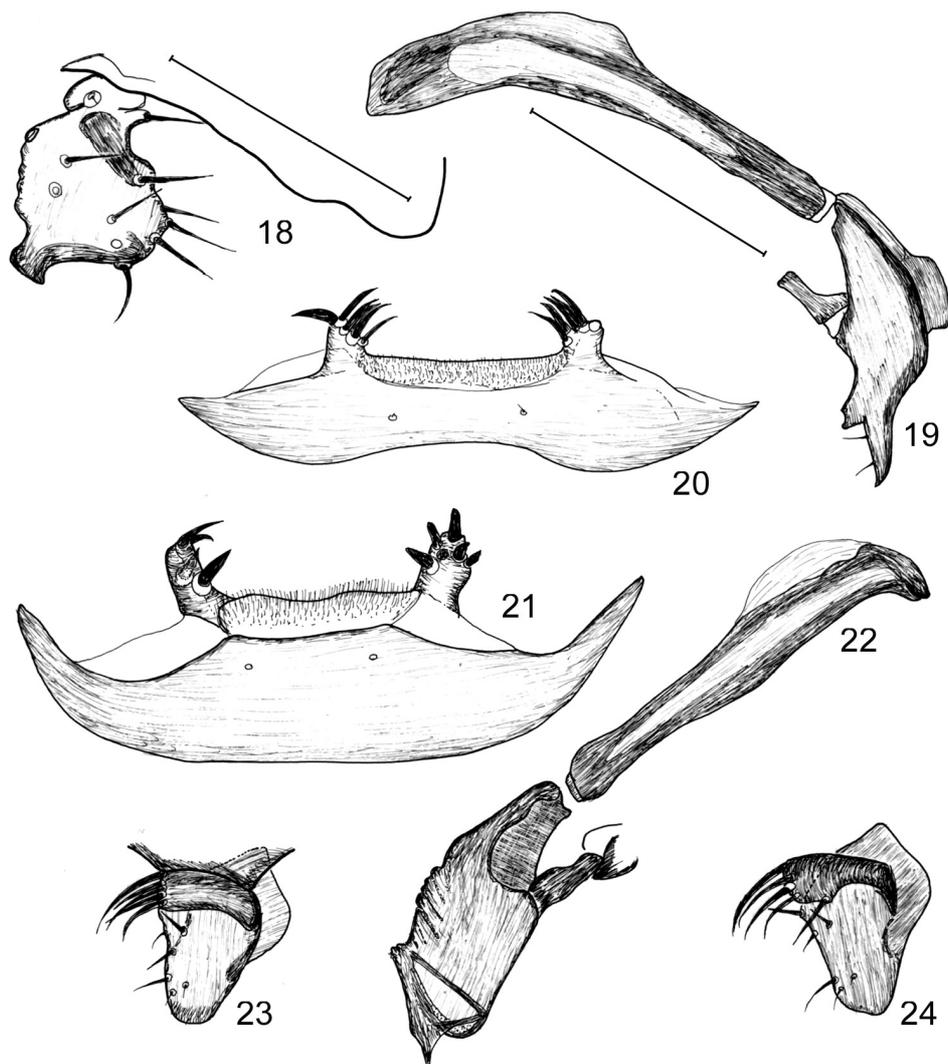
Chaetopodella orientalis sp. n.

(Figs 18–20)

Holotype male (HNHM): THAILAND, Mae Taeng Elephant Camp, 50 km N of Chiang Mai, on elephant dung, Oct 29, 2004, leg. L. Papp & M. Földvári, No. 5.

Paratypes. THAILAND: 7 males, 4 females: same as for holotype (HNHM); 1 male, Chiang Dao, 450 m, Aug. 13, 1989, T. Hayashi (NIID); 6 males, 7 females, ditto, 1,200 m, Oct. 25, 2001, T. Hayashi (NIID); 1 male, Doi Inthanon, 1,150 m, Oct. 22, 2001, T. Hayashi (NIID); 1 female, Doi Suthep, Aug. 15, 1989, T. Hayashi (NIID). 2004, leg. L. Papp & M. Földvári: 14 males 6 females, Pak Thang Salwang, ca. 30 km N Chiang Mai, pine plantation, on cow pats, Oct 29, 2004, leg. L. Papp & M. Földvári, No. 4 (HNHM); 4 males, 1 female, Mae Fang N. P., on buffalo and cow pats, Nov 1, 2004, leg. L. Papp & M. Földvári, No. 15 (HNHM); 1 female, Prov. Fang, 5 km N of Mae Ai, on cow pats, Nov 2, 2004, leg. L. Papp & M. Földvári, No.16 (HNHM); 8 males 8 females, Ban Namphang, on fresh cow pats, Nov 5, 2004, leg. L. Papp & M. Földvári, No. 20 (HNHM); 4 females, Nan Prov., nr Mae Charim waterfall, on cow pats, Nov 6, 2004, No. 23/a, leg. M. Földvári (HNHM); 1 female, Nan Prov., over and along the rivulet above Mae Charim waterfall, Nov 7–8, 2004, leg. L. Papp & M. Földvári, No. 25 (HNHM); 1 male, Khao Pu – Khao Ya N. P., along a forest brook below the (Pak Yam) waterfall, Nov 21, 2004, leg. L. Papp & M. Földvári, No. 42 (HNHM). NEPAL: 6 males, 3 females, Phedi (nr. Pokhara), Oct. 19, 1992, T. Hayashi (NIID); 5 males, 2 females, ditto, Oct. 24, 1992, T. Hayashi (NIID); 9 males, 10 females, Sarangkot, Pokhara, Oct. 21–22, 1992, T. Hayashi (NIID); 3 males, 1 female, Pokhara, Oct. 20, 1992, T. Hayashi (NIID); 10 male, 2 female, Begnas Lake (nr. Pokhara), Oct. 23, 1992, T. Hayashi (NIID); 2 males, Chandrakot, July 29, 1992, K. Kanmiya (NIID); 8 males, 3 female, Godawari, Oct. 13, 1992, T. Hayashi (NIID); 4 males, 6 females, Bungamati (nr. Kathmandu), Oct. 16, 1992, T. Hayashi (NIID); 7 males, 1 female, Balaju, Kathmandu, Oct. 17, 1992, T. Hayashi (NIID); 14 males, 9 females, Pathlaiya (Hetauda-Birganj), Oct. 28–30, 1992, T. Hayashi (NIID, HNHM): same as for holotype]. 24 males, 13 females, Royal Chitwan National Park, Bandarjholi Island – Jungle Island Resort, 84° 10' E, 27° 35' N, 150 m, 1995. 10. 30. – swept on *Elephas maximus* dung, leg. L. Peregovits (HNHM). SRI LANKA: 3 males, Kandy, Aug. 6–9, 1989, T. Hayashi (NIID); 1 female, Diyaluma Falls, July 26, 1989, K. Kanmiya (NIID); 34 males, 34 females, Ella, July 27, 1989, T. Hayashi (NIID); 17 males, 6 females, Randenia (nr. Ella), July 26, 1989, T. Hayashi (NIID); 142 males, 92 females, Ratnapura, July 28–30, 1989, T. Hayashi and K. Kanmiya (NIID, 2 males and 2 females HNHM, genitalia of one male and female each in a plastic microvial with glycerol); 11 males, 10 females, Shinharaja Forest, July 27, 1989, T. Hayashi (NIID). INDIA: 3 males, Nagarhole National Park, 720 m, Karnataka Sta., Oct. 9–10, 1993, T. Hayashi (NIID); 2 males, 7 females, Mudumalai, 900 m, Tamil Nadu Sta., Oct. 3–5, 1993, T.

Hayashi (NIID); 1 male, Coonor, 600–1,400 m, Tamil Nadu Sta., Oct. 7–8, 1993, T. Hayashi (NIID); 5 males, 8 females, Gudalur, 1,200–1,500 m, Tamil Nadu Sta., Oct. 6–9, 1993, T. Hayashi (NIID); 17 males, 5 females, Bangriposi, 200–380 m, Orissa Sta., Sept. 24–26, 1993, T. Hayashi (NIID); 1 male, Daitari Ghat, 400–500 m, Orissa Sta., Sept. 29, 1993, T. Hayashi (NIID); 4 males, 3 females,



Figs 18–24. *Chaetopodella* spp. n., paratype males, genitalia. 18–20 = *Ch. orientalis* sp. n.: 18 = surstylus in broadest (subventral) view, 19 = postgonite and phallapodeme laterally, 20 = 5th sternite, ventral view; 21–24 = *Ch. ornata* sp. n.: 21 = 5th sternite, ventral view, 22 = postgonite and phallapodeme laterally, 23 = surstylus, lateral view, 24 = same, ventral view. Scales: 0.05 mm for Fig. 18, 0.1 mm for Figs 19–24

Jasipur, Orissa Sta., Sept. 25, 1993, T. Hayashi (NIID); 1 female, Ghatgaon, Orissa Sta., Sept. 27, 1993, T. Hayashi (NIID); 1 male, Darjeeling, West Bengal, 12. IV. 1967, leg. Topál (HNHM). BANGLADESH: 40 males, 13 females, Sylhet, Oct. 9, 1988, M. Iwasa (NIID); 5 males, 2 females, Jaydepur, Sept. 29, 1988, M. Iwasa (NIID); 3 males, 4 females, Mymensingh, Sept. 28, 1988, M. Iwasa (NIID); 1 male, Tangail, Sept. 30, 1988, M. Iwasa (NIID); 2 males, 1 female, Chittagon, Oct. 2, 1988, M. Iwasa (NIID); 1 male, Cox's Bazaar, Oct. 3–5, 1988, M. Iwasa (NIID). VIET NAM: 1 female, Sa Pa, 1,500 m, Lao Cai Prov., Oct. 3, 1999, T. Hayashi (NIID); 1 female, Tam Dao, 930–1,230 m, Vinh Phu Prov., Oct. 8–10, 1999, T. Hayashi (NIID); 2 males, Prov. Yenbai, Minh xuan, Luc yen közelében [environs of], trágýáról [on dung], No. 213., Dec. 2. 1971, leg. Topál – Matskási (HNHM); 1 male, 1 female, Yen Bai, Yen Bai Prov., 200 m, Nov. 30, 1995, H. Kurahashi (NIID). MALAYSIA: 1 female, Tapha, Oct. 28, 1975, S. Shinonaga (NIID); 1 male, Poring, 700 m, Sabah, Borneo, Nov. 13–17, 1995, T. Hayashi (NIID); 1 male, Keningau, 350 m, Sabah, Borneo, Nov. 18–19, 1995, T. Hayashi (NIID). SINGAPORE: 1 female, Oct. 16, 1975, R. Kano (NIID). INDONESIA: 1 female, Sadaunta, 650 m, 65Km S. E. Palu, Sulawesi, Aug., 1975, D. E. Hardy (MZB).

Measurements in mm: body length 1.68 (holotype), 1.54–1.75 (paratype males), 1.59–1.81 (paratypes females), wing length 1.31 (holotype), 1.19–1.37 (paratype males), 1.32–1.61 (paratype females), wing width 0.55 (holotype), 0.49–0.62 (paratype males), 0.60–0.74 (paratype females).

Head: Silvery spots around bases of macrochaetae; frons reddish to orange anteriorly and dark brown “M” shaped area of orbits and bases of *ifr*; indistinct silvery stripe on central part of frontal vitta; vertex and occiput brown to dark brown, lunule and face pale yellow, gena yellowish brown; 3–4 *ifr*; upper setae stronger; anterior *ors* very weak, less than 1/2 length of posterior *ors*; eye oval, its longest diameter about 3.0 times as long as smallest genal width; antenna dark brown; arista long, about 4.2 times as long as antenna, shortly ciliate.

Thorax: Mesonotum brown to reddish brown with lighter stripes along dorsocentral lines; silvery spots around bases of macrochaetae small; 6 rows of *ac* microsetae in front of suture, 3 *dc*; a broad light yellowish stripe over postpronotum, notopleura and wing base; anepisternum, upper part of katepisternum and anepimeron dark brown, lower part of katepisternum, meron and area around suture pale yellow; 2 *kepst*, both weak; scutellum velvety, somewhat brownish, somewhat wider than long; 2 *sc* long, apical one about 1.9 and lateral one about 1.0 times as long as scutellum.

Wing: Somewhat brownish, veins light brown; C not extended beyond apex of R4+5, first sector with a little stronger setae than those of second and third sectors; R4+5 gently bent up to C; C-index = 1.10–1.41, R-M – dM-Cu : dM-Cu = about 2.75; alula broad and rounded; halter with reddish yellow knob and yellow stem.

Legs: Mostly yellowish brown to brown, fore coxa pale yellow; fore tibia and tarsus not thickened; fore femora with a dorsal seta on basal 2/3; mid femur with a ventral row of 4–5 setae on basal 1/5 in male; *r2* chaetotaxy as in that of *Ch. latitarsis*.

Abdomen: Male sternite 5 (Fig. 20) rather short, processes far from each other, with 1 thick lateral spine and 5 medially curved black setae. Medial platelet with short pilosity.

Surstylus (Fig. 18, see scale bar) minute, hardly discernible in lateral view, basal lobe indiscernible, lateral (outer) surface with several setae. Phallopore (Fig. 19) blunt, postgonite (Fig. 19) with an anterior subapical process, i.e. not bifid. Phallopodeme somewhat larger than in the related species.

Female cerci brown, 0.10 mm long, longest setae only 0.09 mm.

Etymology. The specific epithet refers to the wide distribution of this new species in the Oriental region (from Pakistan to Borneo).

Chaetopodella ornata sp. n.
(Figs 21–24)

Holotype male (NIID): NEPAL: Sarangkot, Pokhara, Nepal, Oct. 21–22, 1992, T. Hayashi – Buffalo dung.

Paratypes. NEPAL: 3 males, 9 females, same data as holotype (NIID, 2 males, 2 females in HNHM) [genitalia of one male and female each in a plastic microvial with glycerol]; 1 male, 1 female, Phedi (nr. Pokhara), Oct. 19, 1992, T. Hayashi (NIID); 1 male, 2 females, Phedi (nr. Pokhara), Oct. 24, 1992, T. Hayashi (NIID); 1 male, Potana to Dampus, Aug. 1, 1990, K. Kanmiya (NIID).

Measurements in mm: body length 1.9 (holotype), 1.52–1.60 (paratype males), 1.87–2.1 (paratype females), wing length 1.8 (holotype), 1.67–1.73 (paratype males), 1.79–2.1 (paratype females), wing width 0.70 (holotype), 0.68–0.70 (paratype males), 0.85–0.88 (paratype females).

Head: Mostly blackish brown, heavily microtrichose, silvery spots around bases of macrochaetae; frons with reddish brown areas between *ifr* and *ors* setae and a silvery sagittal line on central part of frontal vitta; gena yellowish brown, lunule and face dark brown; gena without special modification of minute setae near posterior end, 3 weak *ifr*; anterior *ors* about as long as 1/2 length of posterior *ors*; eye oval, its longest diameter about 2.7 times as long as smallest genal width; antenna dark brown, about 3.0 times as long as antenna, shortly ciliate.

Thorax: Mostly deep velvety black; 6 rows of *ac* microsetae in front of suture, 3 strong *dc*; broad light yellowish stripe through postpronotum, notopleura and supra-alar area; 2 *kepst*, anterior very weak; scutellum velvety black, somewhat wider than long; 2 *sc* long, apical one about 1.8 and lateral one about 1.0 times as long as scutellum.

Wing: Slightly yellowish, veins yellowish brown; C somewhat darker, not extended beyond apex of R4+5, first sector with a little stronger setae than those of second and third sectors; R4+5 gently bent up to C; C-index = 1.50–1.80; R-M – dM-Cu : dM-Cu = about 2.5; alula broad and rounded; halter reddish brown to dark brown.

Legs: Dark brown to black. Male fore femur and tibia thickened, tibia with anterior incision on apical 1/3, fore tarsus swollen but not flattened, without long dense lateral setae. Fore femora with a dorsal seta on basal 2/3; mid femur with a ventral row of 4 setae on basal 1/5 in male; *t2* chaetotaxy as in that of *Ch. latitarsis*.

Abdomen: Male sternite 4 large, as long as broad (0.26 mm). Male sternite 5 (Fig. 21) comparatively long (in the direction of the body axis). Processes asymmetrical with several, comparatively short but thick thorns.

Male terminalia (Figs 21–24) small. Epandrial pair of setae 0.19 mm long. Surstylus (Figs 23–24) with a smaller subbasal process, which bears 4–5 long setae, its medial (basal) part continued widely also below epandrium. Postgonite (Fig. 22) with a subapical, lateral, broad based ridge (cf. Fig. 11 for *Ch. latitarsis*) and with a rather sharp apex (structurally similar to that of *Ch. latitarsis*). Phallapodeme similar to that of *Ch. latitarsis*.

Female cerci short, cercal setae short, even the longest ones not much longer than 0.10 mm.

Etymology. The specific epithet ‘ornata’ (Latin: “decorated”) refers to the beautiful coloration of its body.

In the World Catalogue of Sphaeroceridae (ROHÁČEK *et al.* 2001) a complete bibliography for the taxonomy and nomenclature of the genus was given.

KEY TO THE PALAEARCTIC AND ORIENTAL SPECIES
OF *CHAETOPODELLA* DUDA

- 1 (2) Fronto-orbital setae subequal in size. Three pairs of long and thick *ifr*. Thorax unicolorous, without light stripes or silvery spots around bases of macrochaetae. Frons more than 1 1/2 long as broad. A widespread Palearctic species from England to Japan and the Russian Far East. *Ch. scutellaris* (HALIDAY)
- 2 (1) Anterior fronto-orbital setae much shorter and thinner than posterior pair. Two to four pairs of thin and short *ifr*. Thorax with light stripes or at least silvery spots present around bases of macrochaetae. Frons less than 1/2 long as broad.
- 3 (6) Larger species, wing length about 2.5 mm. Male fore leg modified.
- 4 (5) Male fore tibia much thickened, fore tibia baseball bat shaped. Male fore tarsus swollen but not flattened. Frons with a silvery sagittal line to lunule. Gena without special modification of minute setae near posterior end. A pair of broad light stripe through postpronotum, notopleura and supra-alar area, mesonotum otherwise deep velvety black. Nepal **Ch. ornata** sp. n.
- 5 (4) Male fore tibia somewhat swollen. Male fore tarsus flattened, fore tarsomeres with long dense lateral setae. Female fore tarsomeres less flattened but distinctly so. Frons with silvery ocellar triangle, its apex not reaching lunule. Gena with a batch of dark minute setae directed downwards near posterior end. Notopleura yellowish. Mesonotum with broad, densely and less densely grey microtrichose stripes. Thailand and Viet Nam **Ch. latitarsis** sp. n.
- 6 (3) Smaller species, wing length less than 2.0 mm. Fore tarsomeres not flattened or only indistinctly so. Notopleura concolorous with mesonotum, or, thorax with a broad light stripe over postpronotum, notopleura and wing base. Two widespread Oriental species.
- 7 (8) Thorax with a broad light yellowish stripe over postpronotum, notopleura and wing base. Mesonotum with lighter stripes, frons reddish to orange anteriorly between orbital and interfrontal plates, or even sagittally. Silvery spots around bases of mesonotal macrochaetae small. Face light. Two katapisternals, both weak. Male mid tibia without a ventral seta on basal 1/2. Wing greyish, brownish, veins light brown. Female abdominal setae small **Ch. orientalis** sp. n.
- 8 (7) Thorax and frons unicolorous dark. Silvery spots around bases of mesonotal macrochaetae large. Face dark. Posterior katapisternal seta much stronger

than anterior. Male mid tibia with a strong ventral seta on basal 1/2. Wing membrane, and even posterior veins, milky. Female abdomen with extremely long lateral marginal setae on tergites 5–7. **Ch. nigrinotum** sp. n.

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