# A new genus and subgenus of the subfamily Euphorinae (Hymenoptera: Braconidae) from East Asia

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Key words: Braconidae; Euphorinae; Leiophronini; Centistini; Hymenoptera; *Mama*; *Chaetocentistes*; *Centistes*; East Asia; Far East Russia.
Three new taxa belonging to the subfamily Euphorinae Foerster (Hymenoptera; Braconidae) are described and illustrated. *Mama mariae* gen. nov. & spec. nov. from southern Far East Russia and two species of the subgenus *Chaetocentistes* nov. of the genus *Centistes* Haliday. A key to species (i.e. *Centistes chaetopygidium* Belokobylskij (type species) (Russian Far East, Korea, China), *C. choui* spec. nov. (Taiwan I., Korea) and *C. malaisei* spec. nov. (Myanmar)) of the subgenus *Chaetocentistes* is given. *Centistes spinulosus* Papp, 1994, is synonymised with *C. chaetopygidium* Belokobylskij, 1992 (syn. nov.).

## Introduction

The parasitic wasps of the subfamily Euphorinae Foerster, 1862 (Hymenoptera: Braconidae) are most peculiar and diverse. This group shows enormous morphological polymorphism, which allows it to parasitize very different orders of insects. The hosts of euphorine species are adults from numerous families of Coleoptera, Hymenoptera and Neuroptera, nymphs and adults of Hemiptera, Psocoptera and Orthoptera.

The new genus *Mama* from Far East Russia is similar to *Leiophron* Nees, 1818 s.l., known as parasites of nymphs and adults of Miridae and Lygaeidae (Hemiptera) and sometimes of Psocoptera. But the morphological characters of the new genus (such as the straight ovipositor (curved down in *Leiophron*), the compressed antennal scape, which has several slender spines, and the structure of the fore legs) may indicate that it infests another group of insects (possible even not Hemiptera).

The known hosts of the genus *Centistes* Haliday, 1835, are adult Chrysomelidae. The form of the ovipositor sheath (which is thick and widened apically) and the very dense setosity of the hypopygium, the apical sternites, the ventral side of the mesosoma and the posterior sides of the fore coxae likely indicate that the species of the subgenus *Chaetocentistes* nov. use other coleopterous hosts than typical *Centistes* species do.

The morphological terms are used as defined by Belokobylskij & Tobias (1998), except the terms "thorax" and "abdomen" are replaced by the terms "mesosoma" and "metasoma", respectively and the term "sternauli" is replaced by "precoxal sulcus".

The following abbreviations are used in the text for morphological terms: POL - postocellar line, OOL - ocular-ocellar line, Od - maximum diameter of lateral ocellus. For institutions: NIAST - National Institute of Agricultural Sciences and Technology (Suwon, Korea); RMNH - Nationaal Natuurhistorisch Museum/Naturalis (Leiden, The Netherlands); SMNH - Swedish Museum of Natural History (Stockholm, Sweden); TARI - Taiwan Agriculture Research Institute (Wufeng, Taiwan); ZISP - Zoolog-

ical Institute, Russian Academy of Sciences (St. Petersburg, Russia). The research described in this publication was made possible in part by RFFI Grant N 98-04-49712.

## *Mama* gen. nov.

Type species: *Mama mariae* Belokobylskij spec. nov.

Diagnosis.— The new genus is related to *Leiophron* Nees s.l. and differs by the long and compressed scape of antenna, with numerous slender spines on its inner side, the straight ovipositor, the enlarged fifth tarsal segment and the very short first-fourth segments of fore leg.

Description.— Head weakly transverse (fig. 1). Eye distinctly and shortly setose. Ocellar triangle with base 1.4-1.6 times length of its sides. Occipital carina widely interrupted dorsally, fused with hypostomal carina ventrally. Frons and face forming almost a right angle in lateral view (fig. 3). Face flat. Eye wide anteriorly, narrowed posteriorly. Malar suture distinct (fig. 1). Clypeal suture complete, but shallow. Mandible large and rather slender. Maxillary palp 5-segmented, labial palp 3-segmented. Antennae filiform. Scape long, almost reaching level of anterior ocellus, distinctly compressed, with numerous slender spines on its inner side (figs 4, 5). Pedicellus rather long and with several slender spines on its inner side (figs 4, 5).

Mesosoma.— Pronope absent. Notauli usually complete, sometimes absent posteriorly, shallow or obsolescent, crenulate. Mesoscutum smooth and with setose median lobe. Prescutellar depression deep. Precoxal sulcus short, shallow, rugulose (fig. 6). Postpectal carina absent. Metapleural lobe short, wide, round apically. Propodeum abruptedly reclining after anterior 1/3, entirely rugulose-reticulate (fig. 6).

Wings.— Wings densely and entirely setose. Radial vein arising behind middle of pterostigma and separated from first radiomedial vein (fig. 7). Radial cell strongly shortened. Discoidal cell petiolate. Medio-cubital vein unsclerotized. Recurrent vein antefurcal (fig. 7). In hind wing (fig. 8) first abscissa of medio-cubital vein 1.7-2 times as long as second abscissa. Fourth abscissa of costal vein almost straight.

Legs.— Fore tarsus 0.6 times as long as fore tibia. First-fourth segments of fore tarsus very short, fifth segment large and very wide, almost twice as wide as preceding segments (fig. 9). Fore spur approximately as long as fore basitarsus. Segments of median tarsus longer, fifth segment widened. All segments of hind tarsus very long and slender. Tarsal claws small and simple. Inner spur of hind tibia 0.25 times as long as hind basitarsus.

Metasoma.— First tergite long and narrow (fig. 10), its latero-ventral sides not fused, separated narrow or with very narrow split, laterope and dorsope absent. Second suture absent. Hypopygium rather large and sparsely setose. Ovipositor short, straight (fig. 12), directed up in normal condition (fig. 11).

Distribution.— Russia (Khabarovskiy and Primorskiy Kray).

Etymology.— Named in honour of my mother Maria Ivanovna Belokobylskaya, who recently passed away.

### *Mama mariae* spec. nov.
(figs 1-12)

Material.— Holotype: ♀ (ZISP), Russia, Primorskii krai, 20 km SW Putzilovka, Monakino, forest,

glades, 24-28.vi.1993 (S. Belokobylskij). Paratypes (13 ♀♀): Primorskii krai: 1 ♀ (ZISP), 10 km SW Sokol'chi, Lasovskii Nature Reserve, rocks, mixed forest, 23.vii.1993 (S. Belokobylskij); 1 ♀ (ZISP), 20 km SW Krounovka, dry slope, 3-5.viii.1993 (S. Belokobylskij); 1 ♀ (ZISP), Novokachalinsk, coast of Khanka Lake, forest, meadow, 21-22.vii.1995 (S. Belokobylskij); 1♀ (ZISP), Spassk-Dal'niy, forest, glades, 3-6.vii.1993 (S. Belokobylskij); 2 ♀♀ (ZISP, RMNH), 15 km SW Spassk-Dal'niy, Knorring, forest, glades, 22.vii.1991 (S. Belokobylskij); 1♀ (ZISP), 20 km SE Ussuriysk, Gornotayozhnoe, 24.vi.1981 (D. Kasparyan); 3 ♀♀ (ZISP, RMNH), 20 km SE Ussuriysk, border of forest, shrubs, 21.vii.1996 (S. Belokobylskij); 1♀ (ZISP), same locality, at light, 18-21.vii.1996 (S. Belokobylskij); 1♀ (ZISP), 10 km SSW Partizansk, forest, border of forest, 12-13.vii.1996 (S. Belokobylskij). 1♀ (ZISP), Khabarovsk, Khekhtzir Ridge, forest, 12.vi.1985 (S. Belokobylskij); 2 ♀♀ (ZISP), Spassk-Dal'niy, forest, 3-14.vii.1987 (G. Belokobylskaya); 1♀ (ZISP), 20 km SE Spassk-Dal'nyi, forest, 28.vi.1985 (S. Belokobylskij); 1♀ (ZISP), Vladivostok, 24 km from Lyanchikte (= Bogataya river), 29.vii.1963 (I. Kerzhner).

Description.— Female. Body length 2.6-3.6 mm; fore wing length 2.1-2.6 mm.

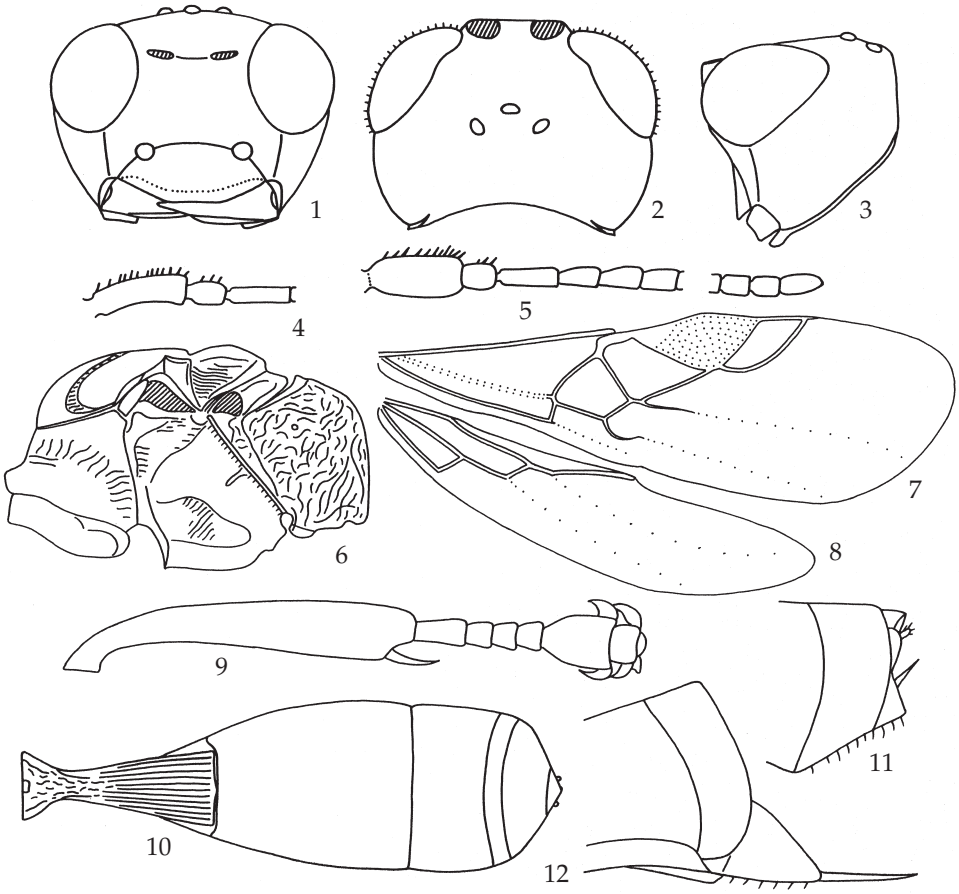
Head.— Antennae 20-22-segmented, moniliform. Scape 2.0-2.3 times as long as maximum width laterally, 2.7-3.0 times as long as width anteriorly. Pedicel 1.4-1.7 times as long as wide. First flagellar segment 2.8-3.3 times as long as its maximum width, 1.2-1.4 times as long as second segment. Penultimate segment 1.3-1.5 times as long as wide, 0.5 times as long as first segment, 0.7 times as long as apical segment; apical segment without apical spine. Width of head 1.5 times its median length, 1.3-1.4 times width of mesoscutum. Head behind eye weakly roundly narrowed. Length of frons 1.1-1.3 times height of face. Length of eye (in dorsal view) 1.2-1.3 times as long as temple. POL 2.2-2.6 times Od, 0.8-0.9 times OOL. Width of face 1.2-1.4 times its height, 0.8-0.9 times width of clypeus, 0.8 times maximum diameter of eye. Maximum diameter of eye 1.2-1.3 times its minimum diameter. Height of malar space almost 0.4 times maximum diameter of eye, 0.8-0.9 times basal width of mandible. Distance between tentorial pits 2.4-2.7 times distance from pit to eye. Width of clypeus 2-2.5 times its median height.

Mesosoma.— Length 1.4 times its median width. Mesoscutum high, roundly elevated above pronotum. Scutellum distinctly convex. Prescutellar depression long, with a median carina and several fine striae, its length 0.3-0.4 times length of scutellum. Subalar depression rather shallow, narrow, finely sculptured, partly smooth. Mesopleura with shallow, oblique, and finely crenulate furrow.

Fore wing.— Length 2.8-3 times its width. Metacarp 0.2-0.3 times as long as pterostigma, 0.6-0.8 times as long as width of pterostigma. Radial vein with single abscissa, which is regularly curved (fig. 5). First radio-medial vein 1.1-1.2 times first medial abscissa, 2-2.2 times recurrent vein. Nervulus interstitial, weakly antefurcal or postfurcal.

Legs.— Fore and middle femora thick, not compressed; hind femur slender, distinctly compressed. Hind femur 4.5-5 times as long as its maximum width. Hind tarsus almost as long as hind tibia. Hind basitarsus 0.7-0.8 times as long as second-fifth segments combined. Second segment 0.4-0.5 times as long as basitarsus, 1.2-1.3 times as long as fifth segment

Metasoma.— First tergite uniformly widened toward apex, with fine spiracular tubercle in basal 1/3. Apical width of first tergite 2-3 times its minimum width; length 2.3-2.6 times its apical width. Length of second and third tergites combined almost twice basal width of second tergite, almost equal to its maximum width. Ovipositor sheath short, almost not projecting behind apex of abdomen (fig. 11).




Figs 1-12. *Mama mariae* gen. nov. & spec. nov., ♀, holotype, but 12 of paratype. 1, head, frontal view; 2, head, dorsal view; 3, head, lateral view; 4, three basal segments of antenna, frontal view; 5, basal and apical parts of antenna, lateral view; 6, mesosoma, lateral view; 7, fore wing; 8, hind wing; 9, fore tibia and tarsus; 10, metasoma, dorsal view; 11, 12, apical part of metasoma and ovipositor, lateral view.

Sculpture and pubescence.— Head smooth, face finely and very densely punctulate. Mesothorax smooth. Propodeum not areolate, densely and coarsely reticulate-rugose. Legs smooth. First tergite rugulose, with sparse striae, almost smooth basally. Following tergites smooth. Median lobe of mesoscutum almost entirely setose, most part of lateral lobes glabrous. Face very densely and shortly setose, clypeus with sparse and long hairs.

Colour.— Body yellow, mesosoma dorsally and metasoma distally infuscate; sometimes propodeum and first tergite dark reddish brown. Antennae light brown, yellow basally. Palpi yellow. Legs yellow. Wings hyaline. Pterostigma yellow or light brown, pale yellow basally.

Male.— Unknown.

## *Centistes* Haliday, 1835

*Centistes* is a large genus of the tribe Centistini Capek, 1970. More than 30 species are recorded from East Asia and most of them are described only from this region (Belokobylskij, 1992; Chen & van Achterberg, 1997). According recent publications (van Achterberg, 1985; Chen & van Achterberg, 1997) *Centistes* includes 4 subgenera (*Anartionyx* van Achterberg is known from the Nearctic Region only and *Syrrhizus* Foerster, 1862, is considered to be a subgenus of *Centistes* by van Achterberg (1985), but I consider it a valid genus (Belokobylskij, 1992)). The three species dealt in this paper have some derived characters in common: the shape of the ovipositor sheath (figs 30, 34, 38), the pubescence of ventral part of the metasoma (figs 31, 35, 39), the mesosoma and the fore coxae, and the structure of the apex of the ovipositor), which allow to separate them in *Chaetocentistes* subgen. nov.

### *Chaetocentistes* subgen. nov.

Type species: *Centistes chaetopygidium* Belokobylskij, 1992.

Description.— Head transverse (figs 14, 18, 22). Ocelli in triangle with its base 1.2-1.3 times length of its sides. Occipital carina complete, fused with hypostomal carina near lower margin of head. Eyes glabrous. Malar suture distinct (figs 13, 17, 21). Anterior tentorial pits rather large. Clypeus convex, its lower margin straight and with distinct narrow flange. Hypostomal flange short (figs 15, 19, 23). Mandible short and distinctly twisted apically, weakly widened basally. Maxillary palp long, 5-segmented; labial palp short, 3-segmented. Antenna filiform and rather slender (figs 16, 20, 24). Apex of apical segment with short spine. Length of mesosoma 1.4-1.5 times its height. Notauli present, but shallow, sometimes obsolescent, usually smooth. Prescutellar depression deep and rather short. Scutellum convex. Prepectal carina complete. Sternauli almost absent; if present, then shallow, wide, curved, finely sculptured. Subalar depression shallow, wide, almost smooth or finely sculptured. Metapleural lobe short and wide. Radial vein of fore wing slightly shortened (figs 28, 32, 36). Metacarpus (part within radial cell) slightly longer than pterostigma, 5.7-7.7 times as long as distance from apex of radial cell to apex of wing. Medio-cubital vein largely unsclerotized. First medial abscissa present. Discoidal cell narrowly sessile (figs 28, 32) or shortly petiolate (fig. 36). Nervulus slightly postfurcal. Legs robust. Fore coxa with very dense and rather long yellowish brush-like setosity at posterior side. Hind tarsi slender. Tarsal claws simple and rather long. Inner spur of hind tibia 0.4-0.5 times hind basitarsus. First abdominal tergite (figs 25-27) almost rectangular, rather long, slightly widened toward apex, without dorsope and with small spiracular tubercles; laterope very deep. Hypopygium almost entirely and two preceding sternites medially very densely setose (brush-like) (figs 31, 35, 39). Ovipositor sheath rather short, very thick, flat and wide apically, densely setose ventrally (figs 30, 31, 34, 35, 38, 39). Apical part of ovipositor slender, apex irregularly curved.

Differences between the three recognised Old World subgenera of *Centistes* are indicated in the following key.

1. Fore coxa at posterior (= inner) side very densely brush-like setose. Ovipositor sheath thick, widened apically (in dorsal and lateral views). Apex of ovipositor

slender and curved. Hypopygium and two preceding sternites very densely brush-like setose (fig. 35) ..... ***Chaetocentistes*** subgen. nov.

- Fore coxa at posterior (= inner) side normally setose, not brush-like. Ovipositor sheath more or less slender, narrowed apically (in dorsal and lateral views). Apex of ovipositor rather wide and straight. Hypopygium and all preceding sternites normally setose, not brush-like ..... 2

2. Mesosocutum without any traces of notauli ..... ***Centistes*** Haliday, 1835
- Mesosocutum with at least traces of notauli anteriorly ..... ***Ancylocentrus*** Foerster, 1862

## *Centistes* (*Chaetocentistes*) *chaetopygidium* Belokobylskij, 1992 (figs 13-16, 25, 28-31)

*Centistes* (*Ancylocentrus*) *chaetopygidium* Belokobylskij, 1992: 216; Chen & van Achterberg, 1997: 32.
*Centistes spinulosus* Papp, 1994: 340. **Syn. nov.**

Material.— (For specimens belonging to the type-series, see Belokobylskij (1992)). 1 ♀ (not ♂ as indicated on label!), "Korea, Prov. North Pyongan, Mt. Myohyang-san", "13.ix.1980, Forro et Topal, No. 663", "Paratype ♂ (sic!) *Centistes spinulosus* sp. n. Papp, 1994", "Hym. Typ. No. 7656, Mus. Budapest"; 4 ♀♀ + 1 ♂ (ZISP), Spassk-Dal'niy, forest, glades, border of forest, shrubs, 3-6.vii.1993, 16.viii.1995, 8 and 17-21.viii.1996 (S. Belokobylskij); 2 ♀♀ (ZISP), 10 km SE Chernigovka, at light, 27-29.viii.1998 (S. Belokobylskij). Korea: 1 ♂ (NIAST), Ch'ungbuk, Poun Woesok, 23.v.1993 (D.-S. Ku).

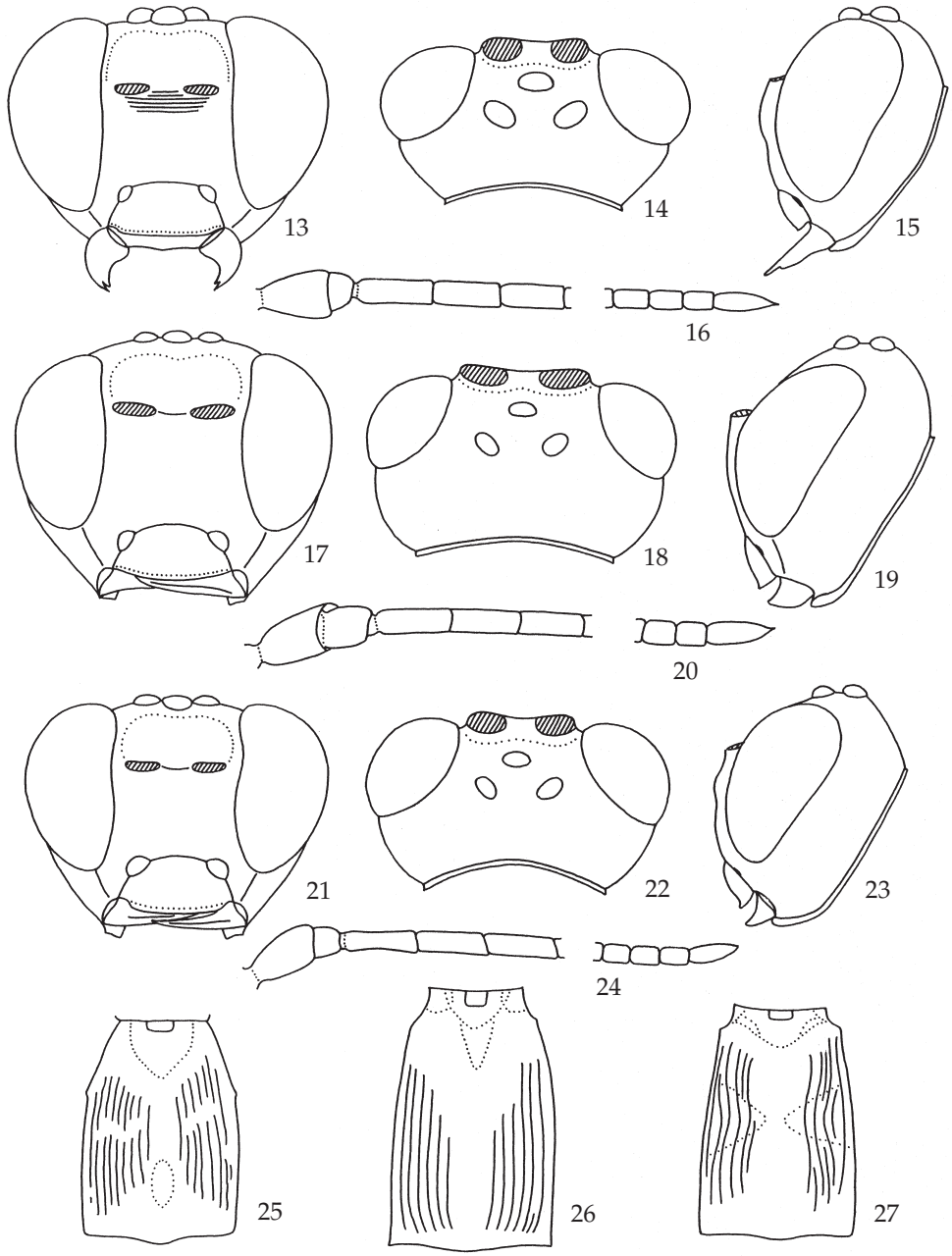
Description.— Female. Body length 4.0-6.2 mm, fore wing length 3.5-4.8 mm.

Head.— Antenna 30-33-segmented. First flagellar segment 2.5-3 times as long as its apical width, 1.1-1.2 times as long as second segment. Penultimate segment 1.3-1.8 times as long as wide, 0.5-0.6 times as long as apical segment, 0.5 times as long as first flagellar segment. Head width 1.8-2.2 times its median length, 1.2 times width of mesoscutum (without tegulae). Head behind eyes strongly and almost linearly narrowed. Transverse diameter of eye 1.5-1.8 (rarely 1.4) times length of temple. POL 0.9-1 times Od, 1.8-2 times OOL; Od 1.4-1.8 (rarely 1.3) times OOL. Eye 1.5-1.6 times as high as broad. Height of cheek 0.1-0.15 times eye height, 0.5-0.6 times basal width of mandible. Face width 0.5-0.7 times eye height, 1.2-1.4 times height of face. Clypeus width 1.8-2.2 times its height, 0.7-0.9 times width of face. Distance between tentorial pits 2.5-3.5 times distance from pit to eye.

Mesosoma.— Mesoscutum rather sparsely setose in anterior 1/3-1/4 and laterally. Notauli more or less distinct, very shallow, wide, and smooth. Prescutellar depression smooth or sparsely crenulate, deep, wide, usually with distinct median keel, 0.3-0.4 times as long as scutellum. Precoxal sulcus indistinct and smooth.

Wing.— Fore wing 2.5-2.7 times as long as wide. Radial vein arising slightly behind middle of pterostigma. Second radial abscissa uniformly and weakly curved basally, almost straight in apical 2/3 usually. First radio-medial vein 3.5-5 times first radial abscissa. Distance from nervulus to basal vein 0.3-0.7 times nervulus length. In hind wing, second abscissa of medio-cubital vein 0.33-0.4 times first abscissa, 1.4-1.5 times basal vein.

Legs.— Hind femur 4.4-5 times as long as wide. Hind tarsus 0.9-1 times as long as hind tibia; its second segment 0.4-0.5 times as long as basitarsus, 1.2-1.3 times as long as fifth segment (without pretarsus).




Figs 13-16, 25, *Centistes* (*Chaetocentistes*) *chaetopygidium* Belokobylskij, ♀; figs 17-20, 26, *C.* (*Ch.*) *choui* spec. nov., ♀; figs 21-24, 27, *C.* (*Ch.*) *malaisei* spec. nov. , ♀. 13, 17, 21, head, frontal view; 14, 18, 22, head, dorsal view; 15, 19, 23, head, lateral view; 16, 20, 24, basal and apical segments of antenna; 25-27, first metasomal tergite.

Metasoma.— Metasoma elongate-oval and long. First tergite very weakly and uniformly roundly widened from base to apex, sometimes narrowed apically, usually with small spiracular tubercles before middle, often with oval or round depression (sometimes small) in posterior half. Apical width of first tergite 1.6-1.9 times its minimum width, length 1.3-1.6 times its apical width. Combined length of second and third tergites 1.5-1.8 times basal width of second tergite. Length of ovipositor sheath 1.2-1.4 times its width (dorsal view), 0.2-0.3 times length of first tergite.

Sculpture.— Head and mesothorax smooth, face near antennal sockets sometimes finely striate, clypeus finely sculptured. Propodeum with distinct transverse and curved median carina, with sparse and distinct sculpture near carinae and in posterior half. First tergite almost smooth basally, apically and narrowly medially, rest part sparsely and finely striate.

Colour.— Head and metasoma dark reddish brown or black, sometimes lighter. Often mesoscutum and lower half of mesopleura light reddish brown, rest part of mesosoma reddish brown or black. Sometimes mesosoma entirely light reddish brown. Antenna dark reddish brown to black, two basal segments light brown. Palpi pale yellow. Tegulae and legs brownish yellow, hind tibia and tarsus slightly darker. Wings faintly infuscate. Pterostigma dark brown, paler basally.

Male.— Body length 3.1-3.8 mm; fore wing length 3.1-3.4 mm. Antenna 27-30-segmented. Temple often more convex and sometimes longer (transverse diameter of eye 1.2 times length of temple). Propodeum sometimes almost entirely rugulose. First tergite sometimes widely striate. Otherwise similar to female.

Distribution. - Russia (southern Far East Russia); China; Korea.

*Centistes* (*Chaetocentistes*) *choui* spec. nov.
(figs 17-20, 26, 32-35)

Material.— Holotype, ♀ (TARI), "C. Taiwan: Tsuifeng, 2300 m, Nantou Hsien", 1-3.ix.1982 (L.Y. Chou & K.C. Chou). Paratypes (45 ♀♀ + 79 ♂♂): 1 ♀ (ZISP), "C. Taiwan: Tsuifeng, 2300 m, Nantou Hsien", 1-3.ix.1982 (L.Y. Chou & K.C. Chou); 1 ♀ (TARI), same locality, 15-16.viii.1984 (K.C. Chou); 5 ♂♂ (TARI, ZISP), same locality, viii.1984 (K.S. Lin & K.C. Chou); 2 ♀♀ + 2 ♂♂ (TARI), same locality and collectors, ix.1984; 2 ♀♀ (TARI), same locality, 3.vi.1980 (L.Y. Chou & C.C. Chen); 2 ♀♀ (TARI), same locality, 12-14.ix.1984 (K.S. Lin & S.C. Lin); 1 ♀ (TARI), same locality, 23-25.vi.1983 (K.S. Lin & S.C. Lin); 3 ♀♀ + 3 ♂♂ (TUCS, ZISP), "Taiwan, Nantou Hsien, Tsuifeng", 23.v.1982 (R. Wharton); 3 ♀♀ + 10 ♂♂ ♀ (TARI, RMNH), "C. Taiwan: Meifeng, 2150 m, Nantou Hsien", 22.v.1982 (L.Y. Chou); 6 ♀♀ + 4 ♂♂ (TARI, ZISP, RMNH), same locality, 7/9.v.1981 (K.S. Lin & S.C. Lin); 1 ♀ + 1 ♂ (TARI), same locality, 2130 m, 2-4.vi.1980 (L.Y. Chou & C.C. Chen); 4 ♀♀ +12 ♂♂ (TARI, ZISP), same locality, 15.VII.1982 (S.C. Lin & C.H. Wang); 1 ♀ (TARI), same locality, 10.v.1979 (K.C. Chou); 3 ♂♂ (TARI), same locality, 24-26.vi.1981 (K.S. Lin & W.S. Tang); 1 ♂ (TARI), same locality, 31.vii-2.ix.1982 (L.Y. Chou & K.C. Chou); 1 ♀ + 3 ♂♂ (TARI), same locality, 23.vii.1984 (K.S. Lin); 4 ♀♀ + 9 ♂♂ (TUCS, ZISP, RMNH), "Taiwan, Nantou Hsien, Meifeng", 22.v.1982 (R. Wharton); 1 ♀ (TARI), "C. Taiwan: Tungpu, 1200 m, Nantou Hsien," 25-29.ix.1980 (L.Y. Chou & T. Lin); 10 ♀♀ + 2 ♂♂ (TARI), "C. Taiwan: Sungkang, 2100 m, Nantou Hsien", IX-xi.1984 (K.S. Lin & K.C. Chou); 3 ♀♀ + 6 ♂♂ (TARI, ZISP), same locality, 6.viii.1984 (K.S. Lin); 1 ♂ (TARI), same locality, 13-15.x.1984 (K.S. Lin & S.C. Lin); 4 ♂♂ (TARI), same locality, 15-17.viii.1984 (K.C. Chou); 1 ♀ + 8 ♂♂ (TARI), "C. Taiwan: Anmashan, 2275 m, Taichung Hs.", 6-9.vii.1979 (L.Y. Chou); 1 ♀ + 1 ♂ (TARI), "C. Taiwan: 1850 m, Sheng Kuang, Taichung Hsien", ix.1968 (K.S. Lin). Korea: 1 ♀ (NIAST), "Korea, Kyongnam, Chinju-shi, Kajwadong" (D.-S. Ku); 1 ♀ (NIAST), "Korea, Kyongsangnam-do, Chinju-shi, Kajwa-dong, Malaise Trap", 1-8.vi.1993 (D.-S. Ku).

Description.— Female. Body length 2.7-5.0 mm, fore wing length 2.7-4.5 mm.

Head.— Antenna 28-31-segmented. First flagellar segment 2.5-3 times as long as its apical width, slightly longer or almost equal to second segment. Penultimate segment 1.25-1.5 times as long as wide, 0.5-0.6 times as long as apical segment, 0.4-0.5 times as long as first flagellar segment. Head width 1.8-2 times its median length, 1.1-1.2 times width of mesoscutum (without tegulae). Head behind eyes weakly anteriorly and distinctly posteriorly roundly narrowed. Transverse diameter of eye 1.2-1.4 times length of temple. POL 1.3-1.8 times Od, 1.2-1.5 times OOL; Od 0.7-0.9 times OOL, rarely equal to it. Eye 1.6-1.7 times as high as broad. Cheek height almost 0.2 times eye height, 0.8-1 times basal width of mandible. Face width 0.6-0.7 times eye height, 1.2-1.4 times height of face. Clypeus width 2-2.3 times its height, 0.8 times width of face. Distance between anterior tentorial pits 2.5-3 times distance from pit to eye.

Mesosoma.— Mesoscutum sparsely setose in anterior 1/4-1/5 only. Notauli more or less distinct, very shallow, wide, and smooth. Prescutellar depression smooth, deep, wide, with distinct median keel, almost 0.5 times as long as scutellum. Sternauli indistinct, smooth, but sometimes shortly sculptured.

Wing.— Fore wing 2.6-2.7 times as long as wide. Radial vein arising behind middle of pterostigma. Second radial abscissa uniformly and weakly curved, sometimes almost straight medially. First radio-medial vein 4-4.5 times first radial abscissa. Distance from nervulus to basal vein 0.2-0.6 times nervulus length. In hind wing, second abscissa of medio-cubital vein 0.3-0.4 times first abscissa, 1.4-1.7 times basal vein.

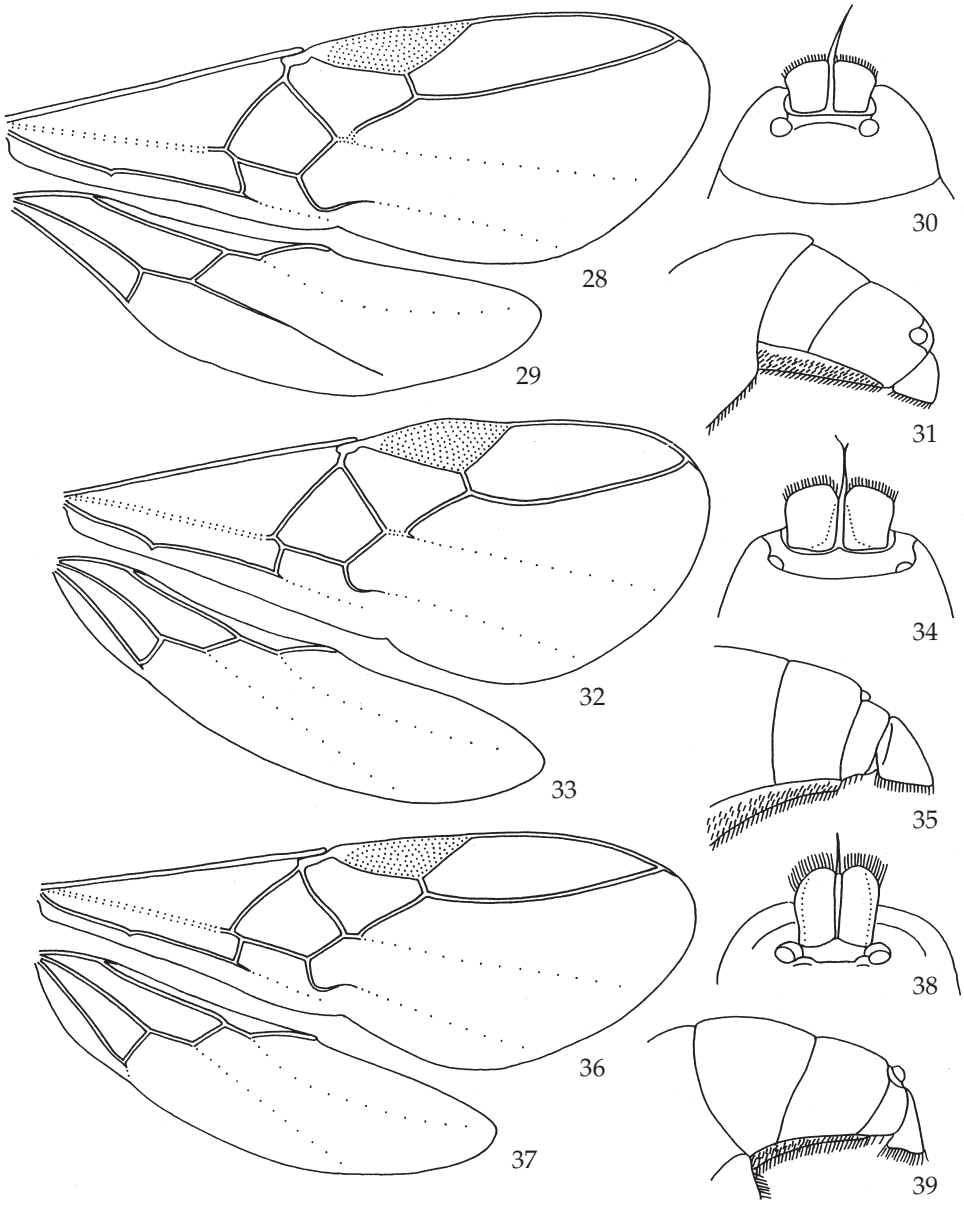
Legs.— Hind femur 4.5-5.2 times as long as wide. Hind tarsus 0.9 times as long as hind tibia; its second segment 0.4 times basitarsus, almost equal to fifth segment (without pretarsus).

Metasoma.— Metasoma elongate-oval and rather long. First tergite very weakly and uniformly widened from base to apex, sometimes narrowed apically, often with small spiracular tubercles before middle, usually without oval median depression. Apical width of first tergite 1.4-1.6 times its minimum width, its length 1.4-1.6 times its apical width. Combined length of second and third tergites 1.5-1.8 times basal width of second tergite. Length of ovipositor sheath 1.3-1.5 times its width (in dorsal view), 0.25-0.3 times length of first tergite.

Sculpture.— Head and mesothorax smooth, clypeus finely sculptured. Propodeum with high transverse and curved median carina, usually almost smooth, sometimes with fine or (rarely) distinct sculpture near carina and in posterior half. First tergite almost smooth basally and medially (sometimes a larger area), remainder partly striate, very rarely almost entirely striate.

Colour.— Head and mesosoma reddish brown, sometimes darker or lighter. Prothorax in ventral half yellow. Antenna dark reddish brown, 2-3 basal segments light brown. Palpi yellow. Tegulae and legs brownish yellow, hind tibia (except yellow base) and tarsus slightly darker. Wings faintly infuscate. Pterostigma dark brown, paler basally.

Male.— Body length 1.9-4.0 mm; fore wing length 2.0-3.8 mm. Propodeum sometimes with two longitudinal carinae in posterior half forming an areola; almost entirely smooth or distinctly rugulose on posterior 0.5-0.7. First tergite sometimes almost entirely striate and with distinct spiracular tubercles. Otherwise similar to female.




Figs 28-31, *Centistes* (*Chaetocentistes*) *chaetopygidium* Belokobylskij, ♀; figs 32-35, *C.* (*Ch.*) *choui* spec. nov. , ♀; figs 36-39, *C. (Ch.) malaisei* spec. nov., ♀. 28, 32, 36, fore wing; 29, 33, 37, hind wing; 30, 34, 38, ovipositor sheath, dorsal view; 31, 35, 39, apex of ovipositor and ovipositor sheath, lateral view.

Remark.— Closely related to *C.* (*Ch.*) *chaetopygidium* Belokobylskij; differs by the shape and the length of the temples in dorsal view, the large malar space, the small ocelli, the absence of a posteromedial depression of the first tergite, the straight nervulus, which is almost perpendicular to the cubital vein.

Etymology.— This species is named in honour of braconidologist Dr Liang-yih Chou.

*Centistes* (*Chaetocentistes*) *malaisei* spec. nov.
(figs 21-24, 27, 36-39)

Material.-— Holotype, ♀ (SMNH),"NE Burma [= Myanmar], Kambaiti, 2000 m, 19.v.1934. Malaise". Paratypes: 2 ♀♀ (SMNH, ZISP), same locality, 1 & 8.vi.1934.

Description.— Female. Body length 6.0-6.5 mm, fore wing length 4.9-5.1 mm.

Head.— Antenna 38-segmented. First flagellar segment 3.4-3.6 times as long as its apical width, approximately equal to second segment. Penultimate segment 1.5 times as long as wide, almost 0.5 times as long as apical segment, 0.4 times as long as first flagellar segment. Head width almost twice its median length, 1.1 times width of mesoscutum (without tegulae). Head distinctly and almost linearly narrowed behind eyes. Transverse diameter of eye 1.3 times length of temple. POL 1.3-1.4 times Od, 1.3-1.4 times OOL; Od almost equal to OOL. Eye 1.5-1.6 times as high as broad. Cheek height 0.15-0.2 times eye height, 0.8-0.9 times basal width of mandible. Face width 0.6-0.7 times eye height, 1.2 times height of face. Clypeus width 2-2.3 times its height, 0.8-0.9 times width of face. Distance between tentorial pits 2.3-2.5 times distance from pit to eye.

Mesosoma.— Mesoscutum densely setose, glabrous in posterior 1/3 only. Notauli rather deep and narrow, smooth. Prescutellar depression sparsely crenulate, with high median keel, 0.25-0.3 times as long as scutellum. Precoxal sulcus more or less distinct and almost entirely sculptured.

Wing.— Fore wing 2.6-2.8 times as long as wide. Radial vein arising behind middle of pterostigma. Second radial abscissa uniformly and weakly curved, almost straight in apical half. First radio-medial vein 3.7-4.2 times first radial abscissa. Distance from nervulus to basal vein 0.2-0.4 times nervulus length. In hind wing, second abscissa of medio-cubital vein 0.35-0.40 times first abscissa, 1.3-1.5 times basal vein.

Legs.— Fore femur almost 4 times and hind femur 4.8-5.0 times as long as wide. Hind tarsus 0.9-1.0 times as long as hind tibia; its second segment 0.4-0.45 times basitarsus, 1.0-1.2 times fifth segment (without pretarsus).

Metasoma.— Metasoma elongate-oval and long. First tergite very weakly and uniformly widened from base to apex, without spiracular tubercles, and without oval posteromedian depression. Apical width of first tergite 1.5-1.6 times its minimum width, length 1.6 times its apical width. Combined length of second and third tergites 1.6-1.7 times basal width of second tergite. Length of ovipositor sheath 1.7-2 times its width (in dorsal view), 0.3-0.35 times length of first abdominal tergite.

Sculpture.— Head and mesothorax smooth. Propodeum with high transverse and curved median carina, smooth in anterior half, with fine sculpture near carina and usually rugulose in posterior 0.3-0.5. First tergite more or less finely striate, almost smooth medially.

Colour.— Head and mesosoma dark reddish brown. Basal half of metasoma yellow, remainder pale reddish brown, darkened towards apex. Antenna dark reddish brown, lighter basally. Palpi yellow. Tegulae and legs brownish yellow, hind tibia (except yellow base) and tarsus darker. Wings faintly infuscate. Pterostigma dark brown, paler basally.

Male.— Unknown.

Remark.— Related to *C.* (*Ch.*) *chaetopygidium* Belokobylskij, but differs by the small ocelli, the longer temple and cheek, the sessile discoidal cell, the absence of posteromedian depression of the first tergite, the sculptured precoxal sulcus, the distinct notauli posteriorly, only the posterior 0.3 of the mesoscutum glabrous, the longer ovipositor sheath, and the yellow basal half of metasoma.

Etymology.— This species is named in honour of famous hymenopterologist Dr R. Malaise, which collected the type series.

**Key to species of the subgenus *Chaetocentistes***

1. Discoidal cell subsessile (fig. 36). Precoxal sulcus almost entirely sculptured. Notauli deep anteriorly. Mesoscutum densely setose in anterior 2/3. Vertex densely setose. Basal half of metasoma yellow. Body length 6.0-6.5 mm; Myanmar ..... ***C.* (*Ch.*) *malaisei*** spec. nov.
- Discoidal cell distinctly petiolate (figs 28, 32). Precoxal sulcus usually smooth. Notauli very shallow anteriorly. Mesoscutum sparsely setose in anterior 1/4. Vertex rather sparsely setose. Metasoma entirely reddish brown or dark reddish brown ..... 2
2. Head almost linearly and strongly narrowed behind eyes (fig. 14); length of eye 1.6-1.8 times in dorsal view (fig. 14) and 1.7-2.8 times in lateral view (fig. 15) as long as temple. Ocelli large, Od 1.5-1.8 times OOL (fig. 14). Malar space 0.5-0.6 times basal width of mandible (fig. 13). Nervulus of female distinctly inclivous (fig. 28). First tergite usually with oval or round posteriomedian depression (fig. 25). Body length 3.1-6.2 mm; Russian Far East, Korea, China ..... ..... ***C.* (*Ch.*) *chaetopygidium*** Belokobylskij
- Head behind eyes weakly anteriorly and strongly posteriorly roundly narrowed (fig. 18); length of eye 1.2-1.4 times in dorsal view (fig. 18) and 1.1-1.4 times in lateral view (fig. 19) as long as temple. Ocelli small, Od 0.7-0.9 times OOL (fig. 18), sometimes equal to it. Malar space 0.8-1 times basal width of mandible (fig. 17). Nervulus of female more or less perpendicular (fig. 32). First tergite always without oval posteromedian depression (fig. 26). Body length 1.9-5.0 mm; Korea, Taiwan ..... ***C.* (*Ch.*) *choui*** spec. nov.

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