

Taxonomic reclassification of the East Asian species of the genus *Oncophanes* Förster (Hymenoptera: Braconidae, Rhyssalinae)

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Таксономическая реклассификация восточноазиатских видов рода *Oncophanes* Förster (Hymenoptera: Braconidae, Rhyssalinae)

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Abstract. The East Asian species of the genus *Oncophanes* Förster are revised. Two new genera and one new subgenus are described: *Tobiason* gen. n. (type species *Oncophanes pronotalis* Belokobylskij et Ku) and *Koreophanes* subgen. n. of the genus *Oncophanes* Förster (type species *Oncophanes puber* sp. n.) in the subfamily Rhyssalinae, and *Aulosaphanes* gen. n. (type species *Oncophanes suturalis* Belokobylskij) in the subfamily Exothecinae (Lysitermini). Three Asian species are transferred from *Oncophanes* to the genus *Lysitermoides* Achterberg: *O. rugosus* Telenga, 1941, *O. compsolechia* Watanabe, 1970 (stat. resurr.) and *O. makarkini* Belokobylskij, 1996. A new synonym is given: *O. compsolechia* Watanabe, 1970 = *O. striatus* Belokobylskij, 1998, syn. n. A new combination is proposed: *Colastes (Xenarcha) tenuipes* Tobias, comb. n. Identification keys for the East Asian genera of the subfamily Rhyssalinae, the species of the genera *Lysitermoides* and *Oncophanes*, and all genera of the subtribe Acanthormiina (Lysitermini, Exothecinae) are provided.

Key words. Hymenoptera, Braconidae, Rhyssalinae, Exothecinae, *Oncophanes*, new genera, reclassification, East Asia.

Резюме. Проведена ревизия восточноазиатских видов рода *Oncophanes* Förster. Описываются новые для науки род и подрод из подсемейства Rhyssalinae [*Tobiason* gen. n. (типовой вид: *Oncophanes pronotalis* Belokobylskij et Ku) и *Koreophanes* subgen. n. рода *Oncophanes* Förster (типовой вид: *Oncophanes puber* sp. n.)] и новый род из подсемейства Exothecinae (Lysitermini) [*Aulosaphanes* gen. n. (типовой вид: *Oncophanes suturalis* Belokobylskij)]. Три азиатских вида перенесены из рода *Oncophanes* в род *Lysitermoides* Achterberg: *O. rugosus* Telenga, 1941, *O. compsolechia* Watanabe, 1970 (stat. resurr.) и *O. makarkini* Belokobylskij, 1996. Предложен новый синоним (*O. compsolechia* Watanabe, 1970 = *O. striatus* Belokobylskij, 1998, syn. n.) и дана новая комбинация [*Colastes (Xenarcha) tenuipes* Tobias, comb. n.]. Даны определительные таблицы восточноазиатских родов подсем. Rhyssalinae, видов родов *Lysitermoides* и *Oncophanes* и родов подтрибы Acanthormiina (Lysitermini, Exothecinae).

Ключевые слова. Hymenoptera, Braconidae, Rhyssalinae, Exothecinae, *Oncophanes*, новые роды, реклассификация, Восточная Азия.

Introduction

The genus *Oncophanes* Förster is the largest genus in the subfamily Rhyssalinae and is recorded from the Palaearctic, Nearctic and Oriental Regions. About 15 species of this genus are recorded in the world fauna (Shenefelt, 1975; Belokobylskij, 1990, 1993, 1996; Belokobylskij, Ku, 1998), but the real content of this genus should be revised. Recently Achterberg (1995) described *Lysitermoides* (for *L. huggerti* Achterberg and *L. transversus* Achterberg) from North America. The main diagnostic characters of this genus are the carapace-like and entirely sculptured second and third tergites of the metasoma. A study of the East Palaearctic species of the genus *Oncophanes* showed that species *O. rugosus* Telenga (Telenga, 1941), *O. compsolechia* Watanabe (Watanabe, 1970), **stat. resurr.** (*O. striatus* Belokobylskij, 1998, **syn. n.**) and *O. makarkini* Belokobylskij (Belokobylskij, 1996) (which types was examined by author) should be transfer to the genus *Lysitermoides* also (**comb. n.**) as possessing the almost carapace-like second and third tergites. However, the carapace-like structure of these tergites in the East Palaearctic species is less distinctly indicate because margins of these tergites narrowly smooth and border between dorsal and lateral parts of tergites finely marginate.

Two another East Asian species of *Oncophanes* with similar construction of metasoma are a member of the two new genera which are described below. The genus *Tobiason* gen. n. (with type species *Oncophanes pronotalis* Belokobylskij et Ku, 1998) is really from the subfamily Rhyssalinae and is similar to *Lysitermoides* Achterberg. The principal differences of new genus are consist in the presence of the large pronope on pronotum and of the wide transverse submedian furrow on third tergite.

The type species of the second new genus *Aulosaphanes* gen. n., *O. suturalis* Belokobylskij, was described in the genus *Oncophanes* Förster on the base of superficial similarity only (Belokobylskij, 1990). The restudy of the types and (which was very important) additional material from Vietnam and Japan showed that spiracles of the second and third metasomal tergites situated near margin of the dorsal part of tergites (not on the sides of tergites as in all Rhyssalinae), the third labial segment not shortened (which is distinctly shortened in *Oncophanes* species and many other rhyssaline genera), and the second transverse anal vein of fore wing is absent (but usually present for most part of rhyssaline genera). As result, describing below new genus *Aulosaphanes* belongs not to Rhyssalinae actually, but to Exothecinae s.l. (tribe Lysitermini).

Thus, the genus *Oncophanes* includes only the species without transformed second and third tergites, which are rather soft and only partly sculptured. Earlier eight species of this genus were recorded for the East Asia (Shenefelt, 1975; Belokobylskij, 1998; Belokobylskij, Ku, 1998), but after this reclassification only 2 species are included in *Oncophanes* (the status of the Oriental *O. hesperidis* Rohwer need to be verified): *O. minutus* (Wesmael) (polymorph and widely distributed in the Palaearctic species which can consist not from one forms) and *O. pini* Belokobylskij (Khabarovsk Territory and Sakhalin Island). Additionally *O. puber* sp. n. (which is a type species of the new subgenus *Koreophanes* subgen. n.) is described below from South Korea. Also two species of *Oncophanes* were recorded in the Western part of Russia: *O. minutus* (Wesmael) and *O. tenuipes* Tobias (Belokobylskij, Tobias, 1986). However additional examination of the holotype of *O. tenuipes* shows that this species should be transferred to *Colastes* (*Xenarcha*) (**comb. n.**).

The terms for wing venation are used as defined by Belokobylskij and Tobias (1998). The following abbreviations are used: POL — postocellar line; OOL — ocular-ocellar line; Od — maximum diameter of lateral ocellus; BCIK — Biodiversity and Conservation Institute (Silmaeri, South Korea); IEBR — Institute of Ecology and Biological Resources (Hanoi, Vietnam); ZISP — Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia).

Subfamily Rhyssalinae

Tobiason Belokobylskij, gen. n.

Type species: *Oncophanes pronotalis* Belokobylskij et Ku, 1998.

Diagnosis. The new genus *Tobiason* gen. n. is similar to *Lysitermoides* Achterberg but differs in the presence of the large pronope on pronotum, the presence of the strongly oblique basal furrow of the

second tergite, and the wide transverse submedian furrow on the third tergite. These characters as well as carapace-like structure of the second and third tergites also differ new genus from *Oncophanes* Förster.

Description. Head transverse (Fig. 2). Ocelli in almost equilateral triangle. Eyes glabrous. Clypeal suture distinct and complete. Hypoclypeal depression rather small and subround or oval. Malar suture absent (Fig. 1). Occipital carina complete, wide, fused ventrally with hypostomal carina upper base of mandible. Maxillary palpi 6-segmented, labial palpi 3-segmented; third segment of labial palpus absent. Antenna (Fig. 3) weakly thickened, densely pubescent, filiform. First flagellar segment longer than second segment. Apical segment distinctly pointed apically.

Mesosoma (Fig. 4) weakly depressed, rather flat dorsally. Pronotum rather long, anteriorly straight and without flange, with wide large and deep pronope bordered laterally by distinct carinae (Fig. 5). Mesonotum highly and regularly-roundly raised above pronotum. Notauli complete, deep anteriorly and rather shallow posteriorly, crenulate. Scuto-scutellar suture indistinct or very fine. Prescutellar depression rather deep or more or less shallow and long. Metanotum with short wide obtuse tooth. Sternauli deep, long, weakly curved, crenulate. Prepectal carina wide and complete. Postpectal carina absent. Metapleural flange short and rather wide. Propodeum (Fig. 6) with distinct and wide pointed lateral tubercles in posterior 1/3, with distinctly marginate areas, areola small, wide or narrow.

Wings (Figs 10, 11). Pterostigma rather narrow. Radial cell of fore wing not shortened. Radial vein arising almost from the middle of pterostigma. Both radiomedial veins present. Second radial abscissa longer than first abscissa and shorter than first radiomedial vein. Recurrent vein interstitial or shortly postfurcal. Nervulus strongly postfurcal. Parallel vein arising from posterior 1/3 of apical side of brachial cell. Brachial cell closed. Second transverse anal vein present, unsclerotized, situated before nervulus. In hind wing, first abscissa of mediocubital vein longer than second abscissa. Submedian cell rather large. Recurrent vein present, antefurcal, curved, pigmented.

Legs. Hind femur rather slender, elongate oval (Fig. 9). Basitarsus of hind leg rather long, 0.6–0.7 times as long as second-fifth segments combined.

Metasoma (Fig. 7). First tergite wide, large, with distinct dorsope and small laterope, acrosternite not elongate. Second and third tergites enlarged, rather coarsely sclerotized, covered following soft segments, with completely separated laterotergites, their spiracles situated on laterotergites. Second tergite with 2 strongly oblique basal furrows. Second suture deep, narrow, straight, but slightly curved laterally. Third tergite with distinct wide curved transverse submedian depression (Fig. 7). Posterior margin of third tergite weakly curved. Ovipositor medium size, not longer than metasoma, distinctly widened subapically, without any teeth or serration apically.

Etymology. This genus is named in honour of my teacher Prof. V.I. Tobias, famous Russian hymenopterist and expert for Braconidae. Gender is masculine.

***Tobiason pronotalis* (Belokobylskij et Ku, 1998), comb. n. (Figs 1–11).**

Oncophanes pronotalis Belokobylskij et Ku, 1998: 131.

Description. Female. Body length 2.6–3.1 mm; fore wing length 2.5–2.6 mm. Head 1.8–2.0 times as wide as median length. Head behind eyes strongly and almost linearly or weakly roundly narrowed (dorsal view). Transverse diameter of eye 1.5–1.6 times as long as temple (dorsal view). POL 1.0–1.5 times Od, 0.3–0.45 times OOL. Eye 1.2–1.3 times as high as broad. Malar space 0.4–0.45 times eye height, 1.0–1.3 times basal width of mandible. Face width 1.15–1.2 times eye height and 1.4 times height of face and clypeus combined. Width of hypoclypeal depression 0.8–1.0 times distance from edge of depression to eye, 0.4 times width of face. Head below eyes strongly and almost linearly narrowed.

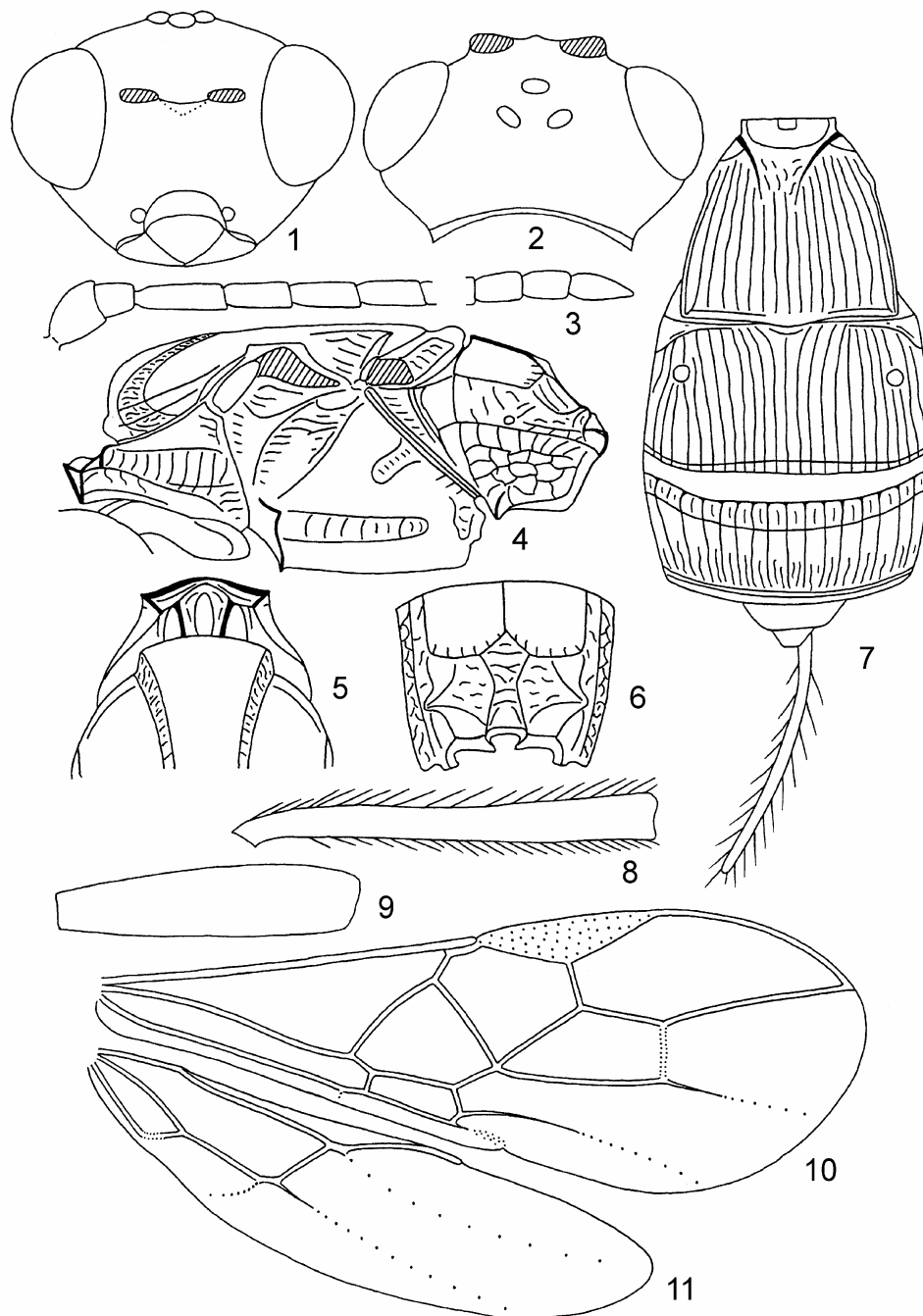
Antenna 21–22-segmented, 0.7–0.8 times as long as body. Scapus about 1.5 times as long as maximum width. First flagellar segment 3.0–3.3 times as long as its apical width, 1.2–1.3 times as long as second segment. Penultimate segment 1.6–2.2 times as long as wide, 0.5–0.6 times as long as first segment, 0.6–0.9 times as long as apical segment; the latter pointed apically.

Mesosoma 2.3–2.4 times as long as high. Mesoscutum with distinct crenulate longitudinal depression in medioposterior 1/2–2/3. Prescutellar depression with 3 carinae, rugulose between carinae, 0.3–0.4 times as long as flat scutellum. Subalar depression rather deep, wide, coarsely rugose-striate. Sternauli narrow, running along anterior 0.7–0.75 of lower part of mesopleura.

Wings. Fore wing 2.6–2.8 times as long as wide. Pterostigma 4.0–4.5 times as long as wide. Metacarpus 1.1–1.2 times as long as pterostigma. Second radial abscissa 1.6–1.8 times as long as first abscissa, 0.35–0.4 times as long as third abscissa, 0.8 times as long as first radiomedial vein. Second radiomedial cell 2.4–2.7 times as long as wide, 2.0–2.2 times as long as brachial cell. Brachial cell weakly widened apically. Distance between basal vein and nervulus 1.3–1.7 times nervulus length. Hind wing 4.0–4.3 times as long as wide. Medial cell 4.7 times as long as maximum width. First abscissa of costal vein 0.45–0.5 times as long as second abscissa. First abscissa of mediocubital vein slightly longer than second abscissa.

Legs. Hind femur 4.0–4.6 times as long as wide. Hind tarsus 0.8 times as long as hind tibia. Second segment of hind tarsus 0.35–0.4 times as long as basitarsus, 0.8–0.9 times as long as fifth segment (without pretarsus).

Metasoma 0.9–1.2 times as long as head and mesosoma combined. First tergite strongly and weakly-roundly widened toward apex, its length 0.9–1.0 times apical width; apical width 2.4–2.5 times basal width. Median length of second and third tergites combined almost equal to their maximum width. Median length of second tergite 0.6 times its basal width, 1.0–1.2 times length of third tergite. Ovipositor sheath 0.55–0.6 times as long as first-third metasomal tergites combined, 0.55–0.6 times as long as mesosoma, 0.25–0.3 times as long as fore wing.



Figs 1–11. *Tobiason pronotalis* (Belokobylskij et Ku). 1 — head, frontal view; 2 — head, dorsal view; 3 — basal and apical segments of antenna; 4 — mesosoma, lateral view; 5 — pronotum and anterior part of mesoscutum, dorsal view; 6 — propodeum; 7 — metasoma, dorsal view; 8 — hind tibia; 9 — hind femur; 10 — fore wing; 11 — hind wing.

Sculpture and pubescence. Head smooth. Mesoscutum smooth, widely rugose-striate in medioposterior half. Scutellum and mesopleura smooth. Metapleura entirely coarsely rugose-reticulate. Basolateral areas of propodeum smooth and with short rugosity posteriorly, rest part of propodeum sparsely rugose or rugose-striate; petiolate area separated, long, narrowed anteriorly; areola 1.25–2.3 times as long as wide, sometimes very narrow; basal carina 1.6–4.5 times as long as areola fork. First and second metasomal tergites entirely rather sparsely longitudinally striate; third tergite almost smooth in basal 1/3, longitudinally striate in following part, finely transversely striate in posterior 1/5–1/7. Mesoscutum almost entirely covered by long dense white setae. Hind tibia with rather long semi-erect and rather dense setae, their length 0.7–0.9 times maximum width of tibia. Ovipositor sheath with long semi-erect and rather sparse setae.

Colour. Body black with reddish spots; metasoma ventrally yellowish brown, tergites behind third one brownish yellow or light reddish brown. Antenna reddish brown or yellowish brown in basal 1/4–1/3, reddish brown or black in apical 3/4–2/3. Palpi yellow or pale yellow. Legs brownish yellow or yellow. Ovipositor sheath black or reddish brown. Fore wing faintly infusate. Pterostigma greyish yellow or yellowish brown.

Male unknown.

Material. Korea: 1 ♀ (holotype), “Chinbu-ri, Kansong, Kosong, Kangwon, Korea, 12. VI. 1992, D.-S. Ku” (BCIK); 1 ♀, Gyeongnam, Sancheonggun, Samiangmyeon, Daepori, Naewonsa (Mt. Jiri), 25 IX 1993 (S.-G. Hwang) (ZISP). Vietnam: 1 ♀, Hoa Binh Prov., Mai Chau Distr., Pa Co, 20° 45' N, 104° 54' E, h = 1200 m, 27, 28 IV 2002 (S. Belokobylskij) (ZISP).

Distribution. Korea, Vietnam.

Key to the East Asian genera of Rhyssalinae

1. Second and third tergites strongly sclerotized and entirely or almost entirely sculptured, covered soft proceeding segments for most part 2
 - Second and third tergites not strongly sclerotized, smooth, or second and sometimes basal part of third tergites sculptured, not covered soft proceeding segments 3
2. Pronotum with large pronope. Third metasomal tergite with distinct and wide transverse submedian furrow. Second tergite with strongly oblique basal furrows *Tobiason* gen. n.
 - Pronotum without pronope. Third metasomal tergite without transverse furrow. Second tergite without oblique basal furrows *Lysitermoides* Achterberg
3. Recurrent vein antefurcal or interstitial to first radiomedial vein 4
 - Recurrent vein distinctly postfurcal 6
4. Radial vein arising about from apical 1/3 of pterostigma. Second transverse anal vein absent. First abscissa of mediocubital vein 0.6–0.7 times second abscissa. Apical part of ovipositor ventrally sparsely serrate. Fore tibia with more or less distinct spines. Hind tibia of male usually distinctly thickened, claviform, with granulate sculpture. — Second metasomal tergite entirely smooth. Metasoma of female weakly compressed. Ovipositor sheath about as long as body. Propodeum with small areola. (See also couplet 6) *Rhyssalus* Haliday (part)
 - Radial vein arising from or before middle of pterostigma. Second transverse anal vein present. First abscissa of mediocubital vein not shorter than second abscissa. Apical part of ovipositor smooth ventrally. Fore tibia without spines. Hind tibia of male not thickened, without granulate sculpture 5
5. Metasomal tergites of female (behind sculptured one) weakly sclerotized, rather soft. Second tergite striate at least basally. Recurrent vein interstitial. Ovipositor sheaths not longer than half of metasoma. Propodeum without lateral protuberances. Mesoscutum usually almost entirely densely setose. (See also couplet 7) *Oncophanes* Förster (part)
 - Metasomal tergites of female entirely strongly sclerotized. Second tergite entirely smooth. Recurrent vein antefurcal. Ovipositor sheaths longer than metasoma, usually as long as body. Propodeum with distinct lateral protuberances. Mesoscutum glabrous, setae present along notauli and marginally *Dolopsidea* Hincks
6. Radial vein arising from apical 1/3 of pterostigma. Second transverse anal vein absent. Fore tibia with more or less distinct spines. Hind tibia of male usually distinctly thickened, claviform, with granulate sculpture. (See also couplet 4) *Rhyssalus* Haliday (part)

- Radial vein arising about from middle of pterostigma. Second transverse anal vein present. Fore tibia without spines. Hind tibia of male not thickened, without granulate sculpture 7
- 7. Ovipositor sheath not longer than half of metasoma. Apex of ovipositor without serration ventrally. Vein of brachial cell in its upper distal part (upper parallel vein) straight. Second tergite in base or sometimes almost entirely sculptured. Pterostigma of male not thickened and not darkened. Metascutum laterally densely sculptured. (See also couplet 5) *Oncophanes* Förster (part)
- Ovipositor sheath usually about as long as metasoma or longer than it. Apex of ovipositor ventrally with sparse serration. Vein of brachial cell in upper distal part (upper parallel vein) distinctly concavely curved. Second tergite usually entirely smooth. Pterostigma of male distinctly thickened and darkened. Metascutum almost smooth laterally *Pseudobathystomus* Belokobylskij

Genus *Oncophanes* Förster, 1862

Subgenus *Koreophanes* Belokobylskij, subgen. n.

Type species: *Oncophanes (Koreophanes) puber* Belokobylskij sp. n.

Diagnosis. The new subgenus *Koreophanes* subgen. n. differs from nominative subgenus in the open apically radial cell, the long second radiomedial cell, the strongly postfurcal nervulus, and the setosity of the body by long setae.

Description. Head rather transverse (Fig. 13). Ocelli small, in triangle with base larger than its sides. Hypoclypeal depression rather small and round. Malar suture present but shallow (Fig. 12). Occipital carina complete, fused ventrally with hypostomal carina upper base of mandible. Labial palpi 3-segmented. Vertex with long, almost erect and rather dense setae. Antenna (Fig. 14) slender, weakly thickened toward apex, with long and sparse setae in basal 1/4 and with short and dense setae in apical 3/4. Mesosoma (Fig. 15) not depressed. Mesoscutum with dense, rather short and almost erect setae for most part. Notauli complete, deep anteriorly and very shallow in posterior 1/3, crenulate. Scuto-scutellar suture distinct. Metanotum without tooth. Sternauli deep, rather short, crenulate. Metapleural flange short and rather wide. Propodeum (Fig. 17) without lateral tubercles, with distinctly marginate areas, petiolate area not separated. Radial cell of fore wing (Fig. 20) not shortened, shortly open apically. Pterostigma rather narrow. Radial vein arising almost from middle of pterostigma, shortly absent apically. Second radial abscissa longer than first radiomedial vein. Second radiomedial cell long. Recurrent vein distinctly postfurcal. Nervulus strongly postfurcal. Second transverse anal veins present, but strongly desclerotized. In hind wing (Fig. 21), first abscissa of mediocubital vein almost as long as second abscissa. Recurrent vein very short and unsclerotized. Hind femur slender, elongate oval (Fig. 19). Hind tibia rather distinctly thickened apically (Fig. 18). First tergite of metasoma (Fig. 16) elongate, with distinct dorsope. Second and third tergites not enlarged, rather weakly sclerotized, not covered proceeding soft segments. Second tergite shortly sculptured basally. Second suture very shallow. Ovipositor medium size, not longer than metasoma.

Etymology. This subgenus is named after Korea (type locality of the subgenus) and part of the generic name “*Oncophanes*”. Gender is masculine.

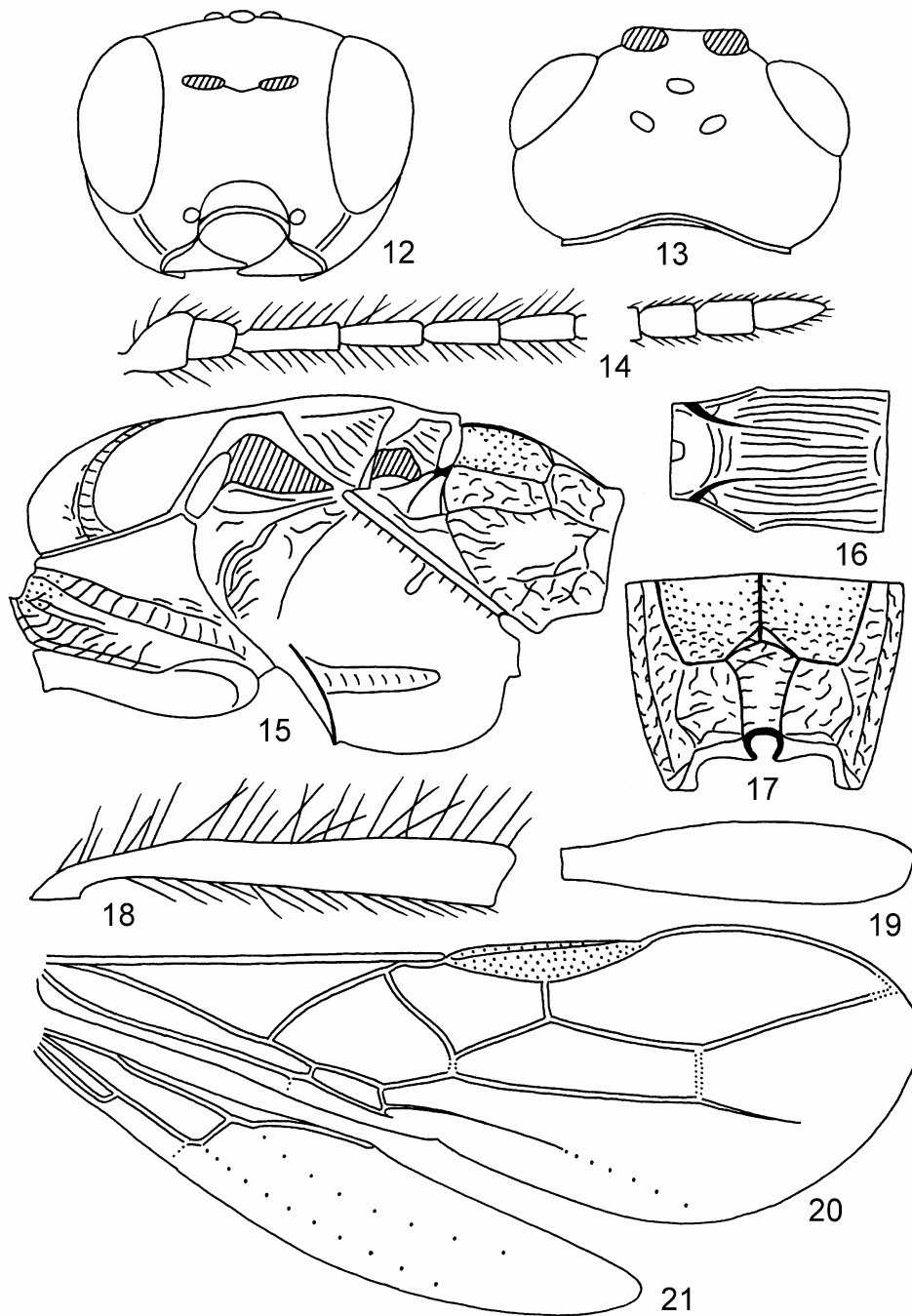
***Oncophanes (Koreophanes) puber* Belokobylskij, sp. n. (Figs 12–21).**

Description. Female. Body length 2.3 mm; fore wing length 2.2 mm. Head 1.7 times as wide as median length. Head behind eyes convex-roundly narrowed (dorsal view). Transverse diameter of eye 1.2 times as long as temple (dorsal view). Ocelli in triangle with base 1.3 times its sides. POL 1.7 times Od, 0.7 times OOL. Eye 1.5 times as high as broad. Malar space 0.2 times eye height, 0.6 times basal width of mandible. Face width 0.8 times eye height and 1.4 times height of face and clypeus combined. Width of hypoclypeal depression 1.2 times distance from edge of depression to eye, half width of face. Head below eyes distinctly and roundly narrowed.

Antenna 21-segmented, 0.7 times as long as body. Scapus 1.3 times as long as maximum width, twice as long as pedicel. First flagellar segment 3.3 times as long as its apical width, 1.25 times as long as second segment. Penultimate segment 1.6 times as long as wide, 0.55 times as long as first segment, 0.8 times as long as apical segment; the latter pointed apically.

Mesosoma 1.8 times as long as high. Sides of pronotum with deep oblique and densely crenulate furrow. Mesoscutum with shallow and narrow, finely reticulate longitudinal depression in medioposterior half. Prescutellar depression with distinct median carina, very finely rugulose, smooth for most part, 0.3 times as long as weakly convex scutellum. Subalar depression rather deep, wide, smooth, but very finely rugulose anteriorly. Sternauli running along anterior 3/5 of lower part of mesopleura.

Wings. Fore wing about 3.0 times as long as wide. Pterostigma about 5.0 times as long as wide. Metacarpus 1.2 times as long as pterostigma. Second radial abscissa 3.4 times first abscissa, 0.7 times third abscissa, 1.35 times first radiomedial vein. Second radiomedial cell 3.5 times as long as wide, 3.0 times as long as brachial cell. Brachial cell distinctly



Figs 12–21. *Oncophanes (Koreophanes) puber* sp. n. 12 — head, frontal view; 13 — head, dorsal view; 14 — basal and apical segments of antenna; 15 — mesosoma, lateral view; 16 — first metasomal tergite; 17 — propodeum; 18 — hind tibia; 19 — hind femur; 20 — fore wing; 21 — hind wing.

widened apically. Distance between basal vein and nervulus about 3.0 times nervulus length. Hind wing 5.2 times as long as wide. Medial cell 5.0 times as long as maximum width. First abscissa of costal vein 0.65 times as long as second abscissa. First abscissa of mediocubital vein 1.1 times as long as second abscissa.

Legs. Hind femur 4.4 times as long as wide. Hind tibia 7.7 times as long as maximum width. Hind tarsus 0.9 times as long as hind tibia. Basitarsus 0.7 times as long as second-fifth segments combined. Second segment of hind tarsus half as long as basitarsus, 1.1 times as long as fifth segment (without pretarsus).

Metasoma elongate, 1.25 times as long as head and mesosoma combined. First tergite weakly and almost linearly widened toward apex, with distinct spiracular tubercles in basal 1/3; its length 1.4 times apical width, apical width 1.4 times basal width. Median length of second tergite almost equal to basal width, 1.5 times length of third tergite. Ovipositor sheath half as long as metasoma, 0.85 times as long as mesosoma, 0.3 times as long as fore wing.

Sculpture and pubescence. Head smooth. Mesoscutum very finely granulate, very finely and narrowly rugulose in medioposterior half. Scutellum and mesopleura smooth. Basolateral areas of propodeum rather finely and densely rugulose, almost smooth anteriorly, rest part of propodeum densely rugulose; areola 1.4 times as long as wide; basal carina almost as long as fork of areola. First metasomal tergites densely and evenly longitudinally striate with fine ground sculpture. Second tergite smooth, very shortly rugose basally. Following tergites smooth. All legs in rather dense long and almost erect setae; hind tibia on inner side very densely setose in apical 2/3; length of setae on dorsal surface of hind tibia 1.0–1.3 times maximum width of tibia. Ovipositor sheath with long erect and rather dense setae.

Colour. Head, most part of mesosoma and first metasomal tergite dark reddish brown to black, propleura, anterolateral parts of pronotum, mesoscutum and axillae yellowish red. Antenna reddish brown to dark reddish brown, 2 basal segments brownish yellow. Palpi yellow. All coxae, trochanters, trochantelli, and fore femur yellow, rest parts of legs reddish brown, tarsi light reddish brown. Ovipositor sheath brown basally, black for most part. Fore wing very faintly infusate. Pterostigma yellowish brown.

Male unknown.

Material. Holotype: ♀, “Korea, Kangwon, Yanggu Man, Kagojak, 23.V.1993, Deok-Seo Ku” (BCIK).

Distribution. Korea.

Key to the East Asian species of the genera *Lysitermoides* Achterberg and *Oncophanes* Förster

1. Second and third metasomal tergites more or less coarsely sclerotized, sculptured entirely or for most part, mostly covered soft proceeding segments. (*Lysitermoides* Achterberg) 2
 - Second and third metasomal tergites rather weakly sclerotized, only second tergite at least partly sculptured, not or weakly covered soft proceeding segments. (*Oncophanes* Förster) 4
2. Head short, its width 1.9–2.0 times median length. Head behind eyes (dorsal view) rather strongly narrowed. Transverse diameter of eye 1.5–1.7 times length of temple (dorsal view). Vertex with very sparse setae. Lateral lobes of mesoscutum glabrous at least medially. Body length 2.2–2.7 mm. — Russian Far East, Korea, Japan
..... *L. comsolechia* (Watanabe), **comb. n.** (*striatus* Belokobylskij, **syn. n.**)
 - Head long, its width 1.7–1.8 times median length. Head behind eyes (dorsal view) not strongly narrowed. Transverse diameter of eye 1.2–1.4 times length of temple (dorsal view). Vertex with rather dense setae. Lateral lobes of mesoscutum entirely setose 3
3. Ocelli larger, OOL 1.5–1.6 times Od. Malar space 0.5–0.6 times as height as basal width of mandible. Antennal segments thicker; first flagellar segment 3.0 and penultimate segment 1.7 times as long as their width. Sternauli crenulate in posterior half only. Second tergite with distinct median longitudinal carina. First and second tergites without ground sculpture. Head black, mesosoma light reddish brown. Body length 3.3–3.5 mm. — Russian Far East, Japan
..... *L. makarkini* (Belokobylskij), **comb. n.**
 - Ocelli small, OOL 2.0–2.5 times Od. Malar space 0.75–1.0 times as height as basal width of mandible. Antennal segments slender; first flagellar segment 3.8–4.5 and penultimate segment 2.0–2.5 times as long as their width. Sternauli entirely crenulate. Second tergite without median longitudinal carina. First and second tergites with distinct ground sculpture. Body more or less evenly dark, rarely pronotum reddish brown. Body length 1.9–2.3 mm. — Russian Far East, Korea, Japan
..... *L. rugosus* (Telenga), **comb. n.** (*margaroniae* Watanabe)

4. Radial cell open apically. Second radiomedial cell long, 3.5 times as long as wide, 3.0 times as long as brachial cell. Nervulus strongly postfurcal, distance between basal vein and nervulus about 3.0 times nervulus length. Body setose by long setae. Petiolate area of propodeum not separated. (Subgenus *Koreophanes* **subgen. n.**). Body length 2.3 mm. — Korea..... *O. (K.) puber* **sp. n.**
- Radial cell closed apically. Second radiomedial cell rather short, 2.0–2.5 times as long as wide, 1.5–2.0 times as long as brachial cell. Nervulus less strongly postfurcal, distance between basal vein and nervulus 0.8–1.5 times nervulus length. Body setose by short setae. Petiolate area of propodeum more or less separated. (Subgenus *Oncophanes* Förster).....5
5. Transverse diameter of eye about as long as temple. Width of hypoclypeal depression 1.8–2.2 times distance from edge of depression to eye. Antennae thick, 0.7 times as long as body. First flagellar segment 2.5–3.0 times as long as its apical width. Notauli absent on posterior half of mesoscutum. Radial vein arising distinctly before middle of pterostigma. Recurrent vein distinctly postfurcal. Tarsi short. Body length 2.2–2.6 mm. — Russian Far East *O. (O.) pini* Belokobylskij
- Transverse diameter of eye distinctly longer than temple. Width of hypoclypeal depression 1.0–1.5 times distance from edge of depression to eye. Antennae slender, about as long as body. First flagellar segment 3.5–4.0 times as long as its apical width. Notauli complete, sometimes shallow in posterior half of mesoscutum. Radial vein arising almost from middle of pterostigma. Recurrent vein interstitial or weakly antefurcal. Tarsi slender. Body length 2.0–2.5 mm. — West Europe, Russia, Caucasus, Kazakhstan, Middle Asia, China, Korea, Japan
..... *O. (O.) minutus* (Wesmael) [*lanceolator* (Nees), *laevigatus* (Ratzeburg)]

Subfamily Exothecinae

Tribe Lysitermini

Aulosaphanes Belokobylskij, **gen. n.**

Type species: *Oncophanes suturalis* Belokobylskij, 1990.

Diagnosis. New genus is similar to *Aulosaphoides* Achterberg, 1995, but differs from it in the second tergites with oblique basolateral furrows separated narrow and almost smooth lateral areas, third tergite with small smooth basolateral area and with very narrow posterior flange, median lobe of mesoscutum without complete median furrow, mandible with 2 teeth, and first metasomal tergite with fused basally dorsal carinae, which then following by single carina.

Description. Head transverse (Fig. 23). Ocelli in almost equilateral triangle. Eyes glabrous. Clypeal suture distinct and complete. Hypoclypeal depression small and oval. Malar suture absent (Fig. 22). Occipital carina complete, rather wide, fused ventrally with hypostomal carina upper base of mandible. Maxillary palpi 6-segmented, labial palpi 4-segmented. Third segment of labial palpus not shortened, long. Mandible with 2 teeth, second tooth small. Antenna (Fig. 24) slender, densely and shortly pubescent, filiform. First flagellar segment not shorter than second segment. Apical segment almost obtuse apically.

Mesosoma (Fig. 25) not depressed, weakly convex dorsally. Pronotum rather short, without pronope, with submedian pronotal keel, anteriorly straight and without flange. Mesonotum highly and almost perpendicularly raised above pronotum. Notauli complete, deep, crenulate. Scuto-scutellar suture indistinct. Prescutellar depression deep and long. Metanotum with rather small wide obtuse tooth. Sternauli deep, rather short, straight, smooth. Prepectal carina distinct and complete. Postpectal carina absent. Metapleural flange long and rather narrow. Propodeum (Fig. 26) without distinct lateral tubercles, with distinctly marginate areas, areola rather long and wide.

Wings (Figs 28, 29). Pterostigma rather narrow. Wing slightly broken on the level of pterostigma apex (Fig. 28). Radial cell of fore wing not shortened. Radial vein arising distinctly before middle of pterostigma. Both radiomedial veins present. Second radial abscissa slightly longer than first abscissa and almost equal to second radiomedial vein. Recurrent vein postfurcal. Nervulus distinctly postfurcal. Parallel vein arising before or from middle of apical side of brachial cell. Brachial cell closed. Second transverse anal veins absent. In hind wing, first abscissa of mediocubital vein almost as long as second abscissa. Submedial cell rather large. Recurrent vein present, antefurcal, straight, pigmented.

Legs. Hind femur slender, elongate oval (Fig. 30). Basitarsus of hind leg rather long, about 0.8 times as long as second-fifth segments combined.

Metasoma (Fig. 31). First tergite wide, large, with dorsal carinae fused in basal 1/4–1/5 and then single carina reaching apical margin of tergite, with distinct dorsope, laterope absent, acrosternite not elongate. Second and third tergites

enlarged, rather hardly sclerotized, covered proceeding soft segments, with completely separated laterotergites, their spiracles situated near margin of dorsal part of tergites. Second tergite with distinct oblique lateral depressions separating almost not sculptured lateral parts. Second suture deep, narrow, slightly and regularly curved. Third tergite with fine basolateral oblique furrows, with very narrow flange posteriorly. Posterior margin of third tergite weakly concave or straight. Ovipositor medium size, distinctly shorter than metasoma, not widened subapically, without any teeth or serration.

Etymology. This genus is named from combination of the parts of two generic names “*Aulosaphes*” and “*Oncophanes*”. Gender is masculine.

Key to genera of the subtribe Acanthormiina (Lysitermini)

1. Parallel vein of the fore wing interstitial. Parastigma not differentiated from basal vein. Third metasomal tergite usually with apical teeth..... *Acanthormius* Ashmead
- Parallel vein of the fore wing not interstitial, situated distinctly before level of mediocubital vein. Parastigma differentiated from basal vein. Third metasomal tergite without apical teeth..... 2
2. Second tergites with oblique basolateral furrows separated smooth lateral areas. Third tergite with small smooth basolateral areas. Dorsal carinae of first tergite fused in basal 1/3 and following by single carina forwards apex. — Median lobe of mesoscutum without complete longitudinal median furrow. Mandible with 2 teeth..... *Aulosaphes* **gen. n.**
- Second tergites without oblique basolateral furrows and lateral areas. Third tergite without smooth basolateral area. Dorsal carinae of first tergite not fused and following by double carinae forwards apex 3
3. Radial vein arising distinctly before middle of pterostigma. Mesoscutum anteriorly with median carina or furrow. Third tergite with lamella posteriorly. Mandible with 1 tooth *Aulosaphoides* Achterberg
- Radial vein arising from middle of pterostigma. Mesoscutum anteriorly without median carina or furrow. Third tergite without lamella posteriorly. Mandible with 2 teeth *Aulosaphes* Muesebeck

Aulosaphes suturalis (Belokobylskij, 1990), **comb. n.** (Figs 22–31).

Oncophanes suturalis Belokobylskij, 1990: 117; 1998: 47.

Description. Female. Body length 2.1–3.0 mm; fore wing length 2.0–2.6 mm. Head 1.8–2.1 times as wide as median length. Head behind eyes strongly and almost linearly or weakly roundly narrowed (dorsal view). Transverse diameter of eye 1.9–2.3 times as long as temple (2.3–2.8 times if measured on straight line) (dorsal view). POL 0.75–1.0 times Od, 0.4–0.5 times OOL. Eye 1.2–1.3 times as high as broad. Malar space 0.3–0.4 times eye height, 0.8–1.0 times basal width of mandible. Face width equal to eye height and 1.3–1.4 times height of face and clypeus combined. Width of hypoclypeal depression 0.8–1.0 times distance from edge of depression to eye, 0.35–0.4 times width of face. Head below eyes strongly and almost linearly narrowed.

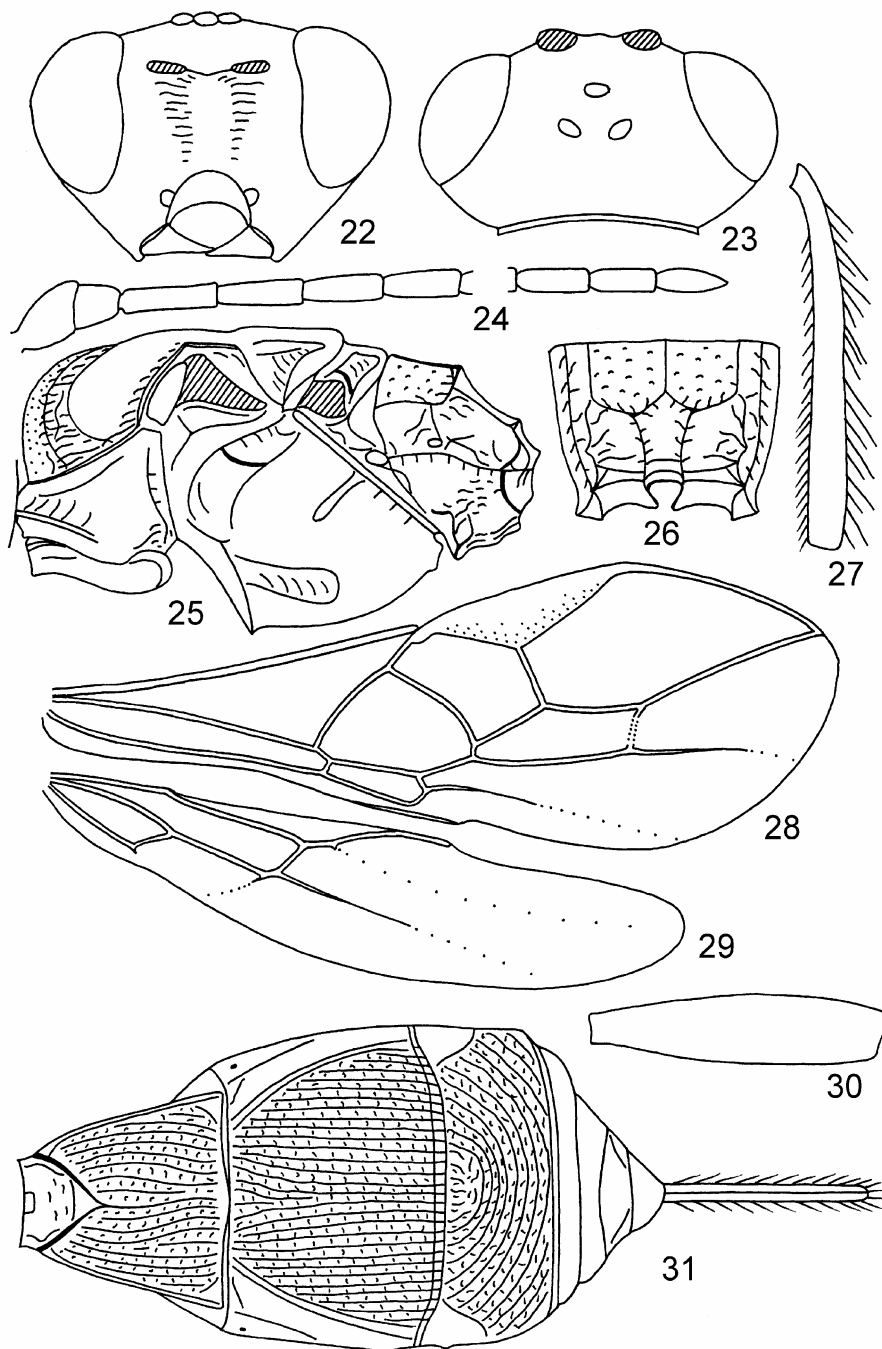
Antenna slender, filiform, 20–22-segmented, almost as long as body. Scapus 1.3–1.6 times as long as maximum width. First flagellar segment 3.5–3.7 times as long as its apical width, 1.0–1.1 times as long as second segment. Penultimate segment 2.7–3.0 times as long as wide, 0.75–0.8 times as long as first segment, almost as long as apical segment.

Mesosoma 1.6–1.8 times as long as high. Mesoscutum with shallow and rather distinctly crenulate longitudinal depression in medioposterior half. Prescutellar depression with median carina, smooth, 0.4–0.5 times as long as weakly convex scutellum. Subalar depression rather shallow, wide, smooth for most part, sometimes partly rugulose upper and below. Sternauli wide, oblique, running along anterior 0.6 of lower part of mesopleura.

Wings. Fore wing 2.4–2.7 times as long as wide. Pterostigma 4.0–4.8 times as long as wide. Metacarpus 0.9–1.1 times as long as pterostigma. Second radial abscissa 1.2–1.6 times as long as first abscissa, 0.45–0.5 times as long as third abscissa, 1.0–1.3 times as long as first radiomedial vein. Second radiomedial cell narrow, 3.0–3.7 times as long as wide, 1.8–2.0 times as long as brachial cell. Brachial cell widened apically. Distance between basal vein and nervulus 0.5–1.3 times nervulus length. Hind wing 4.2–4.5 times as long as wide. Medial cell 5.0–6.0 times as long as maximum width. First abscissa of mediocubital vein as long as second abscissa. First abscissa of costal vein 0.5–0.7 times as long as second abscissa.

Legs. Hind femur 4.5–4.8 times as long as wide. Hind tarsus 0.9 times as long as hind tibia. Second segment of hind tarsus 0.3–0.4 times as long as basitarsus, 0.8–1.0 times as long as fifth segment (without pretarsus).

Metasoma about as long as head and mesosoma combined. First tergite distinctly and linearly widened toward apex, its length 0.9–1.0 times apical width; apical width 1.8–2.1 times basal width. Median length of second and third tergites



Figs 22–31. *Aulosaphanes suturalis* (Belokobylskij). 22 — head, frontal view; 23 — head, dorsal view; 24 — basal and apical segments of antenna; 25 — mesosoma, lateral view; 26 — propodeum; 27 — hind tibia; 28 — fore wing; 29 — hind wing; 30 — hind femur; 31 — metasoma, dorsal view.

combined 0.9–1.2 times their maximum width. Median length of second tergite 0.7–0.85 times its basal width, 1.5–1.8 times length of third tergite. Ovipositor sheath 0.4–0.5 times as long as first-third metasomal tergites combined, 0.45–0.55 times as long as mesosoma, 0.2–0.25 times as long as fore wing.

Sculpture and pubescence. Head smooth. Mesoscutum smooth, granulate-punctulate or punctulate anteriorly. Scutellum and mesopleura smooth. Propodeum smooth in basal 1/3–1/2, with sparse short rugae along carinae, rather distinctly rugose posteriorly; petiolate area more or less separated and very short; areola sparsely rugose or almost smooth, 1.1–1.3 times as long as wide; basal carina 1.3–2.0 time as long as fork of areola. First and second metasomal tergites entirely and densely longitudinally striate with fine or distinct dense reticulation between striae, striae rather widely separated; third tergite distinctly or sometimes indistinctly semi-concentrically and rather densely striate with fine or distinct rugulosity between striae, almost longitudinally striate sublaterally; second tergite laterally and third basolaterally almost smooth. Mesoscutum for most part with long dense yellow setae, rather widely glabrous posterolaterally. Hind tibia with rather long semi-erect and rather sparse setae, their length 0.8–1.0 times maximum width of tibia. Ovipositor sheath with rather short semi-erect and rather dense setae.

Colour. Body black or dark reddish brown, sometimes with reddish or pale reddish spots, mesosoma usually reddish brown for most part; tergites behind third one yellowish brown or brown. Antenna light reddish brown or yellowish brown in basal 1/4, dark brown to black in apical 3/4. Palpi yellow. Legs yellow, sometimes coxae basally infuscate, fifth tarsal segments brown. Ovipositor sheath brown to black. Fore wing infuscate. Pterostigma greyish yellow or yellow.

Male unknown.

Material. Vietnam: 1 ♀ (holotype), “Vietnam, Tram Lap, 20 km N Buon Luoi, road, Sharkov, 7. XII.1988” (ZISP); 1 ♀ (paratype), 135 km W Thanh Hoa, 30 VII 1989 (Sugonyaev) (ZISP); 2 ♀, Tam Dao, Vinh Phu Prov. (= Vinh Phuc), 700 m, pines, 14 XI 1990 (Belokobylskij) (ZISP); 1 ♀, same locality, 1000 m, forest, 11 XI 1990 (ZISP); 1 ♀, Mai Chao, Ha Son Binh Prov. (= Hoa Binh), forest, 1 XI 1990 (Belokobylskij) (ZISP); 1 ♀, Hoa Binh Prov., Yen Thuy Distr., Lac Thinh, Cuc Phuong National Park, 20° 23' N, 105° 34' E, h = 300 m, 5, 6 V 2002 (Belokobylskij) (ZISP); 1 ♀, Hoa Binh Prov., Mai Chau Distr., Pa Co, Xa Linh, 20° 44' N, 104° 55' E, h = 1120 m, 22–24 IV 2002 (Belokobylskij) (ZISP); 1 ♀, Hoa Binh Prov., Mai Chau Distr., Pa Co, 20° 45' N, 104° 54' E, h = 1200 m, 19–21 IV 2002 (Belokobylskij) (IEBR); 1 ♀, Hoa Binh Prov., Mai Chau Distr., Pa Co, 20° 45' N, 104° 54' E, h = 1200 m, 27, 28 IV 2002 (Belokobylskij) (ZISP). Japan: 1 ♀, Kyushu, Miyazaki, Yatake, 700 m, Shiiba-mura, 21 VII 1992 (Makarkin) (ZISP).

Distribution. Vietnam, Japan.

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