

New species of the genera *Rhaconotus* Ruthe, *Ipodoryctes* Granger and *Arhaconotus* Blkb. from the Oriental Region (Hymenoptera: Braconidae, Doryctinae)

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Thirteen new species of *Rhaconotus* Ruthe (*Rh. basoareolus*, *Rh. bidens*, *Rh. caophongus*, *Rh. ceylonicus*, *Rh. dabacus*, *Rh. excavatus*, *Rh. longithorax*, *Rh. maculatus*, *Rh. micholitzii*, *Rh. puber*, *Rh. signatus*, *Rh. staudingeri*, *Rh. thuyi*), eight new species of *Ipodoryctes* Granger (*I. andreii*, *I. brevitergum*, *I. elegans*, *I. nitidus*, *I. perakensis*, *I. philippinensis*, *I. ryukyuensis*, *I. temporalis*) and two new species of *Arhaconotus* Blkb. (*A. ishigakiensis* and *A. vietnamicus*) are described and figured. Keys to Oriental species of the genera *Rhaconotus*, *Ipodoryctes*, *Arhaconotus* and *Mimipodoryctes* Blkb. are given. New synonyms: *Rh. sulcativentris* Enderlein, *Rh. oryzae* Wilkinson and *Rh. flavistigma* Telenga synonymized with *Rh. testacea* (Szepligeti); *Rh. carolinensis* Watanabe and *Rh. flavistigma* Blkb. with *Rh. signipennis* (Walker); *Rh. filicornis* Enderlein with *Rh. jacobsoni* (Szepligeti). *Rh. concolor* (Szepligeti) is reinstated as a valid species.

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Introduction

The Doryctinae are one of the most diversified subfamilies of the family Braconidae, with more than 120 genera in 15 tribes and more than 1000 species. Most of these genera and species were recorded from tropical and subtropical regions, but their braconid fauna is still rather poorly studied.

The tribe Rhaconotini was established by Fahringer (1928) for *Rhaconotus* Ruthe. Belokobylskij (1992), after examination of types and additional material of many Palaearctic and tropical *Rhaconotus* species, downgraded this tribe to subtribe of the tribe Doryctini. New information, including descriptions of new genera and numerous new species from this group (Belokobylskij, 2000 and this paper), supports this opinion. The subtribe Rhaconotina comprises 5 genera (Belokobylskij, 1992, 2000): *Rhaconotus* Ruthe (almost all the world, except Neotropical Region), *Ipodoryctes* Granger (Afrotropical and Oriental Regions), *Aptenobracon* Marsh (Nearctic Region), *Arhaconotus* Blkb. (Oriental and Australian Regions) and *Mimipodoryctes* Blkb. (Oriental Region).

The Oriental fauna of this subtribe is very diversified and extensive, but never was a subject of special study. In this paper, 23 species from three genera (*Rhaconotus*, *Ipodoryctes* and *Arhaconotus*) are described and a key to all Oriental species is given.

The terminology of wing venation follows Belokobylskij & Tobias (1998). The following abbreviations are used in the paper: POL – postocellar line; OOL – ocular-ocellar line; Od – maximum diameter of lateral ocellus; BMNH – Natural History Museum (London, England); CNC – Canadian National Collection (Ottawa, Canada); EIS – Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University (Sapporo, Japan); HNHM – Hungarian Natural History Museum (Budapest, Hungary); NIAES – National Institute of Agro-Environmental Sciences (Tsukuba, Japan); TAMU – Texas A & M University (College Station, USA); ZISP – Zoological Institute, Russian Academy of Sciences (St.Petersburg, Russia); ZMB – Zoologisches Museum, Humboldt Universität (Berlin, Germany); ZUH – Zhejiang University (Hangzhou, China).

Genus **Rhaconotus** Ruthe**Rhaconotus basoareolus** sp. n.

(Figs 1-11)

Holotype. ♀, Vietnam, prov. Gia Lai – Con Tum, Buon Luoi, 20 km N of Kannack, 17-20.XI.1988, Sharkov (ZISP).

Paratypes. Vietnam: 1 ♀, prov. Gia Lai – Con Tum, Kannack, 8-16.XI.1988, A. Sharkov (ZISP); 1 ♀, prov. Ha Son Binh, Ky Son, Cao Phong, forest, 25.X.1990, Belokobylskij (ZISP). Malaysia, Sarawak: 1 ♀, 3 div. Hillpadi, NB-2-2, 22.IX.[19]74, D. Munroe (CNC); 1 ♀, Santubang, 3-4.I.1978, B. Bendell (CNC).

Description. Female. Body length 2.5-2.6 mm; fore wing length 2.1-2.3 mm. Head width 1.5 times its median length. Temple roundly narrowed, 0.4-0.5 times as long as transverse diameter of eye. Ocelli small, in almost equilateral triangle; POL almost equal to Od, 0.35 times OOL. Eye glabrous, 1.1 times as high as broad. Malar space height 0.4-0.45 times eye height, almost equal to basal width of mandible. Face width 1.1 times eye height and 1.3-1.4 times height of face and clypeus combined. Upper margin of clypeus situated slightly higher than lower border of eyes or on same level. Hypoclypeal depression round, its width 0.7 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible being obliterated at short distance. Vertex convex.

Antennae slender, filiform, 25-segmented, 1.3-1.4 times as long as body. Length of scape 1.4 times its maximum width. First flagellar segment 4.7-5 times as long as its apical width, 0.8-0.9 times as long as second segment. Penultimate segment 4.3-4.5 times as long as wide, 0.8-0.9 times as long as first segment, 0.8 times as long as apical segment.

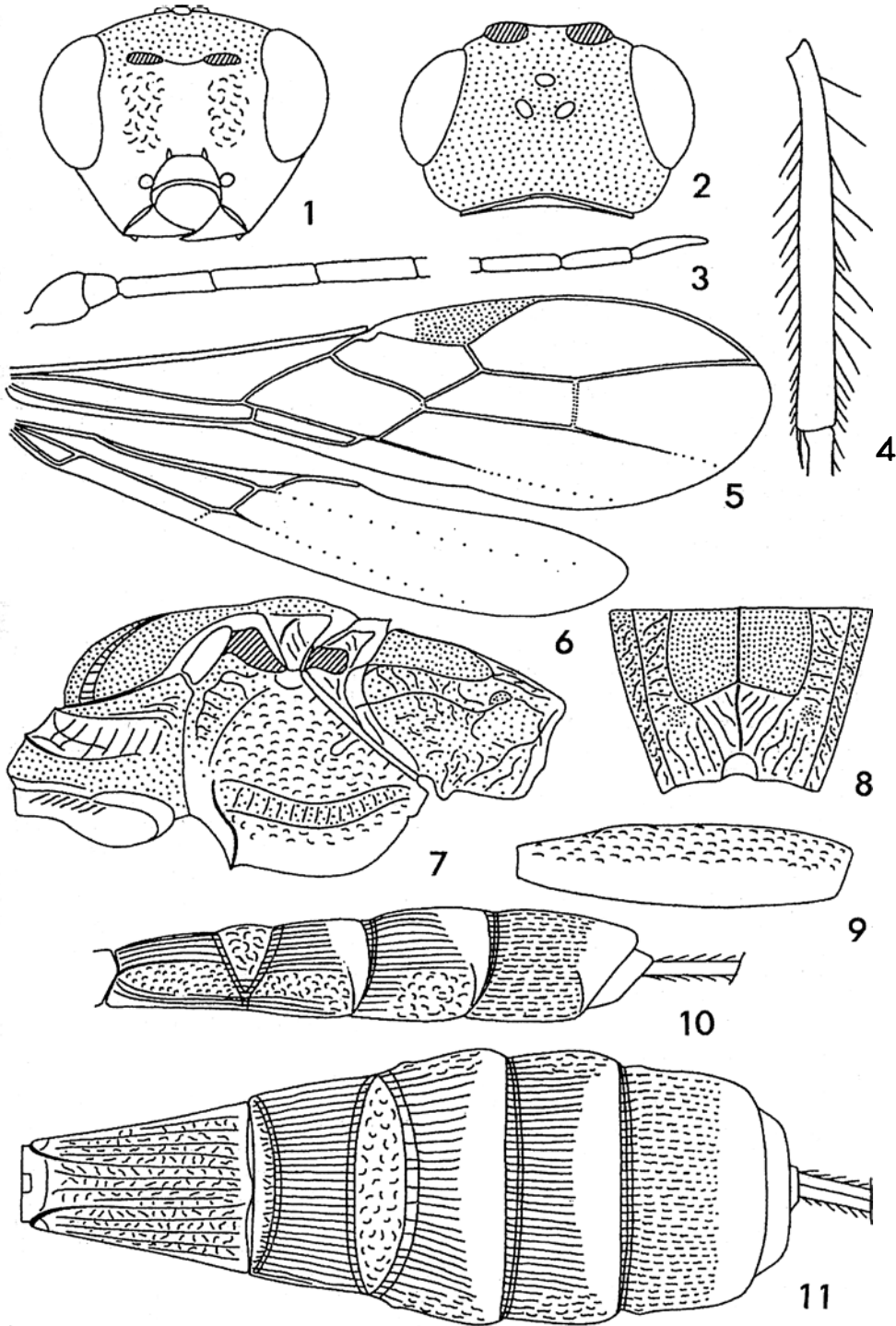
Thorax 1.8-2 times as long as high. Pronotum weakly convex both anteriorly (dorsal view) and dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above pronotum. Notauli rather deep, complete, sparsely crenulate. Mesoscutum without median depression. Prescutellar depression rather deep, weakly and roundly directed posterolaterally, with median carina, smooth, 0.3 times as long as weakly convex scutellum. Sternauli rather shallow, crenulate, weakly S-curved, running along entire lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore

coxae. Subalar depression deep, narrow, crenulate. Mesopleural suture finely and very sparsely crenulate. Metanotum with short tooth pointed posteriorly. Metapleural lobes distinct, rather narrow, rounded apically.

Wings. Length of fore wing 3.5-3.6 times its maximum width. Radial cell not shortened. Metacarpus 1.35-1.4 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming distinct angle with second abscissa. Second radial abscissa 3.3-3.7 times as long as first abscissa, 0.5-0.55 times as long as third abscissa, 1.5-2.2 times as long as first radiomedial vein. Second radiomedial cell weakly widened distally, its length 3-3.5 times maximum width, 1.4-1.6 times length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein equal to nervulus length. Brachial cell strongly and almost linearly closed distinctly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) indistinct. Hind wing 5.8-6.2 times as long as wide. First abscissa of costal vein 0.4-0.5 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein indistinct.

Legs. Hind femur 3.5-3.8 times as long as wide, with dorsal protuberance. Hind tarsus 1.15-1.2 times as long as hind tibia. Hind tibia apically without outside spines. Hind basitarsus about 0.7 times as long as second-fifth segments combined. Second tarsal segment 0.4-0.45 times as long as basitarsus, 1.8-2 times as long as fourth segment, 1.25 times as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 5 visible tergites. Maximum width of first tergite almost twice its basal width, its length 1.3-1.4 times apical width. Second tergite with basal area separated by distinctly curved furrow, with distinct, deep, almost straight transverse furrow separating distinct narrow apical area, this area 0.7-0.75 times as long as rest part of tergite. Median length of second tergite 0.8-0.9 times its basal width, 1.8-2 times length of third tergite. Second suture deep and wide. Fifth tergite moderately large, with weakly and regularly rounded posterior margin, without median emargination and posteroventral lobes. Fifth tergite 1.2-1.3 times as long as fourth tergite, 1.45-1.55 times as long as third tergite. Ovipositor sheath 0.45-0.55 times as long as abdomen, 1.6-1.9 times



Figs 1-11. *Rhaconotus basoareolus* sp. n. 1, head, front view; 2, head, dorsal view; 3, basal and apical segments of antenna; 4, hind tibia; 5, fore wing; 6, hind wing; 7, thorax, lateral view; 8, propodeum; 9, hind femur; 10, second-fifth abdominal tergites, lateral view; 11, abdomen, dorsal view.

as long as first tergite, 0.65-0.75 times as long as thorax, about 0.3 times as long as fore wing.

Sculpture and pubescence. Vertex and frons finely and densely granulate; face very finely granulate, smooth medially; temple smooth or very finely coriaceous along occipital carina. Mesonotum densely and finely coriaceous, with 2 convergent striae medioposteriorly and without rugosity between them. Scutellum finely granulate. Mesopleura coriaceous, granulate posteriorly. Metapleura densely granulate, rugose posteriorly. Propodeum with median carina along its whole length; basolateral areas distinctly marginate, densely granulate or coriaceous; rest part of propodeum rugulose, with distinct, at least medially, transverse median carina. Hind coxa granulate in upper half, smooth in lower half. Hind femur coriaceous, almost smooth ventrally. First abdominal tergite with dorsal carinae fused in basal 1/5, then united carina following to apex of tergite. First and second tergites striate, second one smooth basally, finely or very finely rugulose in apical area. Third and fourth tergites in basal 2/3 striate with rugulosity between striae, smooth in apical third. Fifth tergite striate in basal 1/3-1/5, rugulose-coriaceous medially, almost smooth or smooth in apical third; sometimes fifth tergite finely transversely striate-coriaceous in apical third. Second-fourth tergites laterally coriaceous-striate (especially below) or only coriaceous with granulation partly. Vertex with rather long and very sparse semierect hairs directed forward. Mesonotum with rather dense, semierect, white hairs along notauli and marginally. Hind tibia with semierect, rather sparse, white hairs dorsally; length of these hairs 1.2-1.5 times maximum width of hind tibia.

Colour. Body dark reddish brown; prothorax and abdomen partly light reddish brown dorsally. Antenna almost black, 2 basal segments brownish yellow. Palpi pale yellow. Legs brownish yellow; coxae sometimes darker basally. Ovipositor sheath dark brown, yellow basally. Wings almost hyaline. Pterostigma brown, yellow in basal 1/4.

Male unknown.

Discussion. This species is similar to *Rh. concinnus* (Enderlein), but differs in the basal area of the second tergite distinctly separated, hairs on dorsal surface of hind tibia long, first flagellar segment distinctly shorter than the second one, and most of pterostigma brown.

Distribution. Vietnam, Malaysia.

Rhaconotus bidens sp. n.

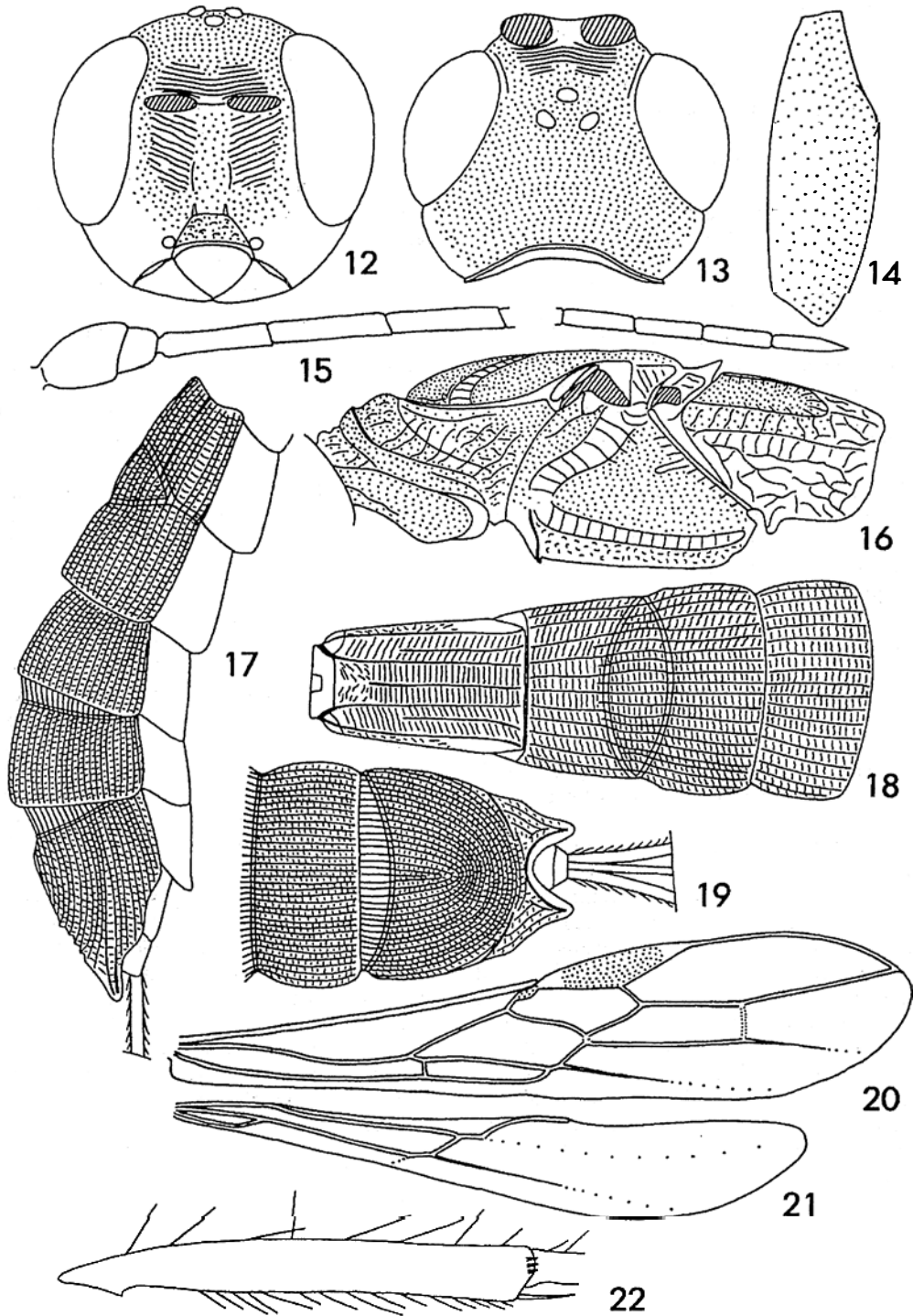
(Figs 12-22)

Holotype. ♀, W. Malaysia, Gentine, Tea Estate, 2000 ft, VII-VIII.1985, W. Budenberg (TAMU).

Description. Female. Body length 4.1 mm; fore wing length 2.9 mm. Head width 1.3 times its median length. Temple weakly convex in anterior third, almost linearly narrowed in posterior 2/3, half as long as transverse diameter of eye. Ocelli small, in triangle with base 1.2 times its sides; POL equal to Od, 0.5 times OOL. Eye glabrous, 1.1 times as high as broad. Malar space height 0.4 times eye height, almost equal to basal width of mandible. Face width 0.9 times eye height and 1.15 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than lower border of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible being obliterated at rather short distance. Vertex distinctly convex.

Antennae weakly setiform, 38-segmented, 1.4 times as long as body. Length of scape 1.5 times its maximum width. First flagellar segment 5 times as long as its apical width, 0.9 times as long as second segment. Penultimate segment 4.5 times as long as wide, 0.6 times as long as first segment, 0.8 times as long as apical segment.

Thorax 2.5 times as long as high. Pronotum almost straight anteriorly (dorsal view), more or less regularly convex dorsally (lateral view). Pronotal carina distinct, complete, widely separated medially from posterior margin of pronotum; distance from carina to mesoscutum 1.5 times distance from carina to anterior margin of pronotum. Mesoscutum weakly and gently raised above pronotum. Notauli rather shallow, complete, crenulate. Mesoscutum without median depression. Prescutellar depression rather wide, shallow, weakly and almost linearly directed posterolaterally, with median carina, sparsely rugulose, 0.3 times as long as convex scutellum. Sternauli rather deep, crenulate, almost straight, running along almost entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression deep, narrow, coarsely crenulate. Mesopleural suture coarsely and rather sparsely crenulate. Metanotum with short and pointed tooth. Metapleural lobes distinct, rather narrow, rounded apically.



Figs 12-22. *Rhaconotus bidens* sp. n. 12, head, front view; 13, head, dorsal view; 14, hind femur; 15, basal and apical segments of antenna; 16, thorax, lateral view; 17, second-fifth abdominal tergites, lateral view; 18, first-fourth abdominal tergites, dorsal view; 19, fifth and sixth abdominal tergite, dorsal view; 20, fore wing; 21, hind wing; 22, hind tibia.

Wings. Length of fore wing 4.3 times its maximum width. Metacarpus 1.4 times as long as pterostigma. Radial vein arising almost from middle of pterostigma. First radial abscissa forming very distinct angle with second abscissa. Second radial abscissa 4 times as long as first abscissa, 0.6 times as long as third abscissa, 1.8 times as long as first radiomedial vein. Second radiomedial cell almost not widened distally, its length 4 times maximum width, 1.25 times length of narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein weakly postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein almost equal to nervulus length. Brachial cell gently and roundly closed slightly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing 6.5 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein short, unsclerotized, oblique, antifurcal.

Legs. Hind femur 2.8 times as long as wide, with distinct dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 4 outside small spines. Hind basitarsus 0.6 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, almost twice as long as fourth segment, 1.1 times as long as fifth segment (without pretarsus).

Abdomen 1.2 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.6 times its basal width, its length 1.5 times apical width. Second tergite without basal area, with distinct, rather deep, concavely curved transverse furrow and distinct oval apical area, this area 0.8 times as long as rest part of tergite. Median length of second tergite almost equal to its basal width, 1.7 times length of third tergite. Second suture deep and rather wide. Sixth tergite large, with 2 distinct, wide, rounded apically median processes on posterior margin, with rather deep median emargination between processes and with shallow lateral posteroventral emargination, 1.5 times as long (with spines) as fifth tergite, 1.7 times as long as fourth tergite. Ovipositor sheath 1.1 times as long as abdomen, 4.3 times as long as first tergite, 1.7 times as long as thorax, 0.8 times as long as fore wing.

Sculpture and pubescence. Vertex finely and densely granulate entirely; frons densely granulate with transverse striation in anterior

third; face transversely striate, almost smooth below; temple very finely granulate-coriaceous, almost smooth below. Sides of pronotum with narrow median depression, which is not marginated, coarsely rugose-striate in upper 2/3, granulate in lower third. Mesonotum densely granulate, with 2 long convergent striae medioposteriorly, with fine and rather long rugae on sides of notauli. Scutellum densely granulate. Mesopleura granulate-coriaceous, finely coriaceous below sternauli. Metapleura coarsely rugose-reticulate, with fine granulation between rugae. Propodeum with median carina in basal half; basolateral areas distinctly marginate in basal 2/3, densely granulate, with sparse, long striae; rest part of propodeum coarsely and sparsely rugose, with granulation between rugae. Hind legs densely granulate-coriaceous. First abdominal tergite with high dorsal carinae, sparsely striate and with abundant fine transverse striation between striae. Second-fifth tergites entirely coarsely striate with fine rugosity between striae. Sixth tergite coarsely concentrically striate, with dense and fine rugosity between striae. Second-fifth tergites coarsely striate in entire lateral parts. Vertex with short, very sparse, semierect, yellowish hairs directed toward middle line of vertex. Mesonotum with dense, semierect, short, yellowish hairs situated widely along notauli and narrowly along lateral sides, glabrous at narrow median areas. Hind tibia with semierect, sparse, white hairs dorsally; length of these hairs 1-1.3 times maximum width of hind tibia.

Colour. Head brownish yellow. Thorax reddish brown; propodeum and abdomen black, but sixth tergite red apically. Antenna brownish yellow basally, darkened toward apex; scapus brown on inner side. Palpi yellow. Legs brownish yellow to yellow; hind coxa reddish. Ovipositor sheath black, pale basally. Wing faintly infuscate. Pterostigma brown, yellow basally and apically.

Male unknown.

Discussion. This species differs from all Oriental species of *Rhaconotus* in the presence of distinct spines on posterior margin of sixth tergite. Similar structure of the apical tergite is known in *Rh. gaullei* Granger and *Rh. bidentatus* Granger from Madagascar (Granger, 1949). However, African species have apical processes on the fifth tergite (sixth tergite invisible), whereas *Rh. bidens* sp. n. has such processes on the apical margin of sixth tergite.

Distribution. Malaysia.

Rhaconotus caophongus sp. n.

(Figs 23-33)

Holotype. ♀, Vietnam, prov. Ha Son Binh, Ky Son, Cao Phong, forest, 28.X.1990, S. Belokobylskij (ZISP).

Description. Female. Body length 3.6 mm; fore wing length 2.7 mm. Head width 1.6 times its median length. Temple strongly and almost linearly narrowed, 0.45 times as long as transverse diameter of eye. Ocelli small, in almost equilateral triangle; POL almost equal to Od, 0.45 times OOL. Eye with very short and sparse hairs, 1.2 times as high as broad. Malar space height 0.45 times height of eye, almost equal to basal width of mandible. Face width equal to height of eye and almost equal to height of face and clypeus combined. Upper margin of clypeus situated almost on level of lower border of eyes. Hypoclypeal depression almost round, its width 0.8 times distance from edge of depression to eye. Occipital carina fused with hypostomal one near mandible. Vertex weakly convex.

Antennae weakly setiform, 31-segmented, 1.4 times as long as body. Length of scape 1.6 times its maximum width. First flagellar segment 4 times as long as its apical width, slightly shorter than second segment. Penultimate segment almost 5 times as long as wide, 0.75 times as long as first segment, almost as long as apical segment.

Thorax 1.8 times as long as high. Pronotum straight anteriorly (dorsal view), almost straight dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum rather highly and obliquely raised above pronotum. Notauli rather deep, narrow, complete, crenulate. Mesoscutum without median depression. Prescutellar depression distinct, deep, weakly and roundly directed posterolaterally, with median carina, very sparsely rugulose, 0.3 times as long as weakly convex scutellum. Sternauli rather shallow, but deep posteriorly, smooth, almost straight, running along anterior 2/3 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression rather shallow, wide, coarsely striate. Mesopleural suture smooth. Metanotum without distinct tooth. Metapleural lobes long, rather wide, rounded apically.

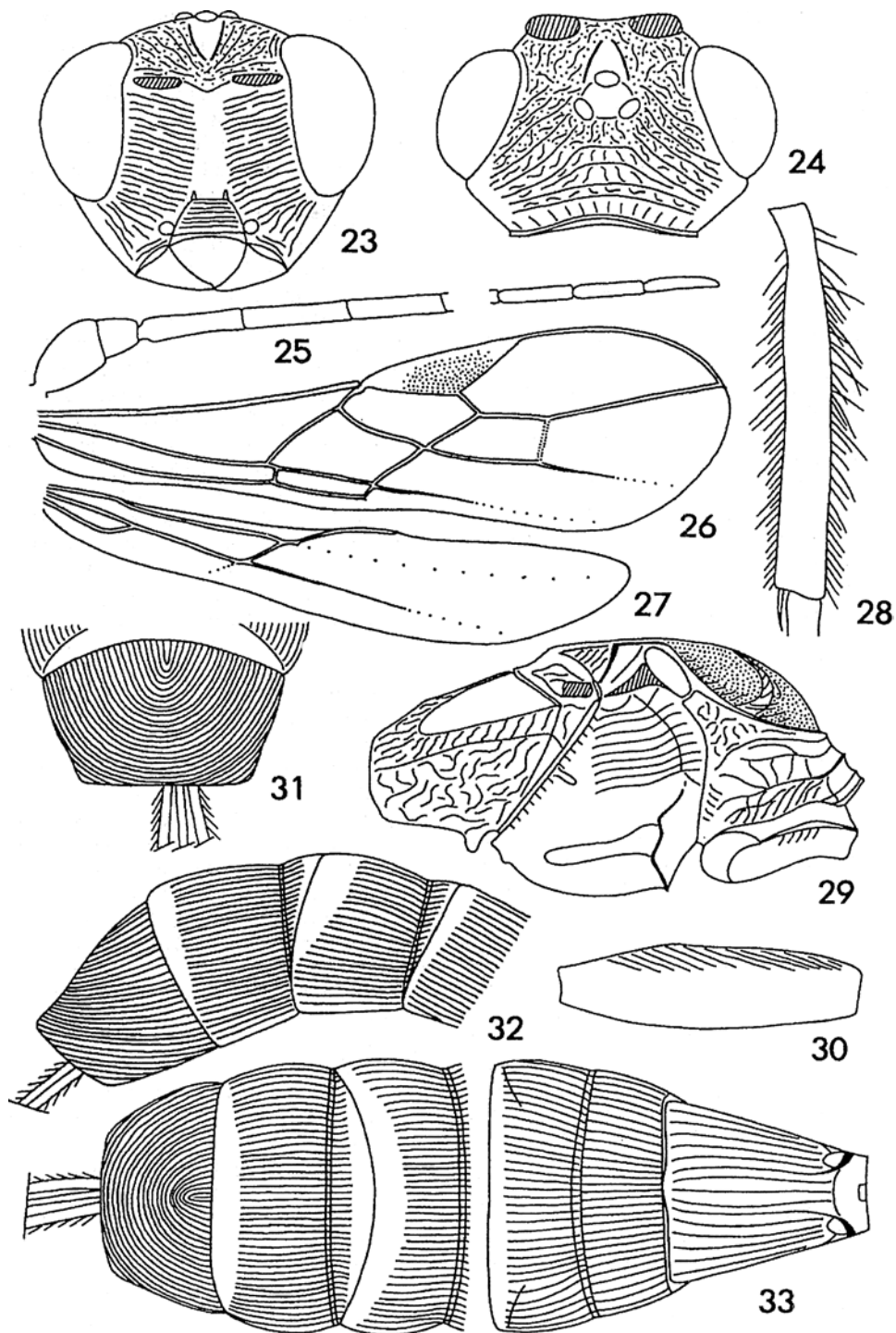
Wings. Length of fore wing 3.2 times its maximum width. Metacarpus 1.3 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa form-

ing very obtuse angle with second abscissa. Second radial abscissa twice as long as first abscissa, 0.45 times as long as third abscissa, 1.2 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 2.7 times maximum width, 1.3 times length of brachial cell. First medial abscissa weakly S-curved. Recurrent vein very weakly antefurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein equal to nervulus length. Parallel vein interstitial. Brachial cell strongly and almost linearly closed on level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) distinct. Hind wing 5.5 times as long as wide. First abscissa of costal vein 0.45 times second abscissa. First abscissa of mediocubital vein 0.7 times second abscissa. Recurrent vein strongly antefurcal, unsclerotized.

Legs. Hind femur 3.7 times as long as wide, with small dorsal protuberance. Hind tarsus 1.2 times as long as hind tibia. Hind tibia apically with 3 outside spines. Hind basitarsus about 0.8 times as long as second-fifth segments combined. Second tarsal segment 0.4 times as long as basitarsus, twice as long as fourth segment, 1.1 times as long as fifth segment (without pretarsus).

Abdomen 1.25 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 2.4 times its basal width, its length 1.15 times apical width. Second tergite without basal and apical areas, its median length 0.4 times basal width, almost equal to length of third tergite. Second suture deep and rather wide. Sixth tergite rather large, straight on posterior margin, without median emargination and posteroventral lobes, 1.3 times as long as fifth tergite, 1.55 times as long as fourth tergite. Ovipositor sheath 0.6 times as long as abdomen, 2.3 times as long as first tergite, slightly shorter than thorax, 0.45 times as long as fore wing.

Sculpture and pubescence. Vertex and frons coarsely rugose-striate with fine granulation between rugae; face irregularly striate; temple finely striate with granulation, almost smooth ventrally. Sides of pronotum coarsely rugose on wide and deep median depression, rugulose-granulate above and below. Mesonotum densely granulate, with rugulosity on small medioposterior area. Scutellum densely granulate. Mesopleura coarsely striate in upper half, almost smooth in lower half. Metapleura coarsely rugose reticulate. Propodeum with median carina in basal 1/4; basolateral areas large, marginate, mostly smooth; rest part of propodeum sparsely rugose-reticulate. Hind



Figs 23-33. *Rhaconotus caophongus* sp. n. 23, head, front view; 24, head, dorsal view; 25, basal and apical segments of antenna; 26, fore wing; 27, hind wing; 28, hind tibia; 29, thorax, lateral view; 30, hind femur; 31, sixth tergite, dorsal view; 32, fourth-sixth abdominal tergites, lateral view; 33, abdomen, dorsal view.

coxa narrowly striate dorsally, smooth at rest part. Hind femur striate in upper half, smooth in lower half. First abdominal tergite with complete dorsal carinae. First-fifth tergites distinctly striate; third-fifth tergites narrowly smooth apically. Sixth tergite entirely and distinctly semicircularly striate. Second-fifth tergites coarsely longitudinally striate in entire lateral parts. Vertex with short, dense, white, semierect hairs directed forward. Mesonotum entirely with very dense, semierect, short, white hairs. Mesopleura entirely setose. Hind tibia dorsally with long, sparse and almost erect hairs in basal 2/3, and with short, dense, semierect hairs in apical third; length of these hairs 0.4-1 times maximum width of hind tibia.

Colour. Body black; third-sixth abdominal tergites reddish apically. Antenna brown, brownish yellow basally. Palpi pale yellow. Legs brownish yellow; hind coxa and basitarsus darker. Ovipositor sheath black, light brown basally. Wings very faintly infuscate. Pterostigma brown, yellow in basal third and apical 1/5.

Male unknown.

Discussion. This species is similar to *Rh. hexatermus* Blkb. and differs in the vertex coarsely rugose-striate, ovipositor sheath longer, mesopleura entirely setose, recurrent vein antefurcal, pterostigma brown medially, thorax and sternauli shorter.

Distribution. Vietnam.

Rhaconotus ceylonicus sp. n.

(Figs 34-43)

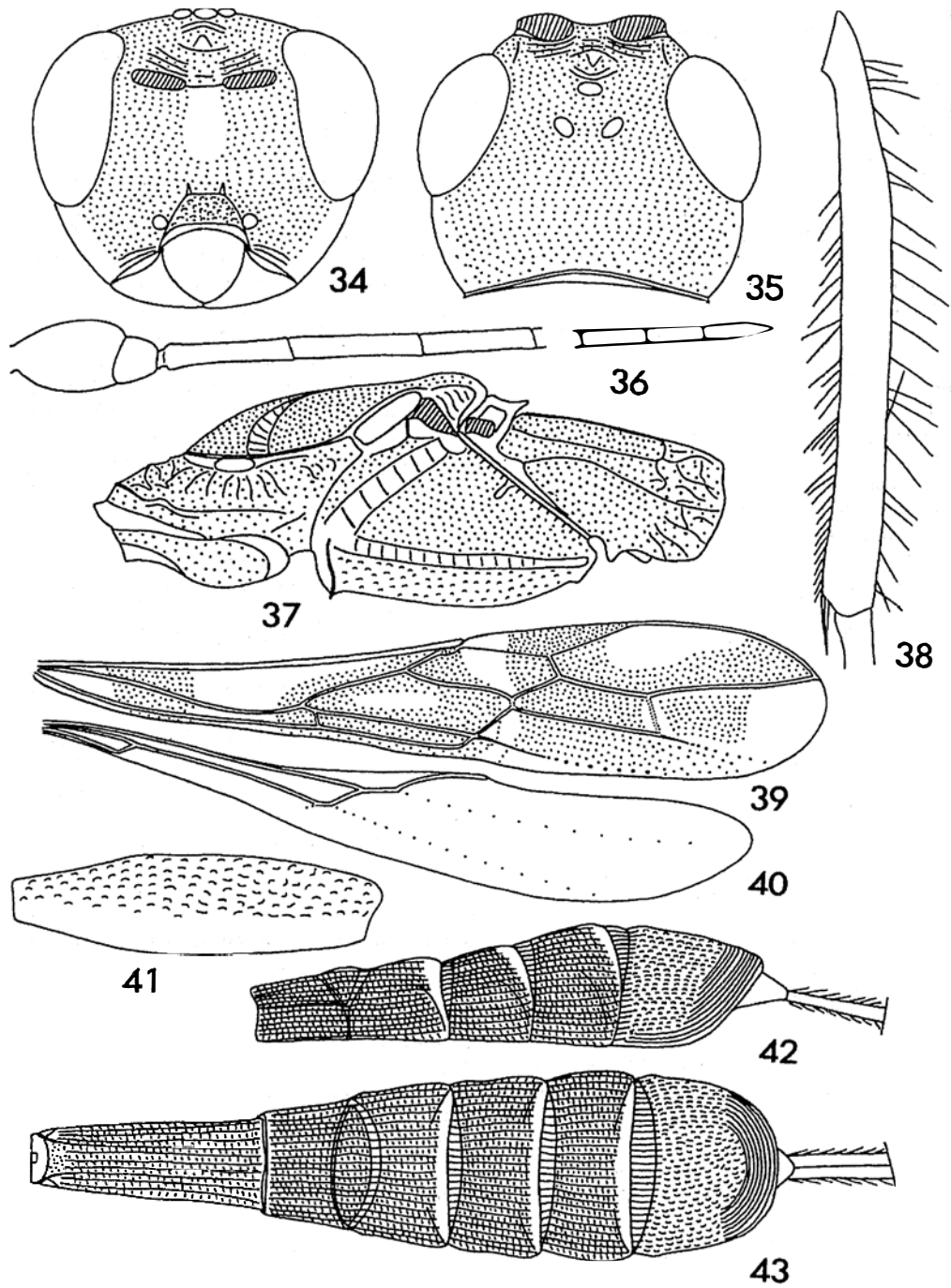
Holotype. ♀, Sri Lanka (Ceylon), Kandy distr., Galaha, 24.II.1974, A.E. Stubbs & P.J. Chandler, BMNH 1974-624 (BMNH).

Description. Female. Body length 5.1 mm; fore wing length 3.6 mm. Head width 1.25 times its median length. Temple weakly roundly narrowed, 0.65 times as long as transverse diameter of eye. Ocelli small, in almost equilateral triangle; POL equal to Od, 0.4 times OOL. Eye glabrous, distinctly emarginate opposite antennal sockets, 1.1 times as high as broad. Malar space height 0.4 times height of eye, 0.8 times basal width of mandible. Face width almost equal to height of eye and 1.35 times height of face and clypeus combined. Upper margin of clypeus situated slightly higher than level of lower border of eyes. Hypoclypeal depression round, its width almost equal to distance from edge of depression to eye. Occipital carina connected with hypostomal one near mandible by short additional stria. Vertex weakly convex. Maxillary palpi 1.4 times as long as height of head.

Antennae slender, filiform, 39-segmented, 1.2 times as long as body. Length of scape 1.5 times its maximum width. First flagellar segment 6 times as long as its apical width, almost as long as second segment. Penultimate segment 3.5 times as long as wide, half as long as first segment, 0.9 times as long as apical segment.

Thorax 2.6 times as long as high. Pronotum convex anteriorly (dorsal view), more or less regularly and weakly convex dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distance from carina to mesoscutum 1.5 times distance from carina to anterior margin of pronotum. Mesoscutum weakly and very gently raised above pronotum. Notauli rather narrow, deep, complete, entirely crenulate. Median lobe of mesoscutum without median depression. Prescutellar depression wide, rather deep, strongly and almost linearly directed posterolaterally, with median carina, finely rugulose-coriaceous, 0.3 times as long as strongly convex scutellum. Sternauli distinct, rather deep, sparsely crenulate, almost straight, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression deep, narrow, crenulate. Mesopleural suture finely and rather densely crenulate. Metanotum with distinct pointed tooth directed backside. Metapleural lobes distinct, rather narrow, rounded apically.

Wings. Length of fore wing 5 times its maximum width. Metacarpus 1.15 times as long as pterostigma. Radial vein arising distinctly behind middle of pterostigma. First radial abscissa forming obtuse angle with second abscissa. Second radial abscissa 4 times as long as first abscissa, half as long as third abscissa, 1.6 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 4.5 times maximum width, almost equal to length of narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein weakly postfurcal. Mediocubital vein distinctly curved to anal vein in apical half. Distance from nervulus to basal vein 0.75 times nervulus length. Brachial cell strongly and roundly closed slightly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing 6 times as long as wide, narrowed basally and almost straight posteriorly in basal 1/4. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein almost indistinct.



Figs 34-43. *Rhaconotus ceylonicus* sp. n. 34, head, front view; 35, head, dorsal view; 36, basal and apical segments of antenna; 37, thorax, lateral view; 38, hind tibia; 39, fore wing; 40, hind wing; 41, hind femur; 42, second-sixth abdominal tergites, lateral view; 43, abdomen, dorsal view.

Legs. Hind femur 3.6 times as long as wide, with small dorsal protuberance. Hind tarsus 0.9 times as long as hind tibia. Hind tibia apically with 4 outside small spines. Hind basitarsus 0.6 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, almost twice as long as fourth segment, 1.15 times as long as fifth segment (without pretarsus).

Abdomen 1.2 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.8 times its basal width, its length 2.5 times apical width. Second tergite without basal area, with distinct, shallow, weakly concavely curved, transverse furrow in posterior half and distinct, lenticular apical area, this area 0.65 times as long as rest part of tergite. Median length of second tergite 1.2 times its basal width, 1.7 times length of third tergite. Second suture distinct, wide, shallow. Sixth tergite large, regularly rounded on posterior margin, without median emargination and posteroventral lobes, about twice as long as fifth and fourth tergites. Ovipositor sheath 0.6 times as long as abdomen, almost twice as long as first tergite, 0.9 times as long as thorax, half as long as fore wing.

Sculpture and pubescence. Entire vertex finely and densely coriaceous; frons finely transversely striate-coriaceous posteriorly; face finely striate coriaceous; temple finely coriaceous, almost smooth in lower third. Mesonotum densely and finely coriaceous, with 2 long convergent striae medioposteriorly and with very narrow rugosity between them. Scutellum finely coriaceous. Mesopleura and metapleura finely reticulate-coriaceous, metapleura with coarse rugosity in posterior 1/4. Propodeum with median carina in basal half and with indistinctly marginate and coarsely rugose areola; basolateral areas distinctly marginate, densely granulate; posterior 2/5 of propodeum coarsely rugose-reticulate. Hind legs finely and densely coriaceous; hind femur very finely coriaceous. First abdominal tergite with distinct and complete dorsal carinae, densely and coarsely striate. Second-fifth tergites entirely densely and coarsely striate. Sixth tergite striate basally, finely reticulate-coriaceous in basal half, finely concentrically striate in posterior third, almost smooth between coriaceous and striate parts. Second-fifth tergites laterally striate at most part and with distinct dense granulation between striae. Vertex with short, sparse, semierect, yellowish hairs directed toward ocelli in anterior third and backwards in posterior 2/3. Mesonotum with rather short, very sparse, semierect, yellowish

hairs situated narrowly along notauli and marginally. Mesopleura with long and sparse hairs, glabrous medially. Hind tibia with almost erect, rather sparse, white hairs dorsally; length of these hairs 1-1.5 times maximum width of hind tibia.

Colour. Head reddish yellow, distinctly darker dorsally. Thorax and abdomen almost black, with reddish tint anteriorly and posteriorly. Antenna reddish yellow basally, evenly darkened toward apex. Palpi reddish brown; 2 apical segments yellowish. Legs brownish yellow; hind coxa and femur reddish brown; hind tibia light reddish brown; basal parts of all tibiae yellow at short distance. Ovipositor sheath black, lighter basally. Wing hyaline, with large irregular dark spots at most part. Pterostigma dark brown, pale yellow in basal third.

Male unknown.

Discussion. This species is similar to *Rh. jacobsoni* Szepligeti and differs in the temple long and weakly narrowed behind eyes, second radiomedial cell narrow and longer, hind femur narrow, sixth tergite long and coriaceous in basal half, depression of the pronotal sides entirely crenulate, basolateral areas of propodeum entirely marginate, vertex sparsely setose, head reddish yellow at most part, palpi pale apically, and hind tibia sparsely setose.

Distribution. Sri Lanka.

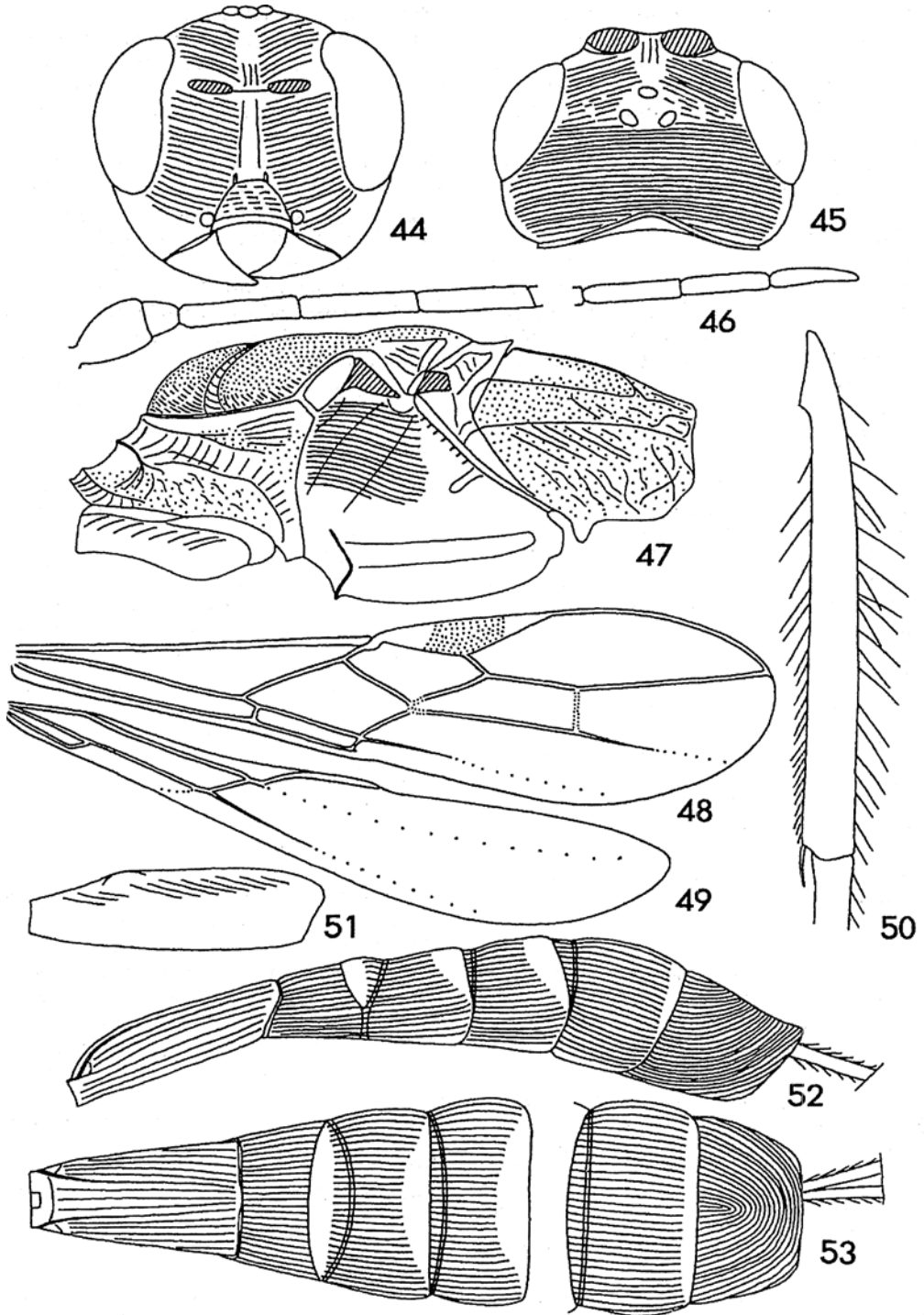
***Rhaconotus dabacus* sp. n.**

(Figs 44-53)

Holotype. ♀, Vietnam, prov. Ha Son Binh, Da Bac, Tuly, forest, 18.X.1990, S. Belokobylskij (ZISP).

Description. Female. Body length 3.0 mm; fore wing length 2.8 mm. Head width 1.4 times its median length. Temple roundly narrowed, 0.55 times as long as transverse diameter of eye. Ocelli small, in triangle with base 1.2 times its sides; POL 1.2 times Od, 0.4 times OOL. Frons with distinct longitudinal median depression. Eye glabrous, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.9 times basal width of mandible. Face width equal to height of eye and 1.2 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower border of eyes. Hypoclypeal depression almost round, its width 0.85 times distance from edge of depression to eye. Occipital carina connected with hypostomal one near mandible by additional carina. Vertex distinctly convex.

Antennae weakly setiform, 29-segmented, 1.7 times as long as body. Length of scape 1.5 times its maximum width. First flagellar seg-



Figs 44-53. *Rhaconotus dabacus* sp. n. 44, head, front view; 45, head, dorsal view; 46, basal and apical segments of antenna; 47, thorax, lateral view; 48, fore wing; 49, hind wing; 50, hind tibia; 51, hind femur; 52, abdomen, lateral view; 53, abdomen, dorsal view.

ment 4.5 times as long as its apical width, almost as long as second segment. Penultimate segment 4.5 times as long as wide, 0.85 times as long as first segment, equal in length to apical segment.

Thorax 2.3 times as long as high. Pronotum straight anteriorly (dorsal view), almost straight dorsally (lateral view). Pronotal carina distinct, rather high, widely separated medially from posterior margin of pronotum; distance from carina to anterior margin of pronotum about 1.5 times distance from carina to mesonotum. Mesoscutum distinctly and roundly raised above pronotum. Notauli rather deep, but shallow posteriorly, complete, crenulate. Mesoscutum without median depression. Prescutellar depression wide, rather deep, very weakly and roundly directed posterolaterally, with median carina, rugose, 0.35 times as long as weakly convex scutellum. Sternauli rather deep, smooth, almost straight, running along anterior 3/4 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, wide, striate. Metanotum with very small, posteriorly pointed tooth. Metapleural lobes short, wide, rounded apically, very densely setose. Mesopleural suture smooth.

Wings. Length of fore wing 3.5 times its maximum width. Metacarpus 1.2 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 3 times as long as first abscissa, half as long as third abscissa, 1.3 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 4 times maximum width, 1.6 times length of brachial cell. First medial abscissa weakly S-curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein equal to nervulus length. Parallel vein interstitial. Brachial cell strongly and roundly closed distinctly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) very short. Hind wing 5.7 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.6 times second abscissa. Recurrent vein short, antefurcal, unsclerotized.

Legs. Hind femur 3.5 times as long as wide, with dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 2 outside spines. Hind basitarsus almost equal in length to second-fifth segments combined. Second tarsal segment 0.3 times as long as basitar-

sus, 2.2 times as long as fourth segment, 1.2 times as long as fifth segment (without pretarsus).

Abdomen 1.15 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite almost twice its basal width, its length 1.65 times apical width. Second tergite without basal area, with shallow and almost straight transverse furrow and rather distinct apical area, this area 0.55 times as long as rest part of tergite. Median length of second tergite 0.9 times its basal width, 1.6 times length of third tergite. Second suture deep and rather wide. Sixth tergite rather large, rounded on posterior margin, with very shallow median emargination, without posteroventral lobes, 1.1 times as long as fifth tergite, 1.3 times as long as fourth tergite. Ovipositor sheath 1.3 times as long as abdomen, 4.5 times as long as first tergite, twice as long as thorax, 0.8 times as long as fore wing.

Sculpture and pubescence. Vertex and frons densely transversely striate; face densely transversely striate, with fine rugulosity between striae; temple smooth. Mesonotum densely granulate, rugulose on rather wide area medioposteriorly, without rugae along notauli. Scutellum finely granulate. Mesopleura smooth in lower 2/3, transversely striate in upper third. Metapleura finely granulate-rugulose at most part. Propodeum with median carina in basal half; basolateral areas finely marginate, finely coriaceous; rest part of propodeum finely and sparsely rugulose-coriaceous. Hind coxa striate-granulate dorsally, smooth at most part. Hind femur finely striate in upper half, smooth in lower half. First abdominal tergite with dorsal carinae, densely striate. Second tergite (except apical smooth area) and third-fifth tergites (except their smooth apical 1/3-1/5) distinctly longitudinally striate. Sixth tergite entirely and distinctly semicircularly striate. Second-fifth tergites longitudinally striate in entire lateral parts. Vertex with rather long, very sparse, semierect hairs directed forward. Mesonotum entirely with dense, semierect, short hairs. Mesopleura rather densely setose, glabrous on small median area only. Hind tibia with long, semierect or erect, rather dense hairs dorsally; length of these hairs 1-1.3 times maximum width of hind tibia.

Colour. Body black with reddish spots; head dark reddish brown dorsally, reddish brown or light reddish brown ventrally. Antenna brownish yellow in basal half, brown to dark brown in apical half. Palpi pale yellow. Legs yellow; hind coxa dark reddish brown, yellow apically; hind tibia shortly dark brown basally;

all basitarsi infuscate in basal half; fifth segments brown. Ovipositor sheath brown, darkened apically. Wings faintly infuscate. Pterostigma brown, yellow in basal third and apically.

Male unknown.

Discussion. This species is similar to *Rh. menippus* Nixon and distinctly differs in the vertex with transverse sculpture, first and second tergites long, apical area of second tergite short and smooth, ovipositor and second radiomedial cell long.

Distribution. Vietnam.

Rhaconotus excavatus sp. n.

(Figs 54-63)

Holotype. ♀, Vietnam, prov. Son La, Song Ma, 4-12.V.1986, A.V. Sharkov (ZISP).

Description. Female. Body length 3.4 mm; fore wing length 2.5 mm. Head width 1.5 times its median length. Temple roundly narrowed, half as long as transverse diameter of eye. Ocelli small, in triangle with base 1.2 times its sides; POL almost equal to Od, 0.3 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height half height of eye, almost equal to basal width of mandible. Face width 1.1 times height of eye and 1.3 times height of face and clypeus combined. Malar suture absent. Upper margin of clypeus situated slightly lower than level of lower border of eyes. Hypoclypeal depression round, its width 0.7 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one being obliterated near mandible at rather long distance. Vertex convex.

Antennae filiform, 32-segmented, 1.2 times as long as body. Length of scape 1.4 times its maximum width. First flagellar segment almost 5 times as long as its apical width, as long as second segment. Penultimate segment 4 times as long as wide, 0.6 times as long as first segment, 0.9 times as long as apical segment.

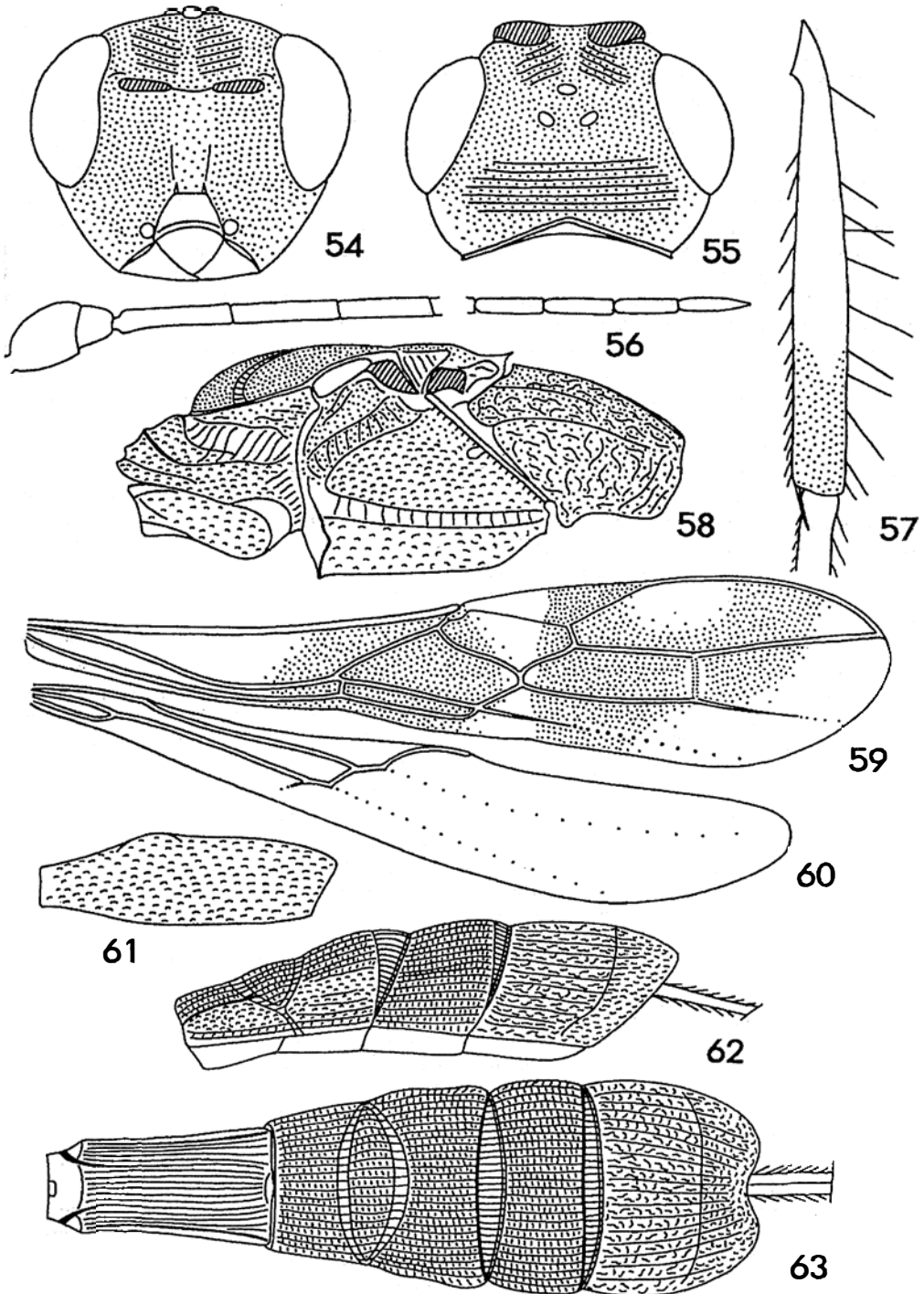
Thorax 2.4 times as long as high. Pronotum weakly convex anteriorly (dorsal view), irregularly convex dorsally (lateral view). Pronotal carina distinct but weak, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal; additional high carina present in posterior 1/4 of pronotum also. Mesoscutum slightly and gently-roundly raised above pronotum. Notauli rather deep, wide, complete, crenulate. Mesoscutum with shallow median depression in posterior third. Prescutellar depression deep, distinctly and roundly directed posterolaterally, with median

carina and 2 additional lateral rugae, densely granulate, 0.35 times as long as convex scutellum. Sternauli rather shallow, almost straight, crenulate, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, without widened lobes opposite fore coxae. Subalar depression shallow, rather narrow, crenulate. Mesopleural suture distinctly and densely crenulate. Metanotum with very short and pointed tooth. Metapleural lobes distinct, rather wide, rounded apically.

Wings. Length of fore wing 4.3 times its maximum width. Metacarpus 1.2 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very distinct angle with second abscissa. Second radial abscissa 7 times as long as first abscissa, 0.65 times as long as third abscissa, 1.8 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 3.8 times maximum width, 1.35 times length of brachial cell. First medial abscissa distinctly S-curved. Mediocubital vein distinctly curved to anal vein. Distance from nervulus to basal vein 0.3 times nervulus length. Brachial cell gently and roundly closed slightly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing 6 times as long as maximum width. First abscissa of costal vein 0.4 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein short, antefurcal, unsclerotized.

Legs. Hind femur 3 times as long as wide, with small dorsal protuberance. Hind tarsus almost as long as hind tibia. Hind basitarsus 0.6 times as long as second-fifth segments combined. Second tarsal segment 0.45 times as long as basitarsus, 1.8 times as long as fourth segment, as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 5 visible tergites. Apical width of first tergite 1.8 times its basal width, its length about twice apical width. Second tergite without basal area, with rather distinct, shallow, weakly curved transverse furrow and more or less distinct oval apical area, this area 0.7 times as long as rest part of tergite. Median length of second tergite equal to its basal width, 1.8 times length of third tergite. Second suture deep and wide. Fifth tergite large, regularly rounded on posterior margin, with deep and narrow median emargination and without posteroventral lobes. Fifth tergite almost twice as long as fourth tergite, 2.3 times as long as third tergite. Ovipositor sheath 0.7 times as



Figs 54-63. *Rhaconotus excavatus* sp. n. 54, head, front view; 55, head, dorsal view; 56, basal and apical segments of antenna; 57, hind tibia; 58, thorax, lateral view; 59, fore wing; 60, hind wing; 61, hind femur; 62, second-fifth abdominal tergites, lateral view; 63, abdomen, dorsal view.

long as abdomen, 2.3 times as long as first tergite, as long as thorax, half as long as fore wing.

Sculpture and pubescence. Vertex rather finely transversely striate with granulation between striae. Frons rugulose-striate partly, with granulation entirely. Temple densely granulate, but finely so ventrally, with rugulosity along occipital carina. Face densely granulate, finely medially. Mesonotum densely granulate, with fine and rather long rugae near notauli, with 2 convergent carinae medioposteriorly and fine rugosity between them. Scutellum finely granulate. Mesopleura distinctly coriaceous. Metapleura rugose-reticulate. Propodeum without basolateral areas, with median carina in basal 1/5 and 2 lateral carinae in basal half, densely reticulate-rugulose at most part, rugulose-granulate basally. Hind coxa granulate-coriaceous; hind femur coriaceous. First abdominal tergite with complete fine dorsal carinae. First-fifth tergites longitudinally striate, with fine rugulosity between striae; rugulosity between more or less longitudinal striae of fifth tergite more distinct. Second-fourth tergites laterally reticulate-rugulose, partly with fine striation. Vertex with short, sparse, semierect, yellowish hairs directed forward. Mesonotum with sparse, semierect, whitish hairs situated widely along notauli and marginally. Mesopleura with very sparse and long hairs, glabrous medially. Hind tibia with long, erect, sparse, white hairs dorsally; length of these hairs 1-1.5 times maximum width of hind tibia.

Colour. Head brownish yellow; thorax and abdomen reddish brown. Antenna brownish yellow in basal 2/3, dark brown in apical third. Palpi reddish brown. Legs brownish yellow; hind coxa and femur reddish brown. Ovipositor sheath black, yellowish brown in basal 1/4. Wing hyaline, with brownish spots along basal vein, under pterostigma and subapically. Pterostigma brown, pale yellow in basal 2/5.

Male unknown.

Discussion. This species is similar to Oriental *Rh. concinnus* (Enderlein) and differs in the fifth tergite longer and with apical median emargination, frons rugulose-striate, pterostigma bicolorous, fore wing maculate, ovipositor long, and palpi dark.

Distribution. Vietnam.

Rhaconotus longithorax sp. n.

(Figs 64-74)

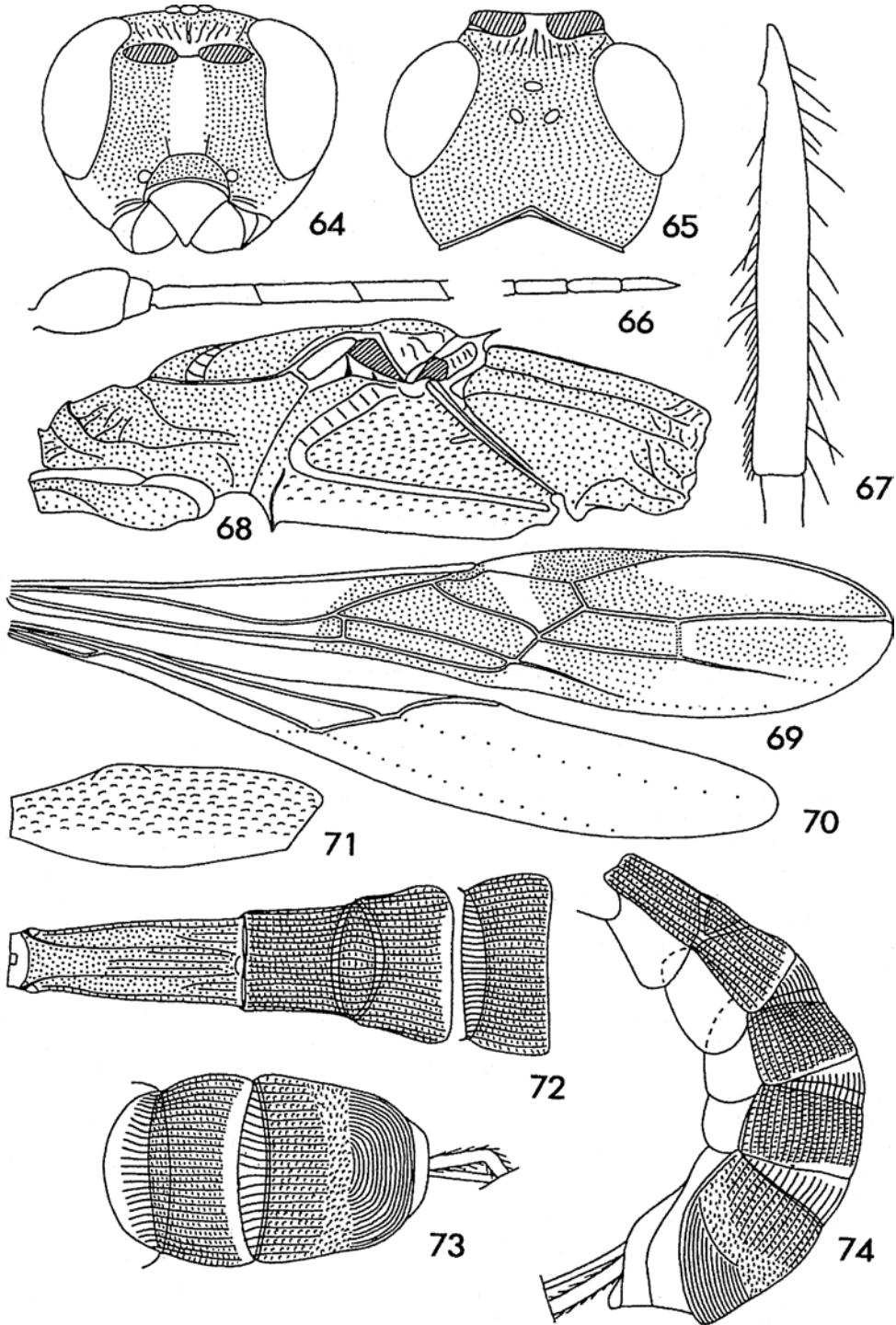
Holotype. ♀, **Philippines**, *Negros Oriental*, Cuernos de Negros, 7 km W of Valencia, 700 m, Malaise w/pans, 29.VI-1.VII.1987, ROM 873061, D.C. Darling, E. Mayordo (TAMU).

Description. Female. Body length 6.5 mm; fore wing length 3.9 mm. Head width 1.3 times its median length. Temple weakly roundly narrowed, 0.55 times as long as transverse diameter of eye. Ocelli small, almost in equilateral triangle; POL equal to Od, 0.6 times OOL. Eye glabrous, weakly emarginate opposite antennal sockets, 1.2 times as high as broad. Malar space height 0.3 times height of eye, 0.7 times basal width of mandible. Face width 0.8 times height of eye and 1.2 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower border of eyes. Hypoclypeal depression round, its width equal to distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible being obliterated at very short distance. Vertex weakly convex.

Antennae slender, almost filiform, 48-segmented, 1.2 times as long as body. Length of scape 1.6 times its maximum width. First flagellar segment 5 times as long as its apical width, as long as second segment. Penultimate segment 4.5 times as long as wide, half as long as first segment, 0.9 times as long as apical segment.

Thorax almost 3 times as long as high. Neck of prothorax long. Pronotum straight anteriorly (dorsal view), more or less regularly and distinctly convex dorsally (lateral view). Pronotal carina distinct and high, widely separated medially from posterior margin of pronotum; distance from carina to mesoscutum 1.5 times distance from carina to anterior margin of pronotum. Mesoscutum very weakly and gently raised above pronotum. Notauli rather narrow, deep in anterior 3/4, absent in posterior 1/4, crenulate. Median lobe of mesoscutum with short and wide median depression in posterior 1/5. Prescutellar depression distinct, shallow, strongly and almost linearly directed posterolaterally, with high median carina, finely coriaceous, 0.2 times as long as strongly convex scutellum. Sternauli shallow, narrow, coriaceous, straight, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, wide ventrally, fine laterally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, finely crenulate-coriaceous. Mesopleural suture distinct, rather densely crenulate. Metanotum with long, slender, pointed tooth. Metapleural lobes distinct, rather wide, rounded apically.

Wings. Length of fore wing about 6 times its maximum width. Radial cell not shortened. Metacarpus 1.2 times as long as pterostigma. Radial vein arising from middle of ptero-



Figs 64-74. *Rhacoonotus longithorax* sp. n. 64, head, front view; 65, head, dorsal view; 66, basal and apical segments of antenna; 67, hind tibia; 68, thorax, lateral view; 69, fore wing; 70, hind wing; 71, hind femur; 72, first-fourth abdominal tergites, dorsal view; 73, fifth and sixth abdominal tergites, dorsal view; 74, second-sixth abdominal tergites, lateral view.

stigma. First radial abscissa forming distinct obtuse angle with second abscissa. Second radial abscissa 3.6 times as long as first abscissa, 0.45 times as long as third abscissa, 1.5 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 4 times maximum width, 0.9 times length of rather wide brachial cell. First medial abscissa distinctly S-curved. Recurrent vein postfurcal. Mediocubital vein distinctly curved to anal vein in apical half. Distance from nervulus to basal vein 0.4 times nervulus length. Brachial cell gently and roundly closed at level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing 7.5 times as long as wide, distinctly narrowed basally and weakly concave posteriorly in basal 1/4. First abscissa of costal vein 0.55 times second abscissa. First abscissa of mediocubital vein 0.35 times second abscissa. Recurrent vein short, unsclerotized.

Legs. Hind femur 3 times as long as wide, with distinct dorsal protuberance. Hind tarsus 0.8 times as long as hind tibia. Hind tibia apically with 5 outside spines. Hind basitarsus 0.6 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, 2.3 times as long as fourth segment, 1.1 times as long as fifth segment (without pretarsus).

Abdomen 1.4 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.6 times its basal width, its length 2.7 times apical width. Second tergite without basal area, with rather distinct, shallow, weakly concavely curved, transverse furrow and rather distinct, narrow apical area, this area half as long as rest part of tergite. Median length of second tergite 1.2 times its basal width, 1.7 times length of third tergite. Second suture shallow and very wide. Sixth tergite large, on posterior margin regularly rounded laterally and straight medially, without median emargination and posteroventral lobes, about twice as long as fifth and fourth tergites. Ovipositor sheath 0.6 times as long as abdomen, almost twice as long as first tergite, almost as long as thorax, 0.6 times as long as fore wing.

Sculpture and pubescence. Vertex, frons and temple in upper 2/3 granulate-coriaceous, temple almost smooth below; face finely granulate, with short transverse striation submedially, narrowly smooth medially. Mesonotum densely coriaceous, without rugosity medio-posteriorly. Scutellum densely coriaceous. Mesopleura finely coriaceous. Metapleura finely granulate-coriaceous, rugose posteriorly. Propodeum entirely granulate-coriaceous, with

marginate basolateral areas, with complete median carina and with lateral carinae in basal half. Hind coxa finely and densely granulate; hind tibia finely coriaceous dorsally and smooth ventrally; hind femur finely and densely coriaceous. First abdominal tergite with strong and complete dorsal carinae, reticulate-granulate in basal half, striate-reticulate in apical half. Second and third tergites rather sparsely, entire fourth and fifth tergites densely striate, with fine, dense, transverse striation between striae. Sixth tergite densely semicircularly striate, coriaceous in basal half between striae. Second and third tergites striate with reticulation in entire lateral parts, fourth and fifth tergites striate in basal halves and below and densely granulate-coriaceous at rest part. Vertex with several sparse, semierect, whitish hairs lateroposteriorly, glabrous at large median area. Mesonotum with sparse, semierect, short, whitish hairs narrowly situated along notauli and laterally. Mesopleura almost entirely glabrous. Fore wing glabrous basally. Hind tibia with semierect, long, sparse, white hairs dorsally; length of these hairs 0.8-1 times maximum width of hind tibia.

Colour. Body black; head around eye narrowly (except apical part) and apical 1/3-1/2 of third-sixth tergites reddish. Antenna reddish yellow, darkened toward apex. Palpi reddish yellow. Legs light reddish brown; hind coxa, middle and hind femora dark, almost black; tarsi slightly paler. Ovipositor sheath black, yellowish brown in basal 1/4. Wing infusate, with hyaline stripes and spots basally, under base of pterostigma and in radial cell. Pterostigma brown, whitish in basal third.

Male unknown.

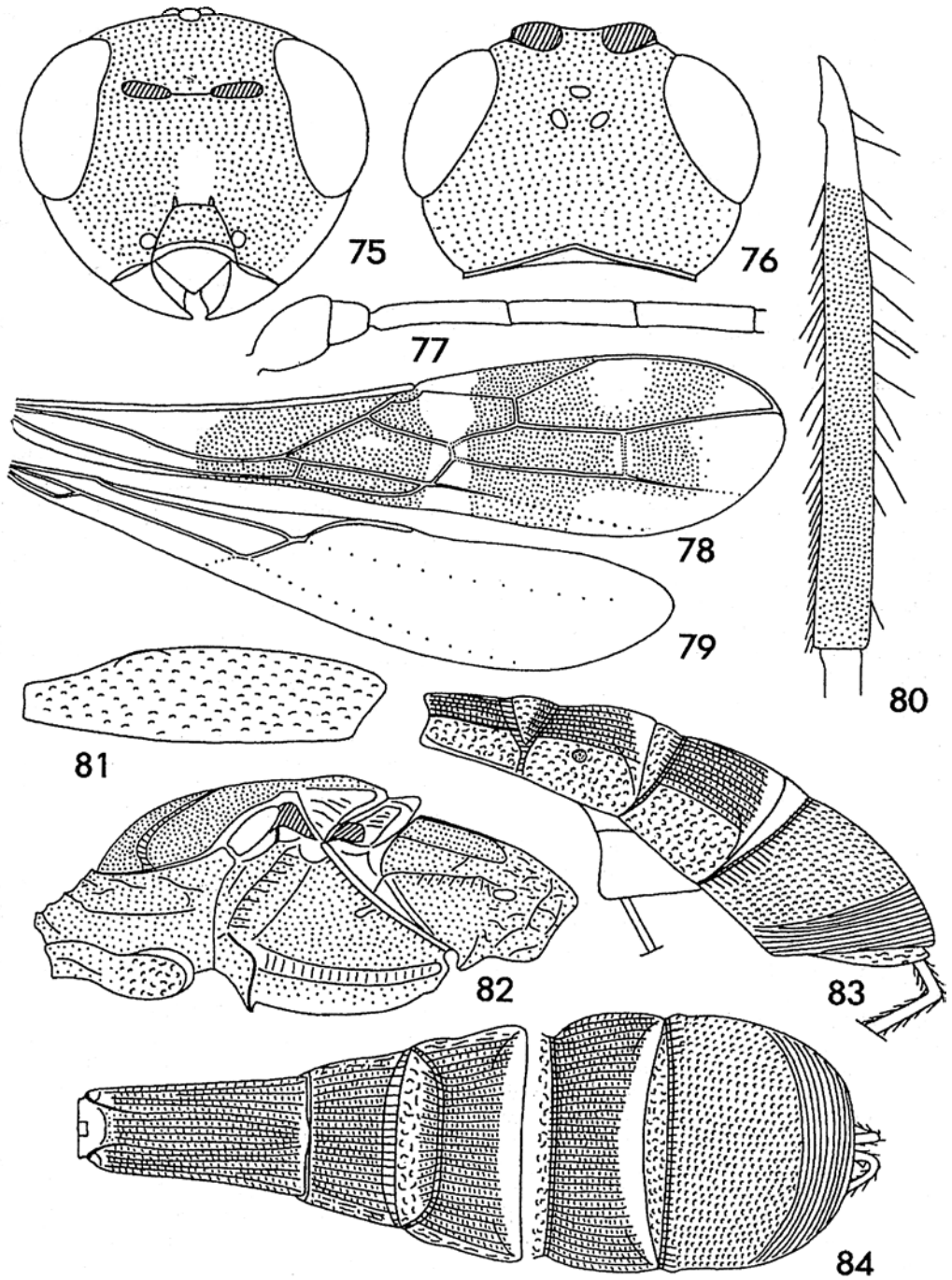
Discussion. This species is very similar to *Rh. jacobsoni* Szepligeti and differs in the thorax long and narrow, metanotum with long pointed median tooth, sides of pronotum sparsely rugose anteriorly, sternauli only coriaceous, and head black at most part.

Distribution. Philippines.

***Rhaconotus maculatus* sp. n.**
(Figs 75-84)

Holotype. ♀, Vietnam, prov. Ha Son Binh, Ky Son, Cao Phong, forest, 26.X.1990, S. Belokobylskij (ZISP).

Description. Female. Body length 3.3 mm; fore wing length 2.5 mm. Head width 1.5 times its median length. Temple roundly narrowed, 0.6 times as long as transverse diameter of eye. Ocelli small, in almost equilateral triangle; POL 1.3 times Od, 0.4 times OOL. Eye glabrous, 1.2 times as high as broad. Malar



Figs 75-84. *Rhaconotus maculatus* sp. n. 75, head, front view; 76, head, dorsal view; 77, basal segments of antenna; 78, fore wing; 79, hind wing; 80, hind tibia; 81, hind femur; 82, thorax, lateral view; 83, second-fifth abdominal tergites, lateral view; 84, abdomen, dorsal view.

space height half height of eye, almost equal to basal width of mandible. Face width equal to height of eye and 1.2 times height of face and clypeus combined. Upper margin of clypeus situated almost on level of lower border of eyes. Hypoclypeal depression round, its width 0.6 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible being obliterated at short distance. Vertex weakly convex.

Antennae filiform, with more than 25 segments (apical segments missing). Length of scape 1.5 times its maximum width. First flagellar segment 5.3 times as long as its apical width, 1.1 times as long as second segment.

Thorax 2.2 times as long as high. Pronotum straight anteriorly (dorsal view), more or less straight dorsally (lateral view). Pronotal carina distinct, but weak, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum gently and roundly raised above pronotum. Notauli deep, complete, crenulate. Mesoscutum without median depression. Prescutellar depression wide, rather shallow, distinctly and almost linearly directed posterolaterally, with median carina, sparsely rugulose, 0.3 times as long as convex scutellum. Sternauli rather shallow, crenulate, almost straight, running along almost entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression deep, rather wide, finely crenulate. Metanotum with short and pointed tooth. Metapleural lobes distinct, wide, rounded apically.

Wings. Length of fore wing 4.2 times its maximum width. Metacarpus almost as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very distinct angle with second abscissa. Second radial abscissa 4.3 times as long as first abscissa, 0.7 times as long as third abscissa, 1.5 times as long as first radiomedial vein. Second radiomedial cell almost not widened distally, its length 3.6 times maximum width, 1.4 times length of brachial cell. First medial abscissa weakly S-curved. Mediocubital vein very distinctly curved to anal vein. Distance from nervulus to basal vein 0.8 times nervulus length. Brachial cell gently and roundly closed before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing, 5.2 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.45 times second abscissa. Recurrent vein indistinct.

Legs. Hind femur 4 times as long as wide, with small dorsal protuberance. Hind tarsus 0.9 times as long as hind tibia. Hind tibia apically with 2 outside small spines. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, twice as long as fourth segment, 1.3 times as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 5 visible tergites. Apical width of first tergite twice its basal width, its length 1.85 times apical width. Second tergite without basal area, with rather distinct, shallow, almost straight transverse furrow and more or less distinct narrow apical area, this area 0.6 times as long as rest part of tergite. Median length of second tergite almost equal to its basal width, 1.7 times length of third tergite. Second suture deep and wide. Fifth tergite large, regularly rounded on posterior margin, without median emargination and posteroventral lobes. Fifth tergite 1.8 times as long as fourth tergite, 2.2 times as long as third tergite. Ovipositor sheath 0.55 times as long as abdomen, twice as long as first tergite, 0.8 times as long as thorax, 0.8 times as long as fore wing.

Sculpture and pubescence. Head densely granulate entirely, without rugae. Mesonotum densely granulate-coriaceous, without rugae near notauli, with 2 slightly convergent strong carinae in medioposterior area and fine rugosity between carinae. Scutellum finely granulate. Mesopleura coriaceous. Metapleura coriaceous, with sparse strong rugae in posterior 1/4. Propodeum without basolateral areas, with fine median carina in basal half, densely reticulate-rugulose with granulation in medioanterior third. Legs granulate-coriaceous. First abdominal tergite without distinct dorsal carinae. First and second tergites entirely, third and fourth in basal 2/3 striate with fine rugulosity between striae; apical area of second tergite rugulose; apical third of third and fourth tergites smooth. Fifth tergite coarsely concentrically striate, reticulate-rugulose in medioanterior half. Second-fourth tergites densely reticulate-rugulose laterally, with fine striation ventrally. Vertex with long, very sparse, semierect, yellowish hairs directed forward. Mesonotum with very sparse, semierect, white hairs along notauli. Hind tibia with semierect, sparse, white hairs dorsally; length of these hairs 1-1.2 times maximum width of hind tibia.

Colour. Body dark reddish brown, head and mesoscutum in anterior 2/3 light reddish brown. Antenna light brown in basal 1/4, darkened toward apex. Palpi dark brown. Fore and

middle legs light brown with small dark spots; hind leg dark reddish brown, trochanter light brown, base of tibia and tarsi whitish yellow. Wing brownish infusate, with hyaline area in basal 1/5, narrow hyaline transverse stripe under base of pterostigma and with 3 subround spots in apical 1/4. Pterostigma dark brown, pale yellow in basal third.

Male unknown.

Discussion. This species is similar to *Rh. cassander* Nixon from S. Africa (Nixon, 1943) and differs in the vertex granulate only, first tergite long, second tergite with additional transverse furrow, fifth tergite semicircularly striate in apical half, hind tibia slender and with long hairs.

Distribution. Vietnam.

***Rhaconotus micholitz* sp. n.**

(Figs 85-94)

Holotype. ♀, Papua New Guinea, "Neu-Guinea, Milne-Bay, Micholitz S., R. Krieger V." (ZMB).

Description. Female. Body length 5.4 mm; fore wing length 3.8 mm. Head width 1.5 times its median length. Temple roundly narrowed, 0.55 times as long as transverse diameter of eye. Ocelli small, in triangle with base 1.2 times its sides, POL equal to Od, 0.45 times OOL. Eye glabrous, distinctly emarginate opposite antennal sockets, 1.2 times as high as broad. Malar space height 0.35 times height of eye, 0.8 times basal width of mandible. Face width almost equal to height of eye and 1.25 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower border of eyes. Hypoclypeal depression round, its width 0.8-times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible because obliterated at short distance. Vertex weakly convex.

Antennae filiform, with more than 34 segments (apical segments missing). Length of scape 1.5 times its maximum width. First flagellar segment 4.8 times as long as its apical width, 1.1 times as long as second segment. Subapical segments 3.8-4 times as long as their width.

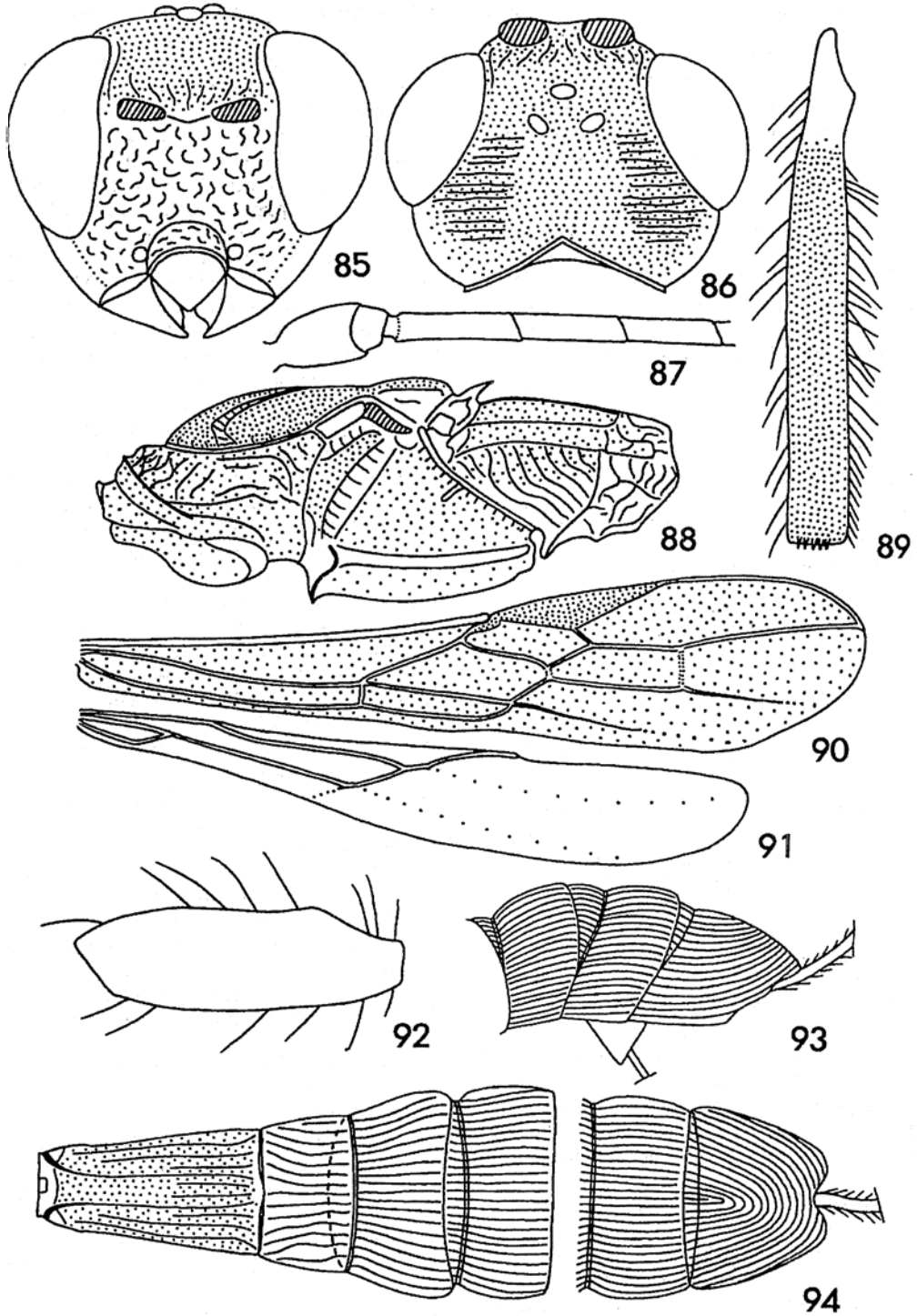
Thorax 2.5 times as long as high. Pronotum concave anteriorly (dorsal view), weakly convex posteriorly (lateral view). Pronotal carina high, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum gently and roundly raised above pronotum. Notauli deep, complete, crenulate. Mesoscutum without median

depression. Prescutellar depression rather shallow, obliquely and linearly directed posterolaterally, with distinct median carina, almost smooth, 0.3 times as long as convex scutellum. Sternauli deep, almost smooth, straight, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina strong, with 2 widened lobes opposite fore coxae. Subalar depression deep, narrow, crenulate. Metanotum with long and pointed tooth. Metapleural lobes long, rather wide, rounded apically. Mesopleural suture almost entirely finely crenulate.

Wings. Length of fore wing 4.2 times its maximum width. Metacarpus 1.3 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming distinct angle with second abscissa. Second radial abscissa 3.5 times first abscissa, 0.5 times third abscissa, 1.6 times first radiomedial vein. Second radiomedial cell not widened distally, its length 3.2 times maximum width, 0.9 times length of rather wide brachial cell. First medial abscissa weakly S-curved. Recurrent vein distinctly postfurcal. Mediocubital vein curved to anal vein in apical half. Nervulus interstitial. Brachial cell gently and roundly closed on level of recurrent vein; additional abscissa of anal vein (behind brachial vein) absent. Hind wing 6.5 times as long as wide. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein short, unsclerotized.

Legs. Hind femur 3.2 times as long as wide, with distinct dorsal protuberance. Hind tarsus almost as long as hind tibia. Hind tibia apically with 5 outside spines. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second tarsal segment almost half as long as basitarsus, 2.5 times as long as fourth segment, 1.4 times as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 6 visible tergites. Apical width of first tergite 1.7 times its basal width, its length 1.6 times apical width. Second tergite without basal area, with fine, concavely curved, transverse furrow and weakly separated oval area, this area 0.4 times as long as rest part of tergite. Median length of second tergite 0.7 times its basal width, 1.2 times length of third tergite. Second suture deep and wide. Sixth tergite rather large, rounded on posterior margin, with deep median emargination and without ventral posterior lobes, but distinctly undulate here, 1.6 times as long as fifth tergite, 1.5 times as long as fourth tergite.



Figs 85-94. *Rhaconotus micholitzii* sp. n. 85, head, front view; 86, head, dorsal view; 87, basal segments of antenna; 88, thorax, lateral view; 89, hind tibia; 90, fore wing; 91, hind wing; 92, hind femur; 93, fourth-sixth abdominal tergites, lateral view; 94, abdomen, dorsal view.

Ovipositor sheath 0.8 times as long as abdomen, 3 times as long as first tergite, 1.25 times as long as thorax, 0.6 times as long as fore wing.

Sculpture and pubescence. Head densely granulated, vertex with fine striae laterally, face coarsely rugulose-striate with granulation. Temple ventrally very finely granulate. Mesonotum and mesopleura finely and densely granulate. Propodeum entirely densely granulate, with sparse coarse rugae in posterior third, with median carina in basal half; basolateral areas large, long; areola small. Legs finely and densely granulate. First abdominal tergite with high, subparallel, complete dorsal carinae, sparsely rugulose-striate with dense granulation. Second-fourth abdominal tergites laterally with distinct striae and granulation between them. Second-sixth tergites coarsely striate; striae in posterior half of sixth tergite concentric. Second-fourth tergites laterally with distinct and dense striation and granulation between striae. Vertex with short, sparse, semierect, white hairs directed backwards. Mesonotum with sparse, semierect, white hairs along notauli, medioposteriorly and laterally. Mesopleura almost entirely glabrous, with sparse and long hairs marginally. Hind tibia with semierect, sparse, white hairs dorsally; length of these hairs 0.7-0.8 times maximum width of hind tibia. Fore wing almost glabrous basally.

Colour. Body black. Antennae dark reddish brown basally, black at most part. Palpi dark reddish brown. Legs reddish brown; middle and hind coxae dark reddish brown; all tibiae yellowish brown basally. Ovipositor sheath black, brownish basally. Wing faintly infusate. Pterostigma entirely dark brown.

Male unknown.

Discussion. This species is related to *Rh. jacobsoni* (Szepligeti) and differs in the sixth tergite with distinct posteromedian emargination, vertex distinctly convex, third antennal segment long, sternauli almost smooth, nervulus interstitial, first abdominal tergite shorter, areola of propodeum present, fore wing entirely infusate, and pterostigma entirely brown.

Distribution. New Guinea.

Rhaconotus puber sp. n.

(Figs 95-105)

Holotype. ♀, Vietnam, prov. Ha Son Binh, Ky Son, Cao Phong, forest, 28.X.1990, S. Belokobylskij (ZISP).

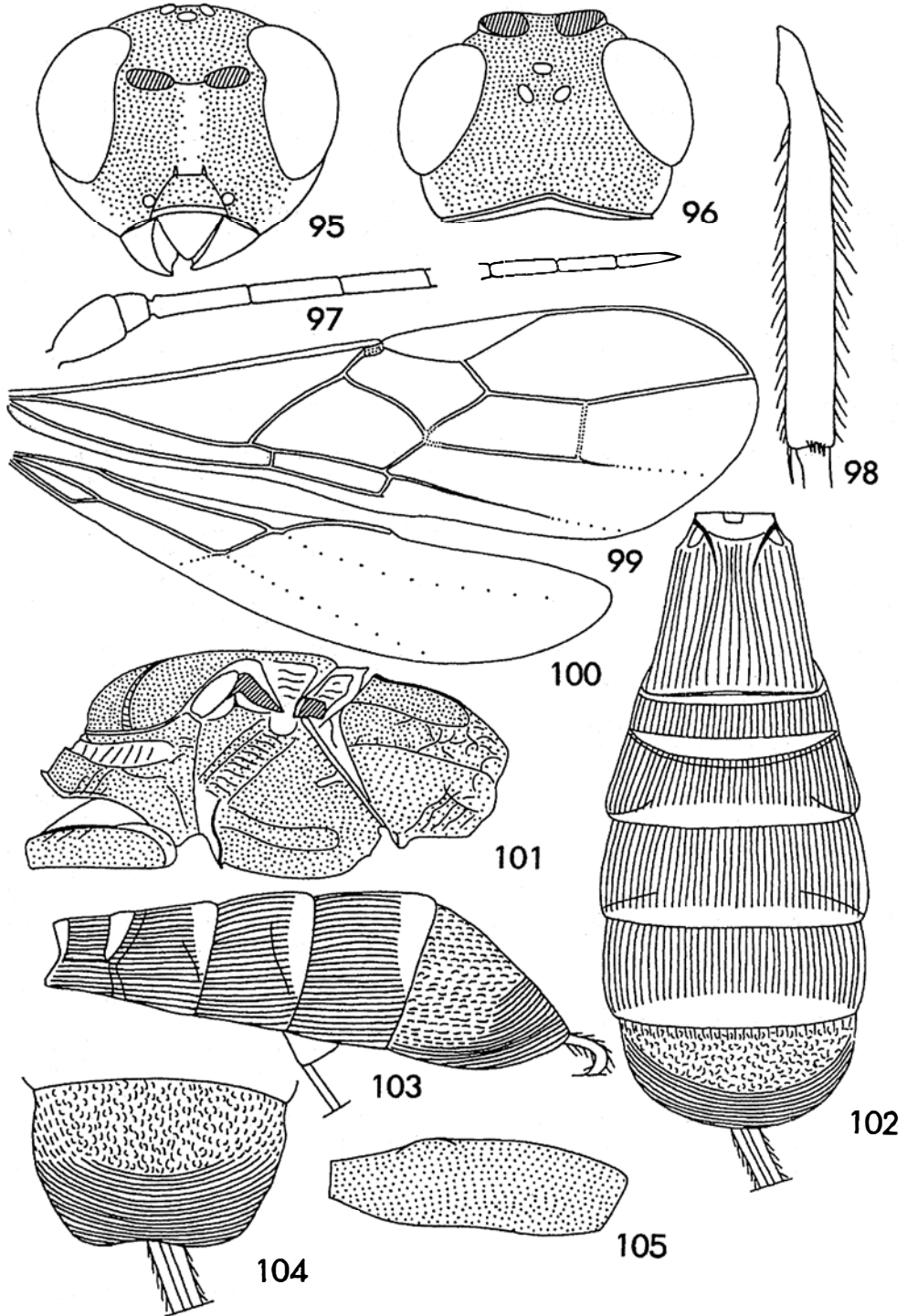
Paratypes. 3 ♀, as holotype (ZISP); 2 ♀, as holotype, but 25.X.1990 (ZISP).

Description. Female. Body length 3.5-4.0 mm; fore wing length 2.8-3.3 mm. Head width 1.5-1.6 times its median length. Temple roundly narrowed, 0.3-0.4 times as long as transverse diameter of eye. Ocelli small, in almost equilateral triangle; POL almost equal to Od, 0.5-0.7 times OOL. Eye glabrous, 1.25 times as high as broad. Malar space height 0.3 times height of eye, 0.8 times basal width of mandible. Face width 0.9-1 times height of eye and 1.2-1.3 times height of face and clypeus combined. Upper margin of clypeus situated almost on level of lower border of eyes. Hypoclypeal depression round, its width 0.7-0.8 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible because obliterated at rather short distance. Vertex weakly convex.

Antennae setiform, 33-35-segmented, 1.5 times as long as body. Length of scape 1.7-1.8 times its maximum width. First flagellar segment 5-5.5 times as long as its apical width, 1.1-1.2 times as long as second segment. Penultimate segment 5-6 times as long as wide, 0.6-0.7 times as long as first segment, 0.8-0.9 times as long as apical segment.

Thorax 1.9-2 times as long as high. Pronotum almost straight anteriorly (dorsal view), weakly convex dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distance from carina to mesonotum 0.6-0.7 times distance from carina to anterior margin of pronotum. Mesoscutum rather highly and gently-roundly raised above pronotum. Notauli rather deep, complete, crenulate. Mesoscutum without median depression. Prescutellar depression distinct, rather deep, short, weakly and roundly directed posterolaterally, with median carina, finely rugulose, 0.25-0.35 times as long as weakly convex scutellum. Sternauli rather shallow, but deeper posteriorly, granulate-coriaceous, straight, running along anterior 2/3 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, crenulate. Mesopleural suture densely and shortly crenulate. Metanotum without distinct tooth. Metapleural lobes distinct, rather wide, rounded apically.

Wings. Length of fore wing 3.2 times its maximum width. Metacarpus 1.15-1.3 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2.3-2.7 times as long as first abscissa, 0.5-0.6 times as long as



Figs 95-105. *Rhaconotus puber* sp. n. 95, head, front view; 96, head, dorsal view; 97, basal and apical segments of antenna; 98, hind tibia; 99, fore wing; 100, hind wing; 101, thorax, lateral view; 102, abdomen, dorsal view; 103, second-sixth abdominal tergites, lateral view; 104, sixth tergite, dorsal view; 105, hind femur.

third abscissa, 1.2-1.4 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 2.6-2.8 times maximum width, 1.3-1.4 times length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 1.2-1.3 times nervulus length. Parallel vein interstitial or almost interstitial. Brachial cell strongly and almost linearly closed on level or slightly behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 4.7-4.8 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.6-0.7 times second abscissa. Recurrent vein rather long, weakly antefurcal, unsclerotized in distal half.

Legs. Hind femur 3.1-3.3 times as long as wide, with small dorsal protuberance. Hind tarsus about 0.9 times as long as hind tibia. Hind tibia apically with 3 outside spines. Hind basitarsus 0.6-0.7 times as long as second-fifth segments combined. Second tarsal segment 0.4-0.45 times as long as basitarsus, 1.7-2 times as long as fourth segment, about as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 6 visible tergites. Maximum width of first tergite twice its basal width, its length about 0.9 times apical width. Second tergite with rather narrow basal area, with distinct, narrow, transverse, smooth apical area; this area 0.5-0.6 times as long as rest part of tergite. Median length of second tergite 0.45-0.5 times its basal width, 1.2-1.4 times length of third tergite. Second suture deep, rather wide and curved. Sixth tergite rather large, regularly rounded on posterior margin, with wide and shallow median emargination, without posteroventral lobes. Sixth tergite 1.4-1.5 times as long as fifth tergite, 1.9-2 times as long as fourth tergite. Ovipositor sheath 0.6-0.7 times as long as abdomen, 2.7-3 times as long as first tergite, 0.9-1.1 times as long as thorax, 0.4-0.5 times as long as fore wing.

Sculpture and pubescence. Head densely and finely granulate; temple almost smooth, finely granulate-coriaceous dorsally. Mesonotum densely granulate, with several striae and rugosity between them in medioposterior area. Scutellum densely granulate. Mesopleura coriaceous, granulate in upper third. Metapleura densely granulate, coarsely rugose in posterior 1/4. Propodeum with median carina in basal half; basolateral areas situated in basal 2/3 of propodeum, large, distinctly marginate, den-

sely granulate; rest part of propodeum rugose, transversely striate medially. Hind coxa and femur granulate dorsally, coriaceous ventrally. First abdominal tergite with complete dorsal carinae, entirely striate. Second tergite (except smooth or almost smooth basal and apical areas) and third-fifth tergites in basal half to third longitudinally striate, apical parts of third-fifth tergites smooth. Sixth tergite finely reticulate in basal half, semicircularly striate in apical half. Second-fifth tergites longitudinally striate laterally. Vertex with short, rather sparse, semierect hairs directed forward. Mesonotum entirely with dense, semierect, short, yellowish hairs. Mesopleura setose marginally, widely glabrous medially. Hind tibia dorsally with short, dense, semierect hairs; length of these hairs 0.5-0.6 times maximum width of hind tibia.

Colour. Head brownish yellow; prothorax and mesonotum brownish red; mesopleura dark brownish red; rest part of thorax and abdomen black, but sixth tergite reddish or sometimes entire abdomen reddish brown. Antenna brownish yellow in basal half, almost black in apical half. Palpi yellow. Legs yellow; hind coxa reddish yellow. Ovipositor sheath black. Wings very faintly infuscate. Pterostigma entirely yellow.

Male unknown.

Discussion. This species is similar to *Rh. formosanus* (Watanabe) and differs in the sixth tergite with distinct median emargination posteriorly, mesoscutum more gently raised above pronotum, pronotal carina fine and situated more closely to mesoscutum.

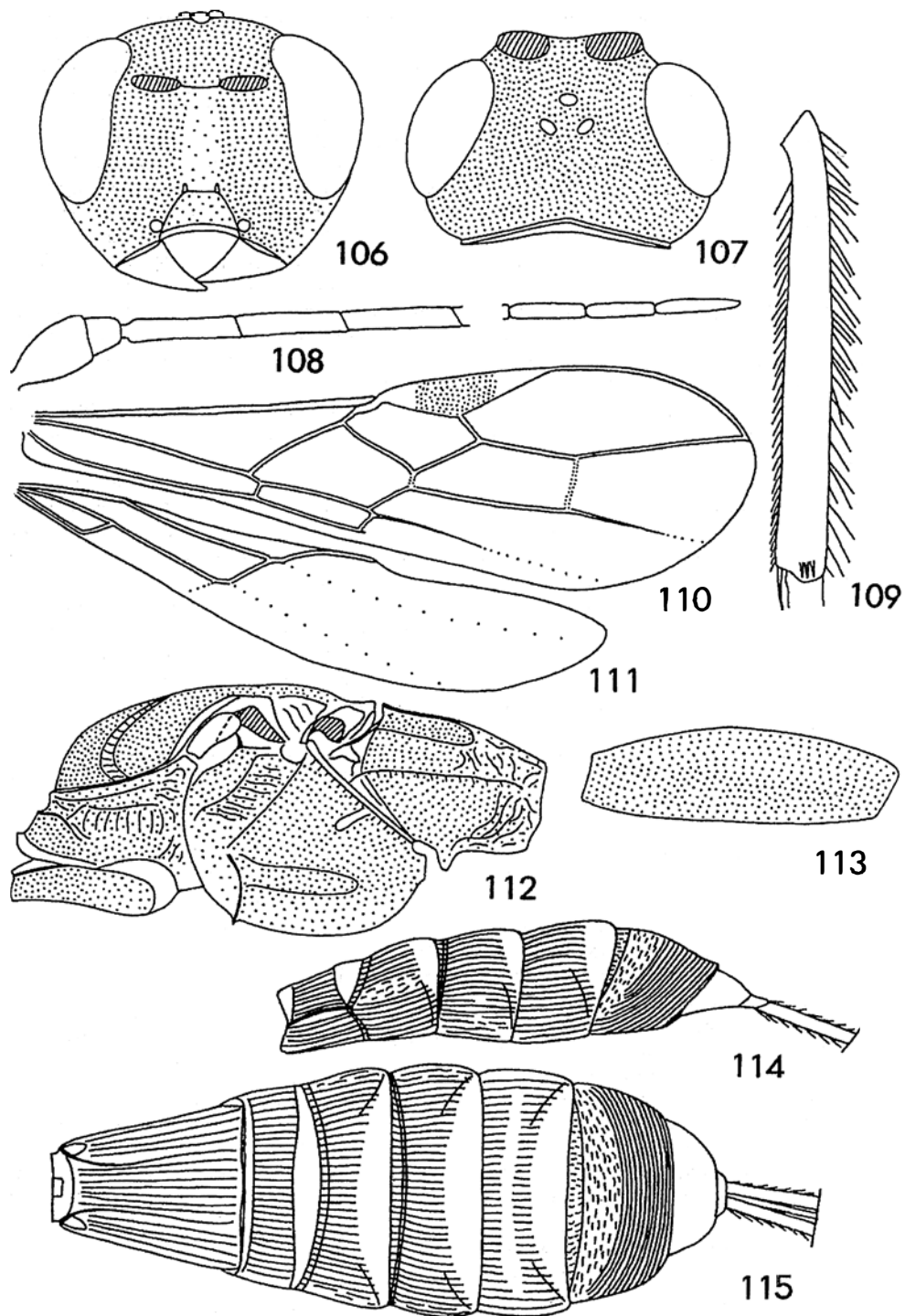
Distribution. Vietnam.

***Rhaconotus signatus* sp. n.**

(Figs 106-115)

Holotype. ♀, Vietnam, prov. Vinh Phu, Tam Dao, 1000 m, forest, 13.XI.1990, Belokobylskij (ZISP).

Paratypes. Vietnam: prov. Vinh Phu: 12 ♀, 1 ♂, as holotype, 10-16.XI.1990 (ZISP, NIAES, ZUH, TAMU); 2 ♀, same locality, 12 & 14.XI.1990, E. Nartshuk (ZISP); 3 ♀, Tam Dao, 700 m, pines, 14.XI.1990, Belokobylskij (ZISP); prov. Hanoi: 2 ♀, 70 km NW of Hanoi, Ba Vi, meadow, forest, 22 & 24.XI.1990, Belokobylskij (ZISP). Japan: *Ishigaki Is.*: 12 ♀, 1 ♂, Shiramizu, 13-15.X.1999, S. Belokobylskij (NIAES, ZISP); 7 ♀, 5 ♂, same, but "Mt. Maese-dake" (NIAES, ZISP); 1 ♀, Mt. Omoto-dake, at light, 13.X.1999, Y. Nakatani (ZISP). *Iriomote Is.*: 2 ♀, 1 ♂, Mt. Omoto-dake, 19-21.X.1999, S. Belokobylskij (NIAES, ZISP); 19 ♀, 9 ♂, same, but "Shiramizu" (NIAES, ZISP, ZUH, CNC); 3 ♀, 1 ♂, same, but "Mt. Maese-dake" (NIAES, ZISP). *Iriomote Is.*: 7 ♀, 3 ♂, Aira-gawa, 16-18.X.1999, S. Belokobylskij (NIAES, ZISP); 16 ♀, 8 ♂, same, but "Mt. Sonai" (NIAES, ZISP, ZUH, TAMU); 1 ♀, Aira-gawa,



Figs 106-115. *Rhaconotus signatus* sp. n. **106**, head, front view; **107**, head, dorsal view; **108**, basal and apical segments of antenna; **109**, hind tibia; **110**, fore wing; **111**, hind wing; **112**, thorax, lateral view; **113**, hind femur; **114**, second-sixth abdominal tergites, lateral view; **115**, abdomen, dorsal view.

27-29.VI.1993, K. Konishi (NIAES); 1 ♂, Nakaragawa, 6.XI.1963, H. Hasegawa (NIAES); *Okinawa Is.*: 1 ♀, Gogayama, Nakijin, 22.VII.1992, M. Hiratate (NIAES); *Kyushu*: 1 ♀, Amami, 4.V.1967, M. Suwa (EIS); 1 ♀, "Tsushima, Kyushu, 11.VI.1965, H. Takada" (EIS); *Honshu*: 1 ♀, Tsukuba, 15.VIII.1999, S. Belokobylskij (ZISP); 2 ♀, 1 ♂, same, but 19.IX.1999 (ZISP, NIAES); 4 ♀, 1 ♂, same, but 10.X.1999 (ZISP, NIAES); 1 ♀, Ibaraki, Tsukuba, 5-11.X.1999, S. Belokobylskij & K. Konishi (M.T.) (ZISP); 4 ♂, same locality, 21 & 22.VIII.1999, S. Belokobylskij (ZISP, NIAES); 1 ♀, Aichi Pref., Nagoya, Nagakute-cho Park, V. Fursov, 13.VI.1999 (ZISP); 1 ♂, Kyoto, 18.VIII.1961, H. Takada (EIS); 1 ♀, 1 ♂, Nachi, Wakayama, 21.IX.1965, H. Takada (EIS). **China, Guangdong**: 1 ♀, Ding-Hu Mts, 60 km W of Guangzhou, V.1983, Bouček (BMNH).

Description. Female. Body length 2.3-4.5 mm; fore wing length 2.1-3.5 mm. Head width 1.5-1.6 times its median length. Temple distinctly roundly narrowed, 0.33-0.4 (rarely 0.45) times as long as transverse diameter of eye. Ocelli small, in triangle with base 1.1-1.2 times its sides; POL almost equal to Od, 0.4-0.5 times OOL. Eye glabrous, 1.25-1.3 times as high as broad. Malar space height about 0.3 times height of eye, about 0.8 times basal width of mandible. Face width almost equal to height of eye and 1.2-1.3 times height of face and clypeus combined. Upper margin of clypeus situated higher than level of lower border of eyes. Hypoclypeal depression round, its width 0.7-0.9 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible because obliterated at rather short distance. Vertex weakly convex.

Antennae slender, weakly setiform, 23-33-segmented, 1.3-1.5 times as long as body. Length of scape 1.5-1.6 times its maximum width. First flagellar segment 4.3-4.8 (sometimes 5.3) times as long as its apical width, 1-1.1 times as long as second segment. Penultimate segment 4-4.8 times as long as wide, about 0.6 times as long as first segment, 0.7-0.85 times as long as apical segment.

Thorax 1.9-2 times as long as high. Pronotum almost straight anteriorly (dorsal view), weakly convex dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum rather highly and roundly raised above pronotum. Notauli rather deep, complete, crenulate. Mesoscutum without median depression. Prescutellar depression distinct, shallow, weakly and roundly directed posterolaterally, with median carina, finely striate-granulate, about 0.4 times as long as weakly convex scutellum. Sternauli rather shallow, granulate, almost straight, running

along anterior 2/3 of lower part of mesopleura, connected with upper part of prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, narrowly crenulate. Metanotum with very short pointed tooth. Metapleural lobes distinct, rather narrow, rounded apically. Mesopleural suture crenulate in upper half, smooth in lower half.

Wings. Length of fore wing 3.2-3.3 times its maximum width. Radial cell not shortened. Metacarpus 1.2-1.3 times as long as pterostigma. Radial vein arising almost from middle of pterostigma. First radial abscissa forming distinct angle with second abscissa. Second radial abscissa 2.7-3.5 (rarely 2.4) times as long as first abscissa, 0.5-0.6 times as long as third abscissa, 1.3-1.5 (sometimes 1.1) times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 2.8-3.2 times maximum width, 1.4-1.5 (rarely 1.6) times length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein distinctly postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 1.1-1.3 times nervulus length. Parallel vein interstitial or almost interstitial, sometimes arising from anterior 1.6 of distal margin of brachial cell. Brachial cell strongly and almost linearly closed on level or (rarely) slightly behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 5-5.2 times as long as wide. First abscissa of costal vein 0.5-0.6 times second abscissa. First abscissa of mediocubital vein 0.6-0.7 times second abscissa. Recurrent vein antefurcal, unsclerotized.

Legs. Hind femur 2.8-3.3 times as long as wide, with very small dorsal protuberance. Hind tarsus almost as long as hind tibia. Hind tibia apically with 3 outside spines. Hind basitarsus about 0.7 times as long as second-fifth segments combined. Second tarsal segment 0.4-0.45 times as long as basitarsus, 1.8-2 times as long as fourth segment, about as long as fifth segment (without pretarsus).

Abdomen as long as or slightly longer than head and thorax combined, with 6 visible tergites. Maximum width of first tergite 2-2.3 times its basal width, its length 1-1.1 (rarely 0.9) times apical width. Second tergite with narrow basal area, with shallow and straight transverse furrow and distinct narrow apical area, this area 0.7-0.8 times as long as rest part of tergite. Median length of second tergite 0.4-0.5 times its basal width, 1.3-1.5 times length of third tergite. Second suture deep and wide.

Sixth tergite rather large, very weakly rounded on posterior margin, without or (in large specimens) with shallow median emargination, without posteroventral lobes, 0.9-1 times as long as fifth tergite, 0.9-1.1 times as long as fourth tergite. Ovipositor sheath 0.6-0.8 times as long as abdomen, 2.2-2.6 (very rarely 3) times as long as first tergite, 0.8-1.2 times as long as thorax, 0.35-0.5 times as long as fore wing.

Sculpture and pubescence. Head densely granulate; temple very finely granulate; face finely granulate-coriaceous. Mesonotum densely granulate, densely rugulose-reticulate on rather large area medioposteriorly. Scutellum densely granulate. Mesopleura densely coriaceous. Metapleura densely coriaceous, rugulose in posterior third. Propodeum with median carina in basal half; basolateral areas distinctly marginate, entirely coriaceous; rest part of propodeum rugulose-granulate. Hind coxa and femur densely and finely granulate, femur smooth on ventral half; hind tibia finely striate. First abdominal tergite with complete dorsal carinae. First tergite entirely, second tergite (except smooth basal and apical areas), and third-fifth tergites in basal 1/2-1/3 longitudinally striate, apical 1/2-2/3 (sometimes 5/6) of third-fifth tergites smooth. Sixth tergite densely punctulate basally, semicircularly striate at most part, sometimes all tergite very finely sculptured. Second-fifth tergites longitudinally striate laterally, with granulation in posterior half to third. Vertex with rather short, sparse, semierect hairs directed forward. Mesonotum entirely with very dense, semierect, short, yellowish hairs. Mesopleura widely glabrous in lower 1/2-2/3, setose in upper part. Hind tibia dorsally with short, dense, semierect hairs; length of these hairs 0.7-0.85 times maximum width of hind tibia.

Colour. Head reddish yellow or sometimes yellow. Mesonotum and usually apex of abdomen light reddish brown or reddish brown; rest part of thorax and abdomen black. Sometimes thorax (except black propodeum and metapleura) yellowish red; abdomen reddish brown, dark reddish brown in basal half to third. Antenna reddish brown, darker apically. Palpi yellow. Legs brownish yellow; hind coxa usually reddish. Ovipositor sheath dark brown, paler basally. Wings faintly infusate. Pterostigma brown, sometimes light brown, yellow in apical 1/4 and basal 1/3-1/4.

Male. Body length 1.5-2.7 mm; fore wing length 1.2-2.1 mm. Temple convexly-roundly narrowed, 0.4-0.45 times as long as transverse diameter of eye. Antenna 20-28-segmented.

Thorax 2-2.2 times as long as high. Hind femur 2.5-3 times as long as wide. Abdomen long and narrow, 1.2-1.4 times as long as head and thorax combined. Length of first tergite 1.3-1.4 times its apical width. Apical area of second tergite very narrow, 0.3-0.4 times as long as rest part of tergite. Median length of second tergite 0.9-1 times its basal width. Sixth tergite finely longitudinally striate-rugulose, smooth in apical 1/4, without transverse apical striae. Pterostigma usually faintly infusate medially. Otherwise similar to female.

Discussion. This species is very similar to *Rh. formosanus* (Watanabe) and differs in the medially dark pterostigma and longer first abdominal tergite.

Distribution. Vietnam, Japan, China.

***Rhaconotus staudingeri* sp. n.**

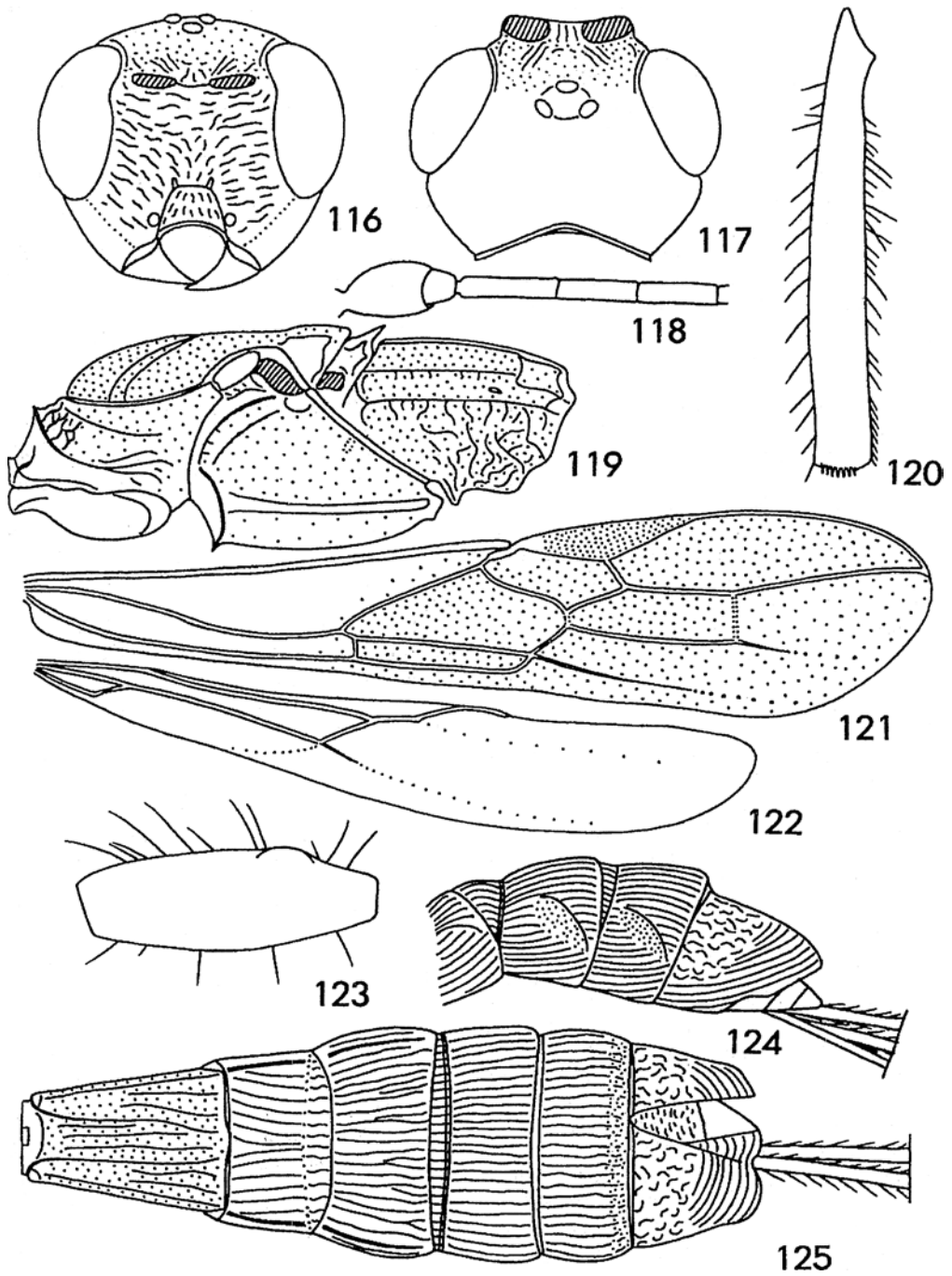
(Figs 116-125)

Holotype. ♀, Malaysia, "Perak, coll. R. Krieger" (ZMB).

Description. Female. Body length 7.6 mm; fore wing length 5.4 mm. Head width 1.4 times its median length. Temple roundly narrowed, 0.7 times as long as transverse diameter of eye. Vertex distinctly convex. Ocelli medium-sized, in triangle with base 1.3 times its sides; POL 1.2 times Od, 0.6 times OOL. Eye glabrous, distinctly emarginate opposite antennal sockets, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.8 times basal width of mandible. Face width 0.9 times height of eye and 1.2 times height of face and clypeus combined. Clypeal suture shallow. Upper margin of clypeus located distinctly higher than level of lower border of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye. Occipital carina not fused with hypostomal one near mandible because obliterated at short distance.

Antennae weakly setiform, with more than 35 segments (apical segments missing). Length of scape 1.7 times its maximum width. First flagellar segment 4.7 times as long as its apical width, 1.2 times as long as second segment. Subapical segments about 4 times as long as their width.

Thorax 2.4 times as long as high. Pronotum concave anteriorly (dorsal view), weakly convex posteriorly (lateral view). Pronotal carina very strong, widely separated medially from posterior margin of pronotum; distance from carina to anterior margin of pronotum 1.7 times distance from carina to posterior margin. Mesoscutum gently and roundly raised above pronotum. Notauli shallow, very shallow posteriorly, almost complete, almost smooth.



Figs 116-125. *Rhaconotus staudingeri* sp. n. 116, head, front view; 117, head, dorsal view; 118, basal segments of antenna; 119, thorax, lateral view; 120, hind tibia; 121, fore wing; 122, hind wing; 123, hind femur; 124, fourth-sixth abdominal tergites, lateral view; 125, abdomen, dorsal view.

Mesoscutum without median depression. Prescutellar depression with median carina, shallow, strongly obliquely and linearly directed posterolaterally, smooth, 0.2 times as long as distinctly convex scutellum. Sternauli shallow, smooth, straight, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina distinct, with 2 widened lobes opposite fore coxae. Subalar depression shallow, narrow, almost smooth. Mesopleural suture with 2 carinae in upper half, smooth in lower half. Metanotum with long, pointed, narrow tooth. Metapleural lobe distinct, rather wide, rounded apically.

Wings. Length of fore wing 4.3 times its maximum width. Metacarpus 1.3 times as long as pterostigma. Radial vein arising slightly before middle of pterostigma. First radial vein forming distinct angle with second abscissa. Second radial abscissa 3.8 times first abscissa, 0.6 times third abscissa, almost twice first radiomedial vein. Second radiomedial cell not widened distally, its length 3.6 times maximum width, 0.9 times length of rather wide brachial cell. First medial abscissa distinctly S-curved. Recurrent vein postfurcal. Mediocubital vein distinctly curved to anal vein in apical half. Distance from nervulus to basal vein half nervulus length. Brachial cell gently and roundly closed on level of recurrent vein; additional abscissa of anal vein (behind brachial vein) absent. Hind wing 6.7 times as long as wide. First abscissa of costal vein 0.55 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein present, but unsclerotized.

Legs. Hind femur 2.8 times as long as wide, with small dorsal protuberance. Hind tarsus slightly shorter than hind tibia. Hind tibia apically with 7 outside spines. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, 2.8 times as long as fourth segment, 1.4 times as long as fifth segment (without pretarsus).

Abdomen slightly longer than head and thorax combined, with 6 visible tergites. Apical width of first tergite 1.7 times its basal width, its length 1.6 times apical width. Second tergite without basal area, transverse furrows and apical area. Median length of second tergite 0.6 times its basal width, 1.1 times length of third tergite. Second suture shallow and wide. Sixth tergite large, rounded on posterior margin, with deep median emargination and shallow, but distinct ventroposterior emarginations, 1.6 times as long as fifth tergite, 1.5 times as long

as fourth tergite. Ovipositor sheath 1.1 times as long as abdomen, 4 times as long as first tergite, 1.7 times as long as thorax, 0.9 times as long as fore wing.

Sculpture and pubescence. Head very finely granulate; frons with longitudinal striae in anterior half; face coarsely rugose. Sides of pronotum finely reticulate, with sparse striae anteriorly and posteromedially. Mesothorax very finely reticulate; mesopleura almost smooth. Propodeum with 3 distinct longitudinal carinae and narrow areola in posterior third, densely and finely granulate, with sparse rugae posteriorly. Legs finely and densely granulate. First abdominal tergite with high, subparallel dorsal carinae. First-fifth abdominal tergites coarsely striate, with dense microsculpture between striae. Sixth tergite rugulose-reticulate medially, with concentric striae laterally and in posterior half. Second-fourth tergites laterally with distinct striae and granulation between them. Vertex with short, sparse, semierect, white hairs directed backwards. Mesonotum with sparse white hairs anteriorly and along notauli. Mesopleura glabrous at most part. Hind tibia with sparse, white, semierect hairs dorsally; length of these hairs 0.7-0.8 times maximum width of hind tibia. Fore wing almost glabrous basally.

Colour. Body black. Antennae dark reddish brown basally, black at most part. Palpi dark reddish brown. Fore and middle legs reddish brown; hind legs dark reddish brown; hind coxa black; middle and hind tibiae paler basally. Ovipositor sheath entirely black. Wings faintly infuscate. Pterostigma brown, paler apically.

Male unknown.

Discussion. This species is related to *Rh. micholitzi* sp. n. and differs in the notauli very shallow in posterior half of mesoscutum, side of pronotum without rugae on the most part, nervulus postfurcal, second abdominal tergite without transverse furrow, sixth tergite with deep ventroposterior emarginations, ovipositor long, and vertex without striae.

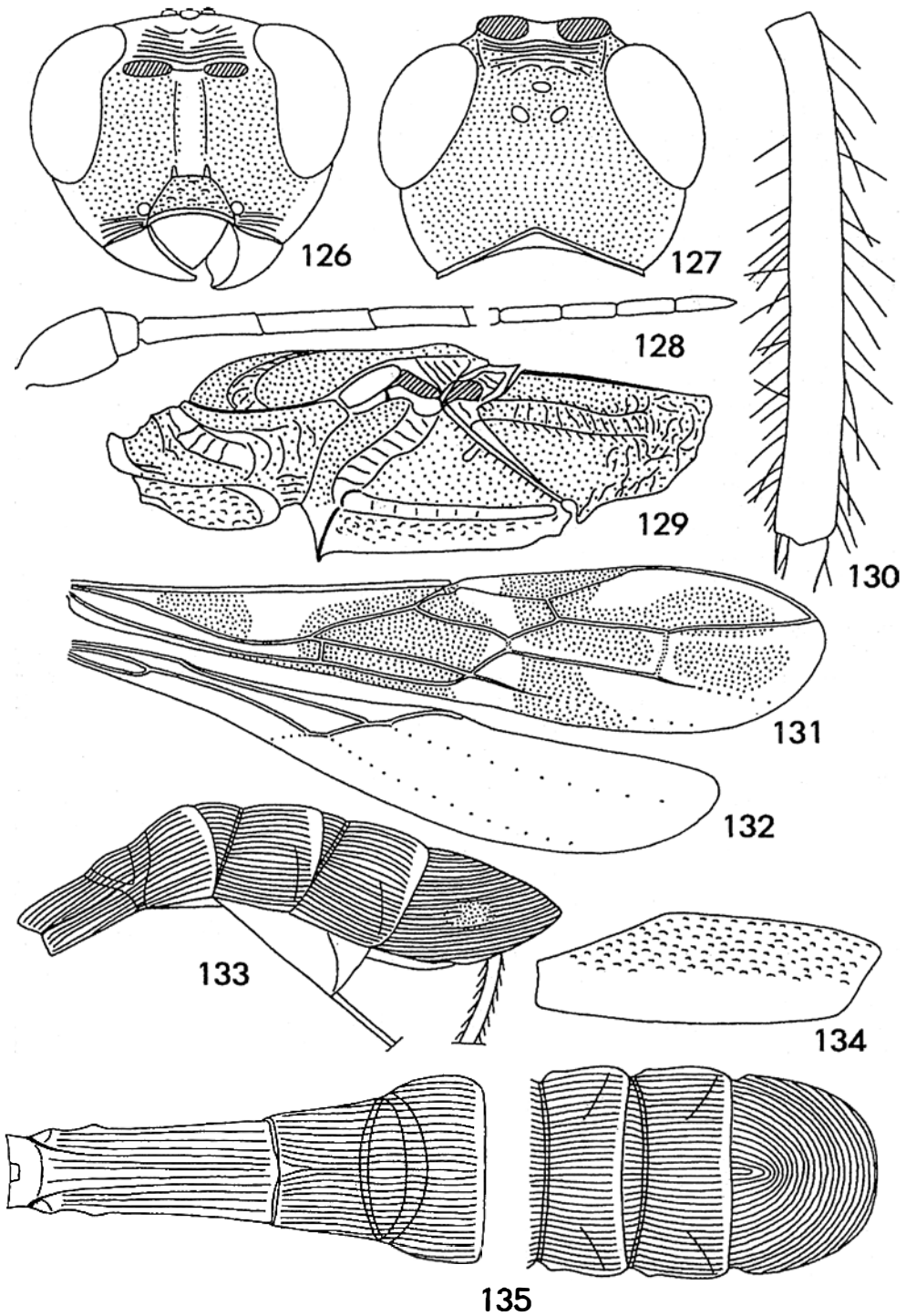
Distribution. Malaysia.

***Rhaconotus thayi* sp. n.**

(Figs 126-135)

Holotype. ♀, Vietnam, prov. Vinh Phu, Tam Dao, 1000 m, forest, 14.XI.1990, Nartshuk (ZISP).

Paratype. Vietnam, prov. Ha Son Binh: 1 ♀, Da Bac, Tuly, forest, 18.X.1990, S. Belokobylskij (ZISP). Taiwan: 1 ♀, Taihorin, XI.1909, Sauter (HNHM); 1 ♀, Taihorinsho, X.1909, Sauter (HNHM).



Figs 126-135. *Rhaconotus thayi* sp. n. 126, head, front view; 127, head, dorsal view; 128, basal and apical segments of antenna; 129, thorax, lateral view; 130, hind tibia; 131, fore wing; 132, hind wing; 133, second-sixth abdominal tergites, lateral view; 134, hind femur; 135, abdomen, dorsal view.

Description. Female. Body length 5.7-8.1 mm; fore wing length 4.0-5.2 mm. Head width 1.25-1.3 times its median length. Temple weakly and obviously roundly narrowed, 0.6 times as long as transverse diameter of eye. Ocelli small, in triangle with base almost 1.2 times its sides; POL almost equal to Od, 0.5-0.6 times OOL. Eye glabrous, distinctly emarginate opposite antennal sockets, 1.1 times as high as broad. Malar space height 0.4 times height of eye, 0.8-0.9 times basal width of mandible. Face width 0.9 times height of eye and 1.2 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower border of eyes. Hypoclypeal depression round, its width 0.85-1 times distance from edge of depression to eye. Occipital carina not fused at short distance or fused with hypostomal one near mandible. Vertex very weakly convex.

Antennae slender, weakly setiform, 46-47-segmented, distinctly longer than body. Length of scape 1.5-1.6 times its maximum width. First flagellar segment 5-5.5 times as long as its apical width, 1-1.1 times as long as second segment. Penultimate segment 4 times as long as wide, 0.45-0.5 times as long as first segment, 0.8-0.9 times as long as apical segment.

Thorax 2.7-2.9 times as long as high. Pronotum almost straight anteriorly (dorsal view), weakly convex dorsally (lateral view). Pronotal carina distinct and high, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal or sometimes carina is closer to anterior margin. Mesoscutum very weakly and gently raised above pronotum. Notauli deep, very narrow, complete, finely crenulate. Median lobe of mesoscutum without median depression. Prescutellar depression distinct, rather deep, distinctly and almost linearly directed posterolaterally, with distinct median and 4 additional carinae, smooth between them, 0.2-0.3 times as long as convex scutellum. Sternauli deep, smooth medially, finely crenulate anteriorly and posteriorly or entirely finely crenulate, straight, running along entire lower part of mesopleura, connected with lower edge of subalar depression anteriorly. Prepectal carina strong, with 2 widened lobes opposite fore coxae. Subalar depression deep, rather narrow, distinctly or finely crenulate with fine reticulation. Mesopleural suture distinct and rather densely crenulate. Metanotum with long, slender, pointed tooth. Metapleural lobes distinct, rather wide, rounded apically.

Wings. Length of fore wing 4.3-4.5 times its maximum width. Radial cell not shortened. Metacarpus 1.1 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very distinct angle with second abscissa. Second radial abscissa 4-4.8 times as long as first abscissa, 0.6-0.7 times as long as third abscissa, 1.5-1.8 times as long as first radiomedial vein. Second radiomedial cell not widened or weakly widened distally, its length 3.2-3.4 times maximum width, 0.9-1 times length of rather narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein postfurcal. Mediocubital vein distinctly curved to anal vein in apical half. Distance from nervulus to basal vein 0.5-1 times nervulus length. Brachial cell gently and roundly closed almost at level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) absent. Hind wing 5.5-6.2 times as long as wide, narrowed basally and weakly incurved posteriorly in basal 1/4. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein long, unsclerotized.

Legs. Hind femur 3.2-3.4 times as long as wide, with distinct dorsal protuberance. Hind tarsus 0.9-1 times as long as hind tibia. Hind tibia apically with 2-3 outside spines. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, 2.2 times as long as fourth segment, 1.2-1.3 times as long as fifth segment (without pretarsus).

Abdomen 1.3-1.4 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.5-1.7 times its basal width, its length 2.5-2.8 times its apical width. Second tergite without basal area, with rather deep, concavely curved transverse furrow and distinct oval apical area, this area 0.5-0.6 times as long as rest part of tergite. Median length of second tergite 1-1.1 times its basal width, 1.6-1.7 times length of third tergite. Second suture rather deep and wide. Sixth tergite rather large, regularly rounded on posterior margin, without median emargination and posteroventral lobes, 1.7-1.8 times as long as fifth tergite, 1.7-2 times as long as fourth tergite. Ovipositor sheath 0.7-0.75 times as long as abdomen, 2.1-2.5 times as long as first tergite, 1.15-1.2 times as long as thorax, 0.5-0.6 times as long as fore wing.

Sculpture and pubescence. Vertex and temple entirely very finely coriaceous; face densely coriaceous; frons coarsely rugulose, sometimes with striae anteriorly. Mesonotum,

mesopleura and metapleura very finely coriaceous; mesoscutum in posterior 1/4 with 2 convergent carinae and fine rugulosity between them. Propodeum without areas, with 2 lateral and 1 median carinae in basal half, densely and finely coriaceous in anterior 1/2-2/3, rugulose in posterior 1/3-1/5. Hind leg very finely coriaceous, almost smooth ventrally. First abdominal tergite with distinct dorsal carinae in basal third, entirely coarsely striate. Second-fifth tergites coarsely striate, with fine reticulation between striae, third-fifth tergites smooth in posterior 1/3-1/5. Sixth tergite coarsely semicircularly striate. Second-fifth tergites laterally with strong striae and fine reticulation between them. Vertex with long, very sparse, semierect, whitish hairs directed mostly backwards. Mesonotum with sparse, semierect, long, whitish hairs along notauli and marginally. Mesopleura with long, sparse hairs, glabrous medially. Fore wing glabrous basally. Hind tibia with erect, sparse, white hairs dorsally; length of these hairs 0.8-1 times maximum width of hind tibia.

Colour. Body black. Antenna light reddish brown in basal half, dark in apical half. Palpi dark brown, sixth tergite yellow. Fore and middle legs reddish brown with dark spots or almost black and reddish brown basally; tarsi reddish brown or light reddish brown. Hind leg black; trochanter and tarsus reddish brown. Ovipositor sheath black basally and apically, brown or light brown medially. Wing infuscate, with several hyaline spots and stripes, light apically. Pterostigma dark brown, pale yellow in basal third.

Male unknown.

Discussion. This species is similar to *Rh. jacobsoni* Szepligetii and differs in the first abdominal tergite very long, hind tibia and all basitarsi without whitish basal ring, sternauli finely sculptured, notauli very narrow and finely crenulate.

Distribution. Vietnam, China (Taiwan).

Key to Oriental species of the genus *Rhaconotus*

1. Female with 5 visible abdominal tergites. Fifth tergite always longer than preceding and following ones (if last tergites come forward sometimes behind fifth one) 2
 - Female with 6 visible abdominal tergites. Fifth tergite longer than preceding or of the same length 10
2. Second abdominal tergite without apical area; rarely very shallow transverse depression present before suture (*aciculatus*-group) 3
 - Second abdominal tergite with apical area separated by more or less deep and distinct furrow (*testaceiceps*-group) 5

3. Mesoscutum sparsely and narrowly setose along notauli and marginally only. First-fourth abdominal tergites distinctly carinate laterally above spiracles. Fifth tergite weakly emarginate posterolaterally. Pterostigma dark brown, pale basally and apically. Body length 3.3-3.7 mm *Rh. sauteri* (Watanabe) (*cleanthes* Nixon)
 - Mesoscutum densely and widely setose along notauli and marginally or entirely. First-fourth abdominal tergites not carinate laterally. Fifth tergite without emargination posterolaterally. Pterostigma pale brown or yellow entirely. - Propodeum without marginate basolateral areas 4
4. Head behind eyes distinctly roundly narrowed. Vertex rather sparsely pubescent. First abdominal tergite 1.4 times as long as apical width. Smaller: body length 2.9-3.9 mm *Rh. testacea* (Szepligetii) (= *sulciventris* Enderlein, *syn. n.*; *oryzae* Wilkinson, *syn. n.*; *flavistigma* Telenga, *syn. n.*)
 - Head behind eyes weakly roundly narrowed. Vertex densely pubescent. First abdominal tergite 1.1 times as long as apical width. Larger: body length 5.0-5.5 mm *Rh. scirpophagae* Wilkinson
- 5(2). Second tergite with distinctly separated basal area. First flagellar segment shorter than second one. Body length 2.5-2.6 mm *Rh. basoareolus* sp. n.
 - Second tergite without separated basal area. First flagellar segment not shorter than second one 6
6. Pterostigma entirely yellow. Fifth tergite finely reticulate coriaceous in basal 3/4, smooth or almost smooth apically. Body length 2.5-3.0 mm *Rh. concinnus* (Enderlein)
 - Pterostigma brown medially, pale basally and medially. Fifth tergite entirely striate with basal reticulation or reticulate-rugulose with apical concentric striation 7
7. Mesoscutum entirely and densely setose. Vertex rugulose granulate. Propodeum almost entirely densely and coarsely longitudinally striate. Body length 4.2 mm *Rh. hypolixi* Nixon
 - At least lateral lobes of mesoscutum glabrous on rather large area. Vertex densely granulate, rarely striate-granulate. Propodeum without coarse longitudinal striation 8
8. First tergite shorter, its length 1.3 times apical width. Second tergite 0.8 times as long as its apical width. Mesoscutum widely and densely setose along notauli. Propodeum with distinctly marginate basolateral areas. Body length 4.8 mm *Rh. testaceiceps* (Cameron)
 - First tergite longer, its length 1.8-2 times apical width. Second tergite almost as long as its apical width. Mesoscutum narrowly and sparsely setose along notauli. Propodeum without marginate basolateral areas 9
9. Fifth tergite entirely longitudinally reticulate-striate, with deep emargination on medioposterior margin. Vertex granulate-striate. Hind tibia brownish yellow, faintly paler basally. Palpi brownish yellow. Fore wing faintly maculate at rather small part. Body length 3.4 mm *Rh. excavatus* sp. n.
 - Fifth tergite reticulate-rugulose in medioanterior half, densely concentrically striate in posterior half, without emargination on medioposterior margin.

- Vertex granulate only. Hind tibia brown, yellow basally. Palpi dark reddish brown. Fore wing distinctly maculate at rather large part. Body length 3.3 mm **Rh. maculatus** sp. n.
- 10(1). Second tergite without distinctly separated apical area (*hexatermus*-group) 11
- Second tergite with apical area more or less distinctly separated by rather deep, wide or narrow furrow, sometimes this area separated by contrasting sculpture only 14
11. Sixth tergite with deep median emargination on posterior margin. Propodeum with marginate areola. Mediocubital vein of fore wing distinctly curved to anal vein in distal half 12
- Sixth tergite without median emargination on posterior margin. Propodeum without marginate areola. Mediocubital vein of fore wing not or weakly curved to anal vein in distal half 13
12. Notauli very shallow in posterior half of mesoscutum. Vertex almost smooth, without striae. Sixth tergite with deep emargination medioposteriorly (lateral view). Ovipositor sheath 0.9 times as long as fore wing. Pterostigma pale basally. Distance from pronotal carina to mesoscutum 0.7 times distance from carina to anterior margin of pronotum. Body length 7.6 mm **Rh. staudingeri** sp. n.
- Notauli deep in posterior half of mesoscutum. Vertex densely granulate, with distinct striae laterally. Sixth tergite with shallow emargination medioposteriorly (lateral view). Ovipositor sheath 0.6 times as long as fore wing. Pterostigma dark basally. Distance from pronotal carina to mesoscutum subequal to distance from carina to anterior margin of pronotum. Body length 5.4 mm **Rh. micholitzii** sp. n.
13. Vertex smooth. Pterostigma yellow. Sternauli long, running along entire lower part of mesopleura. Length of thorax 2.2-2.4 times its height. Mesoscutum weakly raised above prothorax. Ovipositor sheath about half as long as thorax, 0.2 times as long as fore wing. Body entirely yellow. Body length 2.6-3.7 mm **Rh. hexatermus** Blkb.
- Vertex rugose-striate with fine granulation. Pterostigma brown, yellow basally and apically. Sternauli short, running along 2/3 of lower part of mesopleura. Length of thorax 1.8 times its height. Mesoscutum distinctly raised above prothorax. Ovipositor sheath almost as long as thorax, 0.45 times as long as fore wing. Body black almost entirely. Body length 3.6 mm **Rh. caophongus** sp. n.
- 14(10). Second tergite with short and usually smooth basal area; transverse apical area smooth at least partly and not separated anteriorly by furrow from longitudinally sculptured rest of tergite. – Mesoscutum entirely with dense yellowish hairs. Vertex densely granulate (*signipennis*-group) 15
- Second tergite without basal area; ovoid or lenticular apical area sculptured and more or less distinctly separated from rest of tergite by deep or shallow furrow; in problematical cases, length of first tergite more than twice its apical width 20
15. Pterostigma entirely yellow 16
- Pterostigma brown medially (sometimes pale brown), yellow basally and apically. – Parallel vein often not interstitial 19
16. Sixth tergite with distinct emargination on medioposterior margin. Mesoscutum more gently and weakly raised above pronotum. Pronotal carina fine, situated closer to anterior margin of mesoscutum. Body length 3.5-4.0 mm **Rh. puber** sp. n.
- Sixth tergite without emargination on medioposterior margin, rarely weakly concave medially. Mesoscutum almost perpendicularly and highly raised above pronotum. Pronotal carina distinct, situated on pronotum submedially 17
17. Second tergite shorter, its length about 0.3 times basal width. Body length 2.8-3.7 mm **Rh. vagrans** (Bridwell)
- Second tergite longer, its length 0.4-0.5 times basal width 18
18. Ovipositor sheath 0.7-0.9 times as long as thorax, 0.3-0.37 times as long as fore wing. – Sixth tergite distinctly or (in small specimens) finely sculptured, usually circularly striate in posterior third. Body black with reddish (sometimes wide) spots or stripes; head always brownish yellow or yellow; sometimes mesonotum and mesopleura entirely and abdomen widely laterally yellowish red. Body length 2.2-3.5 mm **Rh. signipennis** (Walker) (= *carolinensis* Watanabe, syn. n.; *flavistigmus* Blkb., syn. n.)
- Ovipositor sheath 1-1.5 times as long as thorax, 0.4-0.55 times as long as fore wing. – Sixth tergite usually distinctly or rarely finely sculptured. Body length 1.8-5.2 mm **Rh. formosanus** (Watanabe)
- 19(15). Vertex very densely setose. First tergite shorter, its length 0.7-0.8 times apical width. Frons rugose-reticulate, partly with granulation. Body length 2.8-4.5 mm **I. roslinensis** Lal (*caulicola* Muesebeck)
- Vertex very sparsely setose. First tergite longer, its length (0.9) 1-1.1 times apical width. Frons densely granulate only. Body length 1.5-4.5 mm **Rh. signatus** sp. n.
- 20(14). First tergite very long, 2.3-2.8 times as long as apical width (*jacobsoni*-group) 21
- First tergite shorter, 1.5-1.7 times as long as apical width (*concolor*-group) 24
21. Hind tibia entirely (including base) black or almost black. Mesoscutum and vertex with dense and long hairs. Distance from pronotal carina to mesonotum subequal to distance from carina to anterior margin of pronotum, sometimes carina closer to anterior part of pronotum. Body length 5.7-8.1 mm **Rh. thaysi** sp. n.
- Hind tibia entirely reddish yellow or yellow at least in basal 1/5. Mesoscutum and vertex with sparse and shorter hairs. Distance from pronotal carina to mesonotum about 1.5 times distance from carina to anterior margin of pronotum 22
22. Thorax almost 3 times as long as high. Metanotum with long tooth medially. Sides of pronotum with several rugae anteriorly. Sternauli coriaceous only. Head black at most part. Body length 6.5 mm **Rh. longithorax** sp. n.
- Thorax 2.5-2.6 (2.8) times as long as high. Metanotum with short tooth medially. Sides of pronotum with rather numerous rugae along all length. Sternauli distinctly crenulate-coriaceous. Head reddish

- yellow, darker dorsally (sometimes at long distance) 23
23. Head weakly narrowed behind eyes; temple 0.65 times as long as transverse diameter of eye. Second radiomedial cell 4.5 times as long as wide. Hind femur 3.5 times as long as wide. Sixth tergite coriaceous in basal half, about twice as long as fifth one. Basolateral areas of propodeum marginate posteriorly. Middle tarsi long, basitarsus 4 times as long as maximum width; third segment distinctly longer than its width. Body length 5.1 mm **Rh. ceylonicus** sp. n.
- Head distinctly narrowed behind eyes; temple 0.45–0.5 times as long as transverse diameter of eye. Second radiomedial cell 3.3–3.7 times as long as wide. Hind femur 2.8–3 times as long as wide. Sixth tergite more or less striate in basal half, 1.7–1.8 times as long as fifth one. Basolateral areas of propodeum not marginate posteriorly. Middle tarsi short, basitarsus 2.5–3 times as long as maximum width; third segment as long as wide. Body length 6.2–7.2 mm **Rh. jacobsoni** (Szepligeti) (= *filicornis* Enderlein, *syn. n.*)
- 24(20). Sixth tergite with processes or deep median emargination posteriorly, with rather distinct emargination on lateroposterior margin (lateral view) 25
- Sixth tergite without processes or median emargination posteriorly, without emargination on lateroposterior margin (lateral view) 26
25. Sixth tergite with wide and long processes posteriorly. Sternauli distinctly crenulate. Metanotum with rather short tooth. Brachial cell closed distinctly before recurrent vein. Hind tibia dorsally with sparse hairs. Pterostigma yellow apically. Body length 4.1 mm **Rh. bidens** sp. n.
- Sixth tergite without processes posteriorly. Sternauli smooth or almost smooth. Metanotum with long tooth. Brachial cell closed on level of recurrent vein. Hind tibia dorsally with dense hairs. Pterostigma dark apically 12
- 26(24). Vertex entirely and densely striate, without granulation. Sixth tergite entirely densely semicircularly striate. Second radiomedial cell long, 4 times as long as wide. Pterostigma brown, yellow basally and apically. Body length 3.0 mm **Rh. dabacus** sp. n.
- Vertex densely granulate, without striation. Sixth tergite smooth at least in apical half. Second radiomedial cell short, 2.5–2.7 times as long as wide. Pterostigma entirely yellow 27
27. Mesoscutum with rather sparse hairs situated rather widely along notauli and marginally. Thorax 2.6 times as long as high. Length of fore wing 4.2 times its width. Radial cell weakly shortened. Length of first tergite 1.8 times its apical width. Body length 4.0 mm (male) **Rh. concolor** (Szepligeti), *stat. resurrect.*
- Mesoscutum entirely setose. Thorax 1.9–2.1 times as long as high. Length of fore wing 3.1–3.5 times its width. Radial cell not shortened. Length of first tergite 1.1–1.2 times its apical width 28
28. Additional furrow of second tergite almost straight. Apical area of second tergite shorter, about 0.6 times as long as rest part of tergite. Temple longer,

transverse diameter of eye 1.7–1.8 times temple length. Body length 3.7–4.0 **Rh. choenobivorus** (Rohwer) (= *schoenobivorus* auct.)

– Additional furrow of second tergite distinctly arcuately curved. Apical area of second tergite longer, almost equal to rest part of tergite. Temple shorter, transverse diameter of eye 2–2.3 times temple length. Body length 2.8–3.5 **Rh. menippus** Nixon

Genus Ipodoryctes Granger

Ipodoryctes andreii sp. n.

(Figs 136–145)

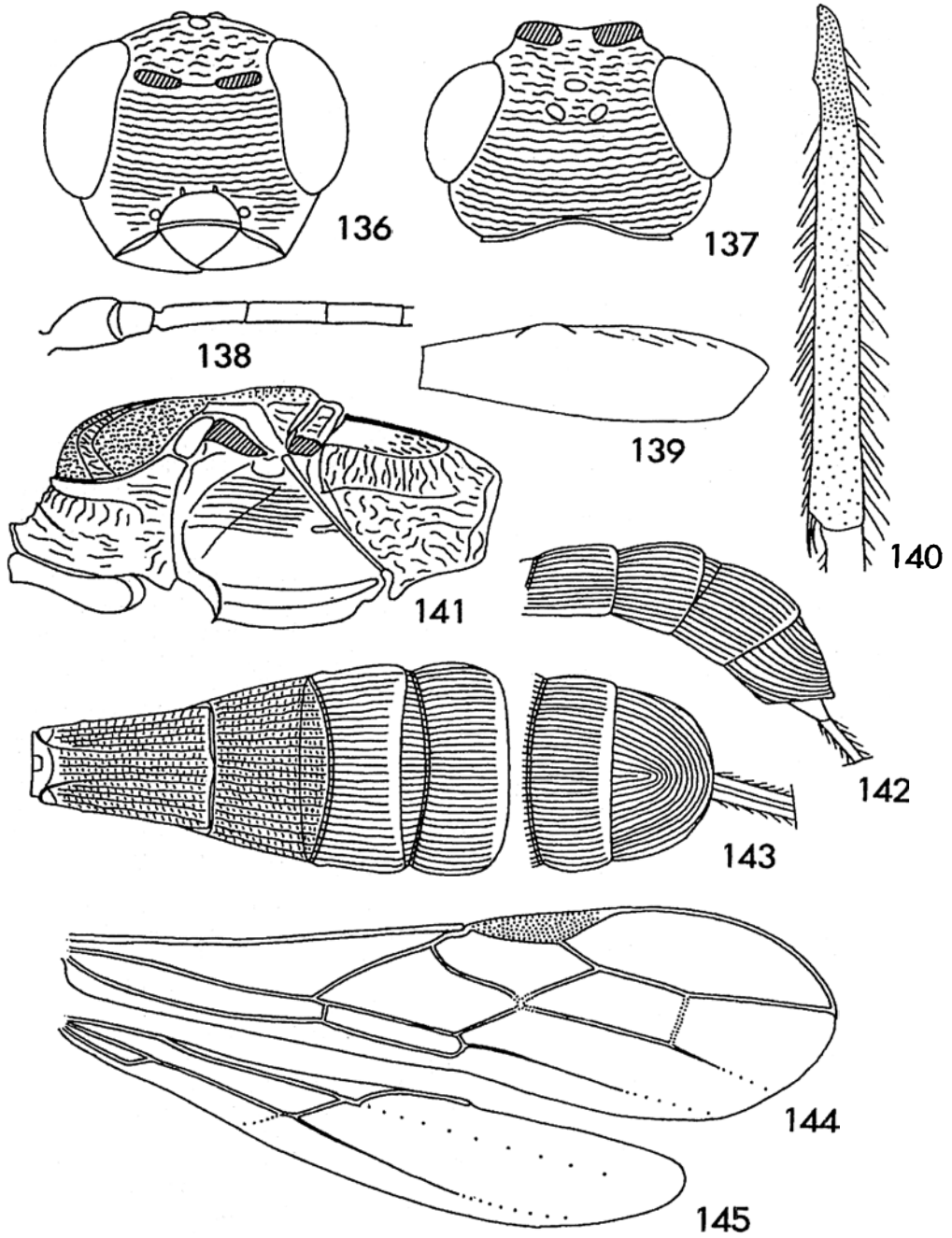
Holotype. ♀, Vietnam, prov. Gia Lai – Con Tum, Ea Krong, Yok Don National Park, 24.XI.1993. A. Gorochov (ZISP).

Paratypes. Vietnam, prov. Ha Son Binh: 2 ♂, Ky Son, Cao Phong, forest, 25 & 26.X.1990, Belokobylskij (ZISP). Myanmar (Burma), Moulmein Distr.: 1 ♀, Kuondo, XII.[19]13, Micholitz (ZMB); 1 ♀, 1 ♂, Panit, II.[19]12, Micholitz (ZMB, ZISP). Nepal: 1 ♀, nr. Birganj, Lothar, 450 ft., 14.IX.[19]67, Can. Nepal Exped. (CNC); 1 ♂, same locality, 16.IX.[19]67, Can. Nepal Exped. (ZISP); 1 ♂, same locality, 30.VIII–5.IX.1967, Malaise Trap N 30, Can. Nepal Exped. (CNC).

Description. Female. Body length 4.3–7.4 mm; fore wing length 3.3–5.2 mm. Head width 1.5 times its median length. Temple roundly narrowed, about half as long as transverse diameter of eye. Ocelli rather small, in triangle with base 1.2–1.3 times its sides; POL 1–1.2 times Od, 0.5 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.8–1 times basal width of mandible. Face width 1.1 times height of eye and 1.2–1.3 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.7–0.9 times distance from edge of depression to eye, 0.35–0.4 times width of face. Occipital carina fused with hypostomal one near mandible. Vertex weakly convex.

Antennae slender, setiform, 45-segmented, 1.6 times as long as body. Length of scape 1.5–1.7 times its maximum width. First flagellar segment 4 times as long as its apical width, 1.1–1.2 times as long as second segment. Penultimate segment about 4 times as long as wide, 0.6 times as long as first segment, 0.9 times as long as apical segment.

Thorax about twice as long as high. Pronotum weakly concave anteriorly (dorsal view), almost straight dorsally (lateral view). Pronotal carina distinct, but fine, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum



Figs 136-145. *Ipodoryctes andreii* sp. n. 136, head, front view; 137, head, dorsal view; 138, basal segments of antenna; 139, hind femur; 140, hind tibia; 141, thorax, lateral view; 142, third-sixth abdominal tergites, lateral view; 143, abdomen, dorsal view; 144, fore wing; 145, hind wing.

rather highly and roundly raised above pronotum. Notauli rather deep anteriorly, shallow posteriorly, complete, rugulose. Mesoscutum without median depression. Prescutellar depression rather deep, weakly and linearly directed posterolaterally, with median carina, almost smooth or finely rugulose, 0.3 times as long as almost flat scutellum. Sternauli rather deep, smooth, weakly S-curved, running along entire lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression rather deep, narrow, crenulate. Mesopleural suture crenulate in upper half, smooth in lower half. Metanotum with very short pointed tooth. Metapleural lobes long, rather narrow, rounded apically.

Wings. Length of fore wing 3.5-3.7 times its maximum width. Metacarpus 1.5-1.6 times as long as pterostigma. Radial vein arising slightly behind middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2-2.2 times as long as first abscissa, 0.5-0.55 times as long as third abscissa, 1.1-1.2 times as long as first radiomedial vein. Second radiomedial cell weakly widened distally, its length 2.7-3.2 times maximum width, 1-1.2 times length of narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein interstitial or weakly postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 0.5-1 times nervulus length. Parallel vein arising almost from middle of distal margin of brachial cell. Brachial cell gently and linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) present. Hind wing 5.8-6 times as long as wide. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.5-0.7 times second abscissa. Recurrent vein weakly ante-furcal, pigmented.

Legs. Hind femur 3.5-3.6 times as long as wide, with weak dorsal protuberance. Hind tarsus 1.1-1.2 times as long as hind tibia. Hind tibia apically with 3 outside spines. Hind basitarsus 0.8-0.9 times as long as second-fifth segments combined. Second tarsal segment 0.35-0.4 times as long as basitarsus, 2.5 times as long as fourth segment, 1.2-1.3 times as long as fifth segment (without pretarsus).

Abdomen 1.1-1.25 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.8-2 times its basal width, its length 1.2-1.3 times apical width. Second tergite without basal area, with distinct,

deep, weakly concavely curved transverse furrow and rather distinct, narrow apical area, this area 0.55 times as long as rest part of tergite. Median length of second tergite 0.85-1 times its basal width, 1.8-2 times length of third tergite. Second suture deep and narrow. Sixth tergite large, regularly rounded on posterior margin, without median emargination and posteroventral lobes, 1-1.3 times as long as fifth tergite, 1.2-1.5 times as long as fourth tergite. Ovipositor sheath 1.5-1.7 times as long as abdomen, about twice as long as thorax, 0.8-0.9 times as long as body, 1.1-1.3 times as long as fore wing.

Sculpture and pubescence. Vertex densely and coarsely rugose-reticulate, with several undulate transverse striae; frons and face densely rugose-reticulate; temple narrowly smooth near eyes and widely so below, widely vertically striate or rugose-striate in posterior 3/4. Mesonotum densely rugulose, with striation along notauli, with fine granulation partly between rugulae, undulately striate in medioposterior third. Scutellum very finely punctulate, partly with granulation, sometimes with transverse striae anteriorly. Mesopleura transversely striate in upper half, almost smooth in lower half. Metapleura coarsely rugose-reticulate. Propodeum with distinctly marginate basolateral areas, which are smooth in basal 1/2-4/5 and striate in apical 1/2-1/5; areola present, but incompletely marginate; rest part of propodeum coarsely rugose. Hind coxa distinctly concentrically striate dorsally, smooth laterally and ventrally. Hind femur finely striate dorsally, smooth at most part. First abdominal tergite with distinct dorsal carinae. First and second tergites striate, with rugulosity between striae; third-fifth tergites longitudinally striate and without additional rugosity, narrowly smooth apically. Sixth tergite entirely distinctly semicircularly striate. Second-fifth tergites densely striate in entire lateral parts. Vertex with short, rather dense, recumbent, white hairs directed forward. Mesonotum entirely with dense, semierect, whitish hairs. Mesopleura entirely setose. Hind tibia with semierect, rather dense, white hairs dorsally; length of these hairs 0.7-1 times maximum width of hind tibia.

Colour. Body dark reddish brown or almost black with reddish spots. Two basal segments of antenna reddish brown; flagellum in basal half light reddish brown or reddish brown, dark brown in apical half. Palpi yellow or pale yellow. Legs yellowish brown, partly yellow; hind coxa reddish brown or dark reddish brown; all tibiae dark brown or black basally, then yellow

at short distance, brown or reddish brown in most other part, light brown apically; hind tarsus dark at most part, all tarsal segments light brown apically. Ovipositor sheath almost black. Wings rather distinctly infusate. Pterostigma entirely brown.

Male. Body length 3.4-6.0 mm; fore wing length 2.4-4.1 mm. Length of temple 0.6 times transverse diameter of eye. Antenna 41-48-segmented. First flagellar segment 3.6-4 times as long as apical width, 1-1.1 times as long as second segment. Thorax 2-2.2 times as long as high. Second radial abscissa 0.45-0.5 times as long as third abscissa, 1.25-1.3 times as long as first radiomedial vein. Hind wing 6-6.2 times as long as wide. Hind femur 2.6-3.1 times as long as wide. Hind basitarsus almost as long as second-fifth segments combined. Second tarsal segment 0.3-0.35 times as long as basitarsus, 2.3 times as long as fourth segment, 1-1.2 times as long as fifth segment (without pretarsus). Length of first abdominal tergite 1.3-1.5 times its maximum width. Second tergite with very narrow apical area, this area 0.3-0.4 times as long as rest part of tergite. Length of second tergite 1-1.1 times its basal width, 1.3-1.6 times length of third tergite. Sixth tergite rather small, almost as long as fifth and fourth tergites. Temple almost entirely coarsely rugose, but in small specimens widely smooth below. Areola of propodeum indistinct. Third-sixth tergites with fine, but distinct rugulosity between striae, without such a sculpture in small specimens. Mesopleura glabrous at narrow median area. Hind femur light reddish brown or reddish brown. Hind tibia with yellow subbasal area at long distance. Otherwise similar to female.

Discussion. This species is similar to *I. rugiscutum* Blkb. and differs in the vertex entirely rugose-striate, mesoscutum more gently raised above pronotum, coloration of hind tibia, second tergite without basal area, and sixth tergite without median emargination.

Distribution. Vietnam, Myanmar, Nepal.

Etymology. This species is named after Dr. Andrei V. Gorochov, well-known Russian orthopterist and collector of the holotype.

***Ipodoryctes brevitergum* sp. n.**

(Figs 146-155)

Holotype. ♀, Vietnam, prov. Ha Son Binh, Mai Chau, forest, 3.XI.1990, Belokobyl'skij (ZISP).

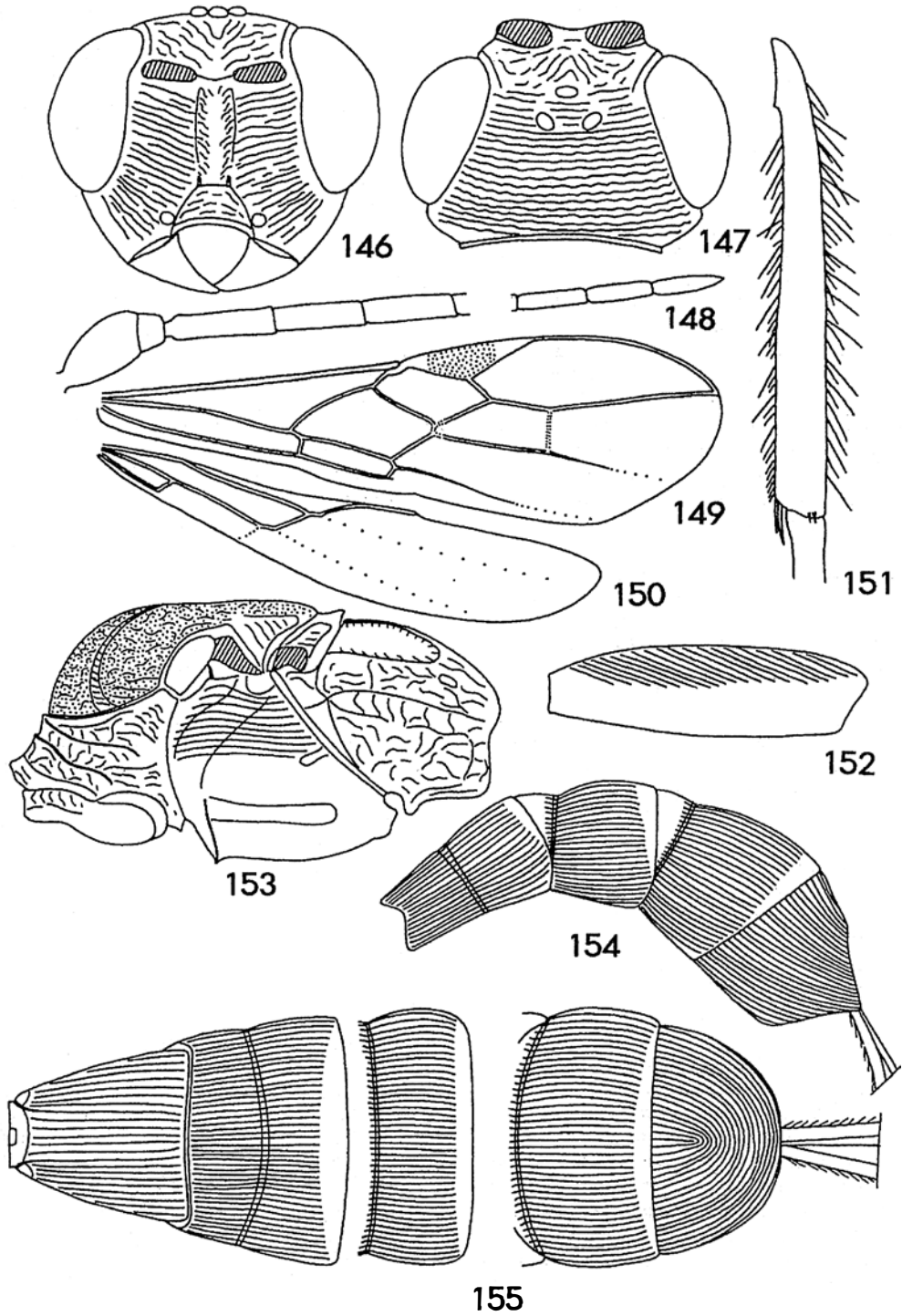
Description. Female. Body length 3.5 mm; fore wing length 2.7 mm. Head width 1.6 times its median length. Temple strongly and almost linearly narrowed, 0.3 times as long as trans-

verse diameter of eye. Ocelli rather small, in triangle with base 1.15 times its sides; POL 1.3 times Od, 0.5 times OOL. Eye glabrous, 1.15 times as high as broad. Malar space height 0.4 times height of eye, almost equal to basal width of mandible. Face width equal to height of eye and 1.15 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression small and round, its width 0.6 times distance from edge of depression to eye, 0.3 times width of face. Occipital carina fused with hypostomal one near mandible. Vertex weakly convex. Head almost linearly narrowed below eyes.

Antennae slender, almost filiform, 33-segmented, 1.5 times as long as body. Length of scape 1.7 times its maximum width. First flagellar segment 3.5 times as long as its apical width, 1.1 times as long as second segment. Penultimate segment 4 times as long as wide, 0.6 times as long as first segment, 0.9 times as long as apical segment.

Thorax 1.8 times as long as high. Pronotum more or less regularly, weakly concave dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distance from carina to posterior margin of pronotum 0.7 times distance from carina to anterior margin. Mesoscutum very highly and roundly raised above pronotum. Notauli rather shallow, narrow, complete, crenulate. Mesoscutum without median depression. Prescutellar depression rather deep, distinctly and roundly directed posterolaterally, with median carina, smooth, but with transverse carina on both sides, 0.3 times as long as weakly convex scutellum. Sternauli rather deep, almost entirely smooth, straight, running along anterior 2/3 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, wide, coarsely striate. Mesopleural suture crenulate in upper third, smooth in lower 2/3. Metanotum with short pointed tooth. Metapleural lobes distinct, rather wide, rounded apically.

Wings. Length of fore wing 3.1 times its maximum width. Metacarpus 1.4 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa almost twice as long as first abscissa, 0.4 times as long as third abscissa, almost as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 2.6 times maximum width, 1.2 times



Figs 146-155. *Ipodoryctes brevitergum* sp. n. 146, head, front view; 147, head, dorsal view; 148, basal and apical segments of antenna; 149, fore wing; 150, hind wing; 151, hind tibia; 152, hind femur, 153, thorax, lateral view; 154, second-sixth abdominal tergites, lateral view; 155, abdomen, dorsal view.

length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein post-furcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 0.75 times nervulus length. Parallel vein arising almost from anterior third of distal margin of brachial cell. Brachial cell strongly and linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 5 times as long as wide. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.7 times second abscissa. Recurrent vein antefurcal, pigmented.

Legs. Hind femur 3.5 times as long as wide, with small dorsal protuberance. Hind tarsus 0.9 times as long as hind tibia. Hind tibia apically with 2 outside spines. Hind basitarsus 0.8 times as long as second-fifth segments combined. Second tarsal segment 0.4 times as long as basitarsus, 1.5 times as long as fourth segment, 0.8 times as long as fifth segment (without pretarsus).

Abdomen 1.25 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 2.4 times its basal width, its length equal to apical width. Second tergite without basal and apical areas; median length of second tergite 0.45 times its basal width, almost equal to length of third tergite. Second suture rather deep and wide. Sixth tergite rather large, almost straight in posterior margin, without median emargination and posteroventral lobes, almost as long as fifth tergite, 1.6 times as long as fourth tergite. Ovipositor sheath 0.6 times as long as abdomen, 2.4 times as long as first tergite, as long as thorax, 0.4 times as long as fore wing.

Sculpture and pubescence. Vertex with distinct, dense, transverse, weakly undulate striae, with fine rugulosity between striae; frons rugulose, with additional ground sculpture; face rugulose-striate with ground sculpture; temple rugulose-striate, finely rugulose below, only finely granulate near eyes. Mesonotum densely rugulose-striate, with fine and dense ground granulation, with 2 subparallel carinae in medioposterior 1/4. Scutellum densely granulate, with fine rugosity in anterior half. Mesopleura coarsely longitudinally striate in upper 2/5, smooth in lower 3/5. Metapleura coarsely rugose-reticulate. Propodeum with median carina in basal 1/4; basolateral areas distinctly marginate, smooth; areola indistinct; rest part of propodeum rather sparsely rugose-reticulate. Hind coxa rugose-striate dorsally and laterally, finely punctulate ventrally. Hind femur striate in upper half, smooth in lower

half. First abdominal tergite with distinct and subparallel dorsal carinae. First and second tergites entirely longitudinally striate, with fine ground sculpture. Third and fourth tergites in basal 2/3-3/4 (rest parts smooth) and fifth almost entirely longitudinally striate. Sixth tergite entirely semicircularly striate. Second-fifth tergites densely striate in entire lateral parts. Vertex with short, rather sparse, semierect, yellowish hairs directed forward and partly toward ocelli. Mesonotum entirely with dense, short, semierect, whitish hairs. Mesopleura glabrous in lower half. Hind tibia with semierect, rather dense, white, short and long hairs dorsally; length of long hairs 0.8-1 times maximum width of hind tibia.

Colour. Head reddish brown, almost black dorsally. Thorax and abdomen dark reddish brown, partly almost black. Antenna yellowish brown in basal third, darkened toward apex, dark reddish brown in apical third. Palpi pale yellow. Legs entirely yellow. Ovipositor sheath dark brown, paler basally. Wings faintly infuscate. Pterostigma brown, pale yellow in basal and apical 1/4.

Male unknown.

Discussion. This species is similar to *I. ashmeadi* (Baker) and differs in the sternauli short, first abdominal tergite long, ovipositor short, temple distinctly sculptured, mesopleura smooth in lower 3/5, hind tibia dorsally with hairs of various lengths, and pterostigma brown medially.

Distribution. Vietnam.

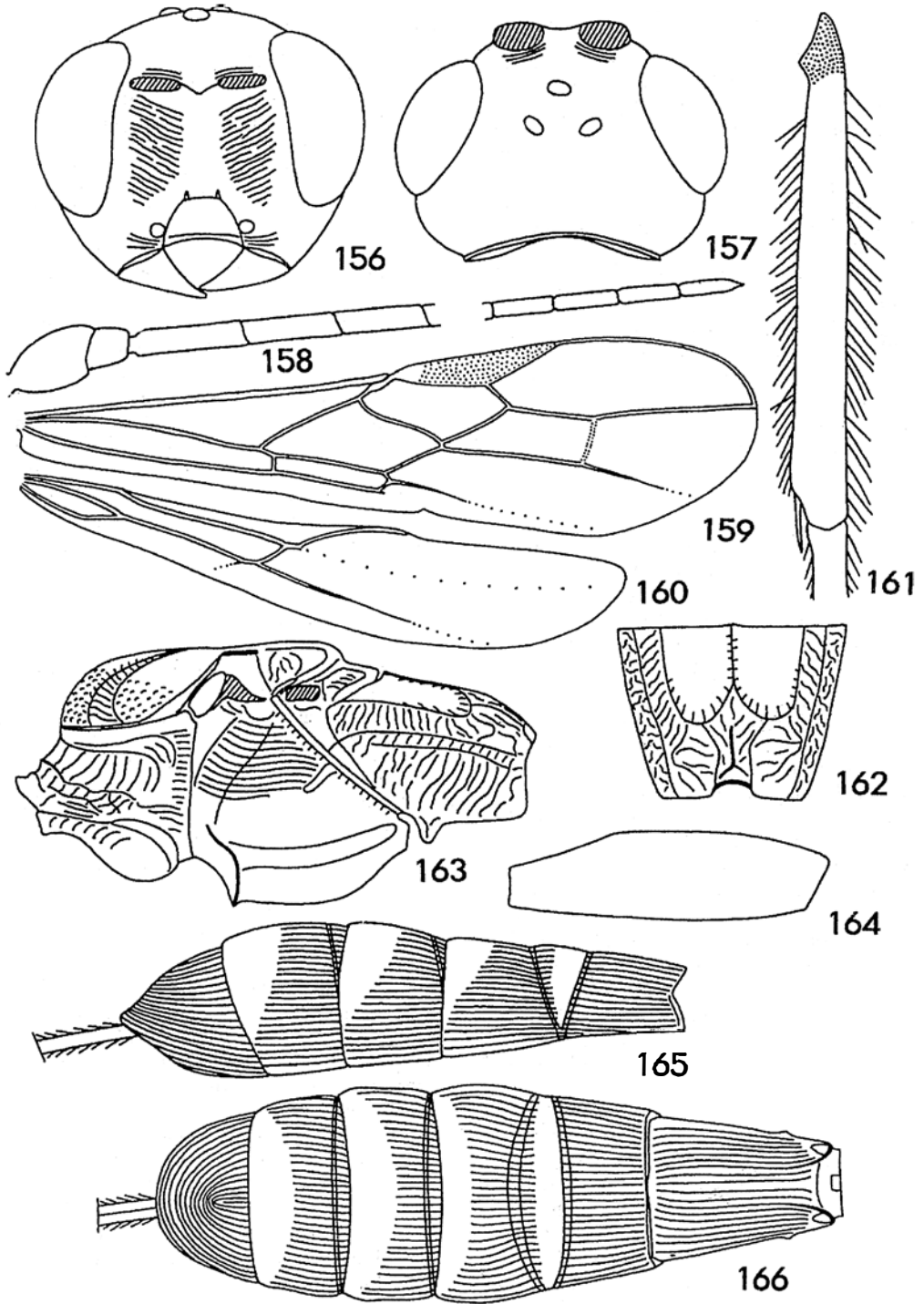
***Ipodoryctes elegans* sp. n.**

(Figs 156-166)

Holotype. ♀, Japan, Ryukyus, Iriomote Is., Airagawa, 27-29.VI.1993, K. Konishi (NIAES).

Paratypes. Japan: Iriomote Is.: 4 ♀, 3 ♂, as holotype (NIAES, ZISP); 1 ♀, 2 ♂, Kanpira, 28.VI.1993, K. Konishi (NIAES); 1 ♀, Mt. Sonai, 16-18.X.1999, K. Konishi (ZISP); Ishigaki Is.: 2 ♀, 4 ♂, Mt. Maese-dake, 13-15.X.1999, S. Belokobyl'skij (NIAES, ZISP); 1 ♀, same locality and collector, 19-21.X.1999 (ZISP); 1 ♂, same locality and date (K. Konishi) (NIAES); 1 ♂, same, but "Mt. Omoto-dake" (NIAES); 1 ♂, Shiramizu, 13-15.X.1999, S. Belokobyl'skij (ZISP); 1 ♀, 1 ♂, same, but 19-21.X.1999 (ZISP).

Description. Female. Body length 3.0-4.7 mm; fore wing length 2.4-3.7 mm. Head width 1.5-1.6 times its median length. Temple distinctly roundly narrowed, 0.5-0.55 times as long as transverse diameter of eye. Ocelli medium-sized; ocellar triangle with base 1.2-1.3 times its sides. POL 1.3-1.7 times Od, 0.6-0.8 times OOL. Eye 1.2-1.3 times as high as broad. Malar space height 0.27-0.3 times height of



Figs 156-166. *Ipodoryctes elegans* sp. n. 156, head, front view; 157, head, dorsal view; 158, basal and apical segments of antenna; 159, fore wing; 160, hind wing; 161, hind tibia; 162, propodeum, dorsal view; 163, thorax, lateral view; 164, hind femur; 165, second-sixth abdominal tergites, lateral view; 166, abdomen, dorsal view.

eye and 0.7-0.8 times basal width of mandible. Face width 0.8-0.9 times eye height and 1.1-1.2 times height of face and clypeus combined. Malar suture indistinct. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.9-1 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina not fused with hypostomal one near mandible because obliterated at short distance. Vertex distinctly convex.

Antennae slender, almost filiform, 38-43-segmented, 1.7-1.8 times as long as body. Length of scape 1.6-1.7 times its maximum width. First flagellar segment 4-4.3 times as long as its apical width, 1-1.1 times as long as second segment. Penultimate segment 3.5-4 times as long as wide, 0.6-0.7 times as long as first segment, 0.9 times as long as apical segment.

Thorax 1.8-2 times as long as high. Pronotum weakly convex both anteriorly (dorsal view) and dorsally (lateral view). Pronotal carina rather fine, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above prothorax; its median lobe without median depression. Notauli deep, complete, crenulate. Prescutellar depression deep, weakly and roundly directed posterolaterally, sparsely and finely rugulose, with distinct median and 2 lateral carinae, 0.3 times as long as scutellum. Sternauli deep, but shallow in posterior third, long, almost smooth, running along entire lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, distinctly longitudinally striate. Metanotum without any tooth or tubercle. Metapleural lobes long, narrow, rounded apically. Mesopleural suture distinctly crenulate in upper 2/5 (before mesopleural pit), smooth in lower 3/5.

Wing. Length of fore wing 3.6-3.8 times its maximum width. Metacarpus 1.3-1.4 times as long as pterostigma. Radial vein arising almost from middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2.6-2.9 times first abscissa, 0.5-0.6 times third abscissa, 1.2-1.3 times first radiomedial vein. Second radiomedial cell not widened apically, its length 3-3.4 times maximum width, 1.3 times length of narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein slightly postfurcal or sometimes interstitial. Mediocu-

bital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 0.6-1 times nervulus length. Parallel vein arising from anterior 1/3-1/4 of distal margin of brachial cell. Brachial cell strongly and almost linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) present, but very fine. Hind wing 5.7-6 times as long as wide. First abscissa of costal vein 0.5-0.55 times second abscissa. First abscissa of mediocubital vein 0.7-0.75 times second abscissa. Recurrent vein slightly antefurcal, pigmented.

Legs. Hind femur 3.5-3.6 times as long as wide, with distinct dorsal protuberance. Hind tarsus 1.1-1.2 times as long as hind tibia. Hind tibia apically with 3-4 outside spines. Hind basitarsus 0.85-0.9 times as long as second-fifth segments combined. Second tarsal segment 0.3-0.4 times as long as basitarsus and 1.2-1.3 times fifth segment (without pretarsus).

Abdomen 1.1-1.2 times as long as head and thorax combined, with 6 visible tergites. Apical width of first tergite 2.2-2.3 times its minimum width; length 1.1-1.2 times its apical width. Second tergite without distinct basal area, with deep transverse depression in posterior third and distinct apical area, this area 0.6-0.7 times as long as rest part of tergite. Length of second tergite (with area) 0.8-0.9 times its basal width, almost twice length of third tergite. Second suture deep and uniformly curved. Sixth tergite moderately large, distinctly rounded on posterior margin, without median emargination and ventroposterior lobes, almost as long as fifth tergite and 1.2-1.3 times as long as fourth tergite. Ovipositor sheath 1.5-1.6 times as long as abdomen, 5.5-6 times as long as first abdominal tergite and 1-1.1 times as long as fore wing.

Sculpture and pubescence. Vertex smooth; frons very finely transversely striate; face finely transversely striate or almost smooth; temples smooth. Mesoscutum finely and sparsely punctulate, rugulose-striate laterally and sometimes anteriorly, with 3-4 long striae medioposteriorly; median lobe usually densely punctulate in anterior half, additionally with fine granulation anteriorly. Scutellum smooth. Mesopleura smooth, striate in upper third. Propodeum rugose in distal 2/5, with two large and smooth basolateral areas; areola distinct and small. Hind coxae striate dorsally. Hind femora smooth. Abdomen almost completely coarsely striate. First tergite with complete, weakly convergent basally and almost parallel at most part dorsal carinae. Second tergite smooth in anterior half to third of apical area.

Semicircular areas in posterior half of third-fifth tergites smooth. Sixth tergite with dense and concentric striae in posterior half. Second-fifth tergites distinctly longitudinally striate in entire lateral parts. Vertex with very sparse, short, semierect hairs directed forward. Mesoscutum entirely with dense, numerous, semierect hairs. Hind tibia with rather long, semierect, rather dense hairs dorsally; length of these hairs 0.9-1 times maximum width of hind tibia.

Colour. Head and thorax reddish brown, usually darker dorsally or sometimes in posterior half of thorax. Abdomen almost black, reddish apically and laterally, sometimes all tergites dark reddish brown. Antenna dark reddish brown to black; 2 basal segments reddish brown. Palpi pale yellow. Legs light brown, paler basally; hind coxa reddish yellow; hind tibia basally reddish brown or dark reddish brown; all tarsi light reddish brown. Wings faintly infuscate. Pterostigma brown, lighter basally and apically.

Male. Body length 2.1-3.8 mm; fore wing length 1.7-2.9 mm. In small specimens, transverse diameter of eye 1.5-1.8 times length of temple. Antennae 27-38-segmented. Antennal segments thicker; length of first flagellar segment 3.6-4 times its width. In small specimens, parallel vein almost interstitial. Hind femur wider than in female, 2.7-2.9 times as long as wide. Abdomen slender. Length of first tergite 1.6-1.7 times its apical width. Length of second tergite 1.2 times its basal width or sometimes equal to it, 1.5-1.6 times length of third tergite. Apical area of second tergite 0.5-0.6 times as long as rest part of tergite. Sometimes apical area of second tergite almost entirely smooth and tergite with abundant intermediate sculpture between striae. Sixth tergite sometimes rugulose medially. Otherwise similar to female.

Discussion. This species is similar to the Vietnamese *I. annulicornis* Blkb. (Belokobylskij, 1994) and differs in the vertex smooth, antennae with not pale subapical segments, mesoscutum sparsely punctulate, areola of propodeum present, wing narrow, second abdominal tergite longer and with striate basal area, sixth tergite distinctly rounded posteriorly, ovipositor long, and hind coxa without black coloration.

Distribution. Japan.

***Ipodoryctes nitidus* sp. n.**

(Figs 167-176)

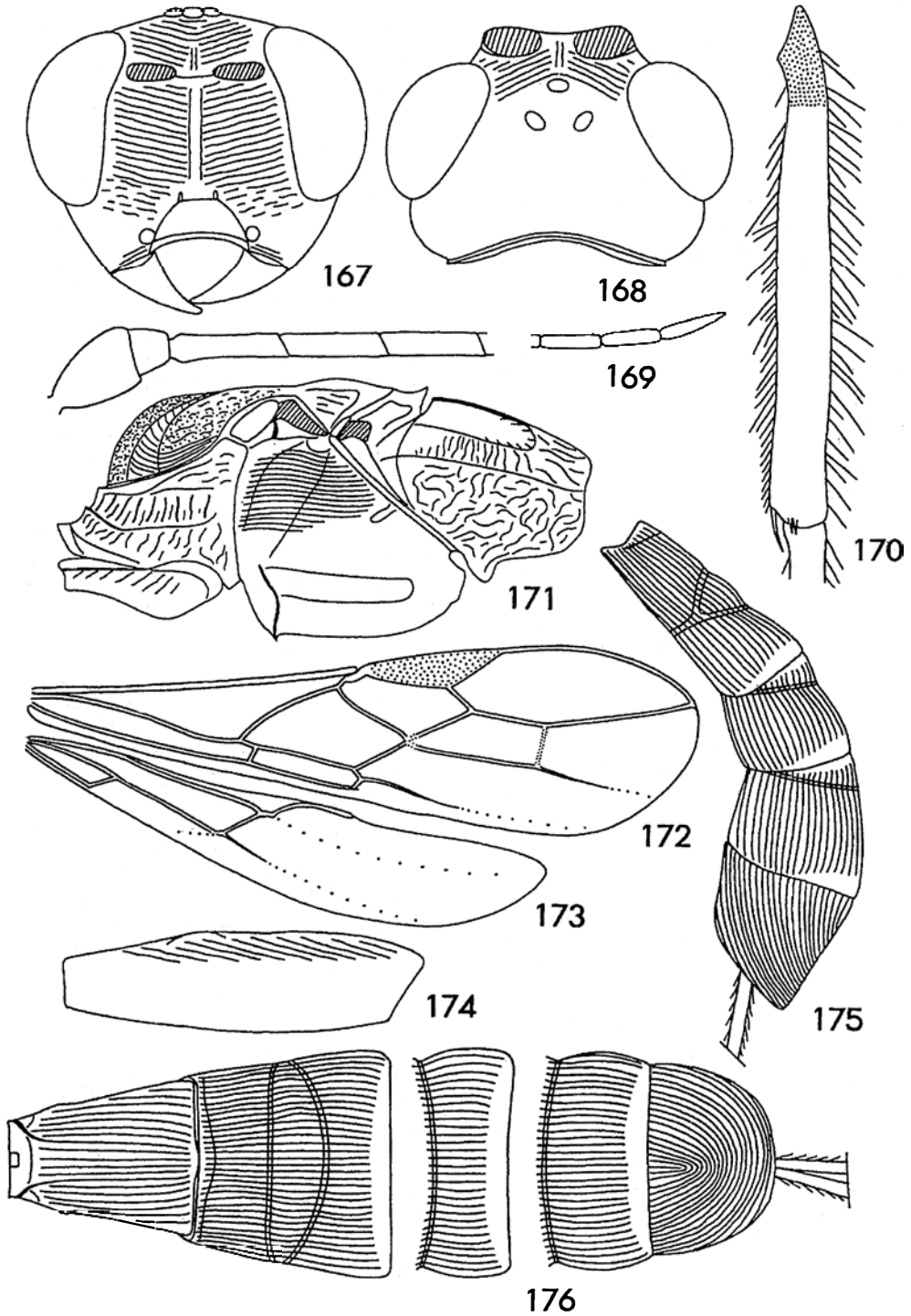
Holotype. ♀, Vietnam, prov. Ha Son Binh, Da Bac, Tuly, forest, 23.X.1990, Belokobylskij (ZISP).

Paratypes. Vietnam, prov. Ha Son Binh: 2 ♀, Mai Chou, 31.X & 2.XI.1990, Belokobylskij (ZISP); 1 ♀, Da Bac, Tuly, forest, 19.X.1990, Belokobylskij (ZISP); 1 ♀, 5 ♂, same locality, 18, 19 & 23.X.1990 (ZISP, TAMU); 1 ♂, same locality, forest, bamboo, 22.X.1990 (ZISP); 2 ♂, Ky Son, Cao Phong, forest, 27 & 28.X.1990, Belokobylskij (ZISP). Malaysia, Selangor: 1 ♀, 1 ♂, 16th mi up Gombak Rd from Kuala Lumpur, 5.X.1989, R. Wharton (TAMU). Thailand: 2 ♂, Suphanburi, Khao Yai Natl. Park, Haew Narok Waterfall, 2.VII.1990, J. Heraty (TAMU, ZISP). China, Guangdong, 1 ♀, Ding-Hu Mts., 60 km W of Guangzhou, V.1983, Bouček (BMNH). Taiwan (Formosa): 1 ♀, Musha, 18.V-15.VI.1919, T. Okuni, J. Sonan, K. Miy, M. Yosh. (EIS).

Description. Female. Body length 4.1-5.5 mm; fore wing length 3.5-4.2 mm. Head width 1.5-1.6 times its median length. Temple distinctly and roundly narrowed, 0.45-0.55 times as long as transverse diameter of eye. Ocelli medium-sized, in triangle with base 1.2-1.3 times its sides; POL 1-1.1 times Od, 0.5-0.6 times OOL. Eye glabrous, 1.2-1.3 times as high as broad. Malar space height 0.3-0.4 times height of eye, 0.8-1 times basal width of mandible. Face width 0.9-1 times height of eye and 1.1-1.2 times height of face and clypeus combined. Malar suture absent. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.8-1 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina fused with hypostomal one near mandible. Vertex weakly convex. Head distinctly roundly narrowed below eyes.

Antennae weakly setiform, 41-45-segmented, 1.5-1.7 times as long as body. Length of scape 1.6-1.7 times maximum width. First flagellar segment 4.5-5 times as long as its apical width, 1.1-1.15 times as long as second segment. Penultimate segment 4.5-5.5 times as long as wide, 0.55-0.6 times as long as first segment, 0.85-1 times as long as apical segment.

Thorax 1.9-2 times as long as high. Pronotum straight anteriorly (dorsal view), weakly concave or straight dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and obliquely-roundly raised above pronotum. Notauli deep anteriorly, rather shallow posteriorly, complete, crenulate. Mesoscutum without median depression. Prescutellar depression deep, weakly and almost linearly directed posterolaterally, with 1-3 median carinae, sparsely rugose, 0.3 times as long as weakly convex scutellum. Sternauli shallow,



Figs 167-176. *Ipodoryctes nitidus* sp. n. 167, head, front view; 168, head, dorsal view; 169, basal and apical segments of antenna; 170, hind tibia; 171, thorax, lateral view; 172, fore wing; 173, hind wing; 174, hind femur; 175, second-sixth abdominal tergites, lateral view; 176, abdomen, dorsal view.

but deep in posterior third, smooth, almost straight, running along anterior 2/3 of lower part of mesopleura, connected with upper margin of prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, longitudinally striate. Mesopleural suture crenulate in upper half, smooth in lower half. Metanotum with short and pointed tooth. Metapleural lobes distinct, rather wide, rounded apically, very densely pubescent.

Wings. Length of fore wing 3.3-3.4 times its maximum width. Radial cell not shortened. Metacarpus 1.3-1.4 times as long as pterostigma. Radial vein arising slightly behind middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2.5-2.8 times as long as first abscissa, 0.5-0.6 times as long as third abscissa, 1.2-1.3 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 2.8-3 times maximum width, 1.1-1.2 times length of narrow brachial cell. First medial abscissa S-curved. Recurrent vein weakly postfurcal or almost interstitial. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 0.7-1 times nervulus length. Parallel vein arising from anterior third of distal margin of brachial cell. Brachial cell strongly and linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 4.8-5.4 times as long as wide. First abscissa of costal vein 0.5-0.6 times second abscissa. First abscissa of mediocubital vein 0.7-0.75 times second abscissa. Recurrent vein interstitial or weakly antefurcal, unsclerotized.

Legs. Hind femur 3.5-3.7 times as long as wide, with weak dorsal protuberance. Hind tarsus 1.1-1.2 times as long as hind tibia. Hind tibia apically with 3-5 outside spines. Hind basitarsus 0.9-1 times as long as second-fifth segments combined. Second tarsal segment 0.3-0.35 times as long as basitarsus, 2.3-2.5 times as long as fourth segment, 1.1-1.3 times as long as fifth segment (without pretarsus).

Abdomen 1.2-1.3 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 2-2.2 times its basal width, its length 1.2-1.3 times apical width. Second tergite with weakly separated narrow basal area, with rather distinct and almost straight transverse furrow and distinct apical area, this area 0.6-0.7 times as long as rest part of tergite. Median length of second tergite 0.7-0.8 times its basal width, almost twice length

of third tergite. Second suture rather deep and wide. Sixth tergite rather large, regularly rounded on posterior margin, without median emargination and ventroposterior lobes, 1.2-1.4 times as long as fifth tergite, 1.5-1.8 times as long as fourth tergite. Ovipositor sheath 1.2-1.4 times as long as abdomen, 0.7-0.8 times as long as body, 1.9-2.2 times as long as thorax, 0.8-1 times as long as fore wing.

Sculpture and pubescence. Vertex smooth, sometimes finely rugulose medially or (in large specimens) shortly striate laterally. Frons coarsely rugose-striate with fine granulation. Temple smooth. Face densely transversely and weakly undulately striate, with granulation. Median lobe of mesonotum densely rugulose-granulate, coarsely rugose-striate medioposteriorly; lateral lobes more or less finely rugulose, reticulate-granulate laterally and anteriorly. Scutellum finely punctulate, finely rugulose posteriorly. Mesopleura transversely striate in upper third, smooth in lower 2/3. Metapleura coarsely rugose. Propodeum with median carina in basal third; basolateral areas distinctly marginate, smooth; areola more or less distinctly marginate; rest part of propodeum coarsely rugose. Hind coxa semicircularly striate dorsally, smooth at most part. Hind femur striate dorsally, smooth at most part. First abdominal tergite with distinct dorsal carinae. First tergite entirely, second at most part (except narrowly smooth anterior part of apical area), and third-fifth tergites (except smooth apical thirds) longitudinally striate and without ground sculpture. Sixth tergite entirely, coarsely, semicircularly striate. Second-fifth tergites densely striate in entire lateral parts. Vertex with rather long and sparse, semierect, white hairs directed toward ocelli and forward. Mesonotum entirely with dense, semierect, whitish hairs. Mesopleura almost entirely setose. Hind tibia with semierect, dense, white hairs dorsally; length of these hairs 0.6-0.9 times maximum width of hind tibia.

Colour. Body black, partly with small reddish spots; sometimes lower half of mesopleura and sixth tergite in apical half brownish red or red. Antenna reddish brown, darkened toward apex; scape with black spots; 5-10 subapical segments yellow; 1-2 apical segments dark. Palpi yellow. Legs reddish yellow; fore and middle coxae reddish, hind coxa mostly black or brown; hind tibia basally black or brown. Ovipositor sheath black, reddish in subapical half. Wings infusate. Pterostigma dark brown, paler basally and apically.

Male. Body length 3.1-4.3 mm; fore wing length 2.3-3.3 mm. Head width 1.4-1.5 times

its median length. Antenna 33-41-segmented, dark brown or black in apical half. Hind femur 3-3.2 times as long as wide. Length of first tergite 1.4-1.5 (sometimes 1.6) times its apical width. Apical area of second tergite 0.4-0.5 times as long as rest part of tergite. Median length of second tergite 1-1.1 times its basal width, 1.5-1.7 times length of third tergite. Sixth tergite 1-1.1 times as long as fifth and fourth tergites. Mesoscutum with rather fine rugulosity, densely granulate. Scutellum rather densely, finely punctulate or almost smooth. Basolateral areas of propodeum sometimes partly granulate. Apical area of second tergite usually entirely striate, but in small specimens entirely smooth. Hind femur brownish partly or almost entirely. Otherwise similar to female.

Discussion. This species is very similar to *I. elegans* sp. n. and differs in the mesoscutum (especially its lateral lobes) distinctly sculptured, antenna with pale subapical segments, frons coarsely and entirely rugose-striate, mesopleura entirely setose, wing distinctly infuscate, occipital carina fused with hypostomal one, and second radiomedial cell short.

Distribution. Vietnam, Malaysia, Thailand, China.

***Ipodoryctes perakensis* sp. n.**

(Figs 177-187)

Holotype. ♀, Malaysia, "Perak, Staudinger V." (ZMB).

Description. Female. Body length 3.8 mm; fore wing length 2.9 mm. Head width 1.6 times its median length. Temple uniformly and almost linearly narrowed; transverse diameter of eye 2.3 times as long as temple. Ocelli small; ocellar triangle with base 1.25 times its sides. POL almost equal to Od, 0.4 times OOL. Eye glabrous, 1.1 times as high as broad. Malar space height 0.4 times height of eye and equal to basal width of mandible. Face width equal to eye height and almost equal to height of face and clypeus combined. Upper margin of clypeus situated almost on same level as lower margin of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina not fused with hypostomal one near mandible because obliterated at short distance. Vertex convex.

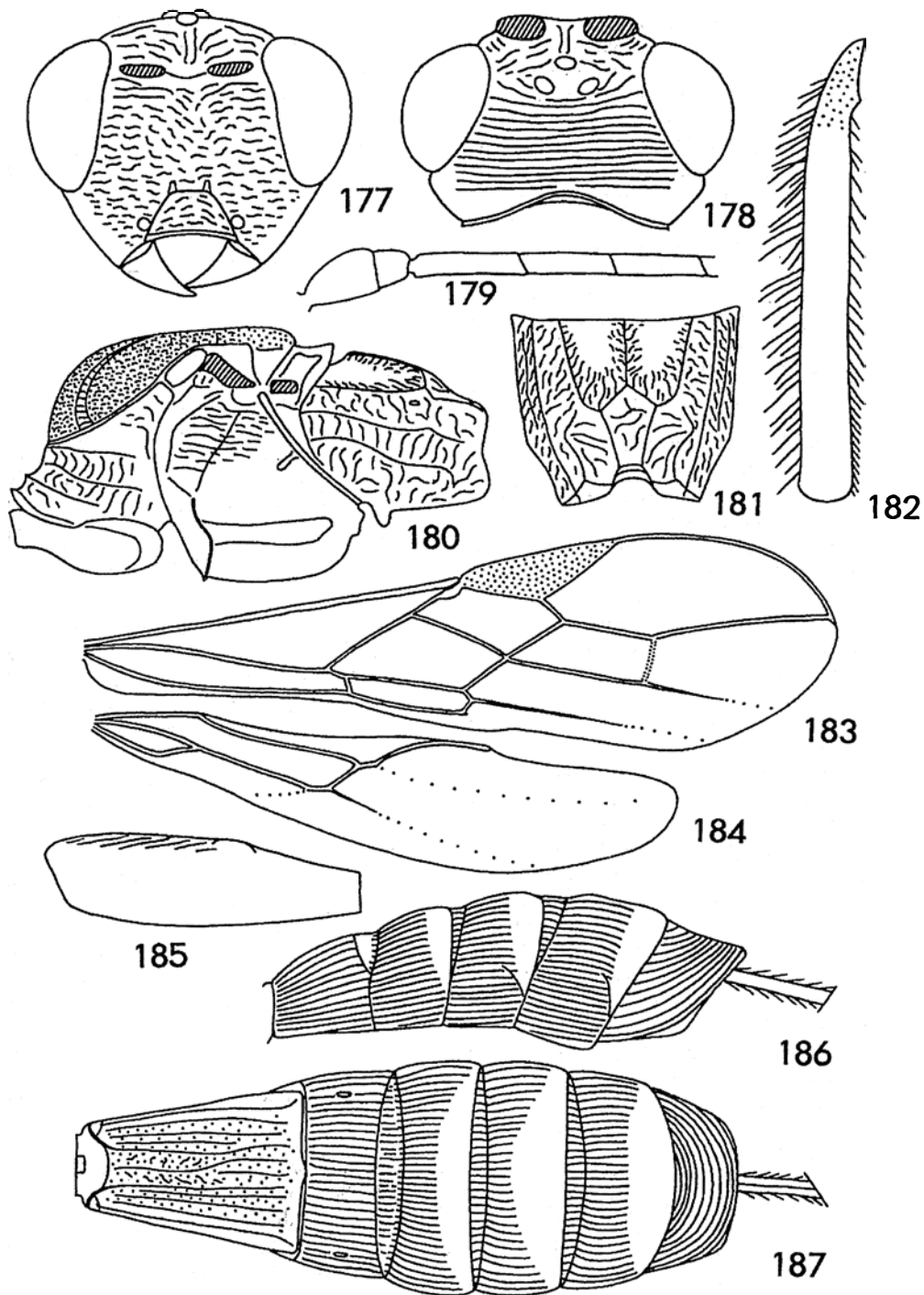
Antennae slender, setiform, with more than 32 segments (apical segments missing), longly setose. Length of scape 1.8 times its maximum width. First flagellar segment 4.5 times as long as its apical width, 1.1 times as long as second segment. Subapical segment 4.8 times as long as wide, 0.6 times as long as first segment.

Thorax 1.8 times as long as high. Pronotum weakly concave both anteriorly (dorsal view) and dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above pronotum; its median lobe without median depression. Notauli deep, complete, crenulate. Prescutellar depression deep, weakly and linearly directed posterolaterally, almost smooth, with distinct median carina, 0.3 times as long as scutellum. Sternauli deep (especially in posterior part), smooth, straight, running along anterior 3/5 of lower part of mesopleura, connected with upper margin of prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, rugose-striate. Mesopleural suture crenulate in upper half, smooth in lower half. Metanotum with short, pointed median tooth. Metapleural lobes long, wide, rounded apically.

Wing. Length of fore wing 3.6 times its maximum width. Metacarpus 1.4 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming distinct obtuse angle with second abscissa. Second radial abscissa 2.8 times first abscissa, 0.6 times third abscissa, 1.6 times first radiomedial vein. Second radiomedial cell not widened distally, its length 3.2 times maximum width, 1.3 times length of rather narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein almost interstitial. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein equal to nervulus length. Parallel vein arising slightly behind middle of distal margin of brachial cell. Brachial cell gently and roundly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 5 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.7 times second abscissa. Recurrent vein distinctly antefurcal, weakly pigmented.

Legs. Hind femur 3.4 times as long as wide, with small dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 2 outside spines. Hind basitarsus 0.9 times as long as second-fifth segments combined. Second tarsal segment 0.3 times as long as basitarsus and 1.1 times as long as fifth segment (without pretarsus).

Abdomen 1.1 times as long as head and thorax combined, with 6 visible tergites. Apical



Figs 177-187. *Ipodoryctes perakensis* sp. n. 177, head, front view; 178, head, dorsal view; 179, basal segments of antenna; 180, thorax, lateral view; 181, propodeum, dorsal view; 182, hind tibia; 183, fore wing; 184, hind wing; 185, hind femur; 186, second-sixth abdominal tergites, lateral view; 187, abdomen, dorsal view.

width of first tergite 2.5 times its minimum width; length 1.25 times its apical width. Second tergite without basal area, with rather shallow transverse depression in posterior third and distinct apical area, this area half as long as rest part of tergite. Length of second tergite 0.55 times its basal width, 1.5 times length of third tergite. Second suture deep and uniformly curved. Sixth tergite weakly rounded posteriorly and without median depression, 0.7 times as long as fifth tergite and almost as long as fourth tergite. Ovipositor sheath 1.1 times as long as abdomen, 3.3 times as long as first abdominal tergite, 1.5 times as long as thorax and 0.7 times as long as fore wing.

Sculpture and pubescence. Vertex transversely and weakly undulately striate, smooth at short posterior area. Frons rugulose with granulation. Temple smooth. Face densely rugulose, partly with fine granulation. Mesoscutum densely reticulate-rugulose with granulation, rugose-striate in medioposterior third, median lobe mostly granulate medially. Scutellum finely rugulose-punctulate, almost smooth posteriorly. Mesopleura rugose-striate in upper third, smooth in rest part. Propodeum with median carina in basal half; basolateral areas distinctly marginate, rugulose in posterior half, almost smooth in anterior half; areola distinct, pentagonal; rest part of propodeum laterally and in posterior half sparsely rugose. Hind coxae finely rugulose. Hind femora striate dorsally, smooth at most part. Abdomen almost completely coarsely striate. First tergite with distinct dorsal subparallel carinae, rugulose between them. Second tergite rather finely striate in apical area. Third-fifth tergites smooth in apical halves. Sixth tergite with dense and concentric striae. Second-fifth tergites densely longitudinally striate in entire lateral parts. Vertex with sparse, short, semierect, white hairs directed forward. Mesoscutum entirely with dense, semierect, white hairs. Mesopleura widely glabrous medially. Hind tibia with dense, semierect, long and short hairs dorsally; length of long hairs, 1-1.2 times maximum width of hind tibia.

Colour. Body black with reddish spots and stripes; head reddish brown. Two basal segments of antenna light reddish brown, rest segments dark reddish brown to black. Palpi yellow. Legs yellowish brown to light reddish brown; hind coxa almost black. Ovipositor sheath reddish brown, dark apically. Wings almost hyaline. Pterostigma brown, faintly paler basally and apically.

Male unknown.

Discussion. The species is closely related to the Vietnamese *I. annulicornis* Blkb. and differs in the median part of mesopleura glabrous, basal smooth area of second tergite absent, areola of propodeum distinct, second tergite short, and first tergite long.

Distribution. Malaysia.

***Ipodoryctes philippinensis* sp. n.**

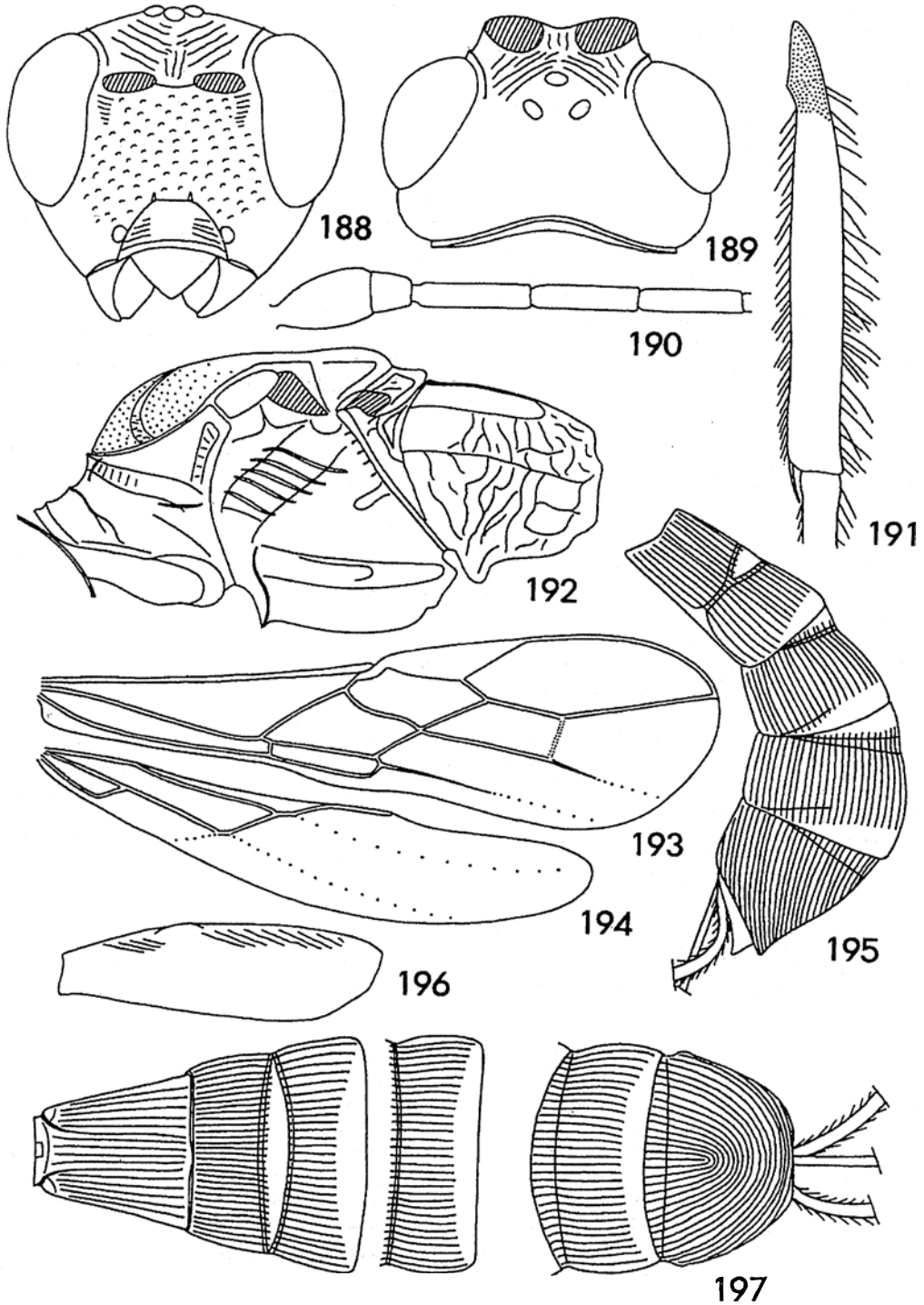
(Figs 188-197)

Holotype. ♀, **Philippines, Luzon I., Atimonan**, 1000 ft, 1.1962, A. Concepcion (CNC).

Description. Female. Body length 3.8 mm; fore wing length 2.9 mm. Head width 1.7 times its median length. Temple strongly and roundly narrowed, half as long as transverse diameter of eye. Frons with distinct lateral carinae along eyes. Ocelli small, in triangle with base 1.2 times its sides; POL 1.1 times Od, 0.5 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.9 times basal width of mandible. Face width equal to height of eye and 1.2 times height of face and clypeus combined. Upper margin of clypeus situated on same level as lower margin of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina fused with hypostomal one near mandible. Vertex convex. Head roundly narrowed below eyes.

Antennae rather slender, weakly setiform, with more than 27 segments (apical segments missing). Length of scape 1.75 times maximum width. First flagellar segment almost 4 times as long as its apical width, 1.1 times as long as second segment. Subapical segments about 4.5 times as long as wide.

Thorax twice as long as high. Pronotum almost straight anteriorly (dorsal view), rather regularly, weakly concave dorsally (lateral view). Pronotal carina fine, laterally connected by 2 distinct subparallel carinae with high posterior ridge, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum gently and roundly raised above pronotum. Notauli rather shallow, narrow, complete, almost smooth, but finely sculptured anteriorly. Mesoscutum with median depression in posterior 2/5. Prescutellar depression deep anteriorly, shallow posteriorly, distinctly and almost linearly directed posterolaterally, with median carina, almost entirely smooth, 0.3 times as long as weakly convex scutellum. Sternauli rather deep, smooth, almost straight, running along entire



Figs 188-197. *Ipodoryctes philippinensis* sp. n. 188, head, front view; 189, head, dorsal view; 190, basal segments of antenna; 191, hind tibia; 192, thorax, lateral view; 193, fore wing; 194, hind wing; 195, second-sixth abdominal tergites, lateral view; 196, hind femur; 197, abdomen, dorsal view.

lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression rather deep, narrow, coarsely striate. Mesopleural suture crenulate in upper half, smooth in lower half. Metanotum with short and obtuse tooth. Metapleural lobes distinct, rather narrow, rounded apically, very densely pubescent.

Wings. Length of fore wing 3.5 times its maximum width. Metacarpus 1.4 times as long as pterostigma. Radial vein arising behind middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2.3 times as long as first abscissa, half as long as third abscissa, 1.25 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 3.2 times maximum width, 1.3 times length of narrow brachial cell. First medial abscissa distinctly S-curved. Recurrent vein almost interstitial. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein almost equal to nervulus length. Parallel vein arising from anterior third of distal margin of brachial cell. Brachial cell strongly and linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) present, but short. Hind wing 5.3 times as long as wide. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.75 times second abscissa. Recurrent vein weakly antefurcal, unsclerotized.

Legs. Hind femur 3.2 times as long as wide, with weak dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 5 outside spines. Hind basitarsus 0.9 times as long as second-fifth segments combined. Second tarsal segment 0.3 times as long as basitarsus, twice as long as fourth segment, 0.9 times as long as fifth segment (without pretarsus).

Abdomen 1.25 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite about twice its basal width, its length almost equal to apical width. Second tergite without basal area, with shallow and almost straight transverse furrow and distinct narrow apical area, this area 0.4 times as long as rest part of tergite. Median length of second tergite 0.7 times its basal width, 1.4 times length of third tergite. Second suture rather deep and wide. Sixth tergite enlarged, regularly rounded on posterior margin, without median emargination and ventroposterior lobes, 1.4 times as long as fifth tergite, 1.5 times as long as fourth tergite. Ovipositor sheath 1.5 times as long as abdomen, 0.8 times

as long as body, about twice as long as thorax, almost as long as fore wing.

Sculpture and pubescence. Vertex and temple smooth; frons rugulose-striate in anterior 2/3, smooth in posterior third; face finely punctulate, partly rugulose. Mesonotum very finely granulate with fine punctulation, almost smooth in posterior 1/4, with 2 parallel striae in medioposterior third and fine rugulosity between and outside them. Scutellum smooth. Mesopleura mostly smooth, shortly striate in upper 1/5. Metapleura sparsely and coarsely rugose in posterior 2/3, almost smooth in anterior third. Propodeum with median carina in basal 2/5; basolateral areas distinctly marginate, entirely smooth; areola narrow, incompletely marginate; rest part of propodeum rugose-reticulate. Hind coxa almost smooth, with striation in posterior 1/4. Hind femur very finely coriaceous, with fine striation dorsally. First abdominal tergite with distinct dorsal carinae. First tergite entirely, second at most part (except smooth apical area), and third-fifth tergites (except smooth apical 1/4) longitudinally striate and without ground sculpture. Sixth tergite entirely, coarsely, semicircularly striate. Second-fifth tergites densely striate in entire lateral parts. Vertex with rather short and sparse, semierect, yellowish hairs directed forward. Mesonotum entirely with very dense, semierect, whitish hairs. Mesopleura glabrous at most part. Hind tibia with semierect, dense, white, long and short hairs dorsally; length of long hairs 0.7-0.9 times maximum width of hind tibia.

Colour. Body black, partly with reddish tint; third-sixth abdominal tergites reddish in apical halves. Antenna reddish brown to dark reddish brown; 4 basal segments almost black. Palpi pale yellow. Legs light reddish brown; femora and trochanters brownish yellow; hind coxae dark reddish brown. Ovipositor sheath dark brown, black apically. Wings faintly infusate. Pterostigma yellow.

Male unknown.

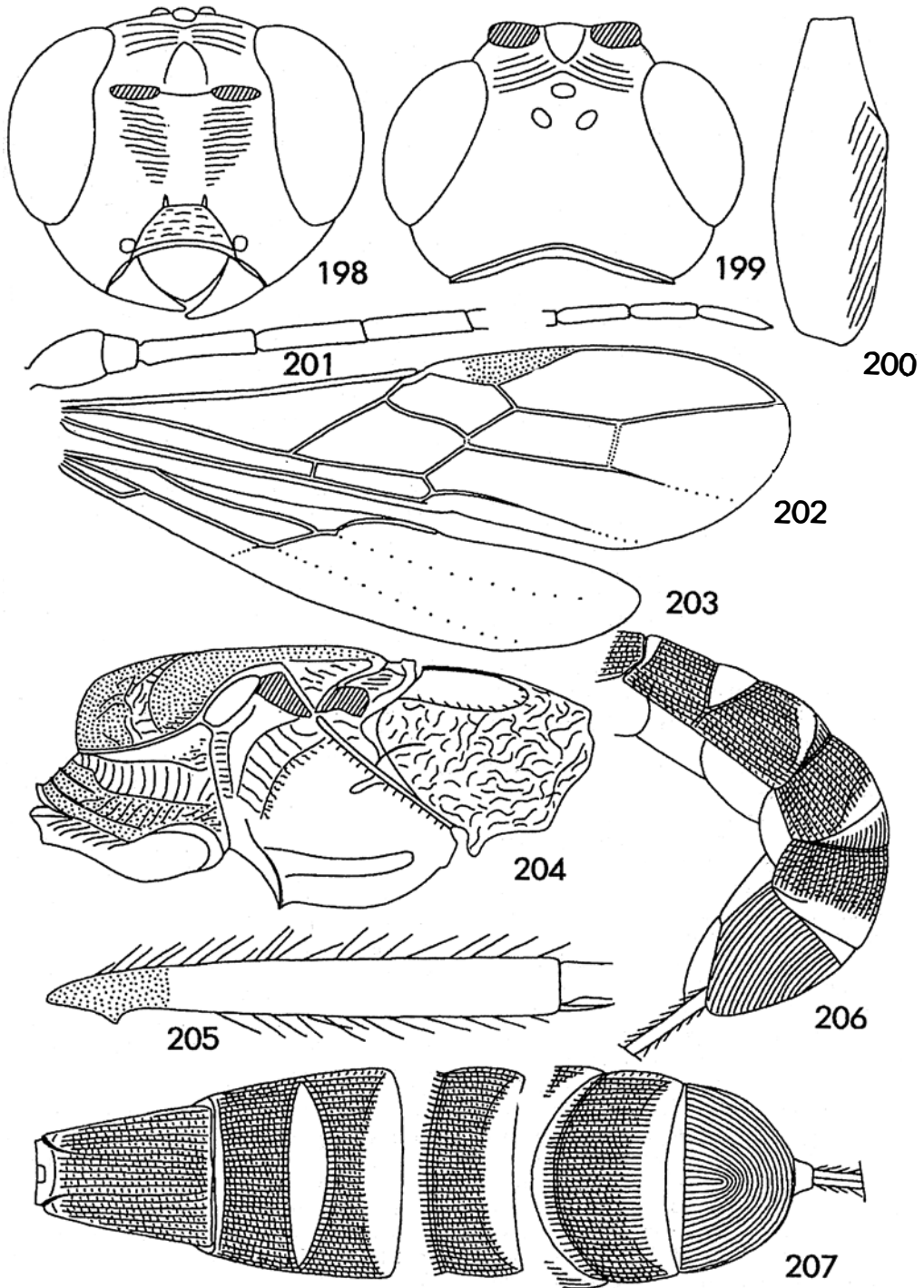
Discussion. This species is similar to *I. elegans* sp. n. and differs in the sides of pronotum almost entirely smooth, mesoscutum more shortly setose, pterostigma yellow, two basal segments of antenna almost black, apical area of second tergite narrow, first and second tergites short.

Distribution. Philippines.

***Ipodoryctes ryukyensis* sp. n.**

(Figs 198-207)

Holotype. ♀, Japan, Ryukyus, Ishigaki Is., Shiramizu, 13-15.X.1999, S. Belokobylskij (NIAES).



Figs 198-207. *Ipodoryctes ryukyuensis* sp. n. 198, head, front view; 199, head, dorsal view; 200, hind femur; 201, basal and apical segments of antenna; 202, fore wing; 203, hind wing; 204, thorax, lateral view; 205, hind tibia; 206, second-sixth abdominal tergites, lateral view; 207, abdomen, dorsal view.

Paratypes. **Japan, Ishigaki Is.:** 1 ♂, as holotype, but 19-21.X.1999 (ZISP); 1 ♂, Mt. Maese-dake, 19-21.X.1999, S. Belokobylskij (ZISP); 1 ♂, Banna Park, Malaise trap, 20-25.III.1995, T. Matsumura (NIAES); *Iriomote Is.:* 3 ♂, Mt. Sonai, 16-18.X.1999, S. Belokobylskij (NIAES, ZISP).

Description. Female. Body length 3.9 mm; fore wing length 3.0 mm. Head width 1.6 times its median length. Temple convexly and roundly narrowed, 0.4 times as long as transverse diameter of eye. Ocelli medium-sized, in triangle with base 1.25 times its sides; POL equal to Od, 0.6 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height 0.25 times height of eye, 0.7 times basal width of mandible. Face width 0.9 times height of eye and 1.4 times height of face and clypeus combined. Malar suture indistinct. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina fused with hypostomal one near mandible. Vertex distinctly convex.

Antennae slender, almost filiform, 34-segmented, 1.3 times as long as body. Length of scape 1.6 times its maximum width. First flagellar segment 4.3 times as long as its apical width, 1.1 times as long as second segment. Penultimate segment 4.5 times as long as wide, 0.6 times as long as first segment, 0.9 times as long as apical segment.

Thorax twice as long as high. Pronotum straight anteriorly (dorsal view), more or less straight dorsally (lateral view). Pronotal carina distinct, separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above pronotum. Notauli deep, but shallow posteriorly, complete, rugulose-crenulate. Mesoscutum without median depression. Prescutellar depression rather deep, almost linearly directed posterolaterally, with 3 carinae, almost smooth, 0.4 times as long as weakly convex scutellum. Sternauli rather shallow, smooth, straight, running along anterior 2/3 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, coarsely crenulate. Mesopleural suture distinctly and densely crenulate. Metanotum with short pointed tooth. Metapleural lobes distinct, narrow, rounded apically.

Wings. Length of fore wing 3.4 times its maximum width. Metacarpus 1.3 times as long

as pterostigma. Radial vein arising distinctly before middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 3.5 times as long as first abscissa, 0.7 times as long as third abscissa, almost twice as long as first radiomedial vein. Second radiomedial cell not widened distally, its length about 3 times maximum width, 1.25 times length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein 1.2 times nervulus length. Parallel vein arising almost from middle of distal margin of brachial cell. Brachial cell obliquely and almost linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) present. Hind wing 5.5 times as long as wide. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.6 times second abscissa. Recurrent vein rather long, pigmented.

Legs. Hind femur 3 times as long as wide, with weak dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind basitarsus about 0.7 times as long as second-fifth segments combined. Second tarsal segment half as long as basitarsus, 2.8 times as long as fourth segment, 1.2 times as long as fifth segment (without pretarsus).

Abdomen 1.4 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite almost twice its basal width, its length 1.25 times apical width. Second tergite with narrow and weakly separated basal area; with rather distinct, shallow and weakly concavely curved transverse furrow and distinct apical area, this area 0.7 times as long as rest part of tergite. Median length of second tergite 0.6 times its basal width, 1.5 times length of third tergite. Second suture deep and rather wide. Sixth tergite rather large, regularly rounded on posterior margin, without median emargination and posteroventral lobes, 1.3 times as long as fifth tergite, 1.3 times as long as fourth tergite. Ovipositor sheath 1.3 times as long as abdomen, 0.7 times as long as body, 2.2 times as long as thorax, 0.95 times as long as fore wing.

Sculpture and pubescence. Vertex and temple smooth; frons transversely striate at most part; face finely rugulose on rather narrow vertical submedian stripes, almost smooth at most part. Mesonotum densely and finely granulate, rugulose-striate medioposteriorly; median lobe with additional punctulation. Scutellum densely and finely granulate. Mesopleura

smooth at most part. Metapleura rugose-reticulate. Propodeum with median carina in basal half; basolateral areas distinctly marginate, almost smooth; rest part of propodeum rugose-reticulate. Hind coxa finely granulate, almost smooth ventrally. Hind femur finely striate dorsally, smooth at most part. First abdominal tergite with fine dorsal carinae. First tergite entirely, second at most part (except smooth basal and apical areas), and third-fifth tergites (except smooth apical thirds) longitudinally striate with fine intermediate sculpture between striae. Sixth tergite entirely semicircularly striate with additional sculpture between striae. Second-fifth tergites striate in entire lateral parts. Vertex with short, sparse, semierect, yellowish hairs directed forward. Mesonotum entirely with very dense, semierect, whitish hairs. Mesopleura glabrous in lower half. Hind tibia with semierect, rather sparse, white hairs dorsally; length of these hairs 0.8-1 times maximum width of hind tibia.

Colour. Head yellowish brown. Anterior half of thorax reddish brown, posterior half and abdomen black or partly dark reddish brown. Antenna reddish brown in basal half, almost black in apical half. Palpi yellow. Legs brownish yellow, protuberances on all femora brown; hind tibia basally and all tarsi at most part brown. Ovipositor sheath black. Wings infusate. Pterostigma brown, yellow apically and in basal 1/4.

Male. Body length 2.1-3.5 mm; fore wing length 1.6-2.7 mm. Length of temple 0.5-0.6 (sometimes 0.7) times transverse diameter of eye. Antenna with 26-31 (in small specimen, with 21) segments. First flagellar segment usually as long as second segment. Length of second radiomedial cell 3-3.3 times its width. Hind femur 2.7-2.9 times as long as wide. Length of first abdominal tergite 1.15-1.35 times its maximum width. Length of second tergite 0.75-0.9 (sometimes equal to) its basal width; basal area sometimes very narrow. Sixth tergite often densely rugulose-reticulate in basal half, smooth in apical half. Sometimes head, protuberances of femora and tarsi lighter. Rarely body in small specimens light reddish brown. Otherwise similar to female.

Discussion. This species is very similar to *I. longi* Blkb. and differs in the vertex smooth, temple long, basolateral areas of propodeum smooth at most part, and basal area of second abdominal tergite distinct.

Distribution. Japan.

***Ipodoryctes temporalis* sp. n.**
(Figs 208-217)

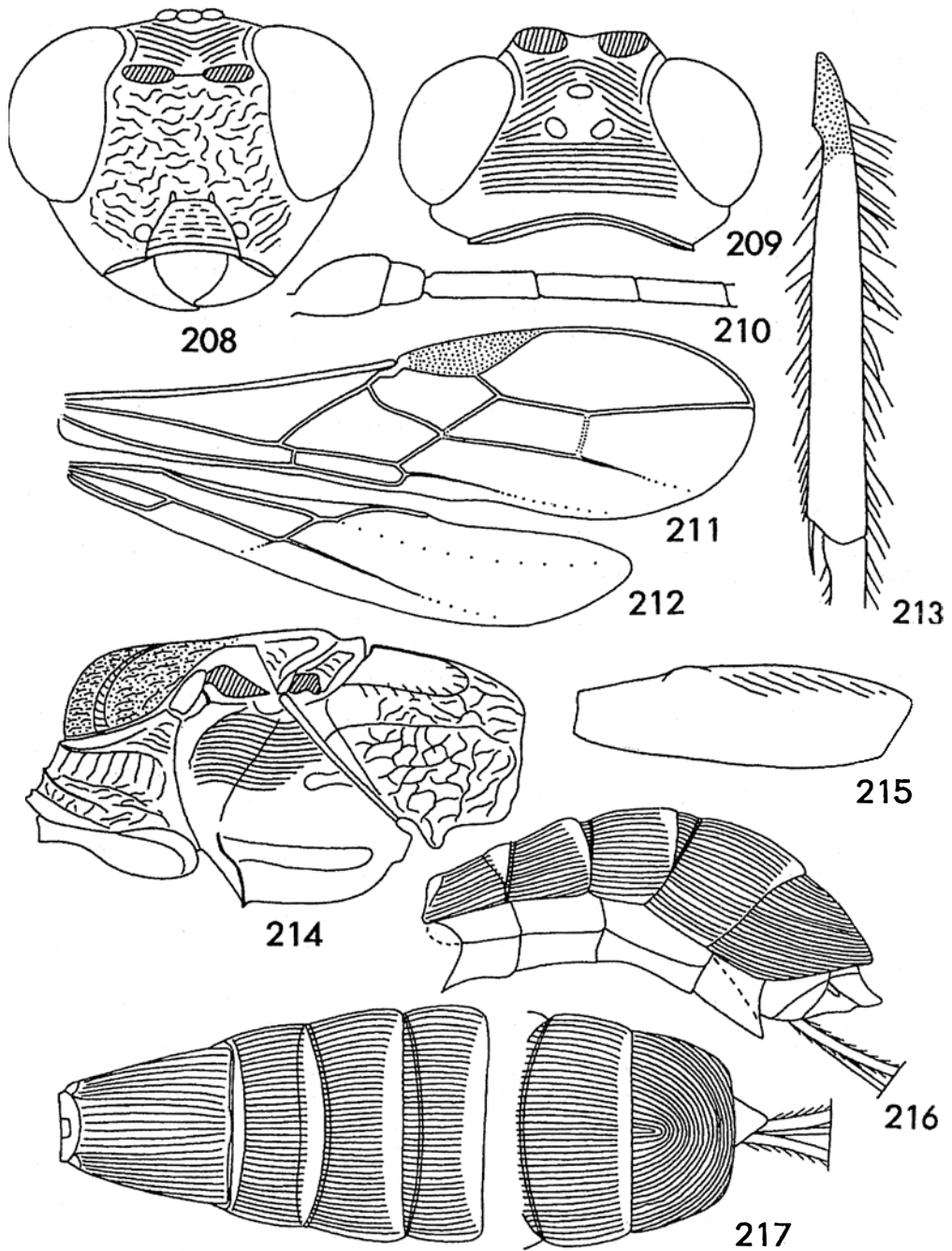
Holotype. ♀, Malaysia, Sarawak, Semongok, 12-16.I.1978, B. Bendell (CNC).

Description. Female. Body length 4.0 mm; fore wing length 3.0 mm. Head width 1.7 times its median length. Temple very strongly and almost linearly narrowed, 0.3 times as long as transverse diameter of eye. Ocelli rather small, in almost equilateral triangle; POL equal to Od, 0.55 times OOL. Eye large, glabrous, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.9 times basal width of mandible. Face width 0.9 times height of eye, equal to height of face and clypeus combined. Upper margin of clypeus situated higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.8 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina distinctly fused with hypostomal one near mandible. Vertex weakly convex. Head distinctly linearly narrowed below eyes.

Antennae slender, weakly setiform, with more than 34 segments (apical segments missing). Length of scape 1.7 times maximum width. First flagellar segment 4 times as long as its apical width, almost as long as second segment. Subapical segments about 4 times as long as wide.

Thorax 1.8 times as long as high. Pronotum weakly roundly convex anteriorly (dorsal view), almost straight dorsally (lateral view). Pronotal carina distinct, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal; neck with additional carina in anterior 1/4. Mesoscutum rather highly and roundly raised above pronotum. Notauli rather deep anteriorly, shallow posteriorly, complete, crenulate. Mesoscutum with shallow median depression in posterior half. Prescutellar depression rather short, weakly and linearly directed posterolaterally, with 5 carinae, almost smooth between striae, 0.3 times as long as weakly convex scutellum. Sternauli rather shallow, smooth, straight, running along anterior 2/3 of lower part of mesopleura, connected with prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather narrow, coarsely crenulate. Mesopleural suture crenulate in upper third, smooth in lower 2/3. Metanotum with short tooth rounded at apex. Metapleural lobes long, rather wide, rounded apically, very densely pubescent.

Wings. Length of fore wing 3.5 times its maximum width. Metacarpus 1.5 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming very obtuse angle with second abscissa.



Figs 208-217. *Ipodoryctes temporalis* sp. n. **208**, head, front view; **209**, head, dorsal view; **210**, basal segments of antenna; **211**, fore wing; **212**, hind wing; **213**, hind tibia; **214**, thorax, lateral view; **215**, hind femur; **216**, second-sixth abdominal tergites, lateral view; **217**, abdomen, dorsal view.

Second radial abscissa 2.5 times as long as first abscissa, 0.55 times as long as third abscissa, 1.5 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 3 times maximum width, 1.2 times length of narrow brachial cell. First medial abscissa S-curved. Recurrent vein weakly post-furcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein almost equal to nervulus length. Parallel vein arising before middle of distal margin of brachial cell. Brachial cell distinctly and roundly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) present. Hind wing 5.3 times as long as wide. First abscissa of costal vein 0.6 times second abscissa. First abscissa of mediocubital vein 0.9 times second abscissa. Recurrent vein almost interstitial, unsclerotized.

Legs. Hind femur 3 times as long as wide, with weak dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 4 outside spines. Hind basitarsus 0.8 times as long as second-fifth segments combined. Second tarsal segment 0.35 times as long as basitarsus, twice as long as fourth segment, almost as long as fifth segment (without pretarsus).

Abdomen 1.15 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite twice its basal width, its length almost equal to apical width. Second tergite with narrow and weakly separated basal area, with rather distinct, shallow, almost straight transverse furrow and rather distinct, narrow apical area, this area half as long as rest part of tergite. Median length of second tergite 0.5 times its basal width, 1.4 times length of third tergite. Second suture rather deep and wide. Sixth tergite weakly enlarged, weakly regularly rounded on posterior margin, without median emargination and posteroventral lobes, almost as long as fifth tergite, 1.2 times as long as fourth tergite. Ovipositor sheath 1.6 times as long as abdomen, 0.8 times as long as body, 1.1 times as long as fore wing.

Sculpture and pubescence. Vertex coarsely and distinctly transversely striate, without ground sculpture, narrowly smooth posteriorly. Frons coarsely and obliquely striate. Face almost entirely coarsely rugose. Temple smooth. Mesonotum rugulose, finely granulate on all lobes medially, with 4 longitudinal striae in medioposterior third. Scutellum finely punctulate, almost smooth. Mesopleura transversely striate in upper third, smooth in lower 2/3. Metapleura coarsely and undulately vertically striate. Propodeum with median carina in basal

half, basolateral areas distinctly marginate, entirely smooth; rest part of propodeum coarsely rugose. Hind coxa striate dorsally, almost smooth laterally and ventrally. Hind femur finely striate dorsally, smooth at most part. First tergite with dorsal carinae. First tergite entirely, second at most part (except narrowly smooth basal and apical areas), and third-fifth tergites (except smooth apical 1/5-1/6) coarsely striate and without ground sculpture. Sixth tergite entirely coarsely semicircularly striate. Second-fifth tergites densely striate in entire lateral parts. Vertex with short, rather sparse, almost erect, white hairs directed forward. Mesonotum almost entirely with dense, semierect, whitish hairs, partly glabrous in lateroposterior 1/4. Mesopleura entirely setose. Hind tibia with semierect, dense, white hairs dorsally; length of these hairs 0.8-1 times maximum width of hind tibia.

Colour. Body black with reddish tint; prothorax dark reddish brown in lower half; mesopleura in lower half and mesosternum light reddish brown; third-sixth tergites red in posterior half. Two basal segments of antenna yellowish brown; flagellum light reddish brown in basal half, dark brown in apical half; 34th segment pale yellow. Palpi pale yellow. Legs yellow; hind coxae red; hind tarsi reddish yellow; hind femora narrowly brown basally. Ovipositor sheath dark brown. Wings faintly infusate. Pterostigma brown, yellow basally and apically.

Male unknown.

Discussion. This species is very similar to *I. annulicornis* Blkb. and differs in the temple very short, ocelli in almost equilateral triangle, malar space long, submedial cell of hind wing large, second abdominal tergite short, ovipositor sheath long, and mesoscutum mostly rugulose.

Distribution. Malaysia.

Key to Oriental species of the genus *Ipodoryctes*

1. Vertex entirely smooth, rarely (in large specimens) with short lateral striation 2
- Vertex distinctly and usually at most part striate or rugulose-striate, rarely granulate 5
2. Pterostigma yellow. Sides of pronotum smooth at most part. Two basal segments of antenna almost black. Length of first tergite almost equal to its apical width. Apical area of second tergite shorter, 0.4 times as long as rest part of tergite. Mesoscutum shortly setose. Body length 3.8 mm *I. philippinensis* sp. n.
- Pterostigma dark brown, paler basally and apically. Sides of pronotum densely rugulose-striate with granulation. Two basal segments of antenna reddish brown or light reddish brown. Length of first tergite

- (1.1) 1.2-1.3 times its apical width. Apical area of second tergite longer, 0.6-0.7 times as long as rest part of tergite. Mesoscutum with rather long hairs 3
3. Mesoscutum densely and entirely granulate, without rugosity anteriorly, almost perpendicularly raised above pronotum. First-fifth tergites rugulose-striate. Basal area of second tergite smooth. Parallel vein arising from middle of distal vein of brachial cell. Hind femur of ♀ 3 times as long as wide. Body length 2.1-3.9 mm **I. ryukyuensis** sp. n.
- Mesoscutum rugulose-granulate or densely punctulate at most part, smooth or finely granulate in posterior 1/3-1/4, gently roundly raised above pronotum. First-fifth tergites striate, without rugulosity. Basal area of second tergite (if present) striate at most part. Parallel vein arising distinctly behind middle of distal vein of brachial cell. Hind femur of ♀ 3.5-3.7 times as long as wide 4
4. Mesoscutum distinctly and entirely rugulose-granulate (especially laterally). Antenna with pale subapical segments. Frons coarsely and almost entirely rugose-striate. Wing distinctly infuscate. Occipital carina fused with hypostomal one. Second radiomedial cell shorter, 2.8-3 times as long as wide. Body length 3.1-5.5 mm **I. nitidus** sp. n.
- Mesoscutum sparsely punctulate, rugulose-striate laterally and partly anteriorly, median lobe densely punctulate, partly with granulation. Antenna without pale subapical segments. Frons smooth at most part. Wing faintly infuscate. Occipital carina not fused with hypostomal one. Second radiomedial cell longer, 3-3.4 times as long as wide. Body length 2.1-4.7 mm **I. elegans** sp. n.
- 5(1). Vertex and mesopleura densely granulate. (See also couplet 19 in *Rhaconotus* key) 6
- Vertex striate or undulately striate; mesopleura striate in upper half to third, smooth or finely punctulate in lower 1/2-2/3 7
6. Vertex very densely setose. First tergite shorter, its length 0.7-0.8 times apical width. Frons rugose-reticulate, partly with granulation. Body length 2.8-4.5 mm **I. roslinensis** Lal (*caulicola* Mues.)
- Vertex very sparsely setose. First tergite longer, its length (0.9) 1-1.1 times apical width. Frons densely granulate only. Body length 1.5-4.5 mm **Rh. signatus** sp. n.
7. Parallel vein arising from posterior third of distal margin of brachial cell. Second tergite with deep semicircular basal furrow. Median length of second tergite (with apical area) almost equal to its basal width. Basolateral areas of propodeum indistinct. Body length 5.7 mm **I. laetus** (Blkb.)
- Parallel vein arising before middle of distal margin of brachial cell. Second tergite with very shallow basal furrow or without furrow. Median length of second tergite (with apical area) 0.5-0.8 times its basal width. Basolateral areas of propodeum distinct 8
8. Second tergite without separated apical area. – Thorax 1.7-1.8 times as long as high. Second tergite very short, its length 0.45-0.5 times basal width. Ovipositor sheath shorter than abdomen 9
- Second tergite with rather distinctly separated apical area 10
9. Pterostigma entirely yellow. First tergite very short, its length 0.7 times apical width. Areola of propodeum distinctly marginate. Sternauli running along entire length of lower part of mesopleura. Body entirely light reddish brown. Body length 3.5 mm **I. ashmeadi** (Baker)
- Pterostigma brown medially, yellow basally and apically. First tergite longer, its length equal to apical width. Areola of propodeum indistinct. Sternauli running along anterior 2/3 of lower part of mesopleura. Thorax and abdomen dark reddish brown; head reddish brown. Body length 3.5 mm **I. brevitergum** sp. n.
10. Second tergite without basal area 11
- Second tergite with rather distinct, short, at least partly smooth basal area 13
11. Malar space short, 0.25 times as high as eye, 0.6 times as high as basal width of mandible. Hind femur wider, 2.6 times as long as wide. Hind basitarsus 0.6 times as long as second-fifth segments combined. Radial vein arising distinctly before middle of pterostigma. Sixth tergite with shallow median emargination on posterior margin. Body length 3.7 mm **I. longi** Blkb.
- Malar space long, 0.4 times as high as eye, 0.8-1 times as high as basal width of mandible. Hind femur narrower, 3.4-3.6 times as long as wide. Hind basitarsus 0.75-0.9 times as long as second-fifth segments combined. Radial vein arising from or behind middle of pterostigma. Sixth tergite without emargination on posterior margin 12
12. Second tergite longer, its length 0.85 times basal width. Ovipositor longer, 1.1-1.3 times as long as fore wing. Propodeum without marginate areola. First abscissa of medial vein S-curved. Sternauli running along entire length of lower part of mesopleura. Mesopleura entirely pubescent. Hind tibia distinctly darker in apical 2/3. Body length 3.4-7.4 mm **I. andreii** sp. n.
- Second tergite shorter, its length 0.55 times basal width. Ovipositor shorter, 0.7 times as long as fore wing. Propodeum with completely marginate areola. First abscissa of medial vein almost straight. Sternauli running along anterior 2/3 of lower part of mesopleura. Mesopleura widely glabrous in lower half. Hind tibia light reddish brown in apical 2/3. Body length 3.8 mm **I. perakensis** sp. n.
- 13(10). Hind femur, all tibiae and tarsi almost entirely black. Sixth tergite with rather shallow median emargination on posterior margin. Scutellum almost smooth. Body length 7.0 mm **I. rugosiscutum** Blkb.
- Hind femur almost entirely, all tibiae (except often dark basal part) and tarsi at most part light reddish brown or brownish yellow. Sixth tergite without emargination on posterior margin. Scutellum almost entirely granulate 14
14. First tergite 0.8 times as long as its apical width. Second tergite with long basal area. Areola of propodeum rather distinctly marginate. Body length 4.5 mm **I. rubriceps** (Cameron)
- First tergite 1-1.2 times as long as its apical width. Second tergite with short basal area. Areola of propodeum indistinctly marginate 15

15. Head behind eyes almost linearly and very strongly narrowed. Temple short, 0.3 times as long as transverse diameter of eye. Ocelli in almost equilateral triangle. Second tergite half as long as its basal width. Ovipositor sheath longer, 1.1 times as long as fore wing. Body length 4.0 mm *I. temporalis* sp. n.
- Head behind eyes roundly and less strongly narrowed. Temple longer, 0.4-0.55 times as long as transverse diameter of eye. Ocelli in triangle with base 1.2-1.3 times its sides. Second tergite 0.55-0.7 times as long as its basal width. Ovipositor sheath shorter, 0.7-0.9 times as long as fore wing 16
16. Antennae 48-51-segmented, unicolorous dark in apical half. First flagellar segment 3.3-3.5 times as long as its apical width. Vertex rugose and undulately striate. Body reddish brown; head and hind coxae light reddish brown. Body length 6.0-7.0 mm *I. tamdaoensis* Blkb.
- Antennae 37-42-segmented, with 6-8 whitish yellow subapical segments. First flagellar segment 4-4.5 times as long as its apical width. Vertex transversely and rather regularly striate. Body almost entirely black; hind coxae almost black. Body length 3.3-5.4 mm *I. annulicornis* Blkb.

Genus *Arhaconotus* Belokobylskij

Arhaconotus ishigakiensis sp. n.

(Figs 218-226)

Holotype. ♀, Japan, Ryukyus, Ishigaki Is., Kabira, 18.VII.1973, H. Takizawa (EIS).

Description. Female. Body length 2.9 mm; fore wing length 2.4 mm. Head width 1.4 times its median length. Temple distinctly roundly narrowed, half as long as transverse diameter of eye. Ocelli small, in triangle with base 1.15 times its sides; POL 1.5 times Od, 0.4 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height 0.35 times height of eye, 0.9 times basal width of mandible. Face width equal to height of eye, 1.25 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.7 times distance from edge of depression to eye. Occipital carina fused with hypostomal one near mandible. Vertex convex. Head strongly and almost linearly narrowed below eyes.

Antennae slender, filiform, with more than 16 segments (apical segments broken). Length of scape 1.6 times maximum width. First flagellar segment 5.5 times as long as its apical width, 1.1 times as long as second segment.

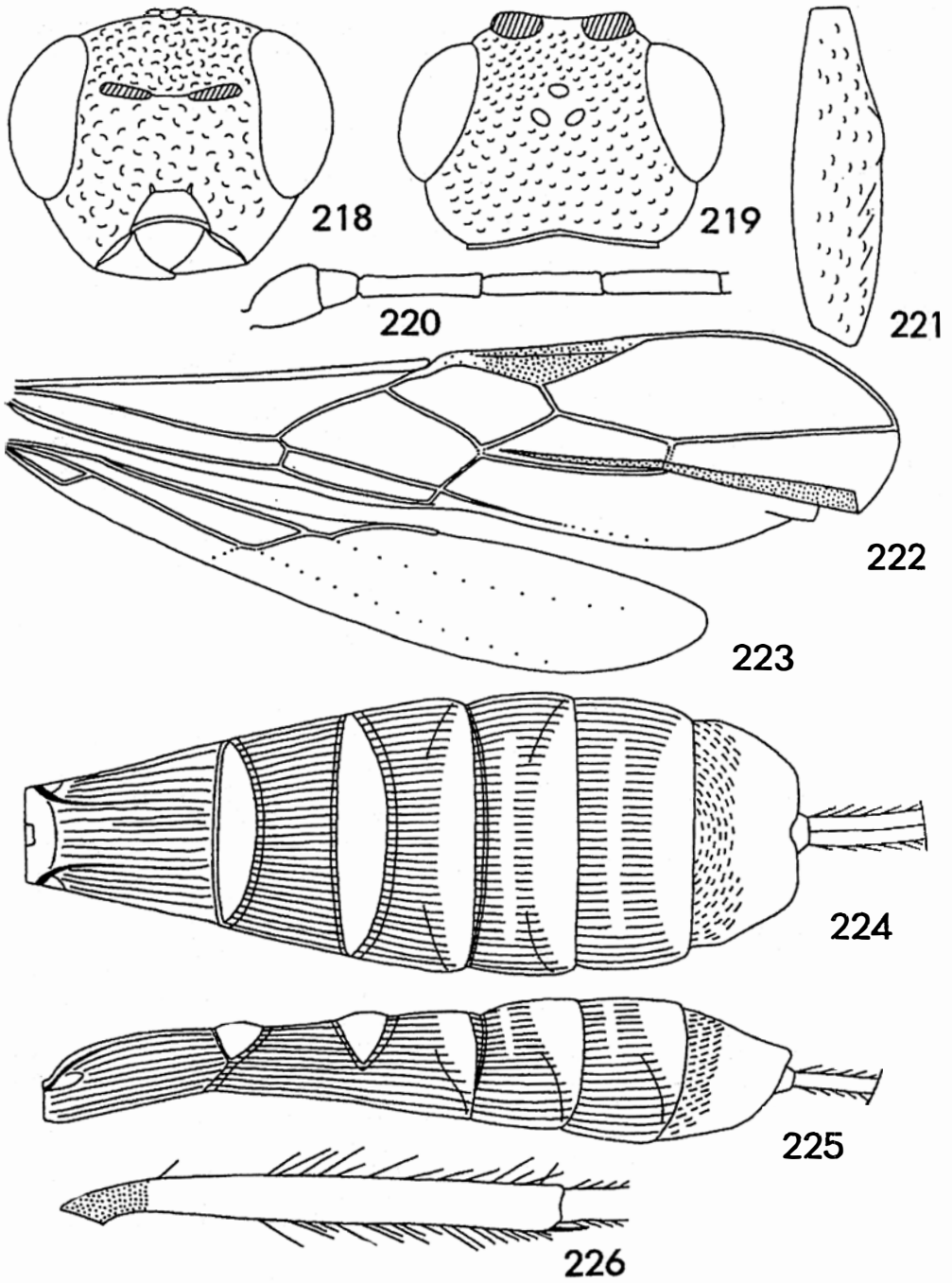
Thorax. Twice as long as high. Pronotum weakly convex anteriorly (dorsal view), twice weakly concave dorsally (lateral view). Pronotal carina distinct, widely separated medially

from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above pronotum. Notauli rather deep anteriorly, shallow posteriorly, complete, crenulate. Mesoscutum without median depression. Prescutellar depression distinct, rather deep, weakly and linearly directed posterolaterally, with median carina, almost smooth, 0.35 times as long as weakly convex scutellum. Sternauli rather deep, coriaceous, weakly curved, running along anterior 2/3 of lower part of mesopleura, connected with upper margin of prepectal carina. Prepectal carina distinct, wide ventrally, without widened lobes opposite fore coxae. Subalar depression shallow, rather wide, rugulose-crenulate. Metanotum without pointed tooth. Metapleural lobes distinct, rather narrow, rounded apically. Mesopleural suture very finely crenulate in upper half, smooth in lower half.

Wings. Length of fore wing about 3.5 times its maximum width. Metacarpus 1.2 times as long as pterostigma. Radial vein arising almost from middle of pterostigma. First radial abscissa forming distinct obtuse angle with second abscissa. Second radial abscissa 3.5 times as long as first abscissa, 0.6 times as long as third abscissa, about 1.5 times as long as first radiomedial vein. Length of second radiomedial cell about 3.5 times its maximum width, 1.4 times length of narrow brachial cell. First medial abscissa weakly S-curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein almost equal to nervulus length. Parallel vein interstitial. Brachial cell strongly and almost linearly closed on level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) short. Hind wing 5.5 times as long as wide. First abscissa of costal vein 0.4 times second abscissa. First abscissa of mediocubital vein 0.4 times second abscissa. Recurrent vein distinctly antefurcal, unsclerotized.

Legs. Hind femur 3.8 times as long as wide, with small dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 2 outside spines. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second tarsal segment 0.45 times as long as basitarsus, 2.2 times as long as fourth segment, 1.3 times as long as fifth segment (without pretarsus).

Abdomen 1.1 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.8 times its basal width, its length 1.1 times apical width. Second



Figs 218-226. *Arhaconotus ishigakiensis* sp. n. 218, head, front view; 219, head, dorsal view; 220, basal segments of antenna; 221, hind femur; 222, fore wing; 223, hind wing; 224, abdomen, dorsal view; 225, abdomen, lateral view. 226, hind tibia.

tergite with distinctly separated, long basal area, with distinct, shallow, almost straight transverse furrow and rather narrow apical area, this area half as long as rest part of tergite. Median length of second tergite 0.9 times its basal width, almost twice length of third tergite. Second suture deep and wide. Sixth tergite rather large, regularly rounded on posterior margin, with weak, narrow median emargination and without posteroventral lobes, almost as long as fifth tergite, 1.2 times as long as fourth tergite. Ovipositor sheath 1.4 times as long as abdomen, 0.7 times as long as body, twice as long as thorax, 0.85 times as long as fore wing.

Sculpture and pubescence. Vertex and face densely and finely coriaceous; frons densely and distinctly coriaceous; temple smooth at most part. Mesoscutum and scutellum densely granulate, mesoscutum narrowly rugulose-reticulate medioposteriorly. Mesopleura finely coriaceous. Metapleura granulate in anterior 3/5, rugose in posterior 2/5. Propodeum with median carina in basal half; basolateral areas distinctly marginate, finely coriaceous; rest part of propodeum rugulose-granulate. Hind coxa granulate dorsally, almost smooth ventrally. Hind femur coriaceous. First abdominal tergite with distinct dorsal carinae. First tergite entirely, second at most part (except smooth basal and apical areas), and third-fifth tergites in basal halves (their apical halves smooth) distinctly longitudinally striate and without ground sculpture; striae at fourth and fifth tergites shortly interrupted in basal 1/4. Sixth tergite finely rugulose-punctulate in basal half, almost smooth in apical half. Second-fifth tergites laterally rugulose-striate. Vertex with short, very sparse, semierect, yellowish hairs directed forward. Median lobe of mesonotum with dense, semierect, yellowish hairs at most part, but lateral lobes mostly glabrous. Mesopleura glabrous at most part. Hind tibia with semierect, rather dense, whitish hairs dorsally; length of these hairs almost equal to maximum width of hind tibia.

Colour. Head yellowish brown. Prothorax and mesonotum reddish brown, rest part of thorax and most part of abdomen (except red apical 2/3 of sixth tergite) black. Antenna reddish brown, darkened toward apex. Palpi yellow. Legs entirely brownish yellow. Ovipositor sheath yellowish brown, black in apical 1/5. Wings faintly infuscate. Pterostigma brown, paler basally and apically.

Male unknown.

Discussion. This species is similar to *A. vietnamicus* sp. n. and differs in the long oviposi-

tor, brachial cell closed on the level of recurrent vein, characteristic sculpture of sixth tergite, lateral lobes of mesoscutum glabrous at large part, temple long, first mediocubital abscissa of hind wing short, hind femur slender, and second tergite longer.

Distribution. Japan.

Arhaconotus vietnamicus sp. n.

(Figs 227-236)

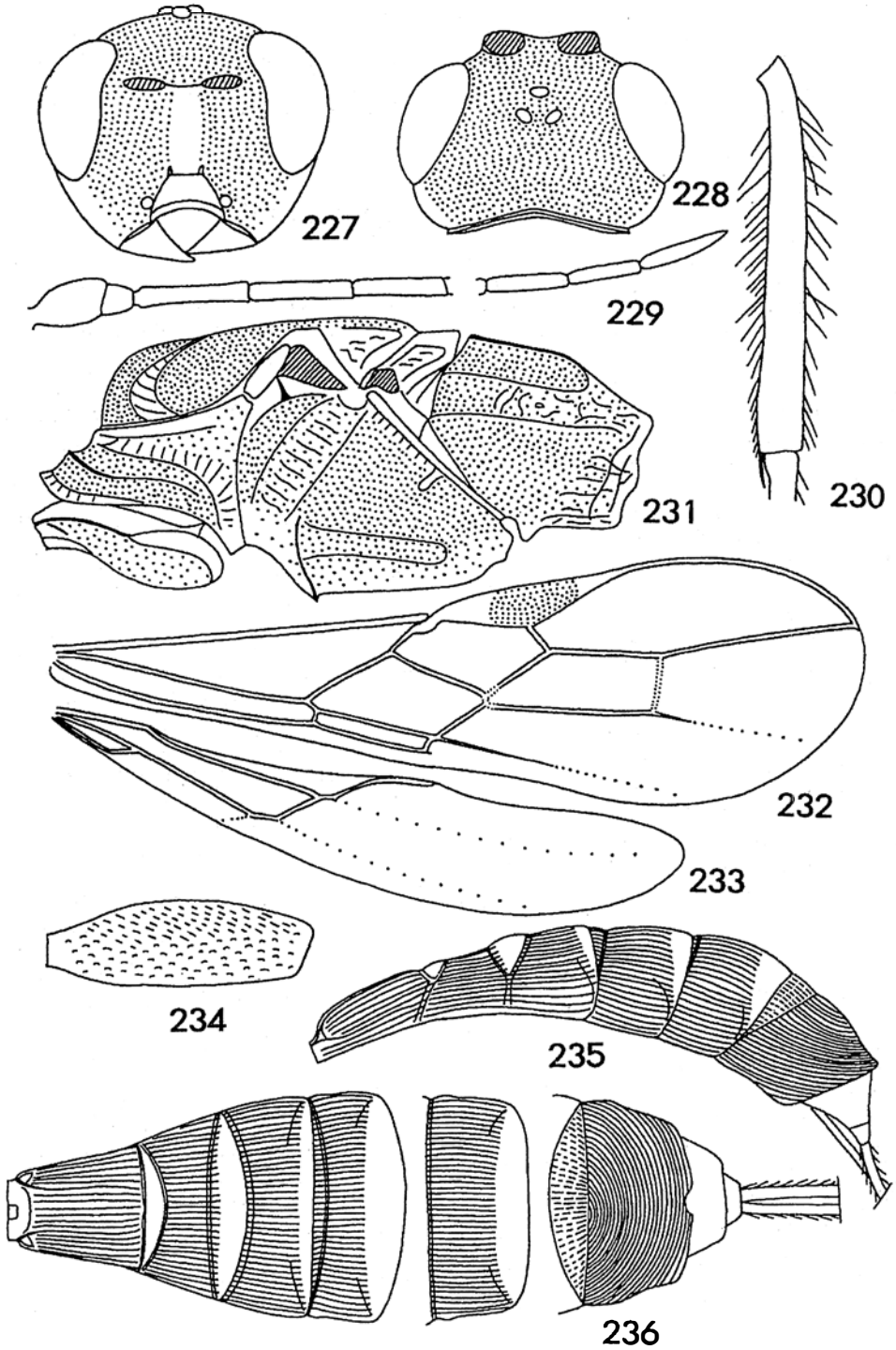
Holotype. ♀, Vietnam, prov. Ha Son Binh, Da Bac, Tuly, forest, 23.X.1990, Belokobylskij (ZISP).

Paratypes. Vietnam, prov. Ha Son Binh: 1 ♀, Ky Son, Cao Phong, forest, 28.X.1990, Belokobylskij (ZISP); 1 ♂, Mai Chau, 4.XI.1990, Belokobylskij (ZISP).

Description. Female. Body length 2.7-2.9 mm; fore wing length 2.4-2.5 mm. Head width 1.4-1.5 times its median length. Temple roundly narrowed, 0.35-0.4 times as long as transverse diameter of eye. Ocelli small, in triangle with base 1.1-1.2 times its sides; POL almost equal to Od, 0.35-0.4 times OOL. Eye glabrous, 1.2 times as high as broad. Malar space height 0.4 times height of eye, 0.8 times basal width of mandible. Face width almost equal to height of eye and 1.25-1.3 times height of face and clypeus combined. Upper margin of clypeus situated distinctly higher than level of lower margin of eyes. Hypoclypeal depression round, its width 0.6-0.8 times distance from edge of depression to eye. Occipital carina fused with hypostomal one near mandible or shortly interrupted. Vertex distinctly convex. Head below eyes distinctly roundly narrowed.

Antennae slender, filiform, 27-segmented, 1.5 times as long as body. Length of scape 1.6-1.8 times maximum width. First flagellar segment 4.5-5.5 times as long as its apical width, slightly shorter or as long as second segment. Penultimate segment 4.8 times as long as wide, 0.8 times as long as first segment, 0.9 times as long as apical segment.

Thorax 2-2.2 times as long as high. Pronotum weakly convex anteriorly (dorsal view), almost straight dorsally (lateral view). Pronotal carina distinct, high, widely separated medially from posterior margin of pronotum; distances from carina to anterior and posterior margins of pronotum subequal. Mesoscutum highly and roundly raised above pronotum. Notauli rather deep, complete, crenulate. Mesoscutum without median depression. Prescutellar depression distinct, shallow, roundly directed posterolaterally, with median carina, sparsely striate, 0.4 times as long as weakly convex scutellum. Sternauli rather shallow, finely coriaceous,



Figs 227-236. *Arhaconotus vietnamicus* sp. n. 227, head, front view; 228, head, dorsal view; 229, basal and apical segments of antenna; 230, hind tibia; 231, thorax, lateral view; 232, fore wing; 233, hind wing; 234, hind femur; 235, abdomen, lateral view; 236, abdomen, dorsal view.

straight, running along anterior 2/3 of lower part of mesopleura, connected with upper margin of prepectal carina. Prepectal carina distinct, rather wide ventrally, without widened lobes opposite fore coxae. Subalar depression rather deep, wide, granulate-crenulate. Mesopleural suture shortly crenulate in upper third, smooth in lower 2/3. Metanotum without pointed tooth. Metapleural lobes distinct, rather narrow, rounded apically.

Wings. Length of fore wing 3.2-3.3 times its maximum width. Metacarpus 1.2 times as long as pterostigma. Radial vein arising from middle of pterostigma. First radial abscissa forming distinct obtuse angle with second abscissa. Second radial abscissa 2.8-3.3 times as long as first abscissa, 0.6 times as long as third abscissa, about 1.5 times as long as first radiomedial vein. Second radiomedial cell not widened distally, its length 3-3.3 times maximum width, 1.4-1.6 times length of narrow brachial cell. First medial abscissa weakly curved. Recurrent vein postfurcal. Mediocubital vein weakly curved to anal vein in apical half. Distance from nervulus to basal vein almost equal to nervulus length. Parallel vein interstitial. Brachial cell strongly and roundly closed slightly before level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) very fine. Hind wing about 5.5 times as long as wide. First abscissa of costal vein 0.5-0.55 times second abscissa. First abscissa of mediocubital vein 0.55-0.65 times second abscissa. Recurrent vein strongly antifurcal, unsclerotized.

Legs. Hind femur 3-3.2 times as long as wide, with very weak dorsal protuberance. Hind tarsus 1.1 times as long as hind tibia. Hind tibia apically with 2 outside spines. Hind basitarsus 0.7-0.8 times as long as second-fifth segments combined. Second tarsal segment 0.4 times as long as basitarsus, 2.2-2.5 times as long as fourth segment, 1.25 times as long as fifth segment (without pretarsus).

Abdomen 1.1 times as long as head and thorax combined, with 6 visible tergites. Maximum width of first tergite 1.8 times its basal width, its length 1-1.1 times apical width. Second tergite with distinctly separated, long basal area, with distinct, almost straight transverse furrow and rather wide apical area, this area 0.6-0.7 times as long as rest part of tergite. Median length of second tergite 0.7-0.8 times its basal width, 1.7-2 times length of third tergite. Second suture rather deep and wide. Sixth tergite rather large, regularly rounded on posterior margin, with distinct, narrow median emargination and without posteroventral lobes, 1-1.2

times as long as fifth tergite, 1.2-1.3 times as long as fourth tergite. Ovipositor sheath 1-1.1 times as long as abdomen, 0.5-0.55 times as long as body, 1.5 times as long as thorax, 0.6-0.65 times as long as fore wing.

Sculpture and pubescence. Vertex and frons densely and finely granulate-coriaceous; face finely granulate; temple smooth or very finely coriaceous. Mesonotum densely granulate; mesoscutum widely rugulose medioposteriorly. Mesopleura densely coriaceous. Metapleura granulate, rugose in posterior 1/4. Propodeum with median carina in basal half; basolateral areas distinctly marginate, coriaceous; rest part of propodeum rugulose laterally and in posterior half. Hind coxa finely granulate. Hind femur coriaceous, very finely coriaceous ventrally. First abdominal tergite with distinct dorsal carinae. First tergite entirely, second at most part (except smooth basal and apical areas), and third-fifth tergites in basal halves (their apical halves smooth) distinctly longitudinally striate and without ground sculpture. Sixth tergite coarsely semicircularly striate, rugulose-punctulate in basomedian third. Second-fifth tergites densely striate in entire lateral parts. Vertex with short, very sparse, semierect, yellowish hairs directed forward. Mesonotum entirely with dense, semierect, whitish hairs. Mesopleura widely glabrous submedially. Hind tibia with semierect, rather dense, yellowish hairs dorsally; length of these hairs 0.75-1 times maximum width of hind tibia.

Colour. Head brownish yellow. Thorax reddish brown; propodeum dark reddish brown. Abdomen reddish brown; first tergite entirely and second-fourth tergites laterally dark reddish brown. Antenna reddish brown in basal 1/4, rest part dark reddish brown to black. Palpi yellow. Legs entirely yellow, sometimes hind coxa infusate. Ovipositor sheath reddish brown in basal 2/3, almost black apically. Wings very faintly infusate. Pterostigma brown, yellow in basal third and in apical 1/4.

Male. Body length 2.9 mm; fore wing length 2.3 mm. Brachial cell closed on level of recurrent vein. Hind femur 2.8 times as long as wide. Apical area of second tergite 0.3 times as long as rest part of tergite. Median length of second tergite equal to its basal width, 1.5 times length of third tergite. Propodeum with distinct areola. Thorax entirely reddish brown, but mesonotum lighter. Abdomen striate, with ground sculpture. Sixth tergite longitudinally striate in basal half, rugulose-coriaceous submedially, smooth in apical 1/4. Otherwise similar to female.

Discussion. This species is similar to *A. ishigakiensis* sp. n., differences between these species are indicated in the key below. The new species differs from *A. papuanus* Blkb. (Belokobylskij, 2000) in the vertex and mesothorax densely granulate, areola of propodeum indistinct, apical area of second tergite shorter and smooth, sixth tergite with median emargination, and median lobes of mesoscutum entirely setose.

Distribution. Vietnam.

Key to species of the genera *Arhaconotus* and *Mimipodoryctes*

1. Parallel vein of fore wing interstitial. First and second tergites of ♂ immovably fused. Vertex smooth or densely granulate, without striation. (*Arhaconotus* Blkb.) 2
 - Parallel vein of fore wing not interstitial, arising from anterior third of distal margin of brachial cell. First and second tergites of ♂ movably connected. Vertex striate or rugulose, sometimes with granulation between rugulae. (*Mimipodoryctes* Blkb.) 4
2. Vertex and most part of thorax smooth. Laterotergites sparsely setose. Sixth tergite without medioposterior emargination. Propodeum with marginate areola. Body length 2.9-4.3 mm *A. papuanus* Blkb.
 - Vertex and most part of thorax distinctly granulate. Laterotergites densely setose. Sixth tergite with distinct medioposterior emargination. Propodeum without marginate areola 3
3. Ovipositor sheath shorter, 0.6-0.65 times as long as fore wing. Sixth tergite entirely semicircularly striate. Lateral lobes of mesoscutum entirely setose. Hind femur 3-3.2 times as long as wide. Body length 2.7-2.9 mm *A. vietnamicus* sp. n.
 - Ovipositor sheath longer, 0.85 times as long as fore wing. Sixth tergite finely rugulose-punctulate in basal half, almost smooth in posterior half. Lateral lobes of mesoscutum glabrous at large part. Hind femur 3.8 times as long as wide. Body length 2.9 mm *A. ishigakiensis* sp. n.
- 4(1). Second tergite with distinct, smooth basal area. Length of first tergite 0.8-0.85 times its apical width. Length of second tergite 0.5-0.55 times its apical width. Ovipositor shorter, its sheath 0.6-0.65 times as long as fore wing. Body length 3.5-5.1 mm *M. robustus* Blkb.
 - Second tergite without basal area. Length of first tergite 1-1.2 times its apical width. Length of second tergite 0.75-1 times its apical width. Ovipositor

- longer, its sheath 0.8-1.1 times as long as fore wing 5
- 5. Apical area of second tergite rugulose. Sixth tergite with shallow and wide emargination on posterior margin. Vertex rather sparsely, coarsely and in part undulately striate. Middle tibia dark brown or black basally. Hind femur dark reddish brown at most part. Body length 4.8-7.6 mm *M. peregrinus* (Blkb.)
- Apical area of second tergite usually at most part smooth. Sixth tergite with deep and narrow emargination on posterior margin. Vertex densely, finely and linearly striate. Middle tibia pale basally. Hind femur brownish yellow at most part, rarely faintly infusate. Body length 3.8-5.0 mm *M. korotyaevi* (Blkb.)

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