# New genera of the subfamilies Rhyssalinae, Exothecinae and Gnamptodontinae from the Old World (Hymenoptera: Braconidae) 

S.A. Belokobylskij


#### Abstract

Belokobylskij, S.A. 1999. New genera of the subfamilies Rhyssalinae, Exothecinae and Gnamptodontinae from the Old World (Hymenoptera: Braconidae). Zoosystematica Rossica, 8(1): 155-169.


#### Abstract

Six new genera of the subfamilies Rhyssalinae, Exothecinae and Gnamptodontinae from the Afrotropical, Oriental and Australian regions are described and figured: Rhyssaloides gen. n. (type species Rh. antipoda sp. n. from New Zealand), Kerevata gen. n. (type species $K$. pacifica sp. n. from New Britain Island), Austrolysitermus gen. n. (type species $A$. hirsutus sp. n. from South Africa), Afrorhysipolis gen. n. (type species $A$. intermedius sp. n. from Africa), Orientocolastes gen. n. (type species O. io $\mathrm{sp} . \mathrm{n}$. from Indonesia) and Neognamptodon gen. n. (type species $N$. suturalis $\mathrm{sp} . \mathrm{n}$. from Madagascar).


S.A. Belokobylskij, Zoological Institute, Russian Academy of Sciences, St.Petersburg 199034, Russia.

## Introduction

The braconid fauna of the tropical and subtropical regions is very diverse and speciose, but rather poorly studied. Four new genera of the subfamilies Rhyssalinae and Exothecinae are described in this paper from the Afrotropical and Australian zoogeographical regions. Rhyssaloides gen. n. from New Zealand is a vicarious genus to the Holarctic Rhyssalus Haliday. It is important to indicate that all former records of Rhyssalus from the Oriental region (Shenefelt, 1975) are wrong or doubtful and need re-examination (Belokobylskij, 1996). A similar situation is observed in Austrolysitermus gen. n. from South Africa. The vicarious genus Lysitermus Förster is distributed in the Northern Hemisphere (West Palaearctic, Nearctic and northern part of Neotropic) (Wharton, 1994; Achterberg, 1995). It is interesting to emphasize that the South African fauna of the tribe Lysitermini is very distinct. This fauna now includes 3 endemic genera (Afrotritermus Belokobylskij, Austrolysitermus gen. n . and Neolysitermus Belokobylskij \& Quicke) and the widely distributed in the Old World Acanthormius Ashmead. Kerevata gen. n. (New Britain I.) is a genus of the tribe Clinocentrini with disputable subfamily position. This tribe includes 5
recent genera (Belokobylskij, 1993). The new genus is characterized by the widened apical half of mediocubital cell with strongly thickened veins around it, a character present sporadically in the subfamily Rogadinae. The South African genus Afrorhysipolis gen. n . occupies an intermediate position in the tribal classification of Exothecinae s. 1. (Belokobylskij, 1993). Its placement in Rhysipolini is rather problematical, but more realistic than in any other tribe. The tribe Exothecini is more diverse in the Oriental region and includes 3 genera (Belokobylskij, 1994) (in comparison with Afrotropical region with 1 genus). Orientocolastes gen. n. is the fourth Oriental genus of this tribe which has a number of plesiomorphic characters unusual for the tribe: sculptured sternauli, complete dorsally occipital carina and presence laterally of prepectal carina. Three genera of Gnamptodontinae were known in the world fauna (Achterberg, 1993). Neognamptodon gen. n. from Madagascar, the fourth genus of this subfamily, has several plesiomorphic characters (presence of notauli, median crenulate furrow of mesoscutum, crenulate sternauli and carinae on propodeum, and also the shape of the basal area of the second abdominal tergite).
The terms of wing venation are used as defined by Tobias (1986). The following abbre-
viations are used: POL, postocellar line; OOL, ocular-ocellar line; Od, maximum diameter of lateral ocellus; CNC, Canadian National Collection (Ottawa, Canada); BMNH, the Natural History Museum (London, U.K.); ZISP, Zoological Institute, Russian Academy of Sciences (St.Petersburg, Russia).

## Systematic part

## Subfamily RHYSSALINAE

## Rhyssaloides gen. n.

Type species Rhyssaloides antipoda sp.n.
Description. Head subcuboid (Fig. 2), its width 1.2-1.4 times median length. Ocelli in triangle with base 1.2 times its sides. Frons not concave, without median keel. Eyes almost glabrous. Occipital carina present, fused with hypostomal one near mandible. Malar suture absent. Clypeal suture distinct. Clypeus with wide ventral flange. Hypoclypeal depression large and almost round (Fig. 1). Face with 2 distinct submedian oval depressions above clypeal suture. Postgenal bridge indistinct. Palpi rather long and slender; maxillary palpi 6-segmented; labial palpi 3-segmented. 2nd segment of labial palpi shortened, almost half as long as 3rd segment. Scape (Fig. 4) wide and short, without lobe or cut apically; length of scape 1.5-1.6 times its maximum width. Pedicel subcuboid. 1st flagellar segment longer than 2nd.

Neck of prothorax rather long. Pronotal keel absent. Propleural lobe distinct and wide. Mesonotum highly and almost perpendicularly raised above prothorax (Fig. 11). Median lobe of mesonotum without anterolateral corners. Notauli deep and crenulate in anterior half or three-fifths, absent posteriorly. Mesoscutum with distinct median longitudinal carina in posterior three-fifths. Prescutellar depression rather long, sculptured, with median carina. Scuto-scutellar suture distinct. Scutellum weakly convex, without lateral carinae. Metanotum with short median tubercle. Subalar depression rather shallow and wide. Mesopleural pit deep and long. Sternauli deep, wide, straight, crenulate. Prepectal carina distinct and complete. Metapleural flange short, wide, round apically. Propodeum with marginate areas; lateral tubercles small. Propodeal spiracles small, round.

Pterostigma of fore wing (Fig. 6) rather narrow; radial vein arising distinctly behind middle of pterostigma. Radial cell not shortened. Both radiomedial veins present. Recurrent vein interstitial or slightly antefurcal. Nervulus strongly postfurcal. Discoidal cell petiolate. Parallel vein arising from posterior fifth of apical side of brachial cell. Brachial cell closed. 2nd transverse anal veins present, but strongly unsclerotized. Hind wing (Fig. 7) with 3 hamuli. Submedial cell large. 1st abscissa of mediocubital vein almost 4 times 2nd abscissa. Recurrent vent absent. Medial cell wide, $0.4-0.45$ times as long as hind wing. Radial vein arising from basal vein near costal one. Radial cell almost parallelsided, without additional transverse vein. 1st abscissa of costal vein 0.4-0.5 times 2 nd abscissa.
Legs. Fore tibia with dense slender spines in rather narrow row. Hind coxa without basoventral tooth (Fig. 8). Hind femur 3.8-4 times as long as wide (Fig. 9). Hind tibial spurs short, slender, setose; inner spur almost 0.2 times as long as hind basitarsus. Basitarsus of hind tarsus 0.7-0.8 times as long as 2 nd- 5 th segments combined.

Abdomen. 1st tergite not petiolate, wide (Fig. 10). Dorsope of 1 st tergite large. Spiracular tubercles indistinct; spiracles placed in basal third of tergite; dorsal carinae present in basal half. 2nd suture very fine. 2nd and following tergites without separate laterotergites; spiracles placed on sides of tergites. Hypopygium rather large, weakly pointed apically. Ovipositor longer than abdomen. Apical part of ovipositor with very small dorsal node, serrate ventrally (Fig. 5).

Comparison. The new genus is related to Rhyssalus Haliday, but differs in the large mediocubital cell of hind wing, absence of recurrent vein of hind wing, incomplete notauli, 3-segmented labial palpi, and metanotum without pointed spine. Rhyssaloides gen. n. is related also with Doryctomorpha Ashmead from which it differs in the high face, small mandible, clypeus without median carina, glabrous eyes, long antennae (which are not shorter than body), long tarsal segments of fore leg, not enlarged 5th segments of all tarsi, not postfurcal position of recurrent vein, and coarsely sculptured 1st abdominal tergite.

Distribution. New Zealand.
Etymology. The suffix "oides" (Greek for "resembling") is added to the generic name Rhyssalus, because the new genus resembles the latter genus. Gender masculine.


Figs 1-11. Rhyssaloides antipoda gen. et sp. n. 1, head, frontal view; 2, head, dorsal view; 3, propodeum; 4, basal and apical segments of antenna; 5 , apical part of ovipositor; 6 , fore wing; 7 , hind wing; 8 , hind coxa; 9 , hind femur; 10, 4 basal tergites of abdomen; 11, thorax, lateral view.

Rhyssaloides antipoda sp. n .
(Figs 1-11)
Holotype. ㅇ, "New Zealand: Ohakune. March 1923. T.R. Harris. B.M. 1923 - 230" (BMNH).

Paratypes. 1 i with label as holotype (ZISP); 1 \&, "New Zealand: Ohakune. XI.1922. T.R. Harris. B.M. 1923-13" (BMNH).

Description. Female. Body length 3.3-4.3 mm ; fore wing length $3.4-4.3 \mathrm{~mm}$.
Head. Temple behind eyes parallel-sided in anterior half, roundly narrowed in posterior half; transverse diameter of eye $0.8-1$ times length of temple (dorsal view). POL 1.3-1.5 times Od, 0.4 times OOL; Od 0.3 times OOL. Eye 1.4-1.5 times as high as broad. Cheek height 0.4-0.5 times height of eye, 0.8-1 times basal width of mandible.

Face width 1.1-1.2 times eye height and 1.11.2 times height of face and clypeus combined. Width of hypoclypeal depression subequal to distance from depression to eye. Tentorial pits distinct. Head strongly and roundly narrowed below eyes.
Antennae rather slender, 31-33-segmented. Length of 1st flagellar segment 6-6.3 times its apical width, 1.2-1.3 times length of 2nd segment. Penultimate segment almost twice as long as wide, 0.3 times as long as 1 st flagellar segment, 0.8-0.9 times as long as apical segment.
Thorax. Almost twice as long as high. Prescutellar depression almost 0.4 times as long as scutellum. Subalar depression entirely rugulose. Propodeum almost flat in
anterior two-thirds, roundly narrowed in posterior third.
Wing. Length of fore wing 3.2-3.5 times its maximum width. Pterostigma 4-4.5 times as long as wide, 0.8 times as long as metacarpus. 2nd radial abscissa 2-2.6 times 1 st abscissa, 0.4-0.5 times the slightly curved 3rd abscissa, 0.8-0.9 times 1st radiomedial vein. 2nd radiomedial cell rather long, its length 2.6-2.8 times its width, 1.7-2 times length of brachial cell. Brachial cell rather wide. Distance between nervulus and basal vein 1-1.2 times nervulus length. Hind wing 4-4.2 times as long as wide.
Legs. Hind tarsus 0.8 times as long as hind tibia. 2nd tarsal segment 0.45-0.5 times as long as 1st segment, 1.2-1.3 times as long as 5 th segment (without pretarsus). Hind basitarsus without lower keel.
Abdomen. Length of 1st tergite equal to its apical width; apical width twice its basal width. Length of 2nd tergite $0.35-0.4$ times its basal width, $0.9-1$ times length of 3rd tergite. Length of 2nd and 3rd tergites combined 0.7-0.8 times basal width of 2nd tergite. Ovipositor sheath 1.6-2.2 times as long as thorax, 0.65-0.85 times as long as fore wing.
Sculpture and pubescence. Head rather densely and finely or very finely granulate; frons distinctly granulate. Mesonotum densely and finely granulate. Mesopleura very finely reticulate, partly almost smooth. Propodeum densely and finely rugulose; areola small, pentagonal; petiolate cell small; median carina present in basal third, 1.5-2 times as long as furca of areola. Hind coxa finely or very finely granulate; hind femur densely granulate. 1st abdominal tergite ru-gose-striate, with fine granulation between striae. Remaining tergites smooth. Mesoscutum very densely and shortly setose. Hind tibia with short, semierect, pale, dense hairs; length of hairs on dorsal side of hind tibia significantly less than maximum width of hind tibia.
Colour. Body light reddish brown or yellowish brown; thorax (except mesoscutum) and 1 st abdominal tergite darker. Palpi pale yellow. Antennae light brown, faintly darkened towards apex. Legs light brown or yellow; middle femur in apical third, hind femur in apical half and hind tibia basally reddish brown. Wings faintly and maculately infuscate. Pterostigma light brown, darkened marginally. Ovipositor sheath light reddish brown or yellow, dark brown apically.

Male unknown.

Subfamily EXOTHECINAE

## Tribe Clinocentrini

## Kerevata gen. n.

Type species Kerevata pacifica sp.n.
Description. Head rather transverse (Fig. 13), its width 1.5-1.6 times median length. Ocelli large, almost in equilateral triangle. Frons with shallow median longitudinal furrow. Eyes glabrous. Occipital carina wide, complete, fused below with hypostomal one. Subocular (malar) suture absent. Clypeal suture wide, complete. Clypeus convex. Hypoclypeal depression rather small, round (Fig. 12). Palpi rather long; maxillary palpi 6 -segmented; labial palpi 4 -segmented. Scape (Fig. 15) wide, without apical lobe or cut, its length 1.5-1.6 times its maximum width. Antennae weakly setiform, slender. Anellus with distinct, circular, oblique carina (Fig. 16). 1st flagellar segment 1.3-1.4 times as long as 2nd segment. Apical segment with long apical spine.

Prothorax simple and short. Propleural lobe distinct and wide. Mesonotum highly and roundly raised above prothorax (Fig. 18). Notauli deep, complete, crenulate. Prescutellar depression long, rather narrow, sparsely and finely sculptured. Scuto-scutellar suture distinct. Scutellum weakly convex, with lateral carinae, narrowly and transversely sculptured in posterior fifth, its length 1.3-1.4 times maximum width. Subalar depression shallow, wide, rugulose. Sternauli deep, long, oblique, weakly curved. Prepectal carina distinct, complete. Postpectal carina absent. Mesopleural pit distinct. Mesopleura with oblique and smooth furrow between mesopleural pit and anterior third of sternauli. Metapleural flange short, wide, round apically. Propodeum without marginate areas; lateral tubercles absent. Propodeal spiracles small, round. Metapleural suture present.

Fore wing (Fig. 19) entirely regularly and densely setose. Pterostigma short and wide. Radial vein arising from anterior third of pterostigma. Radial cell closed distally. Recurrent vein antefurcal. Nervulus thickened and convexly curved, postfurcal. Submedial cell roundly widened in distal half (Fig. 19). Mediocubital vein significantly thickened in distal half. Brachial cell closed. Transverse anal veins absent. Hind wing (Fig. 20) with 3 hamuli. Submedial cell large. 1st abscissa of
mediocubital vein 1.2-1.3 times 2 nd abscissa. Recurrent vein present, distinctly curved toward base of wing. Medial cell wide, $0.45-$ 0.47 times as long as hind wing. Radial vein arising from basal vein near costal one. Radial cell weakly widened toward apex, without additional transverse vein. 1st abscissa of costal vein 1.5-1.6 times 2nd abscissa.

Legs long and slender. Hind femur 5.7-5.8 times as long as wide (Fig. 21). Hind tibia with a row of very dense white hairs at inner distal margin. Hind tibial spurs rather short, slender, setose; inner spur 0.15-0.2 times as long as hind basitarsus. Hind basitarsus 0.7 times as long as 2 nd- 5 th segments combined. Claws of legs small, simple, with dense long hairs.

Abdomen. 1st tergite long (Fig. 23), with large dorsope, without basolateral lobes; spiracular tubercles fine; spiracles bean-shaped, placed laterodorsally in basal third. Dorsal carinae distinct, fused basally, united carina reaching apical margin of tergite. 2nd tergite with complete median carina. 2nd suture distinct. Abdominal tergites behind the 3rd one finely sclerotized and smooth. 2nd and 3rd tergites with separate laterotergites. Hypopygium small, obtuse at posterior margin. Ovipositor slender, with simple apex, not longer than 1st-3rd abdominal tergites combined.

Comparison. Kerevata gen. n. is a genus of the tribe Clinocentrini (Achterberg, 1991; Belokobylskij, 1993) related to Clinocentrus Haliday. The new genus differs in the shape of the apical half of submedial cell of fore wing, presence of oblique additional furrow on mesopleura, radial vein of hind vein arising from basal vein, and anellus with distinct carina.

Distribution. New Britain Island.
Etymology: from the type locality of the type species. Gender feminine.

## Kerevata pacifica sp. n.

(Figs 12-23)
Holotype. \&, "New Britain, Kerevat, VI.[19]74, Mal. Trap" (CNC).

Paratypes. 3 \&, "New Britain, Kerevat, Mal. Trap 73" (CNC, ZIP); 2 \&, "New Britain, Kerevat, VI.[19]74, Mal. Trap" (CNC).

Description. Female. Body length 6-6.8 mm ; fore wing length $5.2-5.5 \mathrm{~mm}$.

Head. Temple behind eyes strongly and almost linearly narrowed; transverse diameter of eye 3-3.3 times length of temple (dorsal view). POL 0.3-0.4 times Od, 0.5-0.6 times

OOL; Od 1.4-1.5 times OOL. Eye large, 1.3 times as high as broad. Cheek height 0.1 times height of eye, 0.2 times basal width of mandible. Face width 0.6 times eye height and 0.8-0.9 times height of face and clypeus combined. Clypeus without flange along lower margin. Width of hypoclypeal depression 3-3.3 times distance from depression to eye. Tentorial pits distinct, their diameter almost equal to distance from pit to eye. Head strongly and linearly narrowed below eyes.

Antennae 48 -segmented. Length of 1 st flagellar segment 3.7-3.8 times its apical width. Penultimate segment 2.5 times as long as wide, 0.4 times as long as 1 st flagellar segment, 0.7 times as long as apical segment. Antennae with long, semierect, rather sparse hairs.

Thorax. Length 1.8 times its height. Prescutellar depression with distinct median carina, 0.33-0.4 times as long as scutellum. Propodeum roundly narrowed toward posterior margin.
Wing. Pterostigma 3.2-3.5 times as long as wide, almost 0.7 times as long as metacarpus. Parastigma thickened. 2nd radial abscissa 1.3-1.4 times 1 st abscissa, 0.3-0.4 times the slightly curved 3rd abscissa, 1.3-1.7 times 1st radiomedial vein. 2nd radiomedial cell narrow, its length almost 3 times its width, 1.2-1.3 times length of brachial cell. Brachial cell wide. 2nd abscissa of medial vein long, 1.1-1.2 times as long as recurrent vein, rarely equal to it. Discoidal cell 2-2.2 times as long as wide. Distance between nervulus and basal vein 0.8-1 times nervulus length. Recurrent vein of hind wing antefurcal.

Legs. Hind tarsus slender, 1.1-1.2 times as long as hind tibia. 2nd tarsal segment almost half as long as 1 st segment, 1.7-1.8 times as long as 5th segment (without pretarsus). Hind basitarsus with distinct lower keel, covered with flat scales.
Abdomen. 1st-3rd tergites combined 1.2 times as long as thorax. 1st tergite 1.8-2 times as wide apically as at level of dorsope; twice as long as its apical width. Length of 2nd tergite 1.2-1.3 times its basal width, 1.31.4 times length of 3rd tergite. Distal tergites distinctly extending beyond third tergite. Ovipositor sheath 0.7-0.9 times as long as 1st-3rd tergites combined or as long as hind tibia, 0.4 times as long as fore wing.
Sculpture and pubescence. Head smooth; frons laterally sparsely striate, two lateral carinae high and curved. Thorax smooth. Mesoscutum finely punctulate, narrowly and coarsely rugose medioposteriorly. Mesopleu-

hypostomal one. Hypostomal keel distinct. Malar suture absent. Clypeal suture complete. Clypeus convex. Hypoclypeal depression rather large, round. Palpi short; maxillary palpi 6 -segmented; labial palpi 4 -segmented. Scape short and wide, with apical external cut, its length 1.2 times maximum width. Antennae filiform, thickened. 1st flagellar segment as long as 2nd segment. Apical segment without apical spine (Fig. 27).

Thorax almost entirely densely setose. Prothorax simple and short. Propleural lobe distinct, rather narrow. Mesonotum highly and roundly raised above prothorax (Fig. 31). Notauli deep, complete, crenulate. Mesoscutum with additional lateral longitudinal and almost parallel depressions (Fig. 26). Prescutellar depression rather long, sculptured. Scuto-scutellar suture distinct. Scutellum weakly convex, with fine lateral carinae, its length 0.9 times maximum width. Metanotum with short pointed tubercle. Subalar depression shallow, wide, sculptured. Sternauli shallow, short, straight, sculptured. Prepectal carina distinct and complete. Mesopleural pit distinct, elongate. Metapleural flange distinct, round apically. Propodeum without marginate areas; lateral tubercles absent. Propodeal spiracles small and round.
Fore wing (Fig. 29). Pterostigma very narrow. Radial vein arising almost from middle of pterostigma. Radial cell closed distally. First radiomedial vein lost. Parastigma very narrow, indistinct. Nervulus almost interstitial. Brachial cell open apically; brachial vein lost. Parallel vein not curved basally. Transverse anal veins absent. Hind wing (Fig. 30) with 3 hamuli. Submedial cell small. 1st abscissa of mediocubital vein 0.7 times 2 nd abscissa. Recurrent vein present, but unsclerotized. Radial cell weakly widened toward apex. 1st abscissa of costal vein 0.4 times 2nd abscissa.
Legs long and slender. Hind femur almost 5 times as long as wide (Fig. 28). Hind tibial spurs short; inner spur 0.15 times as long as hind basitarsus. Hind basitarsus 0.8 times as long as 2 nd- 5 th segments combined. Claws of legs small and simple.
Abdomen entirely covered with dense, short, yellow hairs. 1st tergite wide and short (Fig. 44), with small dorsope, without basolateral lobes; dorsal carinae joined to semicircular carina basally; spiracular tubercles absent; spiracles placed near middle of tergite. 1st and 2nd tergites not fused. 2nd ter-
gite with small spiracles in anterolateral third. 2nd suture deep. 2nd and 3rd tergites with separate laterotergites. 3rd tergite with small pointed ventral teeth in posterior third (Fig. 32) and short and wide lateral process at posterior margin; short posterior flange present. Remaining tergites unsculptured and almost covered by 3rd tergite. Hypopygium rather large, obtuse at posterior margin. Ovipositor slender, with simple apex; its sheath shorter than 1st-3rd abdominal tergites combined.
Comparison. Austrolysitermus gen. n. is related to Lysitermus Förster, but differs in the brachial cell open apically, propodeum without areolation, mesoscutum with additional longitudinal lateral depression, and 3rd abdominal tergite with short lateral processes at posterior margin.
Distribution. South Africa.
Etymology. From "australis" (Latin for "south") and the generic name Lysitermus, because the new genus is similar to Lysitermus. Gender masculine.

Austrolysitermus hirsutus sp. n.
(Figs 24-33)
Holotype. \%, "S. Africa, Cape Provinces, Kogelberg For. Res.", "4-22.III.1983, D.M. Kroon" (BMNH).
Description. Female. Body length 2 mm ; fore wing length 1.7 mm .
Head. Temple behind eyes roundly narrowed; transverse diameter of eye 1.4 times length of temple (dorsal view). POL 1.5 times Od, 0.3 times OOL; Od 0.2 times OOL. Eye 1.2 times as high as broad. Cheek height 0.7 times height of eye, 1.3 times basal width of mandible. Face width 1.4 times eye height and 1.3 times height of face and clypeus combined. Clypeus without flange along lower margin. Width of hypoclypeal depression 0.9 times distance from depression to eye. Tentorial pits large, placed distinctly lower than lower level of eyes. Head strongly and roundly narrowed below eyes.
Antennae 17 -segmented. Length of 1 st flagellar segment 2.8 times its apical width. Penultimate segment twice as long as wide, 0.75 times as long as 1st flagellar segment, 0.8 times as long as apical segment. Antennae with very short, semierect, dense hairs.
Thorax. Length 1.6 times its height. Prescutellar depression with median carina, 0.4 times as long as scutellum. Propodeum roundly narrowed toward posterior margin.
Wing. Pterostigma 6.5 times as long as wide, 0.7 times as long as metacarpus. 2nd


Figs 24-33. Austrolysitermus hirsutus gen. et sp. n. 24, head, frontal view; 25, head, lateral view; 26, mesonotum; 27, basal and apical segments of antenna; 28, hind femur; 29, fore wing; 30, hind wing; 31, thorax, lateral view; 32, abdomen, lateral view; 33, abdomen, dorsal view.
radial abscissa 3 times 1 st abscissa, 0.5 times the straight 3rd abscissa. 1st abscissa of basal vein almost 0.3 times 2 nd abscissa. Brachial cell narrow. Discoidal cell 1.25 times as long as wide. Nervulus interstitial.
Legs. Hind tarsus slender, 0.85 times as long as hind tibia. 2nd tarsal segment 0.3 times as long as 1 st segment, 1.1 times as long as 5th segment (without pretarsus).

Abdomen. Length of 1 st-3rd tergites combined 1.8 times their maximum width, 1.4 times length of thorax. Apical width of 1st tergite almost twice width at level of basal carina, 1.5 times its length. Length of 2nd tergite 0.8 times its basal width, 0.7 times its maximum width, 1.3 times length of 1 st and 1.3 times median length of 3rd tergites. Ovipositor sheath 0.6 times as long as 1 st-3rd
tergites combined, 0.85 times as long as hind tibia, 0.3 times as long as fore wing.
Sculpture and pubescence. Head smooth. Mesoscutum smooth, partly with very fine granulation, coarsely rugulose-granulate near notauli and antero-laterally. Scutellum finely granulate, almost smooth medially. Mesopleurae smooth, rugulose anteriorly and posteriorly. Propodeum and metapleurae rugulose. 1st-3rd abdominal tergites densely striate, with short rugae between striae; dorsal carinae of 1st tergite behind basal carina indistinct. Hind tibia with dense, semierect, short hairs.
Colour. Head and abdomen light reddish brown; thorax reddish brown. Antennae dark brown, 2 basal segments light brown, 2 following light reddish brown. Palpi yellow. Legs light brown. Ovipositor sheath brown,
almost black apically. Wings faintly infuscate. Pterostigma brown.
Male unknown.

## Tribe Rhysipolini

## Afrorhysipolis gen. n.

Type species Afrorhysipolis intermedius sp. n.
Description. Head rather transverse (Fig. 35), its width 1.6-1.7 times median length. Ocelli small, almost in equilateral triangle. Eyes glabrous. Occipital carina distinct, complete, fine ventrally, but fused below with hypostomal carina. Antennal sockets rather large, their diameter nearly equal to distance between sockets, 1.7-2 times distance between socket and eye. Subocular (malar) suture present. Clypeal suture complete. Clypeus convex. Hypoclypeal depression rather small, round (Fig. 34). Palpi short; maxillary palpi 6 -segmented; labial palpi 4 -segmented; 3rd labial segment slightly shorter than neighbouring ones. Scape (Fig. 36) rather wide, without apical lobe or cut, its length 1.6-1.7 times maximum width. Pedicel rather long, 0.5-0.7 times as long as scape. Antennae filiform, slender. 1st flagellar segment equal to or 1.1 times as long as 2 nd segment. Apical segment without apical spine.
Prothorax simple and short. Propleural lobe distinct, wide. Mesonotum distinctly and roundly raised above prothorax (Fig. 43). Notauli shallow, complete, granulate. Prescutellar depression long, with median carinae. Scuto-scutellar suture distinct. Scutellum weakly convex, without lateral carina. Subalar depression deep, wide, almost smooth or slightly sculptured. Sternauli deep, long, straight. Prepectal carina distinct, complete. Postpectal carina absent. Mesopleural pit distinct. Metapleural flange short, wide, round apically. Propodeum with distinctly marginate areas; areola large, pentagonal; lateral tubercles absent. Propodeal spiracles small and round.
Fore wing (Fig. 41). Pterostigma long and rather narrow. Radial vein arising before middle of pterostigma. Radial cell closed distally and not shortened. Recurrent vein distinctly postfurcal. Nervulus postfurcal. Submedial cell narrow. Parallel vein arising from middle of apical part of brachial cell. Brachial cell closed. Transverse anal veins absent. Hind wing (Fig. 42) with 3 hamuli. Submedial cell large. 1st abscissa of mediocubital vein almost equal to or 1.1-1.2
times as long as 2nd abscissa. Recurrent vein present, distinctly curved toward base of wing. Medial cell wide, $0.3-0.35$ times as long as hind wing. Radial vein unsclerotized, arising from costal vein. 1st abscissa of costal vein 0.6-0.9 times 2 nd abscissa.

Legs long and rather slender. Hind femur $4.5-5$ times as long as wide (Fig. 39). Hind tibial spurs short, slender, setose, inner spur 0.2 times as long as hind basitarsus. Hind basitarsus $0.6-0.7$ times as long as 2nd-5th segments combined. Claws of legs small and simple.

Abdomen. 1st tergite short (Fig. 44), with distinct dorsope, without basolateral lobes; small spiracular tubercles placed in basal third. Dorsal carinae distinct, complete, almost parallel, only slightly convergent apically. 2nd suture wide and shallow. Abdominal tergites behind the 3rd one well sclerotized. 2nd and 3rd tergites sculptured, with separate laterotergites; spiracles placed at sides of notum. Hypopygium obtuse at posterior margin. Ovipositor slender, with simple apex, nearly half as long as abdomen.

Comparison. Afrorhysipolis gen. n. occupies an intermediate position between tribes Rhysipolini, Pambolini (Chremylina) and Hormiini (Belokobylskij, 1993). The new genus differs from Rhysipolis Förster in the occipital and hypostomal carinae fused ventrally, distinctly postfurcal position of recurrent vein, sculptured 2nd and 3rd abdominal tergites, and granulate mesoscutum. Afrorhysipolis gen. n. differs from Chremylus Haliday in the long antenna with numerous segments, short scape, smooth head, frons without keel, absence of propodeal tubercles, postfurcal position of the recurrent vein, wide and distinct 2 nd abdominal suture. The new genus differs from Taiwanhormius Belokobylskij in the short pedicel, sclerotized and sculptured 2nd abdominal tergite, very short 3rd tergite, not interstitial parallel vein, and 1st abscissa of mediocubital vein of hind wing almost equal to 2 nd abscissa.

Distribution. South Africa, Kenya.
Etymology: from "afro" and "Rhysipolis", because this African genus is related to the genus Rhysipolis Förster. Gender masculine.

Afrorhysipolis intermedius sp. n.
(Figs 34-44)
Holotype. \&, "S. Africa, R.E. Turner, Brit. Mus. 1922-2", "Mossel Bay, Cape Province, 18-30.XI. 1921" (BMNH).


Figs 34-44. Afrorhysipolis intermedius gen. et sp. n. 34, head, frontal view; 35, head, dorsal view; 36, basal and apical segments of antenna; 37, mesonotum; 38, hind tibia; 39, hind femur; 40, propodeum; 41, fore wing; 42, hind wing; 43, thorax, lateral view; 44, abdomen, dorsal view.

Paratypes. 1 , with labels as holotype (ZISP); 1 \%, "S. Africa, R.E. Turner, Brit. Mus. 1925-161", "Cape Province, Ceres, March 1925" (BMNH); 1 \%, "S. Africa, R.E. Turner, Brit. Mus. 1925-210", "Cape Province, Ceres, April 1925" (BMNH); 1 \&, "S. Africa, R.E. Turner, Brit. Mus. 1922-97, "Mossel Bay, Cape Province, Febr. 1922" (BMNH); 1 ९, "Kenya, Gatab, Mt. Kulab, 2200 m. IV.1980, D. Levine" (CNC).
Description. Female. Body length 1.82.7 mm ; fore wing length $1.8-2.6 \mathrm{~mm}$.

Head. Temple behind eyes roundly narrowed, transverse diameter of eye 1.2-1.6 times length of temple (dorsal view). POL nearly equal to Od, 0.4-0.5 times OOL. Eye 1.3 times as high as broad. Cheek height $0.35-0.5$ times height of eye, $0.8-0.9$ times ba-
sal width of mandible. Face width 1.1-1.2 times eye height and 1.4 times height of face and clypeus combined. Clypeus without flange along lower margin. Width of hypoclypeal depression nearly equal to distance from depression to eye. Head strongly and roundly narrowed below eyes.
Antennae 20-22-segmented. Length of 1 st flagellar segment 3.3-3.7 times its apical width. Penultimate segment 3-3.3 times as long as wide, 0.7-0.75 times as long as 1 st flagellar segment, 0.9 times as long as apical segment. Antennae with short, semierect, rather dense hairs.
Thorax. Length 1.8-1.9 times its height. Prescutellar depression 0.3-0.4 times as long
as scutellum. Propodeum weakly roundly narrowed toward posterior margin.
Wing. Pterostigma 4.4-4.6 times as long as wide, 0.8-0.9 times as long as metacarpus. 2nd radial abscissa 1.8-2.2 times 1st abscissa, 0.6-0.7 times the straight 3rd abscissa, 1.21.5 times 1 st radiomedial vein. 2nd radiomedial cell narrow, 3.2-3.8 times as long as wide, twice as long as brachial cell. Brachial cell narrow. Distance between nervulus and basal vein 0.7-1 times nervulus length. Recurrent vein of hind wing interstitial.
Legs. Hind tarsus slender, 0.8-0.9 times as long as hind tibia. 2nd tarsal segment $0.4-$ 0.45 times as long as 1 st segment, as long as 5 th segment (without pretarsus).
Abdomen depressed, 0.8-0.9 times as long as thorax and head combined. Apical width of 1st tergite 1.2 times its length. Length of 2nd tergite 0.7 times its basal width, 2.5-3 times length of 3rd tergite. Distal tergites distinctly extending beyond third tergite. Ovipositor sheath 0.4-0.6 times as long as abdomen, $0.6-0.8$ times as long as hind tibia, $0.2-0.3$ times as long as fore wing.
Sculpture and pubescence. Head smooth. Mesoscutum and scutellum densely granulate. Mesopleurae finely rugulose-granulate, with large smooth spots. Metapleurae rugulose. Propodeum densely granulate in anterior half, rugose-granulate in posterior half. 1st abdominal tergite finely striate with dense granulation. 2nd tergite more or less striate with dense granulation; 3rd tergite finely sculptured. Body with sparse and long setae. Mesoscutum with long hairs along notauli and laterally, glabrous in great part.
Colour. Body light or dark reddish brown, head sometimes with yellowish tint. Antenna dark reddish brown or almost black; scape light. Palpi and legs light reddish brown or reddish brown. Wings hyaline. Pterostigma yellow or light brown, usually darker marginally.
Male unknown.

## Tribe Exothecini

Orientocolastes gen. n.

## Type species Orientocolastes io sp.n.

Description. Head transverse (Fig. 46), its width twice median length. Ocelli in equilateral triangle. Frons with deep median longitudinal crenulate furrow. Eyes glabrous. Occipital carina complete, present dorsally, below separated from hypostomal carina. Malar suture absent, but distinct carina pre-
sent. Clypeal suture distinct and complete. Hypoclypeal depression small and round (Fig. 45). Palpi rather long; maxillary palpi 6 -segmented; labial palpi 4 -segmented; 3rd labial segment slightly shortened. Scape (Fig. 47) wide and short, its length 1.5 times its maximum width.

Neck of prothorax short, with small and smooth pronope. Propleural lobe distinct. Mesonotum highly and roundly raised above prothorax (Fig. 48). Notauli complete, rather deep, crenulate. Prescutellar depression rather short, sculptured. Scutoscutellar suture present, but fine. Scutellum weakly convex, without lateral carinae. Metanotum with short median tooth. Subalar depression deep, wide, sculptured. Mesopleural pit distinct. Sternauli deep, wide, rather long, straight, strongly crenulate. Prepectal carina distinct laterally, absent ventrally. Metapleural flange rather long, narrow, pointed apically. Propodeum without lateral tubercles.

Fore wing (Fig. 50). Pterostigma rather narrow. Radial vein arising before middle of pterostigma. Radial cell not shortened. Both radiomedial veins present. Recurrent vein antefurcal. Nervulus postfurcal. Discoidal cell petiolate. Parallel vein arising almost from middle of apical part of brachial cell. Brachial cell closed. Transverse anal veins absent. Hind wing (Fig. 51) with 3 hamuli. Submedial cell large. 1st abscissa of mediocubital vein almost equal to 2 nd abscissa. Recurrent vein present. 1st abscissa of costal vein equal to 2 nd abscissa.

Legs. Hind coxa small. Hind femur rather short. Hind tibial spurs short, setose, inner spur almost 0.2 times as long as hind basitarsus. Hind basitarsus 0.6 times as long as 2nd-5th segments combined.

Abdomen. 1st tergite wide (Fig. 49), with distinct dorsope; spiracular tubercles indistinct; spiracles placed near basal third of tergite. Dorsal carinae present, distinctly convergent. 2nd suture deep and crenulate. 2nd4th tergites with small round spots mediolaterally; 2nd-5th tergites with separate laterotergites. 5th tergite with short posterior flange, covers following segments. Ovipositor short and with simple apex.

Comparison. Orientocolastes gen. n. differs from Colastes Haliday in the occipital carina present dorsally, frons with deep sculptured furrow, presence of deep, wide and crenulate sternauli, abdomen with 5 visible tergites, prepectal carina present laterally.

Distribution. Indonesia (Sulawesi).

Etymology. From "orientalis" (Latin for "eastern") and "Colastes", because this Oriental genus is related to the widespread Colastes. Gender masculine.

Orientocolastes io sp. n.
(Figs 45-51)
Holotype. \&, "Indonesia: Sulawesi, Utara, Du-moga-Bone N.P., July 1985" (BMNH).
Description. Female. Body length 2.4 mm ; fore wing length 2.5 mm .

Head. Temple behind eyes strongly and roundly narrowed, transverse diameter of eye 2.3 times length of temple (dorsal view). POL 0.8 times Od, 0.5 times OOL; Od 0.7 times OOL. Eye 1.2 times as high as broad. Cheek height 0.25 times height of eye, equal to basal width of mandible. Face width 0.7 times eye height and 1.2 times height of face and clypeus combined. Width of hypoclypeal depression equal to distance from depression to eye. Tentorial pits distinct. Head strongly and roundly narrowed below eyes.

Antennae weakly setiform, 30 -segmented. Length of 1st flagellar segment 3.3 times its apical width, 1.1 times length of 2nd segment. Penultimate segment 2.5 times as long as wide, 0.6 times as long as 1st flagellar segment, 0.85 times as long as apical segment which is with distinct apical spine.

Thorax. Length 1.5 times its height. Sides of pronotum with distinct and wide depressions. Round depression in upper part of mesopleura (between fore and hind wings) deep and wide. Propodeum strongly and a little roundly narrowed toward posterior margin.

Wing. Length of fore wing almost 3 times its maximum width. Pterostigma 5 times as long as wide, 0.8 times as long as metacarpus. Radial vein arising from basal third of pterostigma (inner basal side of pterostigma 0.35 times its apical side). 2 nd radial abscissa almost twice 1st abscissa, 0.45 times the straight 3rd abscissa, 1.3 times 1 st radiomedial vein. 2nd radiomedial cell long, 2.5 times as long as wide, 1.8 times as long as brachial cell. Brachial cell wide. Distance between nervulus and basal vein almost equal to nervulus length. 2nd abscissa of medial vein rather short, 0.3 times recurrent vein.
Legs. Hind femur 4 times as long as wide. Hind tarsus 0.9 times as long as hind tibia. 2nd tarsal segment 0.45 times as long as 1st segment, 1.1 times as long as 5 th segment (without pretarsus).

Abdomen. Length of 1st tergite 0.85 times its apical width. Length of 2nd tergite 0.6 times its basal width, 1.3 times length of 3rd tergite. Ovipositor sheath almost as long as 1 st tergite, 0.15 times as long as fore wing.

Sculpture and pubescence. Vertex finely rugulose posteriorly; face entirely densely granulate, with striae medially and near mandible. Remainder of head smooth. Sides of prothorax almost entirely smooth. Mesoscutum densely and finely punctulate. Mesopleura almost smooth medially. Propodeum entirely and strongly rugose, with granulation, with median carine in basal third and indistinct areola. 1st-5th abdominal tergites rugulose-striate; 3rd-5th tergites densely granulate in posterior $1 / 2-1 / 3$. Head and mesoscutum entirely with dense, short, white hairs. Hind tibia with very short and dense hairs.

Colour. Body black; sides of 2nd-5th tergites, small medioposterior spot of 2nd tergite and apical third to half of 3rd-5th tergites pale brown. 2 basal segments of antenna yellow, most segments of flagellum light reddish brown, several apical segments dark. Palpi pale yellow. Legs yellow; hind tibia in apical quarter and hind tarsus darkened. Wings almost hyaline. Pterostigma light brown.

Male unknown.

## Subfamily GNAMPTODONTINAE

## Neognamptodon gen. n.

Type species Neognamptodon suturalis $\mathrm{sp} . \mathrm{n}$.
Description. Head transverse (Fig. 53), its width 1.8 times median length. Ocelli in equilateral triangle. Frons slightly convex. Diameter of antennal socket 0.7 times distance between sockets, almost twice distance between socket and eye. Occipital carina absent. Eyes glabrous. Malar suture absent. Clypeal suture distinct. Hypoclypeal depression distinct and oval (Fig. 52). Mandible twisted. Paipi rather long; maxillary palpi 6segmented. Scape (Fig. 56) small, its length 1.4 times maximum width. Pedicel short. 1st flagellar segment as long as 2 nd . Apical segment with short apical spine.

Neck of prothorax rather long, with distinct, transverse, smooth depression. Propleural lobe narrow. Mesonotum distinctly and roundly raised above prothorax (Fig. 54). Notauli deep, almost complete, lost in posterior $1 / 5$, finely sculptured. Median lobe of mesoscutum with deep and crenulate me-


Figs 45-51. Orientocolastes io gen. et. sp. n. 45, head, frontal view; 46, head, dorsal view; 47, basal and apical seg. ments of antenna; 48, thorax, lateral view; 49, abdomen, dorsal view; 50, fore wing; 51, hind wing.
dian longitudinal furrow in posterior half (Fig. 55). Prescutellar depression very short, sparsely crenulate. Scuto-scutellar suture present. Metanotum without median tooth. Pleural sulcus crenulate. Subalar depression shallow and wide. Sternauli deep, short, oblique, crenulate. Mesopleural pit distinct. Prepectal carina absent. Metapleural flange rather long, narrowed apically. Propodeum with median carina basally and with narrow areola.
Fore wing (Fig. 60). Pterostigma rather narrow. Radial vein arising almost from middle of pterostigma. Radial cell not shortened. Both radiomedial veins present. 2nd radial abscissa shorter than 1st radiomedial vein. Recurrent vein antefurcal. Nervulus
postfurcal. Discoidal cell petiolate. Parallel vein arising slightly before middle of apical part of brachial cell. Brachial cell closed. Brachial vein sclerotized. Hind wing (Fig. 61) with 3 hamuli. Nervellus present. Submedial cell short. 1st abscissa of mediocubital vein 0.5 times 2nd abscissa. Recurrent vein present, but unsclerotized. 1st abscissa of costal vein 0.7 times 2 nd abscissa.
Legs. Hind coxa rather small, elongate. Hind femur slender (Fig. 57). Hind tibial spurs short, sparsely setose; inner spur 0.25 times as long as hind basitarsus. Hind basitarsus with ventral carina, 0.8 times as long as 2 nd- 5 th segments combined. Claws simple, small.


Figs 52-61. Neognamptodon suturalis gen. et sp. n. 52, head, frontal view; 53, head, dorsal view; 54, thorax, lateral view; 55, mesoscutum; 56, basal and apical segments of antenna; 57, hind femur; 58, hind tibia; 59, abdomen, dorsal view; 60, fore wing; 61, hind wing.

Abdomen (Fig. 59). 1st tergite rather wide, with indistinct dorsope; dorsal carinae present in basal half; spiracular tubercles indistinct. 2nd tergite with distinct semicircular basal area separated by deep depression. 2nd suture deep, weakly curved. 3rd tergite with distinctly separate basolateral triangular areas. 4th and 5th tergites with deep basal depressions. Ovipositor short, with small subapical tubercle.

Comparison. Neognamptodon gen. n. differs from the widespread Gnamptodon Haliday in the presence of distinct and crenulate sternauli and distinct crenulate furrow in posterior half of mesoscutum, 3rd antennal segment not longer than 4th, propodeum
with median longitudinal carina in basal half, and shape of basal area of 2nd tergite. The new genus is close also to Gnaptogaster Tobias (Mongolia, Kazakhstan), but differs in the presence of distinct and crenulate sternauli and crenulate furrow in posterior half of mesoscutum, apical segment of antenna with apical spine, radial cell not shortened; brachial cell closed, 1st abdominal tergite with distinct dorsal carinae.

Distribution. Africa (Madagascar).
Etymology. From "neo" (Greek for "new") and "Gnamptodon", because this Afrotropical genus is related to the type genus of the subfamily, Gnamptodon Haliday. Gender masculine.

Neognamptodon suturalis sp. n. (Figs 52-61)

Holotype. \%, "Madagascar: Tamatave, Perinet, 27.IV.-3.V.1983, J.S. Noyes, M.C. Day" (BMNH).

Description. Female. Body length 2.3 mm ; fore wing length 2.0 mm .

Head. Temple behind eyes strongly and roundly narrowed, transverse diameter of eye 2.2 times length of temple (dorsal view). Ocelli largened, POL almost equal to Od, 0.6 times OOL. Eye 1.3 times as high as broad. Cheek heigth 0.5 times heigth of eye, 1.5 times basal width of mandible. Face width 1.15 times eye height, equal to height of face and clypeus combined. Clypeus long, 1.6 times as wide as high. Width of hypoclypeal depression 0.8 times distance from depression to eye. Tentorial pits distinct. Head strongly and roundly narrowed below eyes.

Antennae slender, filiform, 26 -segmented. Length of 1st flagellar segment 3 times its apical width. Penultimate segment 2.8 times as long as wide, 0.9 times as long as 1 st flagellar segment, equal to apical segment.

Thorax. Length 1.7 times its height. Sides of pronotum with shallow oblique furrow in anterior half. Scutellum distinctly convex. Subalar depression shallow, rather narrow, almost smooth. Propodeum weakly roundly narrowed toward posterior margin.

Wing. Length of fore wing 3.2 times its maximum width. Pterostigma 5 times as long as wide, 0.8 times as long as metacarpus. 2nd radial abscissa 1.7 times 1st abscissa, 0.2 times the straight 3rd abscissa, 0.7 times 1 st radiomedial vein. 2nd radiomedial cell small, its length almost twice width, twice length of brachial cell. Recurrent vein almost 5 times 2 nd abscissa of medial vein.

Legs. Hind femur 4.8 times as long as wide. Hind tarsus as long as hind tibia. 2nd tarsal segment 0.4 times as long as 1 st segment, 1.2 times as long as 5th segment (without pretarsus).

Abdomen. Length of 1st tergite 1.1 times its apical width. Maximum length of basal area of 2nd tergite 0.25 times median length of 2 nd tergite. Median length of 2nd tergite 0.9 times its basal width, 0.8 times its maximum width, 1.5 times length of 3rd tergite. Ovipositor sheath 1.2 times as long as 1st tergite, 1.2 times as long as hind basitarsus, 0.17 times as long as fore wing.

Sculpture and pubescence. Head smooth. Thorax smooth in great part. Propodeum smooth, finely sculptured along carinae. 1st tergite finely and almost entirely striate
rugulose. 2nd tergite finely reticulate, basal area very finely reticulate. 3rd and 4th tergites partly very finely sculptured. Median lobe of mesoscutum sparsely setose. Hind tibia with very short, dense, semierect hairs.

Colour. Body reddish brown. Face and head ventrally yellow. Abdomen apically and ventrally light brown to yellow. Antenna dark brown, 2 basal segments light reddish brown. Palpi and legs yellow. Wings faintly infuscate. Pterostigma dark brown.

Male unknown.

## Acknowledgements

I wish to express my sincere thanks to Dr. D. Quicke and Dr. M. Fitton (London) for the kind opportunity to visit London and work with the important collection of the Natural History Museum.

## References

Achterberg, C. van. 1983. Revisionary notes on the subfamily Gnaptodontinae, with description of eleven new species (Hymenoptera, Braconidae). Tijdschr. entomol., 126 (1/2): 25-57.
Achterberg, C. van. 1991. Revision of the genera of the Afrotropical and W. Palaearctic Rogadinae Foerster (Hymenoptera: Braconidae). Zool. Verhand., 273: 1-102.
Achterberg, C. van. 1995. Generic revision of the subfamily Betylobraconinae (Hymenoptera: Braconidae) and other groups with modified fore tarsus. Zool. Verhand., 298: 1-242.
Belokobylskij, S.A. 1993. On the classification and phylogeny of the Braconid wasps subfamilies Doryctinae and Exothecinae (Hymenoptera, Braconidae). Part I. On the classification, 2. Entomol. Obozr., 71(4): 900-928. (In Russian).
Belokobylskij, S.A. 1994. To the fauna of Indomalayan braconid wasps of the tribes Exothecini, Pambolini and Pentatermini (Hymenoptera, Braconidae). Trudy zool. Inst. Akad. iNauk SSSR, 245 (1992): 125-173. (In Russian).

Belokobylskij, S.A. 1996. A contribution to the knowledge of the Doryctinae of Taiwan (Hymenoptera, Braconidae). Zoosyst. ross., 5(1): $153-$ 191.

Shenefelt, R.D. 1975. Hymenopterorum Catalogus. Ps. 12. Braconidae 8. Exothecinae, Rogadinae. P. 1115-1262. 's-Gravenhage.
Tobias, V.I. 1986. Order Hymenoptera. Family Braconidae. Introduction. In: Medvedev, G.S. (ed.). Opredelitel' nasekomykh evropeyskoi chasti SSSR [Keys to the insects of the European part of the USSR], 3(4): 7-15. Leningrad: Nauka. (In Russian).
Wharton, R.A., 1993. Review of the Hormiini (Hymenoptera: Braconidae) with description of new taxa. J. nat. Hist., 27: 107-171.

Received 5 May 1998

