

# Four new species of the genus *Conspinaria* Schulz (Hymenoptera: Braconidae: Rogadinae) from Vietnam

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Key words: Braconidae; Rogadinae; *Conspinaria*; new species; Vietnam.

Four new species of the genus *Conspinaria* Schulz (Hymenoptera: Braconidae: Rogadinae) from Vietnam are described and illustrated: *C. huongsonensis* Long & van Achterberg, spec. nov., *C. pumatica* Long & van Achterberg, spec. nov., *C. nigroapicalis* Long & van Achterberg, spec. nov. and *C. similis* Long & van Achterberg, spec. nov. A key to the species of the genus *Conspinaria* from Vietnam is included.

## Introduction

The genus *Conspinaria* Schulz, 1906 (Braconidae: Rogadinae: Rogadini: Spinariina) is a small genus restricted to the Oriental region, and are parasitoids of Zygaenidae mummifying the host caterpillar.

Seven valid species are currently recognized (van Achterberg, 2007) and in this paper four new species are described from Vietnam, thus resulting in a total of eleven species. In collections this genus is rare, probably because in the Oriental region Braconidae has been only rarely collected at light.

For recognition of the subfamily Rogadinae, see van Achterberg (1990, 1993, 1997). For recognition of the tribe and subtribe, see Chen & He (1997) and van Achterberg (2007). For the terminology used in this paper, see van Achterberg (1988) and for the references to the original descriptions and the distribution outside Vietnam, see van Achterberg, 2007. The scale-lines of the plates indicate 1 mm.

## Taxonomy

### Key to Vietnamese species of the genus *Conspinaria* Schulz

1. Apical half of pterostigma largely blackish or dark brown; apical quarter of hind tibia dark brown; vein 1-SR of fore wing rather long compared to apical part of parastigma (fig. 17); vein r of fore wing arising from basal 0.40 of pterostigma (figs 12, 17); [apical quarter of fore wing dark brown and contrasting with yellowish middle part] ..... *C. nigroapicalis* spec. nov.
- Apical half of pterostigma yellow; apical quarter of hind tibia usually yellowish-brown; if dark brown then vein 1-SR equal or shorter than apical part of parastigma (fig. 10, 28, 36); vein r of fore wing arising from basal 0.44-0.50 of pterostigma (figs 7, 25, 34) ..... 2

2. Apical quarter of fore wing dark brown and contrasting with yellowish middle part; vein 1-SR of fore wing about half as long as apical part of parastigma (fig. 28); apical third of hind tibia blackish or dark brown ..... *C. pumatica* spec. nov.
- Apical quarter of fore wing yellowish, similar to middle part; vein 1-SR of fore wing about as long as apical part of parastigma or longer (figs 10, 36), but about 0.6 times as long in *C. chenhei*; apical third of hind tibia yellowish-brown or slightly infuscate ..... 3
- Note. — If the second metasomal suture is narrow, vein 1-SR of the fore wing about 0.6 times as long as the apical part of the parastigma and vein 1r-m of the hind wing about 2.5 times as long as vein SC+R1, cf. *C. chenhei* van Achterberg, 2007 [= *flava* auctt.]. This species is not yet recorded from Vietnam but likely will be found in future.
3. Vein 1r-m of hind wing about as long as vein 1-M (fig. 35); hind telotarsus comparatively robust (fig. 33); middle lobe of mesoscutum with a short wide groove medio-posteriorly (fig. 31); vein r of fore wing arising from basal 0.45 of pterostigma (fig. 34); hind wing about 4.0 times as long as its maximum width ..... *C. similis* spec. nov.
- Vein 1-M of hind wing about 1.2 times as long as vein 2-M (fig. 8); hind telotarsus slender (fig. 9); middle lobe of mesoscutum without a distinct groove medio-posteriorly (fig. 2); vein r of fore wing arising from middle of pterostigma (fig. 7); hind wing about 4.5 times as long as its maximum width ..... *C. huongsonensis* spec. nov.

*Conspinnaria huongsonensis* spec. nov.  
(figs 1-11)

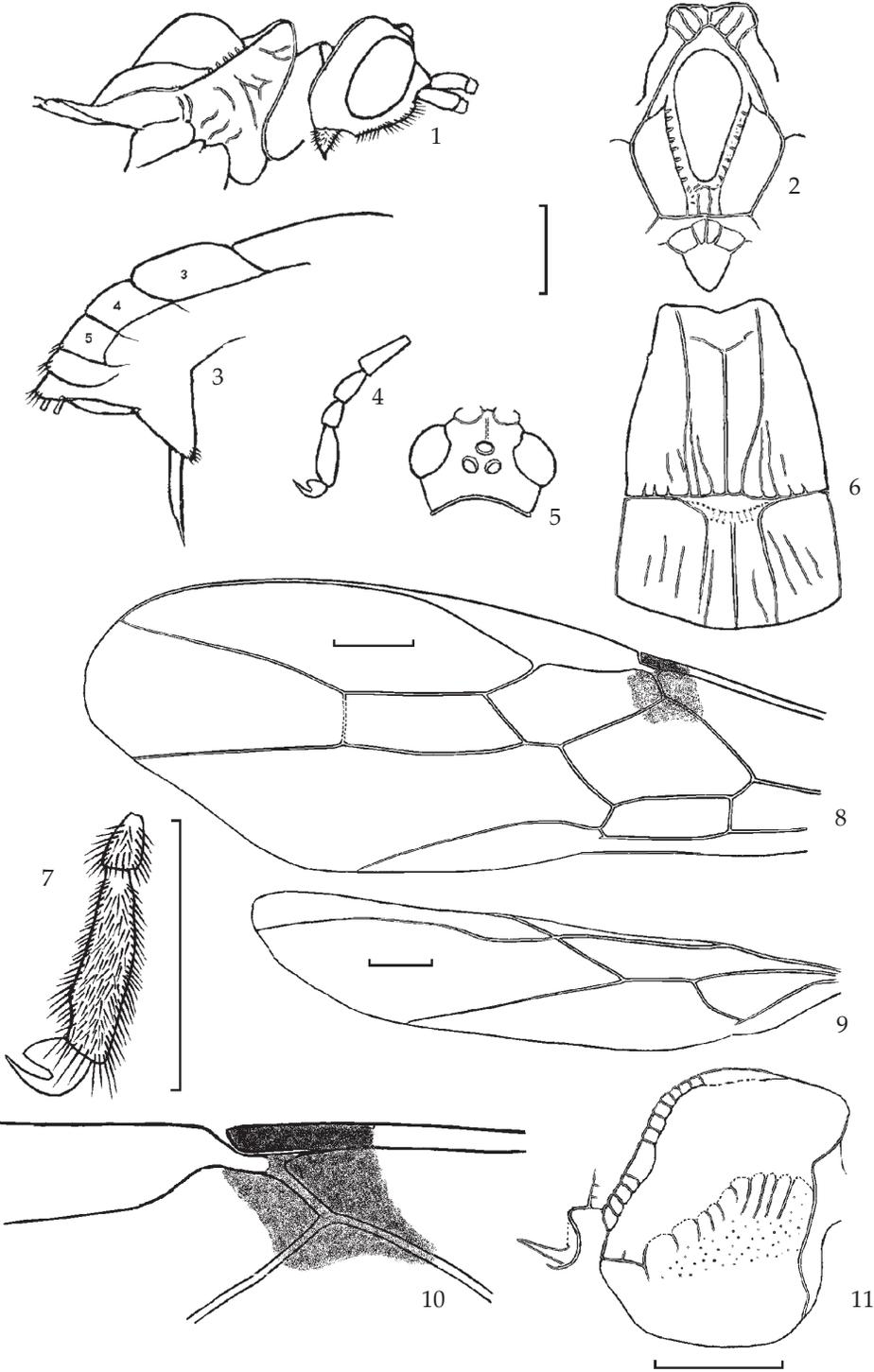
Material. — Holotype, ♀ (IEBR), "[Vietnam], Ha Tinh (Huong Son), forest, 25.v.2004, Tr.X. Lam, Rog. 384". Paratypes: 2 ♀♀ (IEBR, RMNH), same data as holotype, Rog. 382 & 383.

Holotype, ♀, length of body 13 mm, of fore wing 13.6 mm, ovipositor 1.0 mm.

Head. — Antenna broken, 53 segments remained; scape almost 1.5 times as long as its middle width and 1.5 times third antennal segment; third antennal segment 1.2 times fourth antennal segment (antenna of paratype with 72 segments, apical segment acute apically and penultimate segment about 1.3 times apical segment), temple roundly narrowed posteriorly; ocelli large, diameter of lateral ocellus (OD) about 1.2 times POL and equal to OOL; head in frontal view with large antennal sockets, diameter of antennal sockets more than distance between them and 2.2 times distance from socket to eye margin; between antennal sockets medially grooved; tentorial pits rather large, its diameter equal to distance from pit to eye margin, distance between tentorial pits 4 times distance from pit to eye margin; basal width of mandible subequal to length of malar space; vertex and occiput smooth with sparse setae, scape with long setae, face smooth and clypeus with sparse setae.

Mesosoma. — Mesoscutum highly raised above pronotum; notauli deep and coarsely

Figs 1-11, *Conspinnaria huongsonensis* spec. nov., ♀, holotype. 1, Head and pronotum, lateral aspect; 2, pronotum and mesonotum; 3, metasoma, lateral aspect; 4, second-fifth hind tarsal segments and claw; 5, head, dorsal aspect; 6, first-second metasomal tergites, dorsal aspect; 7, fourth-fifth hind tarsal segments; 8, fore wing; 9, hind wing; 10, parastigma and vein 1-SR of fore wing; 11, precoxal sulcus. ►



crenulate; lobes of mesoscutum polished with discrete punctures and sparse setae; antescutellar sulcus 0.6 times as long as scutellum and with three carinae; scutellum smooth with sparse setae; mesopleuron polished and smooth with sparse punctures; precoxal sulcus wide and rugose-striate; metapleuron roughly rugose; propodeal spiracle rather large, its diameter twice distance from spiracle to pleural carina; propodeum with rather long spines, with a medial carina basally, baso-lateral areas with transverse rugosities and apical half roughly rugose.

Wings. — Fore wing with vein r arising from middle of pterostigma; vein 2-SR 1.2 times vein r and half as long as vein 3-SR, about 0.3 times as long as SR1; vein cu-a twice as long as 1-CU1. Hind wing with vein 2-SC+R nearly quadrate; vein M+CU about 1.8 times vein 1-M; vein cu-a curved; hind wing 4.5 times as long as its maximum width.

Legs. — Outer side of hind coxa polished and smooth, but with distinct punctures and sparse setae; hind femur 4.8 times its middle width; hind tibia 1.3 and 1.2 times hind femur and hind tarsus, respectively; hind basitarsus 0.7 times remainder of hind tarsus and 2.2 times second hind tarsus; fourth hind tarsal segment 0.5 times telotarsus.

Metasoma. — Length of first tergite 0.8 times its apical width and 1.3 times as long as third tergite; dorsal carinae of first tergite converging apically, of second tergite diverging apically; first suture narrow and deep, second suture wide and with carinae; surface of first and second tergites with sparse and rough longitudinal carinae; middle area of third tergite with longitudinal carinae, basal and lateral areas with rugose granulation; fourth tergite rugose-granulate; fifth tergite with sparse punctures; ovipositor sheath 0.6 times as long as hind basitarsus.

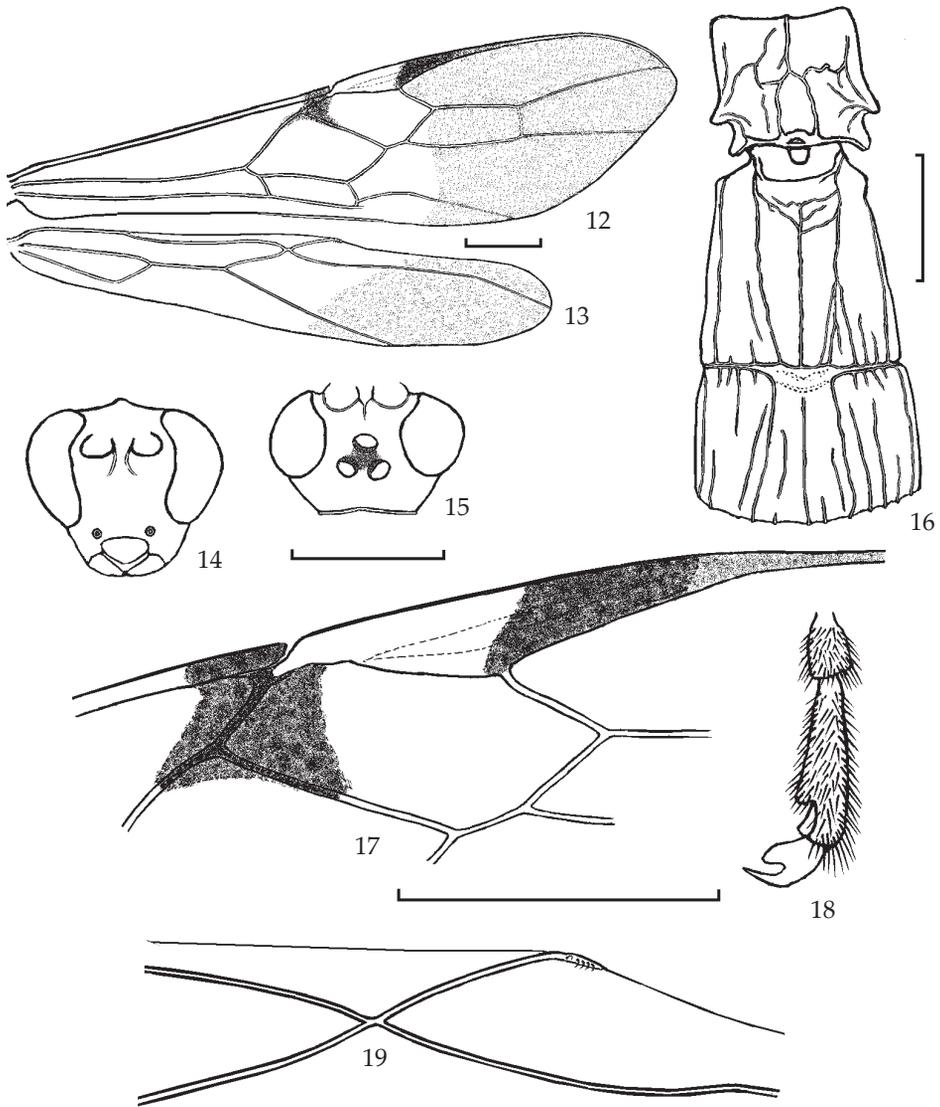
Colour. — Body reddish yellow; eyes and antenna blackish brown but scape and pedicel yellow; all claws and hind tarsus blackish brown; area near parastigma, whole vein 1-SR, one third of vein 1-M apically and one fourth of vein 1-SR+M basally dark brown; wing membrane and veins yellowish brown.

*Conspinaria nigroapicalis* spec. nov.  
(figs 12-19)

Material. — Holotype, ♂ (IEBR), "[Vietnam], Ninh Binh, Cuc Phuong National Park, light trap, 25.v.2005, P.H. Thai, Rog. 40]".

Holotype, ♂, length of body and of fore wing 9.4 mm.

Head. — Antenna broken, 59 segments remained, with subapical antennal segments narrower, length of scape almost 1.7 times its maximum width and 1.4 times third antennal segment; third antennal segment 1.25 times fourth segment; temple behind eyes roundly narrowed; ocelli large, diameter of lateral ocellus (OD) 1.75 times POL and 1.4 times OOL; in frontal view face 0.75 times wider than height of eye and 0.86 times height of face and clypeus combined; antennal sockets large, diameter of antennal sockets twice distance between them and 2.5 times distance from socket to eye margin; tentorial pits small, distance between tentorial pits 2.6 times distance from pit to eye margin; width of hypoclypeal depression 1.5 times its height and equal to distance between depression to eye margin; maxillary palp equal to height of head; malar space 0.9 times height of eyes and equal to basal width of mandible; frons flat; clypeus slightly protruding.



Figs 12-19, *Conspinaria nigroapicalis* spec. nov., ♂, holotype. 12, Fore wing; 13, hind wing; 14, head, frontal aspect; 15, head, dorsal aspect; 16, propodeum and first-second metasomal tergites, dorsal aspect; 17, pterostigma; 18, fourth-fifth hind tarsal segments and claw; 19, veins SC+R1 and 2-SC+R of hind wing.

Mesosoma. — Mesoscutum highly raised over pronotum; notauli crenulate basally; mesopleuron mostly polished and smooth; precoxal sulcus wide with distinct rugulae; antescutellar depression with one carina, 0.75 times length of scutellum; scutellum smooth with sparse punctation; metapleuron with dull granulation; propodeal spiracle small, its diameter equal to distance from spiracle to pleural carina; propodeum with

median carina basally, latero-basal areas of propodeum with transverse rugae and apical half with distinctly rugose-carinate.

Wings.— Fore wing with vein r arising before middle of pterostigma; vein 2-SR equal to vein r and more than 0.5 times 3-SR and about 0.3 times SR1; vein cu-a about 1.5 times as long as 1-CU1. Hind wing with vein 2-SC+R rectangular; vein M+CU about 1.9 times vein 1-M; hind wing 4.8 times as long as its maximum width.

Legs.— Hind femur 4.6 times its middle width; hind tibia 1.4 and 1.1 times hind femur and tarsus, respectively, hind basitarsus about 0.8 times remainder of hind tarsus; second hind tarsal segment 0.4 times hind basitarsus; fourth hind tarsal segment 0.45 times hind telotarsus.

Metasoma.— Length of first tergite equal to its apical width and 1.4 times as long as second tergite; dorsal carinae of first tergite diverging apically, as carinae of second tergite; first metasomal suture narrow; second metasomal suture wide and carinate; surface of first and second tergites with sparse and coarse longitudinal carinae, spaces between carinae polished and smooth; third tergite and basal half of fourth tergite densely striate-granulate; fifth tergite with distinct granulation.

Colour.— Body reddish yellow; scape and pedicel yellow; flagellum blackish brown; area along parastigma, vein 1-SR, half of vein 1-M apically, vein 1-SR+M basally blackish brown; vein 3-CUI brown; hind leg yellow except apical quarter of hind tibia; hind tarsus brown; tarsal lobe blackish brown; veins yellow; apical quarter of fore wing dark brown and contrasting with yellowish middle part.

*Conspinnaria pumatica* spec. nov.  
(figs 20-29)

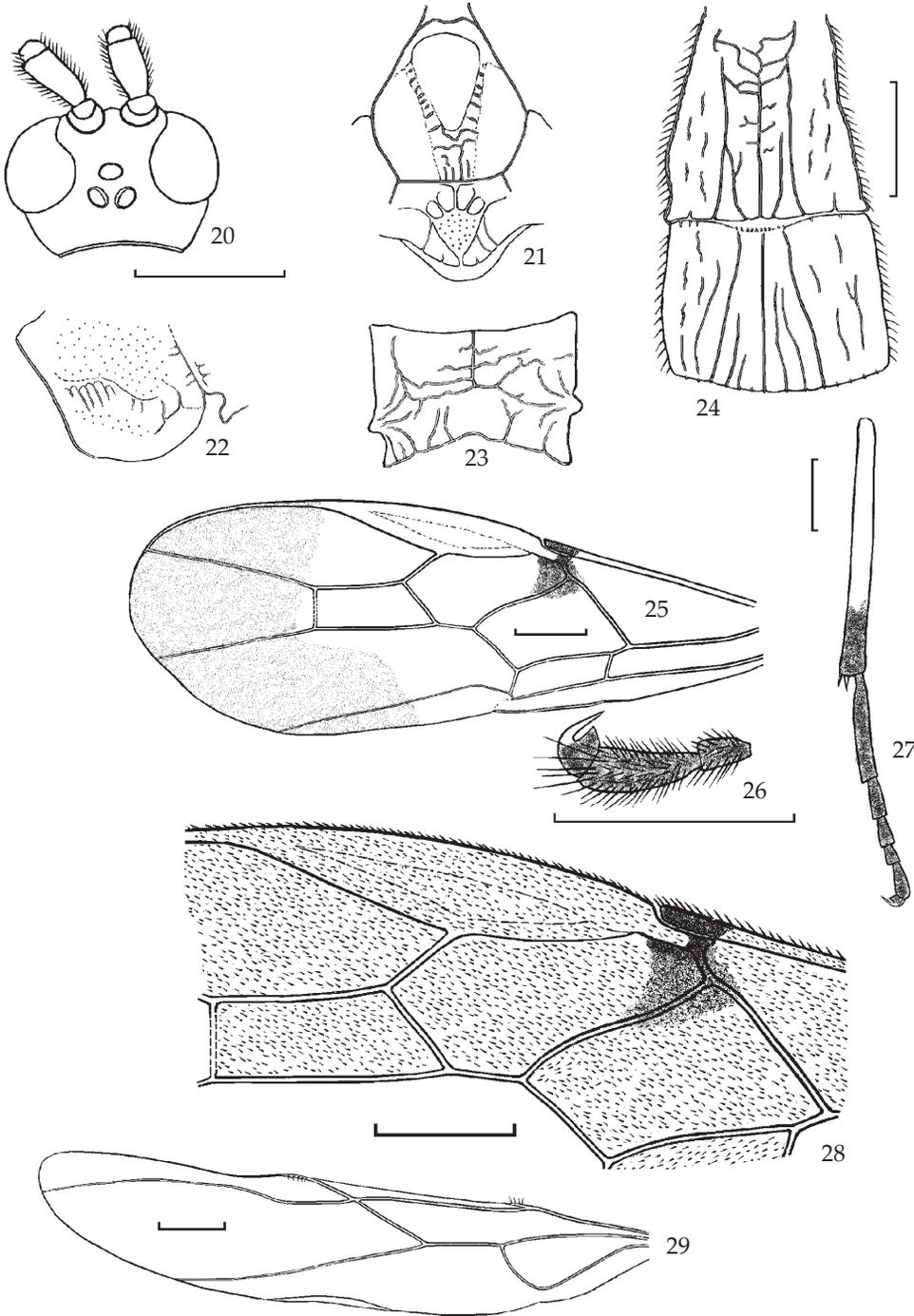
Material.— Holotype, ♀ (IEBR), “[Vietnam], Nghe An (Tuong Duong, Pu Mat N.P.), 19.iv.2006, P.Th. Nhi, Rog. 411”.

Holotype, ♀, length of body 10.6 mm, of fore wing 11.1 mm.

Head.— Antenna broken, 36 segments remained; scape 2.8 times as long as its middle width and 1.7 times third antennal segment; third antennal segment 1.1 times fourth antennal segment; ocelli large in high triangle, diameter of lateral ocellus (OD) 1.5 times POL and 1.5 times OOL; occipital carina not fused with hypostomal carina near mandible; head in frontal view with large antennal sockets, diameter of antennal sockets 1.8 times distance between them and 2.75 times distance from socket to eye margin; distance between tentorial pits 3.5 times distance from pit to eye margin; basal width of mandible equal length of malar space; face width about 1.2 times height of face and clypeus combined, about 0.8 times height of eyes; vertex distinctly depressed, smooth; occiput with sparse setae, scape with long setae, face smooth and clypeus with sparse setae.

Mesosoma.— Notauli rugose-crenulate; antescutellar depression 1.8 times as long as scutellum; scutellum rugose-punctate; mesopleuron polished with sparse distinct

Figs 20-29, *Conspinnaria pumatica* spec. nov., ♀, holotype. 20, Head, dorsal aspect; 21, mesonotum; 22, precoxal sulcus; 23, propodeum; 24, first-second metasomal tergites, dorsal aspect; 25, fore wing; 26, fourth-fifth hind tarsal segments and claw; 27, hind tibia and tarsus; 28, pterostigma and vein 1-SR of fore wing; 29, hind wing. ►



punctures; precoxal sulcus with four large carinae anteriorly and granulate; metapleuron roughly punctate; propodeum roughly rugose.

Wings. — Fore wing with vein r arising from middle of pterostigma; vein 2-SR about 1.2 times vein r and about 0.6 times vein 3-SR, 0.3 times vein SR1; vein cu-a 1.4 times 1-CU1; hind wing with vein 2-SC+R rectangular; vein M+CU 1.75 times vein 1-M; hind wing 4.6 times as long as its maximum width.

Legs. — Outer side of hind coxa polished and smooth; length of hind femur 5.0 times its middle width; hind tibia 1.3 and 1.1 times as long as hind femur and hind tarsus, respectively; hind basitarsus 0.85 times remainder of tarsus and 2.7 times as long as second hind tarsal segment; fourth hind tarsal segment 0.45 times as long as hind telotarsus.

Metasoma. — Length of first tergite about 0.8 times its apical width and about 0.9 times as long as third tergite; dorsal carinae of first tergite converging apically, of second tergite diverging apically; first metasomal suture narrow and deep, second metasomal suture wide and carinate; surface of first and second tergites roughly rugose with longitudinal carinae; third tergite with weaker carinae, between carinae distinctly punctate; fourth tergite with regular punctation; fifth tergite with sparse punctation; ovipositor very short, concealed.

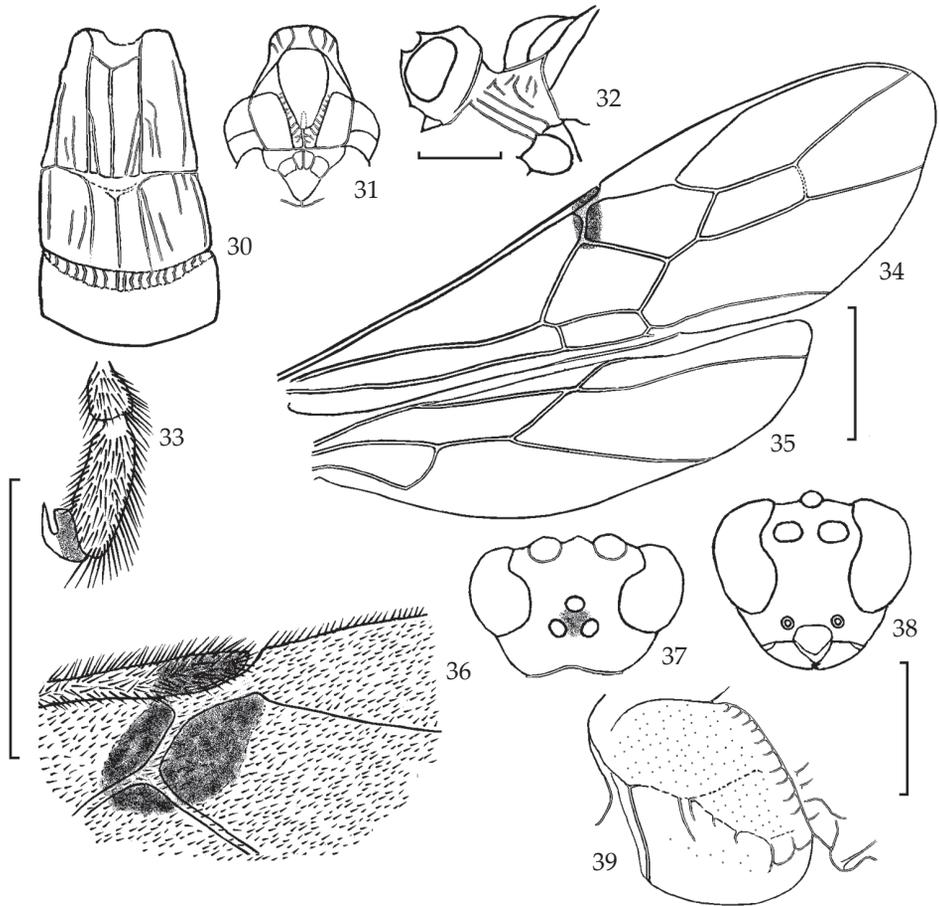
Colour. — Body reddish yellow; eyes and antennae black but scape and pedicel reddish yellow; area along parastigma, vein 1-SR entirely, apical quarter of vein 1-M and basal third of basal vein 1-SR+M dark brown; all claws and hind leg reddish yellow but apical quarter of hind tibia and hind tarsus dark brown; veins and wing setae yellow but near apex of wing darker; apical quarter of fore wing dark brown and contrasting with yellowish middle part.

*Conspinaria similis* spec. nov.  
(figs 30-39)

Material. — Holotype ♀ (IEBR), "[Vietnam], Thai Nguyen (Vo Nhai, Than Sa), secondary forest, 20.x.2004, P.H. Thai, Rog. 408".

Holotype, ♀, length of body 9.5 mm, of fore wing 9.6 mm.

Head. — Antenna 64 segments, apical segment about 3 times as long as wide, apical segment 1.5 times as long as penultimate segment; length of maxillary palp equal to height of head; scape about 1.8 times as long as its maximal width; scape 3.2 times as long as third antennal segment; third antennal segment 1.7 times as long as fourth antennal segment; anterior ocellus far from posterior ocelli, diameter of lateral ocellus (OD) about 1.2 times POL and equal to OOL; length of eye 1.2 times width and 1.6 times temple; head in frontal view with frons slightly protruding; antennal sockets large, diameter of antennal sockets about 1.3 times distance between sockets and 2.25 times distance from sockets to eye margin and diameter of tentorial pits 0.8 times distance from pits to eye margin; distance between tentorial pits 3 times distance from pits to eye margin; width of hypoclypeal depression about 1.3 times its height and 2.25 times distance from edge of depression to eye; width of mandible basal subequal to length of malar space; malar space with sparse tiny pits; vertex and occiput smooth with sparse short setae; face smooth and clypeus with sparse setae.



Figs 30-39, *Conspinaria similis* spec. nov., ♀, holotype. 30, First-third metasomal tergites, dorsal aspect; 31, mesonotum; 32, head and pronotum, lateral aspect; 33, fourth-fifth hind tarsal segments and claw; 34, fore wing; 35, hind wing; 36, parastigma and vein 1-SR of fore wing; 37, head, dorsal aspect; 38, head, frontal aspect; 39, precoxal sulcus.

Mesosoma. — Mesoscutum highly raised above pronotum; notauli complete, narrow and deep anteriorly, wide and shallow posteriorly and crenulate; mesoscutum medio-posteriorly with a short wide groove (fig. 31); antescutellar depression about 0.7 times scutellum and with three carinae; scutellum smooth and with short setae; mesopleuron polished and smooth, with sparse punctures; precoxal sulcus wide, weakly rugose-striate; metapleuron polished, punctate; diameter of propodeal spiracle subequal to distance from it to pleural carina; basal half of propodeum with medial carina and rough granulation; apical half with middle areola and carina emarginated, apico-lateral comers of propodeum with carinae running to propodeal spine.

Wings. — Fore wing with vein r rather long, arising at basal 0.45 of pterostigma; vein 2-SR 1.1 times vein r, about 0.5 times 3-SR and 0.3 times SR1; vein cu-a 1.5 times as

long as 1-CU1. Hind wing with vein 2-SC+R rectangular; vein M+CU about 1.9 times vein 1-M; hind wing 3.9 times as long as its maximum width.

Legs. — Outer side of hind coxa polished and smooth with sparse punctures and short setae; hind femur 4.7 times as long as its middle width; hind tibia about 1.4 and 1.1 times as long as hind femur and tarsus, respectively; hind basitarsus 2.9 times as long as second hind tarsal segment; fourth hind tarsal segment 0.5 times as long as hind telotarsus; slit between claw and lobe narrow, its width less than middle width of claw.

Metasoma. — Length of first tergite 0.7 times its apical width and 0.9 times length of third tergite; dorsal carinae of first tergite slightly converging apically and of second tergite subparallel; surface of first and second tergites with some coarse longitudinal carinae; third tergite densely striate-granulate; fourth tergite with discrete granulation; fifth tergite sparsely punctate, mostly smooth.

Colour. — Body pale yellow; eye and antenna blackish brown but scape and pedicel yellow; all claws and hind tarsus blackish brown but hind telotarsus yellowish brown; claws and lobes reddish brown or dark brown; area near parastigma, near vein 1-SR, apexes of veins 1-M and 1-SR +M dark brown; remainder of wing membrane and veins yellowish brown.

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