

Two new species of the genus *Wilkinsonellus* Mason (Hymenoptera: Braconidae: Microgastrinae) from northern Vietnam

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Two new species of the genus *Wilkinsonellus* Mason (Hymenoptera: Braconidae: Microgastrinae) from northern Vietnam are described and illustrated: *W. paramplus* spec. nov. from Hoa Binh Province (northern Vietnam), and *W. longicentrus* spec. nov. from Ha Tinh Province (North Central Vietnam).

Introduction

The small genus *Wilkinsonellus* Mason, 1981 (Braconidae: Microgastrinae), was named by Mason (1981) to include the *Apanteles henicopus* and *A. daira* groups of Nixon (1965). The species of *Wilkinsonellus* can be separated from other Microgastrinae by the strongly curved vein 1-A of fore wing, running very close to posterior margin of the fore wing (figs 4, 15). Comprising four species: the Afrotropical *W. henicopus* (de Saeger, 1944), the Oriental *W. iphitus* (Nixon, 1965) and *W. thyone* (Nixon, 1965) from Philippines and the Papuan *W. daira* (Nixon, 1965) from New Britain. Austin & Dangerfield (1992) described three new species: *W. amplus* Austin & Dangerfield, 1992, from northern Australia; *W. striatus* Austin & Dangerfield, 1992, from northern Australia and New Guinea and *W. tomi* Austin & Dangerfield, 1992, from New Guinea, New Britain and northeastern Australia. According to Whitfield (1997) the genus is pantropical and is known from the Neotropical region.

For the identification of the subfamily Microgastrinae, see van Achterberg (1990, 1993, 1997), for the identification of the genus, see Mason (1981) and Whitfield (1997), and for the terminology used in this paper, see van Achterberg (1988, 1993).

Key to the species of the genus *Wilkinsonellus* Mason

1. Mesosoma flattened, scutellum at same level as propodeum; scutellum smooth and without a transverse posterior carina; propodeum with very coarse median carina; face about 1.3 times wider than high and largely smooth; hind coxa mainly smooth, without longitudinal ruga or carina, only posteriorly striate; lobe of tarsal claws large; length of fore wing about 5 mm; eyes largely glabrous; [body completely brownish-yellow]; New Britain *W. daira* (Nixon, 1965)

- Mesosoma normal, scutellum protruding far above level of propodeum; scutellum punctate-rugose, but sometimes superficially so and with a transverse posterior carina; propodeum with moderately coarse median carina (fig. 7); face about as wide as high and rugose; hind coxa extensively sculptured and nearly always with a longitudinal ruga; lobe of tarsal claws small or obsolescent (fig. 17); length of fore wing 2-5 mm; eyes densely setose 2
- 2. Ocelli very large to large, OOL less than diameter of posterior ocellus or equal (figs 3, 14); eyes distinctly emarginate at inner sides (figs 2, 13) 3
- Ocelli medium-sized, OOL more than diameter of posterior ocellus or subequal; eyes hardly or not emarginate at inner sides 5
- 3. Ocelli strongly raised, in frontal view completely above dorsal level of eyes (fig. 105 in Austin & Dangerfield, 1992); lateral lobes of mesoscutum and mesosternum brownish-yellow; Australia (Northern Territory; Queensland)
..... *W. amplus* Austin & Dangerfield, 1992
- Ocelli moderately raised, in frontal view partly above dorsal level of eyes (figs 2, 13); lateral lobes of mesoscutum and mesosternum dark brown or blackish; Vietnam 4
- 4. OOL distinctly shorter than POL (fig. 3); first tergite more slender (fig. 1); vein r of fore wing thin and about as long as vein 2-SR (fig. 4); vein r issued at basal 0.65 of pterostigma (fig. 4); inner hind spur about 0.8 times as long as hind basitarsus (fig. 11); outer dorsal surface of hind coxa largely reticulate-rugose and with a longitudinal ruga running from base to apex (fig. 9) *W. paramplus* spec. nov.
- OOL about equal to POL (fig. 14); tergite less slender (fig. 12); vein r of fore wing thicker and longer than vein 2-SR (fig. 15); vein r issued at basal 0.60 of pterostigma (fig. 15); inner hind spur about 0.9 times as long as hind basitarsus (fig. 17); hind coxa without a longitudinal ruga, and finely punctate and striate
..... *W. longicentrus* spec. nov.
- 5. Mesopleuron obliquely striate above precoxal sulcus; OOL 1.0-1.5 times diameter of posterior ocellus; [longitudinal carina of frons short anteriorly; frons faintly striate]; New Guinea, Australia (Queensland)
..... *W. striatus* Austin & Dangerfield, 1992
- Mesopleuron smooth or sparsely punctate above precoxal sulcus; OOL more than 1.5 times diameter of posterior ocellus 6
- 6. Body completely brownish-yellow; propodeum with carina behind spiracle; posterior polished band of scutellum more or less interrupted by rugosity 7
- Body partly dark brown or blackish (at least propodeum and mesopleuron); propodeum without carina behind spiracle or indistinctly developed; posterior polished band of scutellum not or hardly interrupted by rugosity 8
- 7. Face coarsely reticulate-rugose; vertex and temple strongly punctate; OOL less than twice diameter of posterior ocellus; mesoscutum very coarsely rugose-punctate; Philippines (Mindanao), Taiwan (see Chou, 1999)
..... *W. iphitus* (Nixon, 1965)
- Face, vertex and temple finely and densely punctate; OOL about twice diameter of posterior ocellus; mesoscutum finely punctate; New Guinea, New Britain, Australia (Queensland) *W. tomi* Austin & Dangerfield, 1992

8. Head entirely, mesoscutum and scutellum black; frons, vertex and temple dull, coarsely rugose-punctate; scutellum medially dull and densely rugose; second metasomal tergite with elongate parallel area; Afrotropical (Congo, Kenya) *W. henicopus* (de Saeger, 1944)
- Head brownish-yellow; mesoscutum and scutellum reddish-brown; frons, vertex and temple shiny and almost smooth; scutellum medially shiny and superficially rugose-punctate; second metasomal tergite without area; Oriental (Philippines: Luzon) *W. thyone* (Nixon, 1965)

Wilkinsonellus paramplus spec. nov.
(figs 1-11)

Material. Holotype, ♀ (IEBR), " [Vietnam], Hoa Binh (Yen Thuy), 20°23'N, 105°36'E, fruit orchard, MT, 20-30.v.2002, K.D. Long, Mic. 243. Paratypes: 1 ♂ + 1 ♀ (IEBR, RMNH), same data as holotype, Mic. 270 & 271.

Holotype, ♀, length of body 3.8 mm, of fore wing 4.8 mm.

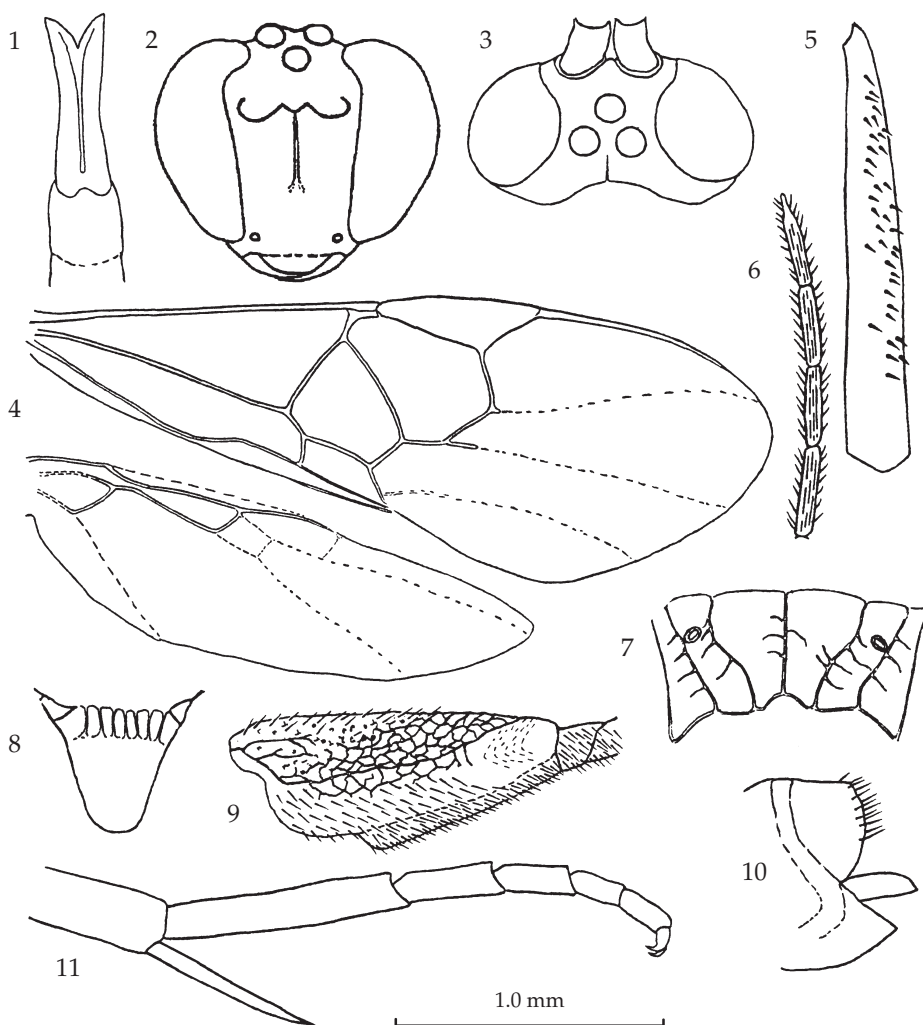
Head (figs 2, 3).— Antenna longer than body; scape twice as long as wide; third antennal segment about 3 times as long as wide; preapical segment of antenna almost 4 times as long as wide; apical segment acute apically (fig. 6); head in frontal view with antennal sockets above middle level of eyes; eye very large, 2.7 times as high as its maximum width (fig. 2); face with discrete punctation, and medio-longitudinal carina present on two thirds of face; tentorial pits almost touching eyes (fig. 2); dorsal area of labium rather densely setose; occiput narrow and medially grooved; ocelli unusually large, diameter of lateral ocellus (OD) about twice OOL and 1.5 times POL (fig. 3).

Mesosoma.— Thorax as wide as head or somewhat wider; anteriorly with large discrete punctation; pronotum sparsely punctate; anterior part of mesoscutum largely punctate, middle lobe of mesoscutum transversely rugose-punctate, with coarser rugosity posteriorly than anteriorly; notauli shallow; prescutellar furrow with 7 carinae (fig. 8); scutellum largely rugose-punctate; mesopleuron shiny with fine punctation and striation; mesosternum distinctly and completely punctate; propodeum with medio-longitudinal carina; lateral oblique carinae developed from near spiracle to posterior orifice (fig. 7); spiracle in front of middle level of propodeum, no distinct costulae (fig. 7); middle area of propodeum with some rugae.

Wings.— Fore wing: vein r as long as 2-SR and longer than width of pterostigma, thin, emitted distally from middle of pterostigma (fig. 4); metacarp 1.3 times length of pterostigma and 4 times distance from the apex of metacarp to apex of marginal cell; vein 1-CU1 0.4 times vein 2-CU1, 1-M slightly curved, vein m-cu as long as 2-SR+M; discal cell longer than high (ratio 9:7). Hind wing: rather broad with submarginal cell long, 1.3 times longer than wide (fig. 4).

Legs.— Hind coxa long, surpassing apex of third tergite, outer dorsal surface of hind coxa largely reticulate-rugose and with a longitudinal ruga running from base to apex (fig. 9); outer dorsal side of hind tibia moderately spinose (fig. 5); inner hind spur long, 0.75 times as long as hind basitarsus, hind basitarsus 1.2 times as long as as long as remainder of tarsus (fig. 11).

Metasoma.— First tergite smooth, very long and medially constricted, with a deep narrow groove almost extending to apex, 3.4 times longer than its maximum width



Figs 1-11, *Wilkinsonellus paramplus* spec. nov., ♀, holotype. 1, first metasomal tergite, dorsal aspect; 2, head, frontal aspect; 3, head, dorsal aspect; 4, wings; 5, hind tibia, outer aspect; 6, apex of antenna; 7, propodeum, dorsal aspect; 8, scutellum, dorsal aspect; 9, hind coxa, dorso-lateral aspect; 10, apex of metasoma, lateral aspect; 11, hind tarsus. 1-3, 5-11: 1.0 × scale-line; 4: 0.6 ×.

(fig. 1); second and third tergites highly polished and smooth, second metasomal suture hardly defined; ovipositor sheath short, hardly surpassing apex of metasoma, glabrous; hypopygium protruding behind apex of metasoma (fig. 10).

Colour.— Brownish-yellow; pterostigma brown; eyes light brown to brown; flagellum brown; scape dark brown or infusate; stemmaticum black; palpi pale yellow; lateral lobes of mesoscutum, mesosternum, apical two thirds of hind coxa, apical half of hind femur, apical third of hind tibia and hind tarsus dark brown or

black; second-fifth tergites infusate; ovipositor sheath reddish-brown.

Male.— Similar to female, but ocelli smaller and in higher triangle, $OD = POL > OOL$; whole first tergite and first-third sternites whitish-yellow or white.

Notes.— *Wilkinsonellus paramplus* spec. nov. is closely related to *Wilkinsonellus amplus* Austin & Dangerfield, 1992, from Australia, but differs from the latter in the combination of the following features: i) outer side of hind tibia less spinose (fig. 5); ii) ocelli in a lower triangle and occiput medially grooved (fig. 3); iii) outer dorsal surface of hind coxa rugosely sculptured all over with a longitudinal ruga running from base to apex (fig. 9); iv) lateral lobe of mesoscutum, most of hind coxa, apical half of hind femur and apex of hind tibia dark brown to black.

Wilkinsonellus longicentrus spec. nov.
(figs 12-18)

Material. Holotype, ♀ (IEBR), "[Vietnam], Huong Son, Ha Tinh Province, forest, 22.v.1998, K.D. Long, Mic. 242".

Holotype, ♀, length of body 3.4 mm, of fore wing 3.7 mm.

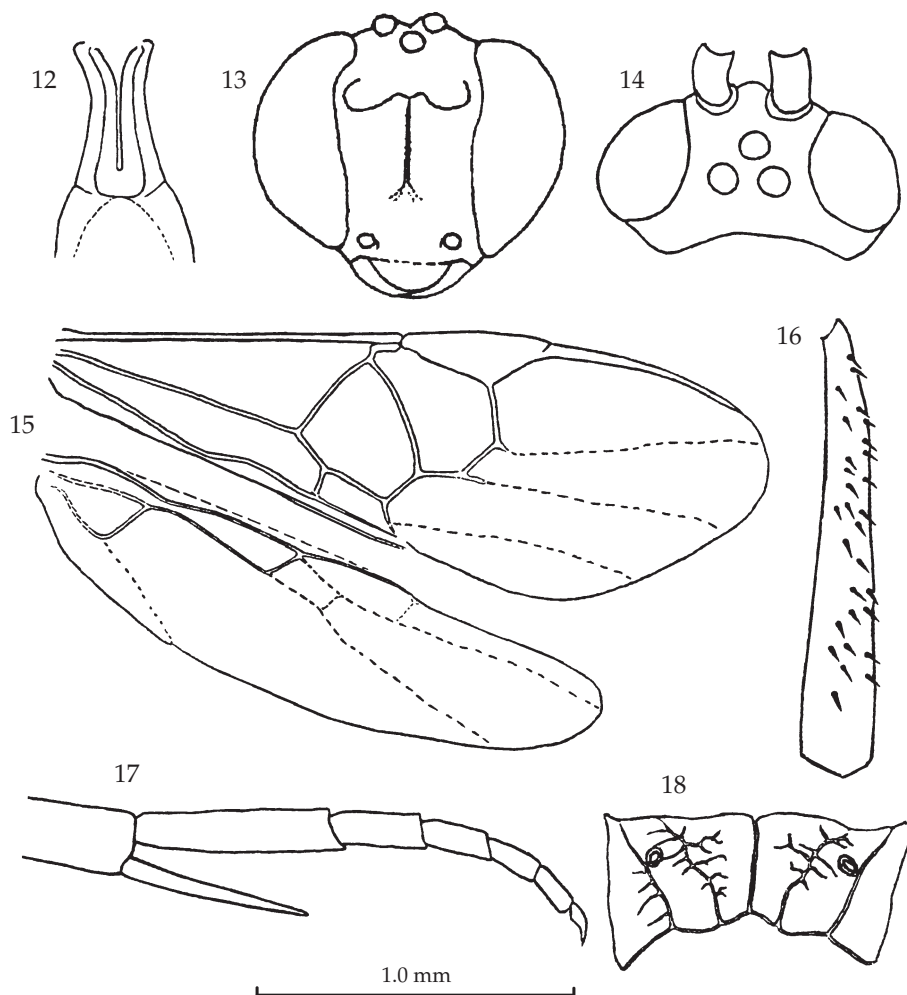
Head (fig. 12).— Antenna broken, 11 segments remaining; scape 2.2 times as long as wide; third antennal segment about 3 times as long as wide; head in frontal view with antennal socket above middle level of eyes; eye very large, 2.7 times as high as its maximum width (fig. 13); face densely punctate, and medio-longitudinal carina long (fig. 13), present below middle level of eyes; tentorial pits comparatively large (fig. 13); occiput normal, distinctly punctate; ocelli medium-sized, in rather high triangle, $OD:OOL:POL = 3:2:2$ (fig. 14).

Mesosoma.— Thorax as wide as head or somewhat wider; pronotum sparsely punctate; anterior part of mesoscutum densely punctate, remainder of mesoscutum and scutellum rugose-punctate, without notauli; prescutellar furrow with 4 carinae; mesopleuron and mesosternum sparsely punctate, shiny; propodeum with medio-longitudinal carina and lateral oblique carinae developed from near spiracle to posterior orifice and with oblique costulae (fig. 18).

Wings.— Fore wing: vein r thicker than vein 2-SR and 1.5 times as long as vein 2-SR and 1.3 times width of pterostigma, emitted just after middle of pterostigma (fig. 15); metacarp 1.4 times length of pterostigma and 6 times distance between apex of metacarp and apex of marginal cell; vein 1-CU1 0.6 times vein 2-CU1, 1-M curved, vein m-cu as long as 2-SR+M; discal cell longer than high (ratio 4:3). Hind wing: narrow with submarginal cell long, 2.2 times longer than wide (fig. 15).

Legs.— Hind coxa long, surpassing apex of third tergite, outer dorsal surface of hind coxa finely punctate and longitudinally striate, without a longitudinal ruga running from base to apex; outer dorsal side of hind tibia moderately spinose (fig. 16); inner hind spur very long, 0.9 times as long as hind basitarsus, hind basitarsus 0.8 times as long as remainder of tarsus (fig. 17).

Metasoma.— First tergite smooth, very long and medially constricted, with a deep narrow groove almost reaching apex, 2.7 times longer than its maximum width (fig. 12); second and third tergites highly polished and smooth, second metasomal suture hardly defined; ovipositor sheath short, protruding beyond apex of metasoma, glabrous.



Figs 12-18, *Wilkinsonellus longicentrus* spec. nov., ♀, holotype. 12, first metasomal tergite, dorsal aspect; 13, head, frontal aspect; 14, head, dorsal aspect; 15, wings; 16, hind tibia, outer aspect; 17, hind tarsus; 18, propodeum, dorsal aspect. 12-14, 16-18: 1.0 × scale-line; 15: 0.6 ×.

Colour.— Brownish-yellow; flagellum, pterostigma and veins brown; outer side of scape dark brown; stemmaticum black, shiny and polished; palpi pale yellow; lateral lobe of mesoscutum, anterior part of propodeum, mesosternum and metanotum infusate; apices of hind coxa and of hind femur brown to infusate, apex of hind tibia and hind tarsus yellowish to light brown; second-fifth tergites dark brown to black; ovipositor sheath reddish-brown.

Notes.— *Wilkinsonellus longicentrus* spec. nov. differs from *W. paramplus* spec. nov. by the combination of the following features: i) ocelli smaller and in higher triangle, occiput normal, medially without groove (fig. 14); ii) vein r of fore wing thicker and

longer than vein 2-SR (fig. 15); iii) hind wing narrower (fig. 15); iv) outer dorsal surface of hind coxa only finely punctate and striate.

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