

A new species of *Pristaulacus* Kieffer, 1900 from Laos (Hymenoptera: Aulacidae)

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TURRISI, G. F.: *A new species of Pristaulacus Kieffer, 1900 from Laos (Hymenoptera: Aulacidae)*.

Abstract: A new species, belonging to the recently revised *Pristaulacus comptipennis* species-group, *P. harisi* Turrisi, sp. nov. from Laos (Ventiane Province, Ban Van Eue) is described, illustrated and compared with most related species.

Keywords: Hymenoptera, Aulacidae, *Pristaulacus harisi*, new species, Laos.

Introduction

Aulacidae comprises 242 extant species belonging to two genera (TURRISI et al. 2009 and subsequent additions, e.g., TURRISI 2013; TURRISI and MADL 2013; WATANABE et al. 2013), *Aulacus* Jurine, 1807, with 76 species and *Pristaulacus* Kieffer, 1900 (including the former *Panaulix* Benoit, 1984), with 166 species. The number of described species has been strikingly increased since the publication of the World Aulacidae catalogue (SMITH 2001), which listed around 150 species, and has stimulated a number of investigations, especially of poorly known regions (SMITH 2005a, 2005b, 2008; HE et al. 2002; JENNINGS et al. 2004a, 2004b, 2004c; TURRISI 2004, 2005, 2006, 2007, 2011; JENNINGS and AUSTIN 2006; SUN and SHENG 2007a, 2007b; TURRISI et al. 2009; SMITH and VILELA de CARVALHO 2010; TURRISI and KONISHI 2011; TURRISI and SMITH 2011; TURRISI and WATANABE 2011; TURRISI 2013; TURRISI and MADL 2013; WATANABE et al. 2013). Both genera are represented in all zoogeographic regions, except Antarctica, and *Aulacus* is not known from the Afrotropics (KIEFFER 1912; HEDICKE 1939; SMITH 2001; TURRISI 2004; TURRISI et al. 2009).

Aulacidae are koinobiont endoparasitoids of wood-boring larvae of Hymenoptera and Coleoptera (SKINNER and THOMPSON 1960; DEYRUP 1984; JENNINGS and AUSTIN 2004). Hosts are larval Xiphydriidae (Hymenoptera), Buprestidae (Coleoptera) and, more frequently, Cerambycidae (Coleoptera) (BARRIGA 1990; VISITPANICH 1994; TURRISI 1999, 2004, 2007; SMITH 2001; JENNINGS and AUSTIN 2004).

The *Pristaulacus comptipennis* species-group is endemic to a number of countries of eastern and south-eastern Asia: Japan, Korea and China, with a limited number of species, and Thailand, Laos and Vietnam, with a significantly greater number of taxa, most of which have been recently described (TURRISI and SMITH 2011; TURRISI and MADL 2013). This species-group was shown to be monophyletic in the phylogenetic study by TURRISI et al. (2009) and is characterized by the deep occipital emargination of the head, most obvious in dorsal view, whereas the posterior margin of the head is straight or

weakly concave in other *Pristaulacus* species (TURRISI 2004, 2007; TURRISI et al. 2009; TURRISI and SMITH 2011).

The purpose of this paper is to add a new species from Laos, with a taxonomic discussion and comparisons with the allied species. This study is part of an on-going broader revision of the Asian Aulacidae, especially in the Oriental Region (TURRISI 2005, 2007; TURRISI and KONISHI 2011; TURRISI and SMITH 2011; TURRISI and WATANABE 2011; TURRISI 2013; TURRISI and MADL 2013).

Material and methods

This study is based on material preserved at Bernice P. Bishop Museum, Honolulu (Hawaii), U.S.A., indicated in the text as BPBM (curator: Dr Francis G. Howarth). Some additional materials, including type specimens, were rendered available for comparisons from the following museums (curators in brackets):

QSBG - Entomology Section, Queen Sirikit Botanic Gardens, Chiang Mai, Thailand (through Prof. Michael Sharkey, University of Kentucky, Lexington, Kentucky, U.S.A.).

SFPS - General Station of Forest Pest Management, State Forestry Administration, Shenyang, China (Prof. Mao-Ling Sheng).

UCTC - University of Catania, Turrisi G.F. Collection, Catania, Italy.

USNM - National Museum of Natural History, Smithsonian Institution, Washington DC, U.S.A. (Dr. David R. Smith).

Specimens were studied using a Wild M5A light stereomicroscope and measurements were taken with the aid of an ocular scale. Images were produced according to the procedure described in TURRISI and MADL (2013). The nomenclature for morphology follows CROSSKEY (1951), HUBER and SHARKEY (1993), and GAULD and BOLTON (1996) adopted in recent contributions (TURRISI 2007; TURRISI and SMITH 2011; TURRISI 2013; TURRISI and MADL 2013). Terminology for surface sculpture follows Harris (1979). In the text, the following abbreviations are used for some morphological structures: A, antennomere; OOL, distance between posterior ocellus and eye; POL, distance between posterior ocelli; T, tergite; S, sternite.

Taxonomic results

Pristaulacus harisi Turrisi, sp. nov. (Figs 1–8)

Type material. Laos: holotype ♀ labelled “LAOS: Vientiane Prov, Ban Van Eue, 13. IV.1965/J.L. Gressitt Collector, Bishop Museum/*Pristaulacus harisi* Turrisi, sp. nov. ♀ 2013, Holotypus” (BPBM).

Etymology. This species is dedicated to the colleague and friend Dr. PhD Attila Haris (Úrhida, Hungary), specialist of Hymenoptera Symphyta.

Description (holotype, ♀). Length: 11.5 mm; antenna length: 8.0 mm; forewing length: 9.5 mm; ovipositor length: 9.7 mm.

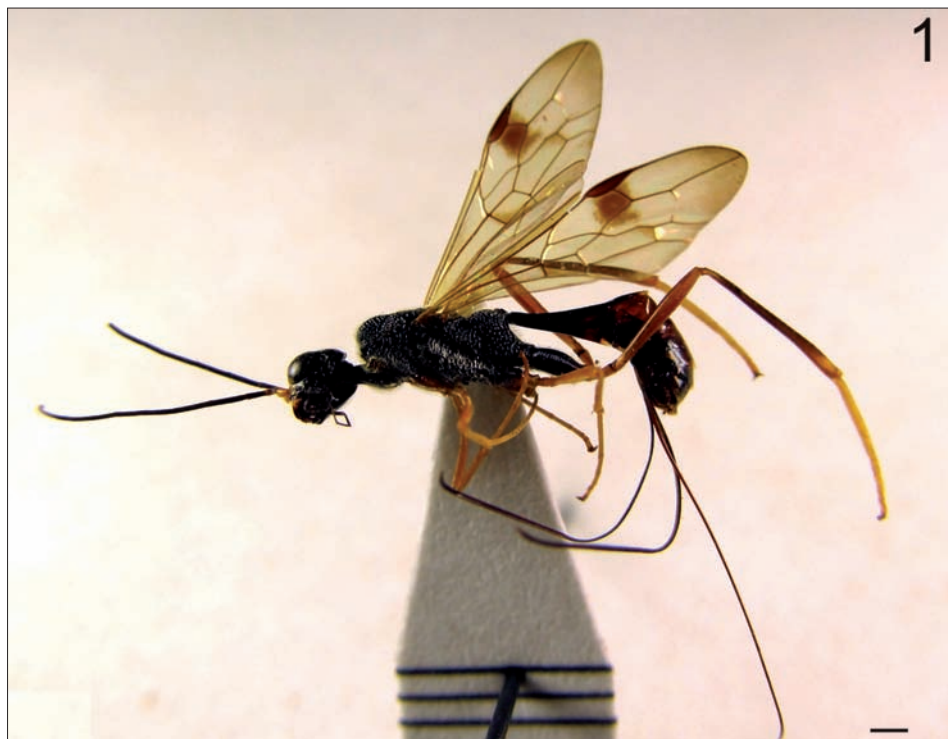


Fig. 1: *Pristaulacus harisi* Turrisi, sp. nov. (holotype ♀, Laos), lateral habitus.
Scale bar: 1 mm.

Colour extensively black, except: mandible extensively yellowish orange, with apex dark reddish to blackish; maxillo-labial complex reddish; A1 yellowish orange, A2 darker, A3 dark brown; fore and mid legs, excluding basal mid coxa, and hind femur orange; hind tibia dark brown, except base and apex reddish orange; hind tarsus yellowish; wings hyaline, slightly yellowish, with a wide substigmal brown spot, about two third as stigma length, and an irregular brown mark on cell D2 and apex very slightly infuscate; extensively dark reddish orange, except T1 and most of S1; valvula 3 of ovipositor dark brown. Setae: whitish to yellowish, golden on clypeus and mandible.

Head, from above, 1.2× wider than long, shiny; occipital margin with a moderately wide and moderately deep medial groove; temple, from above, well developed, convergent toward posterior margin, very weakly convex, slightly less than eye length; occipital carina moderately wide, 0.5-0.6× diameter of an ocellus, absent along occipital groove; POL:OOL= 1.3; ocellar area 1.9× wider than long; vertex and upper temple with fine, superficial and scattered punctures (distance between punctures 3.0-5.0× puncture diameter); lower temple, behind eye, with fine to moderately coarse, superficial and dense punctures (distance between punctures 1.0-1.5× puncture diameter); frons with fine, deep and dense punctures (distance between punctures 2.0-3.0× puncture diameter); clypeus with moderately coarse, deep and dense punctures; malar area with fine, deep and very dense punctures; occipital area with fine, superficial and dense punctures;



Figs. 2–6: *Pristaulacus harisi* Turrisi, sp. nov. (holotype ♀, Laos). 2. Head dorsal view; 3. Head frontal view; 4. Head lateral view; 5. Mesosoma dorsal view. 6. Head and pronotum lateral view. Scale bars: 0.5 mm.

antenna 0.8× as long as forewing length; A3 2.7× longer than wide; A4 7.5× longer than wide, and 2.7× longer than A3; A5 7.0× longer than wide, and 2.5× longer than A3. Setae: erect, short and scattered on vertex; semi erect to erect, long and dense on temple (length of setae 1.0× diameter of an ocellus); erect, moderately long and dense on upper frons; recumbent, short and dense on lower frons; recumbent, long and dense on clypeus; recumbent, short and dense on malar area.

Mesosoma coarsely sculptured; pronotum areolate-rugose-punctate with one anterior well developed acute tooth-like process on each lateroventral margin; propleuron polished and shiny with coarse, deep and dense punctures on dorsal surface, fine, deep and dense on ventral surface (distance between punctures 2.0× puncture diameter); prescutum triangular, narrow, long, very weakly concave, transverse-carinate; mesoscutum transverse-carinate anterior to notauli to areolate-rugose; dorsally not prominent, anterior margin rounded (lateral view); notauli superficial and wide; scutellum areolate-rugose, except medial lobe, polished to transverse-carinulate-foveolate; mesopleuron areolate-rugose, except a wide part of subalar area polished-punctate; metanotum scrobicu-



Figs. 7–8: *Pristaulacus harisi* Turrisi, sp. nov. (holotype ♀, Laos).

7. Wings (scale bar: 1 mm); **8.** Hind coxa and metasoma lateral view (scale bar: 0.5 mm).

late, areolate-rugose in middle; propodeum areolate-rugose, anterior margin longitudinally carinate; venter of mesosoma polished to transverse-carinulate, scrobiculate medially; vein 2-rs+m obsolete; fore coxa polished-punctate with fine, superficial and moderately dense punctures; mid coxa transverse-carinate on dorsal surface, polished-punctate on ventral surface, punctures fine, superficial and scattered; hind coxa transverse-carinate on dorsal surface, mostly polished-punctate on ventral surface, with fine, deep and moderately dense punctures (distance between punctures 2.0-3.0× puncture diameters); spurs of mid tibia subequal length; inner spur of hind tibia longer than outer spur; hind basitarsus 9.0× longer than wide, and 1.1× as tarsomeres 2-5; tarsal claw with four tooth-like processes. Setae: erect, short and dense dorsally; recumbent, long and dense on sides and venter of mesosoma; erect, long and dense on hind surface of propodeum; erect, moderately long and very dense on propleuron (setae length 0.7-0.8× pretarsus length).

Metasoma pyriform (lateral view), compressed laterally; petiole elongate, slender, 3.4× longer than wide; segments 1-2 polished and very shiny, impunctate, except on distal margin of T2, with very fine and scattered punctures; T3 very finely microsculptured with very fine and scattered punctures; remaining tergites finely microsculptured with very fine, and dense punctures; ovipositor 1.0× fore wing length.

♂ unknown.

Taxonomic discussion. This new species belongs to clade 2 recognized within the phylogenetic analyses of the *Pristaulacus comptipennis* species-group by TURRISI and SMITH (2011: Fig. 181, node 3), which includes sixteen species (TURRISI and SMITH 2011; TURRISI and MADL 2013); this clade is mainly supported by two apomorphies: 1, pronotal setae moderately long (cuticle not clearly visible beneath) (character 12: 1) and 2, petiole elongate to very elongate (length/width: > 3.0) (character 25: 1). It also shares two additional striking synapomorphies within a large subgroup of eleven species: 1, pronotum long (height/length <1.0) (character 10: 1); 2, hind coxa slender, elongate to very elongate (character 20: 1) (TURRISI and SMITH 2011). It superficially resembles *P. manuelae* Turrisi and Madl, 2013, described from the same locality in Laos (TURRISI and MADL 2013) (holotype examined, preserved at BPBM), for the general habitus and the characters stated above, but it is easily distinguished by the shape of the head (Figs 2-4), which is more wider (dorsal view, width/length: 1.2) with temple almost straight toward occipital margin (Fig. 2) (vs. more elongated, width/length: 1.0 with temple curved toward occipital margin in *P. manuelae*); ocellar area 1.9× wider than long (vs. 1.7× in *P. manuelae*); occipital carina narrower, 0.5-0.6× diameter of ocellus (vs. 1.0× diameter of ocellus in *P. manuelae*); basal antennomeres quite stouter: A3 2.7× longer than wide; A4 7.5× longer than wide, and 2.7× longer than A3; A5 7.0× longer than wide, and 2.5× longer than A3 (vs. A3 5.7× longer than wide; A4 13.0× longer than wide, and 1.9× longer than A3; A5 12.0× longer than wide, and 1.5× longer than A3 in *P. manuelae*); hind basitarsus 9.0× longer than wide (vs. 12.7× in *P. manuelae*); ovipositor about equal to fore wing length (vs. 1.3× forewing length in *P. manuelae*); hind femur reddish orange, hind tarsus light reddish orange (Fig. 1) (vs. hind femur blackish brownish, hind tarsus brownish in *P. manuelae*). For the shape of the head, including occipital carina, *P. harisi* sp. nov. resembles *P. porcatus* Sun & Sheng, 2007 described from China (Henan province) (paratype examined, preserved at SFPS), but it is readily distinguished for having A3 stouter, ratio length/width: 2.7 (vs. elongate, ratio length/width: 5.3 in *P. porcatus*) for the anterior margin of pronotum, medially produced in two wide and poorly forwarded processes (Fig. 6) (vs. well forwarded in *P. porcatus*) and above all for the shape of mesosoma (Figs 5-6), with anterior margin of mesoscutum slightly rounded, moderately prominent dorsally, with notauli superficial and wide (vs. widely rounded less prominent dorsally with notauli deep and wide in *P. porcatus*).

Distribution. Laos, known from only type locality.

Biology. Unknown.

Concluding remarks

The Oriental Aulacidae appear to be very poorly investigated, although very rich in species as confirmed by recent remarkable findings (SMITH 1997; TURRSI and SMITH 2011; TURRSI and WATANABE 2011; TURRSI 2013; TURRSI and MADL 2013). With the new addition, the *Pristaulacus comptipennis* species-group currently includes twenty-three species (see TURRSI and SMITH 2011; TURRSI and MADL 2013). Moreover, the total number of described Oriental *Pristaulacus* is raised to forty-three, although this appears to be largely underestimated with respect to the real species-richness (TURRSI unpubl.). Further investigations, especially in poorly explored territories (India, Laos, Cambodia, Thailand, Myanmar, Vietnam etc.), will significantly increase the number of known species.

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