DESCRIPTIONS OF NEW SPECIES OF DRYINIDAE (HYMENOPTERA: CHRYSIDOIDEA) FROM THAILAND

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ABSTRACT. Eight new species of Dryinidae (Hymenoptera: Chrysidoidea) are described from Thailand, namely *Aphelopus thai*; *Anteon phuphayonense*, *semipolitum*, *khaokhoense*, *doiense*, *petchabunense*; *Pseudodryinus thai*; *Neodryinus phuphayonensis*. The holotypes are deposited in the collections of Queen Sirikit Botanic Garden, Chiang Mai, Thailand. The keys to the Oriental *Aphelopus*, *Anteon*, *Pseudodryinus* and *Neodryinus* are modified.

Key words: Hymenoptera, Dryinidae, *Aphelopus*, *Anteon*, *Pseudodryinus*, *Neodryinus*, new species, taxonomy.

Introduction

Dryinidae (Hymenoptera: Chrysidoidea) are parasitoids of Hemiptera Cicadomorpha and Fulgoromorpha (Guglielmino & Olmi 1997, 2006, 2007).

The Dryinidae (Hymenoptera: Chrysidoidea) of Thailand were studied in the last thirty years mainly by Olmi (1984, 1991, 1998a, 1998b, 2000, 2005). However, in spite of the above papers, they can be considered insufficiently known.

In 2007 I received for study an interesting collection of unidentified dryinids from Thailand. The study of this material resulted in the discovery of eight new species described herein.

Material and Methods

The descriptions follow the terminology used by Olmi (1984, 1994, 1999). The measurements reported are relative, except for the total length (head to abdominal tip, without the antennae), which is expressed in millimetres. The study techniques were those proposed by Olmi (1984).

In the descriptions POL is the distance between the inner edges of the two lateral ocelli; OL is the distance between the inner edges of a lateral ocellus and the median ocellus; OOL is the distance from the outer edge of a lateral ocellus to the compound eye; OPL is the distance from the posterior edge of a lateral ocellus to the occipital carina; TL is the distance from the posterior edge of an eye to the occipital carina.

The material studied in this paper is deposited in the following collections:

MOLC: Massimo Olmi’s collection, c/o Department of Plant Protection, University of Tuscia, Viterbo, Italy.

QSBG: Queen Sirikit Botanic Garden, Chiang Mai, Thailand.

1. *Aphelopus thai*, sp. nov.

Complete. POL = 4; OL = 2.5; OOL = 3; OPL = 1.5; TL = 3. Greatest diameter of posterior ocelli: 2. Occipital carina complete. Scutum dull, granulated. Notauli incomplete, reaching about 0.6x the length of scutum. Scutellum slightly granulated. Metanotum shiny, without sculpture. Propodeum reticulate rugose, with 2 complete longitudinal keels; median area of posterior surface shiny, partly without sculpture. Fore wing hyaline, without dark transverse bands. Basivolsella with an outer process and 1 distal bristle (Fig. 1). Tibial spurs 1, 1, 2.

Figs. 1–2, 1, *Aphelopus thai* (male holotype): right half of genitalia in ventral view (scale bar: 0.05 mm); 2, *Anteon phuphayonense* (female holotype): chela (scale bar: 0.07 mm).

**Female:** Unknown.


**Remarks:** *Aphelopus thai* is similar to *A. niger* Xu & He, 1999, because of the basivolsella provided of an outer process (Fig. 1). Following the description of *A. thai*, the key to the males of the Oriental *Aphelopus* published by Xu, He & Olmi (1999) may be modified by replacing couplet 15 as follows:

15. Basivolsella with 1 subdistal bristle (Fig. 1) ................................................................. 15’
- - Basivolsella with 2 subdistal bristles (Fig. 1 in Xu, He & Olmi, 1999)..........................16
15’ Basivolsella without an outer process (Fig. 3 in Xu, He & Olmi, 1999)..........................
- - Basivolsella with an outer process (Fig. 3 in Xu & He, 1999)................................. 15”
15” Head black, with mandibles whitish................................................................. niger Xu & He
- - Head black, with mandibles, clypeus and genae testaceous ................................. *thai*, sp. nov.
2.  *Anteon phuphayonense*, sp. nov.

**Female:** Fully winged; length 2.37 mm. Completely testaceous, except anterior margin of petiole brown. Antennae clavate; antennal segments in the following proportions: 5:4.5:5:4:4:4:4:4:6.5. Head shiny, smooth, punctate, without sculpture among the punctures, except anterior half of face rugose. Frontal line complete. POL = 3; OL = 2; OOL = 4; OPL = 3.5; TL = 3. Greatest diameter of posterior ocelli: 2. Occipital carina complete. Anterior surface of pronotum dull and rugose; posterior surface of pronotum shiny, finely punctate, without sculpture among the punctures, about as long as scutum, longer than broad (12:7). Pronotal tubercles reaching the tegulae. Scutum, scutellum and metanotum shiny, smooth, finely punctate, without sculpture among the punctures. Notauli complete, posteriorly separated; minimum distance between the notauli longer than POL: 5:3. Propodeum with a strong transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose; posterior surface with two complete longitudinal keels and median and lateral areas reticulate rugose, dull. Fore wing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (3:8). Fore tarsal segments in the following proportions: 4.5:1.5:2.5:7:15. Enlarged claw (Fig. 2) with a proximal prominence bearing a long bristle. Segment 5 of fore tarsus (Fig. 2) with basal part much shorter than distal part, with 2 rows of 18 + 11 lamellae; distal apex with a group of 4 lamellae. Tibial spurs 1,1,2.

**Male:** Unknown.

**Holotype:** ♀, THAILAND: Sakon Nakhon Province: Phu Pha Yon National Park Reservoir, 16°55.655'N 104°10.658'E, 280 m, Pan traps, 9-10.vii.2006, M. Ngoyjansri & C. Cheaukamjan, T 286 (QSBG).

**Remarks:** *Anteon phuphayonense* is similar to *A. tongi* Xu, Olmi & He, 2006, and *A. nantuense* Olmi, 1987. Following the description of *A. phuphayonense*, the keys to the females of the Oriental *Anteon* published by Xu, He & Olmi (2001) and Xu, Olmi & He (2006) may be modified by replacing couplet 60 as follows:

60. Head punctate, reticulate rugose only on anterior half of the face; posterior surface of pronotum much longer than anterior surface .................................................61
   - - Head almost completely reticulate rugose, except for a smooth area in front of the ocellar triangle; posterior surface of pronotum as long as anterior surface .........64

61. Ocelli large, so that OPL is shorter than greatest diameter of posterior ocelli; mesosoma black, except few regions, including the ventral surface, testaceous; head testaceous, except a brown ocellar spot ............... *yunnanense* Xu, Olmi & He
   - - Ocelli small, so that OPL is almost twice as long as greatest diameter of posterior ocelli .................................................................62

62. Mesosoma totally black; head black, except mandibles testaceous ....... *nantuense* Olmi
   - - Mesosoma almost completely testaceous-ferruginous; head testaceous-ferruginous 63

63. Notauli incomplete, reaching about 0.7x length of scutum....... *tongi* Xu, Olmi & He
   - - Notauli complete, posteriorly separated ........................................ *phuphayonense*, sp. nov.

64. Notauli almost complete ................................................................. *flaccum* Olmi
   - - Notauli reaching approximately 0.6x length of scutum.............. *wangi* Xu, He & Olmi

3. *Anteon semipolitum*, sp. nov.

among the punctures. Notauli incomplete, reaching approximately 0.7x the length of scutum. Propodeum reticulate rugose, with a strong transverse keel between dorsal and posterior surface; posterior surface with 2 complete longitudinal keels, median area smooth, without sculpture, and lateral areas rugose; rarely median area as rugose as lateral areas. Fore wing hyaline, without dark transverse bands; distal part of stigmatic vein much shorter than proximal part (3:10). Parameres (Fig. 3) without a distal inner pointed process and with a long and broad dorsal proximal membranous process. Tibial spurs 1, 1, 2. Variations: in a male paratype from Thailand, 16°39.550’N 101°08.123’E, the head, including the vertex and temples, is completely punctate and without sculpture among the punctures.

Female: Unknown.


Remarks: Anteon semipolitum is similar to A. sonyangense Xu, He & Olmi, 1998, A. striolaforceps Xu & He, 1997, and A. yuani Xu, He & Olmi, 1998. Following the description of A. semipolitum, the key to the males of the Oriental Anteon published by Xu, He & Olmi (2001) may be modified by replacing couplet 32 as follows:

32. Head with vertex reticulate rugose; rest of head punctate and without sculpture among the punctures .......................................................... semipolitum, sp. nov.
   - - Head completely punctate and without sculpture among the punctures .............. 32’
32’. Proximal membranous process of the parameres short, not longer than volsellae
   (Fig. 7 in Xu, He & Olmi, 1998) ...........................................................................33
   - - Proximal membranous process of the parameres very long, longer than volsellae
   (Fig. 284 in Olmi, 1984) .......................................................................................36
33. Notauli reaching approximately 0.70-0.75x length of scutum ...................................
   - - Notauli reaching approximately 0.6x length of scutum ........................................34

The rare specimens of A. semipolitum with median area of posterior surface of propodeum as rugose as lateral areas are similar to the males of A. viraktamathi Olmi, 1987. These specimens may be included in the key to the males of the Oriental Anteon published by Xu, He & Olmi (2001) by replacing couplet 48 as follows:

48. Inner side of parameres with numerous papillae (Fig. 2 in Olmi, 2000)..................
   - - Inner side of parameres without papillae (Fig. 8 in Olmi, 1987) .........................48’
48’. Head punctate, without sculpture among the punctures, with some areolae only near orbits; frontal line complete ......................................................... viraktamathi Olmi
   - - Head punctate, without sculpture among the punctures, with numerous areolae situated near orbits and on vertex and temples; frontal line incomplete, only shortly present in front of the anterior ocellus ..................................... semipolitum, sp. nov.
4. Anteon khaokhoense, sp. nov.

**Male:** Fully winged; length 1.50–1.87 mm (holotype 1.87 mm). Head black, except mandibles testaceous. Antennae testaceous-brown, except segments 1-2 testaceous. Mesosoma black. Gaster brown. Legs testaceous. Antennae filiform; antennal segments in the following proportions: 10:6:8:7:8:8:8:8:9. Head dull, completely reticulate rugose. Frontal line complete. POL = 7; OL = 3; OOL = 6; OPL = 4; TL = 3.5. Greatest diameter of posterior ocelli: 2.5. Occipital carina complete. Scutum dull, reticulate rugose. Notauli absent. Scutellum and metanotum shiny, without sculpture. Propodeum with a strong transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose; posterior surface dull, reticulate rugose, without longitudinal keels. Fore wing hyaline, without dark transverse bands; distal part of stigmal vein shorter than proximal part (2.5:8); marginal cell open. Parameres (Fig. 4) without a distal inner pointed process. Tibial spurs 1, 1, 2.

**Female:** Unknown.


**Paratype:** Thailand: Same locality label as holotype, 16°39.479'N 101°08.105'E, 1♂, 26.vii-2.viii.2006, T172 (MOLC).

**Remarks:** Anteon khaokhoense is similar to A. cerberum Olmi, 1992. Following the description of A. khaokhoense, the key to the males of the Oriental Anteon published by Xu, He & Olmi (2001) may be modified by replacing couplet 6 as follows:

6. Scutellum reticulate rugose......................... silvestre Olmi
- - Scutellum without sculpture ................................................................. 6'

6'. Head and scutum granulated and sculptured by numerous irregular keels; POL more than three times as long as OPL ................................................ cerberum Olmi
- - Head and scutum completely reticulate rugose; POL less than twice as long as OPL. ................................................................. khaokhoense, sp. nov.

5. Anteon doiense, sp. nov.

among the punctures, with some areolae along the orbits and on the temples. Face with 2 lateral keels running along the orbits towards the antennal toruli. Frontal line complete. POL = 8; OL = 4; OOL = 6; OPL = 3; TL = 3. Greatest diameter of posterior ocelli: 3. Occipital carina complete. Scutum, scutellum and metanotum shiny, finely punctate, without sculpture among the punctures. Notauli incomplete, reaching approximately 0.4 X length of scutum. Propodeum reticulate rugose, with a strong transverse keel between dorsal and posterior surface; posterior surface with 2 complete longitudinal keels and median area almost completely smooth, shiny, without sculpture (some short irregular keels are present near the borders of this area). Fore wing hyaline, without dark transverse bands; distal part of stigmal vein shorter than proximal part (5:13). Parameres (Fig. 5) about as long as penis, without a distal inner process; distivolsella with two lateral processes. Tibial spurs 1, 1, 2.

Female: Unknown.


Remarks: Anteon doiense is a very characteristic species. It is easily recognizable from all other species of Anteon because of the presence of two lateral processes on male distivolsella (Fig. 5). This character is not present in any world species.

6. Anteon phetchabunense, sp. nov.

Male: Fully winged; length 2.00–2.31 mm (holotype 2.00 mm). Head black, except mandibles testaceous. Antennae testaceous. Mesosoma black. Gaster brown. Legs testaceous. Antennae filiform; antennal segments in the following proportions: 10:5:6:5:6:6:6:5:5:8. Head dull, granulated and reticulate rugose; POL = 7; OL = 4; OOL = 5; OPL = 3; TL = 3. Greatest diameter of posterior ocelli: 3. Occipital carina complete. Frontal line complete. Scutum, scutellum and metanotum shiny, finely punctate, without sculpture among the punctures. Notauli incomplete, reaching approximately 0.4x the length of scutum. Propodeum reticulate rugose, with a strong transverse keel between dorsal and posterior surface; posterior surface with 2 longitudinal keels and median area as rugose as lateral areas. Fore wing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (2.5:8). Parameres (Fig. 6) without a distal inner rounded process, with numerous papillae on inner side of parameres. Tibial spurs 1,1,2.

Female: Unknown.


Remarks: Anteon phetchabunense is similar to A. guangxiense Xu, He & Olmi, 1998, and A. henanense Xu, He & Olmi, 2001. Following the description of A. phetchabunense, the key to the males of the Oriental Anteon published by Xu, He & Olmi (2001) may be modified by replacing couplet 56 as follows:

56. Head with OOL more than twice as long as OPL........................................... gauldi Olmi
 - - Head with OOL less than twice as long as OPL...........................................57

57. Inner side of parameres with numerous papillae (Fig. 6)....phetchabunense, sp. nov.
 - - Inner side of parameres without papillae (Fig. 6 in XU, He & Olmi, 2001)..........................................................................................58

58. Genitalia without a membranous process (Fig. 12 in Xu, He & Olmi, 1998). . . . .
 - - Genitalia with a membranous process (Fig. 6 in Xu, He & Olmi, 2001). . . . .

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7. *Pseudodryinus thai*, sp. nov.

*Male:* Fully winged; length 2.37 mm. Head black, with mandibles and clypeus testaceous. Antennae testaceous. Mesosoma black. Gaster brown. Legs testaceous-yellow. Antennae filiform; antennal segments in the following proportions: 5:5:9:8:7:7:7:7:7:6.5:9.5. Head dull, convex, almost completely reticulate rugose; areas between posterior ocelli and eyes smooth, shiny, punctate, without sculpture among the punctures. Antennal scrobes smooth, shiny, without sculpture. Frontal line complete. POL = 5; OL = 2; OOL = 5; OPL = 1; TL = 4. Greatest diameter of posterior ocelli: 3. Occipital carina complete. Temples very prominent. Occiput very excavated, shiny, smooth, without sculpture. Mandibles with 4 irregular teeth (Fig. 7). Maxillary palpi with 6 segments; labial palpi with 3 segments. Pronotum very short, rugose. Scutum shiny, strongly punctate, without sculpture among the punctures. Notauli complete, posteriorly joint. Scutellum shiny, finely punctate, without sculpture among the punctures. Metanotum shiny, smooth, without sculpture. Mesopleura shiny, smooth, punctate, without sculpture among the punctures. Metapleura shiny, smooth, without sculpture. Propodeum dull, reticulate rugose, with a strong irregular transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose, with large areolae; posterior surface with two complete longitudinal keels and median and lateral areas reticulate rugose. Fore wing hyaline, without dark transverse bands; distal part of stigmal vein longer than proximal part (18:10); metacarpus longer than pterostigma. Parameres (Fig. 8) with an inner transverse lobe. Tibial spurs 1, 1, 2.

*Female:* Unknown.


*Remarks:* Following the description of *Pseudodryinus thai*, the following key to the known males of the Oriental *Pseudodryinus* is presented:

1. Notauli complete, posteriorly separated ........................................... *sinensis* Olmi
2. - - Notauli complete, posteriorly joint ........................................... *thai*, sp. nov.
8. *Neodryinus phuphayonensis*, sp. nov.

**Male:** Fully winged; length 2.68 mm. Head black, except mandibles partly testaceous. Antennae brown-testaceous, except segments 1-2 testaceous. Mesosoma black. Gaster brown. Legs brown, except fore tibiae and tarsi testaceous, segments 1-3 of mid and hind tarsi whitish. Antennae filiform; antennal segments in the following proportions: 5:5:13:10;10:9:8:7:8. Head dull, granulated and reticulate rugose. Frontal line absent. Occipital carina absent. Temples absent. POL = 6; OL = 2; OOL = 4. Greatest diameter of posterior ocelli: 3. Maxillary palpi with 6 segments; labial palpi with 3 segments. Scutum dull, granulated. Notauli complete, posteriorly separated; minimum distance between the notauli shorter than POL: 3.5:6. Scutellum granulated. Metanotum shiny, without sculpture. Propodeum dull, reticulate rugose, with two large areolae on the sides of the dorsal region. Fore wing hyaline, without dark transverse bands; marginal cell open; distal part of stigmatic vein approximately as long as proximal part. Parameres with 1 long distal dorsal process; this dorsal process has medial and distal apexes sharp (Fig. 9). Tibial spurs 1, 1, 2.

**Female:** Unknown.

**Holotype:** ♂. THAILAND: Sakon Nakhon Province: Phu Pha Yon National Park, 16°55.449'N 104°10.757'E, 295 m, deciduous dipterocarp forest, Malaise trap, 17-23.vii.2006, M. Ngyoujansri & C. Cheaukamjan, T297 (QSBG).

**Remarks:** *Neodryinus phuphayonensis* is similar to the males of *N. baishanzuensis* Xu & He, 1996, and *N. javanus* (Roepke, 1916). Following the description of *N. phuphayonensis*, the key to the males of the Oriental *Neodryinus* published by Olmi (1998b) may be modified by replacing couplet 3 as follows:

3. Dorsal process of parameres located in the proximal region of parameres (Fig. 64 in Olmi, 1998b)..............................................................................................................*pseudodifusus* Olmi
   - - Dorsal process of parameres located in the distal region of parameres (Fig. 731 in Olmi, 1984; fig. 9)................................................................. 4

4. Dorsal process of parameres very short (Fig. 319 in He & Xu, 2002).........................
   - - Dorsal process of parameres very long (Fig. 731 in Olmi, 1984; fig. 9)..............5

5. Dorsal process of parameres with medial and distal apexes rounded (Fig. 731 in Olmi, 1984); frontal line present between the antennal toruli....*javanus* (Roepke)
   - - Dorsal process of parameres with medial and distal apexes sharp (Fig. 9); frontal line absent............................................................................. *phuphayonensis*, sp. nov.

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**References**


