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A contribution to the knowledge of the Dryinidae of Taiwan (Hymenoptera Chrysidoidea)

Abstract - The following new species of Dryinidae from Taiwan are described: *Fiorianteon choui* (Conganteoninae); *Deinodryinus lini* and *sinicus* (Anteoninae); *Neodryinus taiwanensis* and *Gonatopus lini* (Gonatopodinae). For the first time the female of *Fiorianteon junonium* Olmi from Japan is described. The males, hitherto unknown, of the following species from Taiwan are described: *Fiorianteon rugosum* Olmi, *Conganteon taiwanense* Olmi, *Aphelopus sabahnus* Olmi, *Aphelopus ochreus* Olmi, *Echthrodelphax rufus* Olmi. *Chelanteon* Olmi is proposed as new junior synonym of *Conganteon* Benoit.

Riassunto - *Contributo alla conoscenza dei Dryinidae di Taiwan (Hymenoptera Chrysidoidea).*

Sono descritte le seguenti nuove specie di Dryinidae di Taiwan: *Fiorianteon choui* (Conganteoninae); *Deinodryinus lini* e *sinicus* (Anteoninae); *Neodryinus taiwanensis* e *Gonatopus lini* (Gonatopodinae). Viene poi descritta al femmina, finora ignota, di *Fiorianteon junonium* Olmi, del Giappone. Vengono anche descritti, in base a materiale di Taiwan, i maschi, finora ignoti, delle seguenti specie: *Fiorianteon rugosum* Olmi; *Conganteon taiwanense* Olmi; *Aphelopus sabahnus* Olmi; *Aphelopus ochreus* Olmi; *Echthrodelphax rufus* Olmi. Il genere *Chelanteon* Olmi è posto in sinonimia di *Conganteon* Benoit.

Key words: Dryinidae, Taiwan, taxonomy, new species.

The Dryinidae (Hymenoptera Chrysidoidea) of Taiwan are still poorly known. The only papers dealing with the fauna of that island are those of Olmi (1984, 1989, 1992a, 1992b, 1993, 1995).

A chance to improve the knowledge of Taiwan Dryinids was given by the study of large collections of unidentified specimens kept in the Taiwan Agricultural Research Institute (T.A.R.I.) of Wufeng (Taichung, Taiwan).

Some results of this study are published below, together with the description

of a few materials from Japan, useful to better explain the characteristics of the Taiwan population.

MATERIAL AND METHODS

The examined material is kept in the following collections:

OL: Author's collection, Department of Plant Protection, Viterbo, Italy
TM: Taiwan Agricultural Research Institute collection, Wufeng, Taiwan
TW: American Entomological Institute, Gainesville (Florida; U.S.A.)

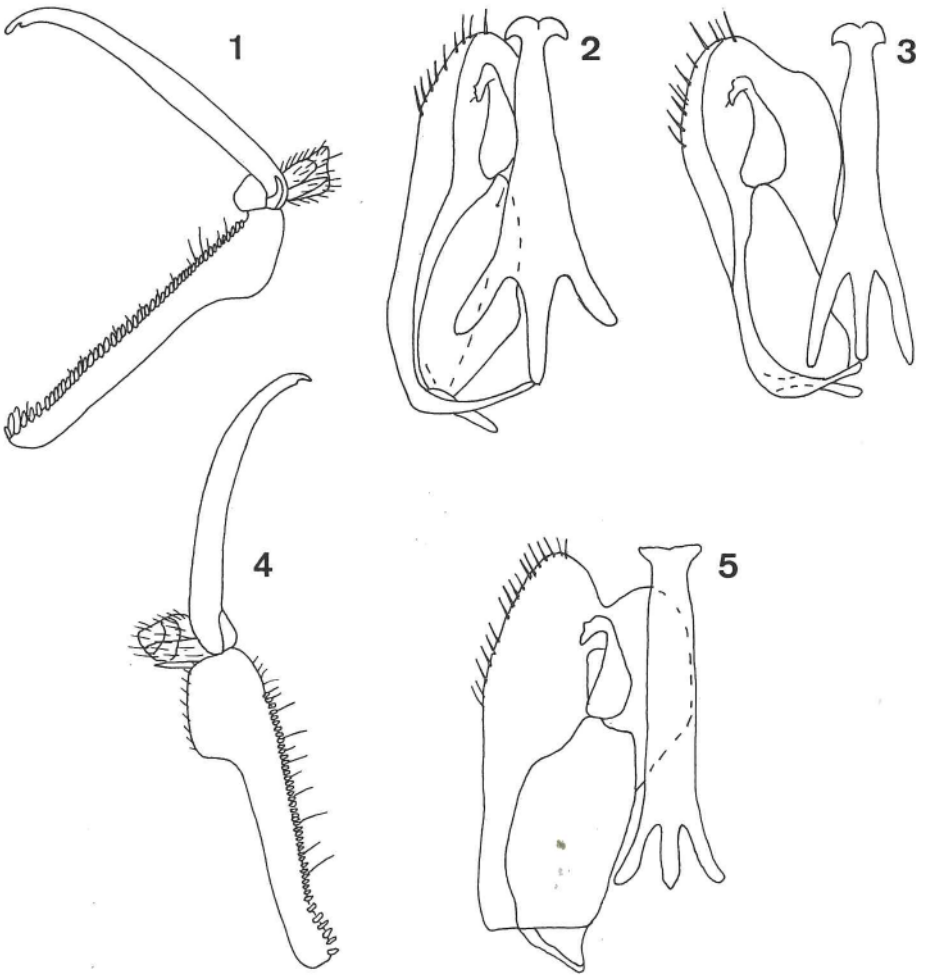
The terminology and nomenclature used throughout this text is that of Olmi (1984, 1994).

I am much indebted to Dr. Liang-yih Chou, Department of Applied Zoology, Taiwan Agricultural Research Institute, for the loan of the material described in this paper.

SUBFAMILY *Conganteoninae*

Fiorianteon choui n. sp.
Fiorianteon rugosum Olmi 1989 *partim* (only the male): 128.

DESCRIPTION OF THE FEMALE: fully winged; length 3,25 mm; head black, with mandibles, clypeus, part of malar space and a short central spot near the anterior margin of the frons testaceous - whitish; antennae brown, with segments 1-2 testaceous; thorax and propodeum black; gaster brown; legs testaceous, with hind coxae partly black and clubs of hind femora darkened; antennae distally thickened; antennal segments in following proportions: 10:5:20:15:12:10:8:7,5:7:10,5; head dull, reticulate rugose, with a wide, shiny, punctate and not rugose frontal area, located in front of the anterior ocellus; this area laterally reaches almost the inner border of the eyes; frontal line complete; occipital carina complete; POL = 4,5; OL = 2; OOL = 8; OPL = 7; TL = 11; pronotum dull, reticulate rugose, short and transverse; scutum with anterior half dull, reticulate rugose, and with posterior half punctate and without sculpture among the punctures; notauli complete, posteriorly separated; least distance between the notauli much longer than the breadth of the ocelli (10:3); scutellum shiny, punctate, without sculpture among the punctures; metanotum rugose, dull; propodeum dull, reticulate rugose, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein shorter than proximal part (6:9,5); fore tarsal segments in following proportions: 22:4:4:13:19; enlarged claw (fig. 1) with a subapical tooth, without hairs or bristles; segment 5 of front tarsus (fig. 1) with a



Figs. 1-5 - Chelae of *Fiorianteon choui* n. sp. (holotype) (fig. 1) and *Fiorianteon junonium* Olmi (from Mt. Tsukuba) (fig. 4). - Male genitalia (right half removed) of *Fiorianteon choui* n. sp. (paratype) (fig. 2). - *Fiorianteon rugosum* Olmi (from Tsuifeng) (fig. 3) and *Conganteon taiwanense* Olmi (from Meifeng) (fig. 5).

row of approximately 50 lamellae; distal apex with a group of approximately 5 lamellae; tibial spurs 1, 1, 2.

DESCRIPTION OF THE MALE: fully winged; length 2,75-2,93 mm; head black, with mandibles testaceous; antennae brown, with segments 1-2 testaceous; thorax and propodeum black; gaster brown; legs testaceous, with hind coxae partly black

and clubs of hind femora darkened; antennae not distally thickened; antennal segments in following proportions: 8:4:16:13:11:10:9:8:7,5:10; head dull, fully reticulate rugose; frontal line complete; occipital carina complete; POL = 5; OL = 3; OOL = 7; OPL = 7; TL = 10; pronotum dull, reticulate rugose, short and transverse; scutum dull, fully reticulate rugose or with two small smooth areas on the sides of the notauli, near the posterior margin of the scutum; notauli complete, posteriorly separated; least distance between the notauli much longer than the breadth of the ocelli (13:3); scutellum shiny, smooth, punctate, without sculpture among the punctures; metanotum dull, rugose; propodeum reticulate rugose, dull, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein as long as (9:9) or shorter than proximal part (6:8); genitalia in fig. 2; tibial spurs 1, 1, 2.

LOCUS TYPICUS: Meifeng (2150 m, Nantou Hsien, C. Taiwan).

TYPICAL MATERIAL: holotype F and 1 paratype M in TM; 1 paratype M in OL.

DISTRIBUTION: only known of the typical locality.

NOTES: the species is named in honor of one of the collectors of the holotype, Mr. K.C. Chou; the holotype F and 1 paratype M were collected by K.C. Chou & P. Huang on April 19-21, 1983; the second paratype M was collected by K.S. Lin & S.C. Lin on May 7-9, 1981.

Fiorianteon choui n. sp. is very near *F. rugosum* Olmi, known from Meifeng (Taiwan). Both sexes of *F. rugosum* were described by Olmi (1989). After studying of a large collection of male and female specimens kept in TM, it is my belief that the male described in 1989 as the opposite sex of *F. rugosum* is really the male of *F. choui* n. sp. The true male of *F. rugosum* is described below.

The females of *F. rugosum* and *F. choui* can be easily recognized by the different length of their notauli (complete in *F. choui*; incomplete in *F. rugosum*). The same difference can be observed in the males. Another difference concerns the head sculpture of both sexes (reticulate rugose in *F. choui*; smooth and punctate in *F. rugosum*).

According to the above notes the following description of the male of *F. rugosum* can be proposed.

Fiorianteon rugosum Olmi

Fiorianteon rugosum Olmi 1989: 127 (only the female).
nec Fiorianteon rugosum Olmi 1989: 128 (male).

DESCRIPTION OF THE MALE: fully winged; length 2,12-2,43 mm; head black, with mandibles, clypeus, malar space and a small area near the anterior margin of

the frons testaceous-whitish; antennae brown; thorax and propodeum black; gaster brown; legs testaceous, with hind coxae almost fully black; antennae not distally thickened; antennal segments in following proportions: 8:5:14:12:11: 9:8:8,5:8:10; head shiny, smooth, punctate, without sculpture among the punctures; frontal line absent; occipital carina complete; POL = 4; OL = 2; OOL = 9; OPL = 5; TL = 9; pronotum, short, transverse, punctate, without sculpture among the punctures; scutum shiny, smooth, punctate, without sculpture among the punctures, rugose near the anterior margin; notauli incomplete, reaching approximately 0,5 length of scutum; scutellum and metanotum shiny, smooth, punctate, without sculpture among the punctures; propodeum dull, reticulate rugose, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein shorter than proximal part (6:8); genitalia in fig. 3; tibial spurs 1, 1, 2.

NOTES: the above description and synonymy is based on the study of male and female specimens from the following localities of Taiwan: Meifeng (2150 m, Nantou Hsien, C. Taiwan), TM! Tsuifeng (2300 m, Nantou Hsien, C. Taiwan), TM! Lushan (1000 m, Nantou Hsien, C. Taiwan), TM! Tayuling (2560 m, Hualien Hsien, C. Taiwan), TM!

To better explain the characteristics of the Taiwan population of *Fiorianteon* a small series of *Fiorianteon junonium* Olmi from Japan was examined, as follows.

Fiorianteon junonium Olmi

Only male specimens were known of this species (Olmi, 1984). I recently studied a small Japanese population coming from Mt. Tsukuba (Ibaraki) and Mt. Kurotake (900 m, Kumamoto). This material, kept in the collections of the American Entomological Institute (Gainesville, Florida), was composed of both sexes. Thus the following description of the female can be proposed.

DESCRIPTION OF THE FEMALE: fully winged; length 3,25-3,87 mm; head black, with mandibles and clypeus testaceous; antennae brown, with segment 2 and ventral side of segment 1 testaceous; thorax and propodeum black; gaster brown; legs testaceous, with a black small spot on fore clubs of femora; mid coxae with proximal margin black; hind coxae with proximal half black; antennae distally thickened; antennal segments in following proportions: 9:6:19: 14:12:9:8:7,5:7:9; head shiny, smooth, punctate, without sculpture among the punctures; vertex region behind the ocellar triangle slightly rugose; frontal line complete; occipital carina complete; POL = 6; OL = 3; OOL = 12; OPL = 6; TL = 12; scutum and scutellum shiny, smooth, punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0,5 length

of scutum; metanotum dull, rugose; propodeum dull, reticulate rugose, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands, with only two basal cells fully enclosed by pigmented veins; distal part of stigmal vein shorter than proximal part (6:8); fore tarsal segments in following proportions: 20:4:4:9:17; enlarged claw (fig. 4) with a subapical tooth, without lamellae or bristles or hairs on the inner side; segment 5 of front tarsus (fig. 4) with a row of approximately 37 small lamellae; distal apex with a group of approximately 13 lamellae; tibial spurs 1, 1, 2.

After the description of the male of *F. rugosum* Olmi, female of *F. junonium* Olmi and both sexes of *F. choui* n. sp. the following new key to the Palaearctic and Oriental species of *Fiorianteon* can be proposed.

Palaearctic and Oriental species of *Fiorianteon*

Females

1 Enlarged claw without subapical tooth (fig. 7 A in Olmi, 1989) ..... 2. *rugosum* Olmi
– Enlarged claw with a subapical tooth (figs 1, 4) 2
2 Notauli incomplete, reaching approximately 0,5 length of scutum; head and scutum fully or almost fully smooth, punctate, without sculpture among the punctures ..... 1. *junonium* Olmi
– Notauli complete, posteriorly separated; head and scutum almost fully reticulate rugose ..... 3. *choui* n. sp.

Males

1 Notauli complete, posteriorly separated ..... 3. *choui* n. sp.
– Notauli incomplete, reaching approximately 0,5 length of scutum 2
2 Head black, with mandibles and clypeus testaceous-whitish ..... 1. *junonium* Olmi
– Head black, with mandibles, clypeus, malar space and a small area near the anterior margin of the frons testaceous-whitish ..... 2. *rugosum* Olmi

After the study of the above Taiwan and Japanese population of *Fiorianteon* Olmi a new synonymy can be established, that of the genera *Conganteon* Benoit and *Chelanteon* Olmi. The males of *Fiorianteon rugosum* Olmi and *Fiorianteon choui* n. sp. in fact do not show generic differences, though the enlarged claws of their females show a good difference: the presence of a subapical tooth in *F. choui* and its absence in *F. rugosum*. This difference was considered of generic value in Conganteoninae (Olmi, 1984). The difference between *Conganteon* Benoit and *Chelanteon* Olmi was based, in fact, on the presence (in *Chelanteon*) or absence (in *Conganteon*) of a subapical tooth in the enlarged claw (males of *Chelanteon* were unknown). As this difference is not considered of generic value in *Fiorianteon*, by analogy it also cannot be considered of gen-

eric value in *Conganteon* and *Chelanteon*. The following new synonymy can thus be established:

Conganteon Benoit 1951: 11.
Chelanteon Olmi 1984: 105 (n. syn.); type species *Chelanteon richardsi* Olmi 1984, monotypic and orig. desig.

The following new key to genera of Conganteoninae can thus be proposed:

Females and Males

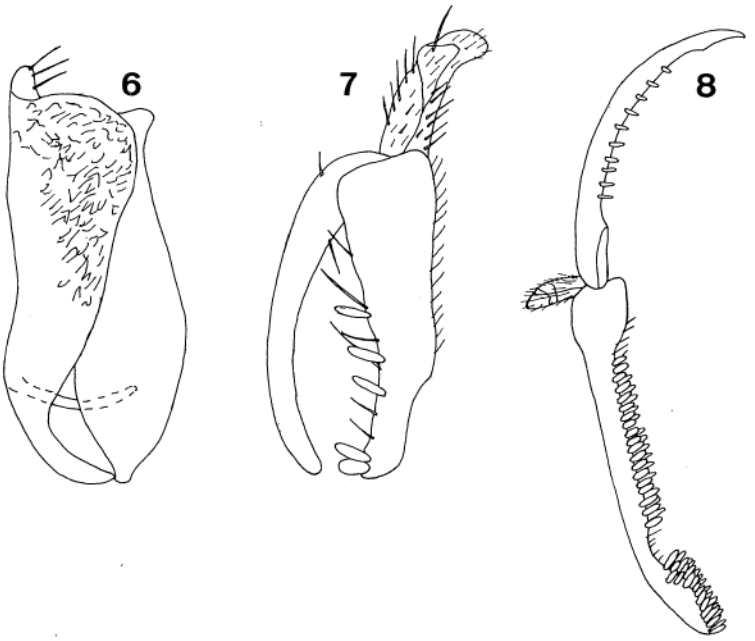
1 Distal part of stigmal vein as long as, or shorter than proximal part (fig. 60 in Olmi, 1984; fig. 5 in Olmi, 1989) ..... 2. *Fiorianteon* Olmi
– Distal part of stigmal vein longer than proximal part (figs 50, 55 in Olmi, 1984) .... 1. *Conganteon* Benoit

Conganteon taiwanense Olmi

Only female specimens were known of *C. taiwanense* Olmi 1989. In the collections of the Taiwan Agricultural Research Institute there is a series of female and male specimens from Meifeng (2150 m, Nantou Hsien, C. Taiwan). This material was collected on May 7-9, 1981, by K.S. Lin & S.C. Lin. The male of *C. taiwanense* can be described as follows:

DESCRIPTION OF THE MALE: fully winged; length 3,62 mm; head black, with mandibles, clypeus and area between antennal sockets and eyes testaceous-whitish; antennae testaceous, with segments 8-10 brown; thorax and propodeum black; gaster brown; legs testaceous, with basal half of hind coxae black; antennae distally slightly thickened; antennal segments in following proportions: 12:7:19:19:15:11:9:8:7,5:10; head dull, reticulate rugose, with small smooth and shiny areas on the sides of ocellar area; frontal line complete; occipital carina complete; POL = 8; OL = 5; OOL = 9; OPL = 7; TL = 10; pronotum very short, transverse, fully rugose; scutum shiny, smooth, punctate, without sculpture among the punctures, reticulate rugose near the anterior margin; notauli incomplete, reaching approximately 0,5 length of scutum; scutellum shiny, punctate, without sculpture among the punctures, rugose near the posterior margin; metanotum dull, reticulate rugose; propodeum dull, fully reticulate rugose, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein longer than proximal part (14:10); genitalia in fig. 5; tibial spurs 1, 1, 2.

After the above description of the male of *C. taiwanense*, the following new key to the Palaearctic and Oriental *Conganteon* can be proposed:



Figs. 6-8 - Male genitalia of *Deinodryinus lini* n. sp. (holotype; right half removed) (fig. 6). - Chelae of *Deinodryinus sinicus* n. sp. (holotype) (fig. 7) and *Neodryinus taiwanensis* n. sp. (holotype) (fig. 8).

Palaearctic and Oriental species of *Conganteon*

Key to the species

Females

1 Enlarged claw with a subapical tooth (fig. 59 in Olmi, 1984) ..... 3. *richardsi* (Olmi)
– Enlarged claw without subapical tooth (fig. 41 in Olmi, 1989) 2
2 Head and scutum fully reticulate rugose; antennal segment 3 as long as 1 ..... 1. *nepalense* Olmi
– Head and scutum at least partly smooth, punctate, not rugose; antennal segment 3 more than 1,5 times as long as 1 ..... 2. *taiwanense* Olmi

Males

1 Head and scutum fully reticulate rugose; notauli absent ..... 1. *nepalense* Olmi
– Head and scutum at least partly smooth, punctate, not rugose; notauli reaching approximately 0,5 length of scutum ..... 2. *taiwanense* Olmi

The male of *C. richardsi* (Olmi) is unknown.

SUBFAMILY *Aphelopinae*

Aphelopus sabahnus Olmi

Only female specimens of *A. sabahnus* Olmi 1989 were known. In the collections of the Taiwan Agricultural Research Institute there is a series of female and male specimens collected in the following localities: Shantimen (Pingtung Hsien, S. Taiwan); Kukuan (730 m, Taichung Hsien, C. Taiwan); Wanfeng (Taichung Hsien, C. Taiwan); Tungpu (1200 m, Nantou Hsien, C. Taiwan); Lushan (1000 m, Nantou Hsien, C. Taiwan); Wushe (1150 m, Nantou Hsien, C. Taiwan); Tayuling (2560 m, Hualien Hsien, C. Taiwan). The following description of the male of *A. sabahnus* can be proposed:

DESCRIPTION OF THE MALE: fully winged; length 1,87-1,93 mm; head testaceous, occasionally with vertex hardly darkened; antennae testaceous; thorax and propodeum fully brown, or testaceous, with dorsal side darkened; gaster brown-testaceous; legs yellow; antennae not distally thickened; antennal segments in following proportions: 5:3,5:5:5:6:6:5:5:5:7,5; head dull, granulated; frontal line complete; occipital carina complete; POL = 7; OL = 4; OOL = 4; OPL = 4; TL = 4,5; scutum, scutellum and metanotum dull, granulated; notauli incomplete, reaching approximately 0,25 length of scutum; propodeum reticulate rugose; posterior surface of propodeum with a smooth and shiny central area; forewing hyaline, without dark transversal bands; tibial spurs 1, 1, 2.

Aphelopus ochreus Olmi

Only female specimens were known of *A. ochreus* Olmi 1984. In the collections of the Taiwan Agricultural Research Institute there is a series of male and female specimens collected in the following localities: Tsuifeng (2300-2500 m, Nantou Hsien, C. Taiwan); Taipei (N. Taiwan); Shantimen (Pingtung Hsien, S. Taiwan). The following description of the male of *A. ochreus* can be proposed:

DESCRIPTION OF THE MALE: fully winged; length 1,87-2,00 mm; head fully testaceous-reddish; antennae testaceous; thorax and propodeum testaceous-reddish or brown; gaster testaceous; legs yellow; antennae not distally thickened; antennal segments in following proportions: 3:4:5:5:6:7:7:7:7:9; head dull, granulated; frontal line complete; occipital carina complete; POL = 7; OL = 3,5; OOL = 2,5; OPL = 2; TL = 2; scutum, scutellum and metanotum dull, granulated; notauli incomplete, reaching approximately 0,75-0,80 length of scutum; propodeum dull, reticulate rugose; posterior surface of propodeum with a smooth and shiny central area; forewing hyaline, without dark transversal bands; tibial spurs 1, 1, 2.

After the above descriptions of the males of *A. sabahnus* Olmi and *A. ochreus* Olmi, the key to the Oriental species of *Aphelopus* published by Olmi (1989) does not have to be changed because it was valid for both sexes.

Subfamily *Anteoninae*

Deinodryinus lini n. sp.

Female: unknown.

Description of the male: fully winged; length 2,18-3,12 mm; head black, with mandibles testaceous; antennae brown, with segment 1 testaceous; thorax and propodeum black; gaster brown; legs testaceous, with hind coxae basally darkened; antennae not distally thickened; antennal segments in following proportions: 12:7:10:9,5:10:9,5:9:9:8,5:14; head shiny, punctate, without sculpture among the punctures; frontal line very short, incomplete, only visible in front of the anterior ocellus; occipital carina complete; POL = 6; OL = 3; OOL = 8; OPL = 4; TL = 4; scutum, scutellum and metanotum shiny, finely punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0,7-0,8 length of scutum; propodeum with a strong transversal keel between dorsal and posterior surface; dorsal surface reticulate rugose; posterior surface with two complete longitudinal keels; lateral areas rugose; median area smooth, shiny, without sculpture; forewing hyaline, without dark transversal bands; distal part of stigmal vein shorter than proximal part (5,5:13); parameres with an inner membranous subdistal and medial band (fig. 6); tibial spurs 1, 1, 2.

Locus typicus: Tungpu (1200 m, Nantou Hsien, C. Taiwan).

Typical material: holotype M and 690 paratypes MM in TM; 23 paratypes MM in OL.

Distribution: Meifeng (2150 m, Nantou Hsien, C. Taiwan); Tungpu (1200 m, Nantou Hsien, C. Taiwan); Tsuifeng (2300 m, Nantou Hsien, C. Taiwan); Sungkang (2100 m, Nantou Hsien, C. Taiwan).

Notes: the species is named in honor of the collector of the holotype, Mr. K.S. Lin. The typical series was collected as follows:

1) Tungpu: X.1985, K.S. Lin (holotype and 9 paratypes); IX.1985, K.S. Lin (2 paratypes); XI.1985, K.S. Lin (1 paratype); 28.IV-2.V.1981, T. Lin & C.J. Lee (1 paratype).

2) Meifeng: IX.1984, K.S. Lin & K.C. Chou (13 paratypes); X.1985, K.S. lin (7 paratypes); XI.1985, K.S. Lin (1 paratype); V.1984, K.S. Lin & K.C. Chou (2 paratypes); VIII.1984, K.S. Lin & K.C. Chou (22 paratypes); VII.1984, K.S. Lin & K.C. Chou (3 paratypes); 24-26.VI.1981, K.S. Lin & W.S. Tang (21 paratypes); 22-26.VI.1983, K.S. Lin &

S.C. Lin (2 paratypes); 26.VIII.1980, K.S. Lin & C.H. Wang (2 paratypes); 2-4.VI.1980, L.Y. Chou & C.C. Chen (1 paratype); 8.VI.1980, K.S. Lin & B.H. Chen (1 paratype); 20-22.VI.1979, K.S. Lin & B.H. Chen (1 paratype); 5-9.X.1980, C.C. Chen & C.C. Chien (3 paratypes); 7-9.V.1981, K.S. Lin & S.C. Lin (1 paratype).

3) Tsuifeng: IX.1984, K.S. Lin & K.C. Chou (3 paratypes); VIII.1984, K.S. Lin & K.C. Chou (19 paratypes); XI.1984, K.S. Lin & K.C. Chou (1 paratype); X.1984, K.S. Lin & K.C. Chou (2 paratypes); 25-27.VI.1981, K.S. Lin & W.S. Tang (1 paratype).

4) Sungkang: X.1984, K.S. Lin & K.C. Chou (239 paratypes); X.1985, K.S. Lin (199 paratypes); IX.1985, K.S. Lin (103 paratypes); XI.1984, K.S. Lin & K.C. Chou (32 paratypes); XI.1985, K.S. Lin (9 paratypes); IX.1984, K.S. Lin & k.C. chou (12 paratypes).

Deinodryinus sinicus n. sp.

DESCRIPTION OF THE FEMALE: fully winged; length 2,87 mm; black; mandibles testaceous; antennae testaceous, with segments 7-10 brown; legs testaceous, with hind coxae partly brown; antennae distally thickened; antennal segments in following proportions: 14:7:6:6,5:7:8:8:7,5:7,5:12; head shiny, strongly punctate, with many irregular keels or areolae on the vertex, among the ocelli and along the orbits; frontal line complete; occipital carina complete; POL = 8; OL = 3,5; OOL = 7; OPL = 5; TL = 5; pronotum transverse, more than three times as long as broad (39:11), with posterior surface short, much shorter than the scutum (4:22); pronotum rugose, dull, only with posterior surface partly smooth and shiny; scutum, scutellum and metanotum shiny, smooth, punctate, without sculpture among the punctures; notauli incomplete, reaching approximately 0,3 length of scutum; propodeum reticulate rugose, with a strong transversal keel between dorsal and posterior surface; posterior surface with two complete longitudinal keels; median area with a shiny and smooth wide central region surrounded by irregular keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein shorter than proximal part (7:12); fore tarsal segments in following proportions: 10:2:2:3,5:13; enlarged claw (fig. 7) with 1 bristle located further distally than a proximal prominence; segment 5 of front tarsus (fig. 7) with 3 lamellae and a few bristles; distal apex with a group of 2-3 lamellae; tibial spurs 1, 1, 2.

LOCUS TYPICUS: Tayuling (2560 m, Hualien Hsien, C. Taiwan).

TYPICAL MATERIAL: holotype F in TM.
DISTRIBUTION: only known of the typical locality.

NOTES: the holotype was collected on June 10-16, 1980, by a Malaise trap by K.S. Lin & B.H. Chou.

After the above descriptions of *Deinodryinus lini* n. sp. and *D. sinicus* n. sp.,

the following new key to the Oriental and Palaearctic species of *Deinodryinus* can be proposed:

Females

1 Fore tarsal segment 4 longer than 1; posterior surface of propodeum without longitudinal keels; frons with 3 longitudinal keels ..... 1. *asiaticus* Olmi
– Fore tarsal segment 4 less than 0,5 as long as segment 1; posterior surface of propodeum with 2 complete longitudinal keels; frons only with the frontal line .... 7. *sinicus* n. sp.

The females of *D. keralensis* Olmi, *philippinus* Olmi, *whartoni* Olmi, *malaisei* Olmi, *tussaci* Olmi and *lini* n. sp. are unknown. *D. sinicus* n. sp. may be the opposite sex of *D. lini* n. sp. or *D. whartoni* Olmi.

Males

1 Vertex of the head with two oblique keels connecting the posterior ocelli to the occipital carina ..... 3. *philippinus* Olmi
– Vertex of the head without oblique keels connecting the posterior ocelli to the occipital carina 2
2 Head reticulate rugose ..... 2. *keralensis* Olmi
– Head punctate, without sculpture among the punctures 3
3 Notauli almost absent, only visible near the anterior margin of the scutum; parameres with a subdistal inner process (fig. 7 F in Olmi, 1989) ..... 5. *malaisei* Olmi
– Notauli distinct, incomplete 4
4 Posterior surface of propodeum without longitudinal keels 8. *tussaci* Olmi (Morocco)
– Posterior surface of propodeum with two complete longitudinal keels 5
5 Notauli reaching approximately 0,5 length of scutum; posterior surface of propodeum with median area as rugose as lateral areas ..... 4. *whartoni* Olmi
– Notauli reaching approximately 0,8 length of scutum; posterior surface of propodeum with median area smooth, not rugose ..... 6. *lini* n. sp.

The males of *D. asiaticus* Olmi and *D. sinicus* n. sp. are unknown.

Subfamily *Gonatopodinae*

Neodryinus taiwanensis n. sp.

Description of the female: fully winged; length 5,62 mm; black, with antennae and hind tarsi brown; fore coxae and trochanters partly yellow; antennae not distally thickened; antennal segments in following proportions: 12:8:32:22: 18:13:10:8,5:7:9; head excavated, shiny, granulated and strongly sculptured by many parallel longitudinal keels; occipital carina distinct on the sides of the posterior ocelli, incomplete, extending beyond 0,5 length of OOL (10:14); POL = 2; OL = 2,5; OOL = 14; posterior ocelli touching the occipital carina; temples

distinct; pronotum shiny, irregularly striate, mostly without sculpture, crossed by an anterior strong transversal impression; pronotal tubercles absent; scutum dull, granulated and fully reticulate rugose; notauli absent; scutellum dull, granulated and with anterior half reticulate rugose; metanotum dull, granulated; propodeum dull, reticulate rugose, with two complete longitudinal keels on the posterior surface; forewing with two brown transversal bands; distal part of stigmal vein longer than proximal part (17:10); fore tarsal segments in following proportions: 23:3,5:12:29:45; enlarged claw (fig. 8) with a very small subapical tooth, situated far from the distal apex, and with a row of 10 lamellae; segment 5 of front tarsus (fig. 8) with two rows of approximately 34 lamellae; distal apex with a group of at least 26 lamellae; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 0, 2.

MALE: unknown.

LOCUS TYPICUS: Lienhuachih (650 m, Nantou Hsien, C. Taiwan).

TYPICAL MATERIAL: holotype F in TM.

DISTRIBUTION: only known of the typical locality.

NOTES: the holotype was collected on May, 1984, with a Malaise trap by K.S. Lin & K.C. Chou.

Neodryinus taiwanensis n. sp. is the only *Neodryinus* species with a small subapical tooth very far from the distal apex of the enlarged claw (fig. 8). All the other species have a big subapical tooth situated very near the distal apex of the enlarged claw (figs. 723, 724 in Olmi, 1984). In the key to the females of the Oriental species of *Neodryinus* (no species of this genus are known from the Palaearctic region) proposed by Olmi (1984) *N. taiwanensis* can be inserted at number 2, as follows:

1 Pronotum with a posterior transversal impression, in addition to the anterior impression (fig. 722 A in Olmi, 1984); anterior impression hardly deep ..... 1. *leptopus* Richards
– Pronotum only with an anterior transversal impression, without a posterior impression (fig. 722 B in Olmi, 1984); anterior impression very deep ..... 1'
1' Enlarged claw with a very small subapical tooth situated very far from the distal apex (fig. 8) ..... 10. *taiwanensis* n. sp.
– Enlarged claw with a very big subapical tooth situated very near the distal apex (figs 724, 725 in Olmi, 1984) 2

Gonatopus lini n. sp.

DESCRIPTION OF THE FEMALE: apterous; length 3,50 mm; fully testaceous-ferruginous, with petiole black; antennae distally thickened, short; antennal segments

in following proportions: 9:5:15:8.8:6:5,5:5,5:5:8; head excavated, dull, weakly granulated, except for a smooth and without sculpture area in front of the anterior ocellus; frontal line complete; occipital carina complete; POL = 2; OL = 1; OOL = 8; temples distinct; pronotum crossed by a strong transversal impression, dull, sculptured by numerous and parallel longitudinal striae; scutum shiny, long and narrow, with a few longitudinal striae; meso-metapleural suture distinct and complete; metanotum flat, shiny, smooth, without sculpture, slightly hollow behind the scutellum; mesopleura and metapleura smooth, shiny, without sculpture; metathorax + propodeum shiny, with anterior surface smooth and without sculpture, showing a few very weak longitudinal striae; posterior surface transversely striate; fore tarsal segments in following proportions: 15:2,5:5,5:17:27; enlarged claw (fig. 9) with a subapical tooth and a row of 10 lamellae; segment 5 of front tarsus (fig. 9) with two rows of 3 + 14 lamellae; distal apex with a group of approximately 19 lamellae; maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 0, 1.

MALE: unknown.

LOCUS TYPICUS: Paomenszu (2 Km S Keelung City, N. Taiwan).

TYPICAL MATERIAL: holotype F in TM.

DISTRIBUTION: only known of the typical locality.

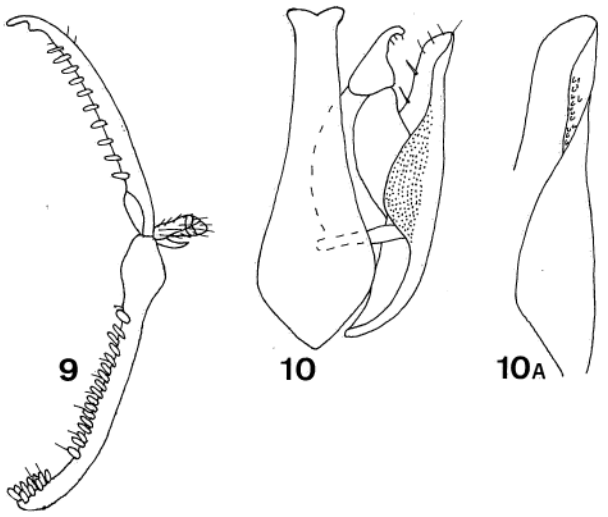
NOTES: the species is named in honor of the collector of the holotype, Mr. K.S. Lin; the holotype was collected on August 16, 1958.

Gonatopus lini n. sp. belongs to the group *asiae* Olmi (formerly *Apterodryinus* Perkins), together with *G. insulae* Olmi. The following key to the females of these three species can be proposed:

1 Antennae very long, slender, with segment 4 approximately four times as long as segment 2 ..... 1. *asiae* Olmi
– Antennae short, with segment 4 slightly longer than segment 2. 2
2 Meso-metapleural suture obsolete; metanotum not hollow behind the scutellum ..... 2. *insulae* Olmi
– Meso-metapleural suture distinct and complete; metanotum hollow behind the scutellum ..... 3. *lini* n. sp.

Echthrodelphax rufus Olmi

Only female specimens were known of this species (Olmi, 1984). In the collections of the Taiwan Agricultural Research Institute there is a series of female and male specimens collected at Wanfeng Hill (Taichung Hsien, C. Taiwan) on De-



Figs. 9-10 - Chela of *Gonatopus lini* n. sp. (holotype) (fig. 9). - Male genitalia of *Echthrodelphax rufus* Olmi (from Wanfeng Hill; left half removed) (fig. 10). - Paramere of male of *Echthrodelphax rufus* Olmi (from Wanfeng Hill) (fig. 10 A).

cember, 1984, by K.S. Lin & K.C. Chou. The male of *E. rufus* can be described as follows.

DESCRIPTION OF THE MALE: fully winged; length 1,37-1,87 mm; black; antennae brown, with segments 1-2 testaceous; mandibles testaceous; gaster brown; legs yellow; antennae not distally thickened; antennal segments in following proportions: 5:4,5:9:9:9:9:7,5:8:8:9; head shiny, hairy, punctate, without sculpture among the punctures; occipital carina complete; face with a track of frontal line; POL = 3,5; OL = 2; OOL = 3,5; TL = 5; posterior ocelli touching the occipital carina; temples very long; scutum weakly granulated, hairy; notauli complete, posteriorly separated; least distance between the notauli shorter than the breadth of the ocelli (1:2); scutellum and metanotum shiny, smooth, without sculpture or finely punctate; propodeum dull, reticulate rugose, without transversal or longitudinal keels; forewing hyaline, without dark transversal bands; distal part of stigmal vein longer than proximal part (14:6); parameres not showing a distinctly developed dorsal process (fig. 10); the dorsal process is reduced to a longitudinal fold showing numerous sense organs (fig. 10 A); maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 1, 2.

E. rufus was known only of Laos and Thailand (Olmi, 1984). It is, thus, a species of the Oriental zoogeographic region. After the above description of its male

the following new key to males of Oriental species of *Echthrodelphax* can be proposed:

1 Notauli complete and joint; dorsal process of the parameres short, but distinctly developed, pointed (fig. 781 in Olmi, 1984); labial palpi 2-segmented ..... 2. *fairchildii* Perkins
– Notauli complete and separated; dorsal process of the parameres fold-shaped (fig. 10); labial palpi 3-segmented ..... 1. *rufus* Olmi

REFERENCES

Benoit P.L.G., 1951 - Dryinidae (Hymenoptera Aculeata), Evaniidae (Hymenoptera Terebrantia) (in: Exploration du Parc National Albert, Mission G.F. de Witte (1933 - 1935), 73). - Hayez, Bruxelles: 1-26.

Olmi M., 1984 - A revision of the Dryinidae (Hymenoptera). - Mem. Amer. Ent. Inst. 37: I - XXXI + 1 - 1913.

Olmi M., 1989 - Supplement to the revision of the world Dryinidae (Hymenoptera Chrysidoidea). - Frust. Ent. (N.S.) XII (XXV): 109-395.

Olmi M., 1992a - New Dryinidae from Sulawesi and Taiwan (Hymenoptera: Chrysidoidea). - Oriental Insects 26: 185-194.

Olmi M., 1992b - Descriptions of new taxa of Dryinidae (Hymenoptera Chrysidoidea). - Frust. Ent. (N.S.) XV (XXVIII): 19-62.

Olmi M., 1993 - A new generic classification for Thaumatodryininae, Dryininae and Gonatopodinae, with descriptions of new species (Hymenoptera Dryinidae). - Boll. Zool. agr. Bachic., Ser. II, 25 (1993): 57-89.

Olmi M., 1994 - The Dryinidae and Embolemidae (Hymenoptera: Chrysidoidea) of Fennoscandia and Denmark. - Fauna Entom. Scandinavica 30, E.J. Brill, Leiden: 1-100.

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