

Note on a Newly Recorded Spider, *Perenethis venusta* L. Koch 1878, from Taiwan (Araneae: Pisauridae)

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ABSTRACT

Perenethis venusta L. Koch 1878 is recorded from Taiwan for the first time. Both sexes of this species are described and illustrated based on specimens found in Taiwan. The genus *Perenethis* is newly added to the spider fauna of Taiwan.

Key words: *Perenethis venusta*, Pisauridae, Araneae, Taiwan

Introduction

The pisaurid spiders show unusual parental care, in that females carry their egg sacs with their chelicerae before the spiderlings hatch (Comstock, 1948; Song et al., 1999; personal observation). These spiders dwell in bushes, among rocks, or in the low vegetation of humid places near creeks, small ponds, or swamps. Little is known about the pisaurid spiders of Taiwan. Only six species, belonging to the genera *Dolomedes*, *Hygropoda*, and *Thalassius*, have been recorded in Taiwan (Chen, 1996). Although the genus *Perenethis* L. Koch 1878 of the family Pisauridae is widely distributed from Africa to eastern Asia (e.g., Mainland China, Japan and Philippines) and to Queensland (Barrion and Litsinger, 1995; Platnick, 1993, 1997), it has not been reported from Taiwan (Chen, 1996; Platnick, 1993, 1997; Sierwald, 1997). The genus *Perenethis* differs from all other pisaurid spiders by having the following combination of characters: two retromarginal teeth, anterior eye row slightly procurved, carina of female epigynum forming two lateral branches, the copulatory duct of female genitalia membranous and saccate forming two loops of which the first is wider than the second, male palp with ventral tibial apophysis, conductor with a small mesal hump and a slender apical section with smoothly rounded tip (Sierwald, 1997).

Recently, the authors made a careful review of the pisaurid spiders of Taiwan. Three specimens belonging to the genus *Perenethis* were recognized, all of which are identical to *P. venusta* L. Koch 1878, the type species of the genus *Perenethis*. This is a new record to the spider fauna of Taiwan. In this paper, both sexes of this species are described and illustrated based on specimens found in Taiwan.

Materials and Methods

Perenethis spiders were collected mainly in the humid low mountain grasslands from various locals of Taiwan. Specimens were preserved in 70% ethanol and deposited in the Arachnological collection of the Department of Biology, National Taiwan Normal University (NTNUB-Ar). Alcohol-preserved specimens were examined and measured under a stereomicroscope (Leica M3Z). Female epigynum was dissected and cleaned in hot 10% KOH solution to examine the inner genital structure. Figures were drawn with the aid of a drawing tube attached to a Leica stereomicroscope (type M3Z). Abbreviations used in this paper are: AER, anterior eye row; ALF, anterior lateral eye; AME, anterior median eye; MOA, median ocular area; PER, posterior eye row; PLE, posterior lateral eye; PME, posterior median eye.

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Results and Discussion

Perenethis venusta L. Koch 1878

(Figures. 1A-F, 2A-D)

Perenethis venusta L. Koch 1878: 980; Sierwald 1997: 396, f. 42-47, 53, 57, 75-76.

Specimens examined. ILAN: 1 male (NTNUB-Ar 2406), Touchen, elev. 30 m, 10-VI-1997, W.-J. HUANG leg. TAINAN: 1 male (NTNUB-Ar 8190), Kuantzeling, Paiho, elev. 300 m, 6-VIII-1983, S.-H. CHEN leg. TAITUNG: 1 female (NTNUB-Ar 2407), Nankeng, Taimali, elev. 70 m, 30-X-1993, S.-H. CHEN leg.

Diagnosis. Among all congeners, *Perenethis venusta* most resembles *P. fascigera* and *P. sindica* but differs from the former by having more loops of the spermathecal duct and having dark gray coloration on the ventral side of legs, and from the latter by the male having a retrolateral tibial apophysis often spatula-shaped with a bluntly pointed tip.

Description. Measurements (in mm.) for the female are followed by those of two males (in parentheses): body length 8.4 (11.2 – 11.8); carapace length 3.6 (4.5 – 4.8); and width 2.8 (3.4 – 3.5); abdomen length 4.8 (6.7 – 7.0) and width 2.4 (2.4 – 2.5). Measurements of legs given in Table 1.

Male (Figure 1A): Carapace longer than width. Eyes (Figure 1B) with a black patch on the base. AER slightly procurved and PER strongly recurved, PER longer than AER. Both PME and PLE equal in diameter and larger than AME. AME slightly larger than ALE. Eyes equally distant in AER, distance between PME and PLE 2.3 times that of both PMEs. Ratios of MOA,

anterior width: posterior width: length = 1: 1.4: 1.4. Height of clypeus two times the diameter of AME. Chelicerae (Figure 1C) brown, armed with 3 promarginal and 2 retromarginal teeth; fang dark brown. Endite yellowish brown, longer than width and wider distally. Labium pale brown, longer than width, with a rectangular base and a rounded distal margin. Sternum (Figure 1D) heart-shaped, concave at the base of coxa. Median apophysis of the male palpal organ (Figures 2A-C) membranous; retrolateral tibial apophysis (Figure 2D) having a distinctive notch ventrally. Legs formula 2-1-4-3. Opisthosoma elongated and gradually narrowed at the rear end.

Colouration of the body yellowish brown in general. Prosoma having a distinctive median dark brown stripe on the dorsum bordered by a thin white line on each side. Ventral sides of both femora and coxae of legs dark grayish brown. Sternum bearing a pair of large brown patches. Dorsum of the opisthosoma has a remarkably straight median dark brown stripe with borders continuing from the carapace. Ventral side of the opisthosoma yellowish white in the center.

Female: Similar to males in general aspects and color pattern. Female slightly smaller than males and has shorter legs. ALE is slightly larger than the AME and the height of clypeus is 1.8 times the diameter of AME. The dark grayish brown coloration on the ventral sides of femora and coxae is more prominent than in males. Epigynum (Figure 1E) has a large copulatory opening and the carina forms two lateral branches adjoining in the middle. Copulatory duct of female genitalia (Figure 1F) membranous with the saccate forming two loops, the first is wider than the second.

Table 1. Measurement of leg segments of *Perenethis venusta* L. Koch, 1878 found in Taiwan. (in mm; mean \pm SD)

Leg	Femur	Patella + Tibia	Metatarsus	Tarsus	Total
Female (n = 1)					
I	4.84	5.96	4.60	2.16	17.56
II	5.00	6.00	4.76	2.32	18.08
III	4.00	4.12	3.44	1.24	12.80
IV	4.84	5.00	4.48	1.80	16.44
Males (n = 2)					
I	6.88 \pm 0.32	8.58 \pm 0.18	6.44 \pm 0.04	3.20 \pm 0.00	25.10 \pm 0.46
II	7.28 \pm 0.12	8.78 \pm 0.14	6.80 \pm 0.00	3.30 \pm 0.02	26.11 \pm 0.19
III	5.52 \pm 0.12	6.04 \pm 0.04	4.76 \pm 0.00	2.04 \pm 0.04	18.36 \pm 0.12
IV	7.12 \pm 0.12	7.48 \pm 0.16	7.08 \pm 0.08	2.54 \pm 0.10	24.22 \pm 0.26

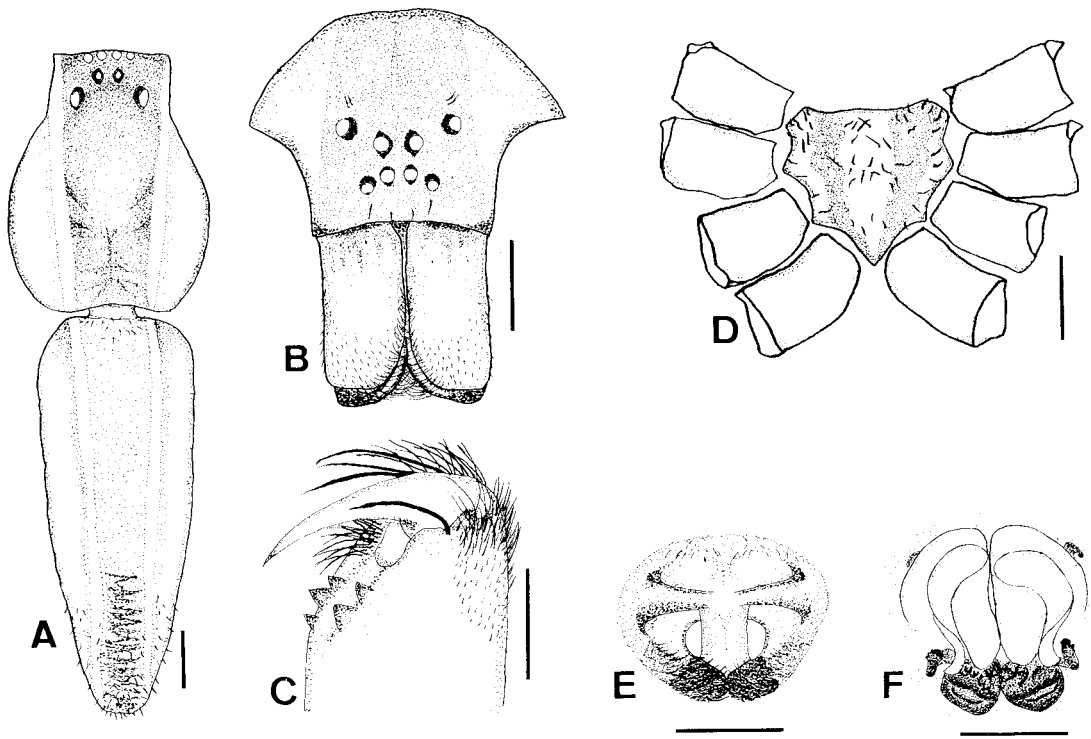


Figure 1. *Perenethis venusta* L. Koch 1878 in Taiwan. A. Male carapace and abdomen, dorsal view; B. Carapace, frontal view; C. Left chelicera, posterior view; D. Sternum and coxae, ventral view. E. Female epigynum, ventral view; F. Female genitalia, dorsal view. Scales = 1 mm (A,B,D) and 0.5 mm (C,E,F).

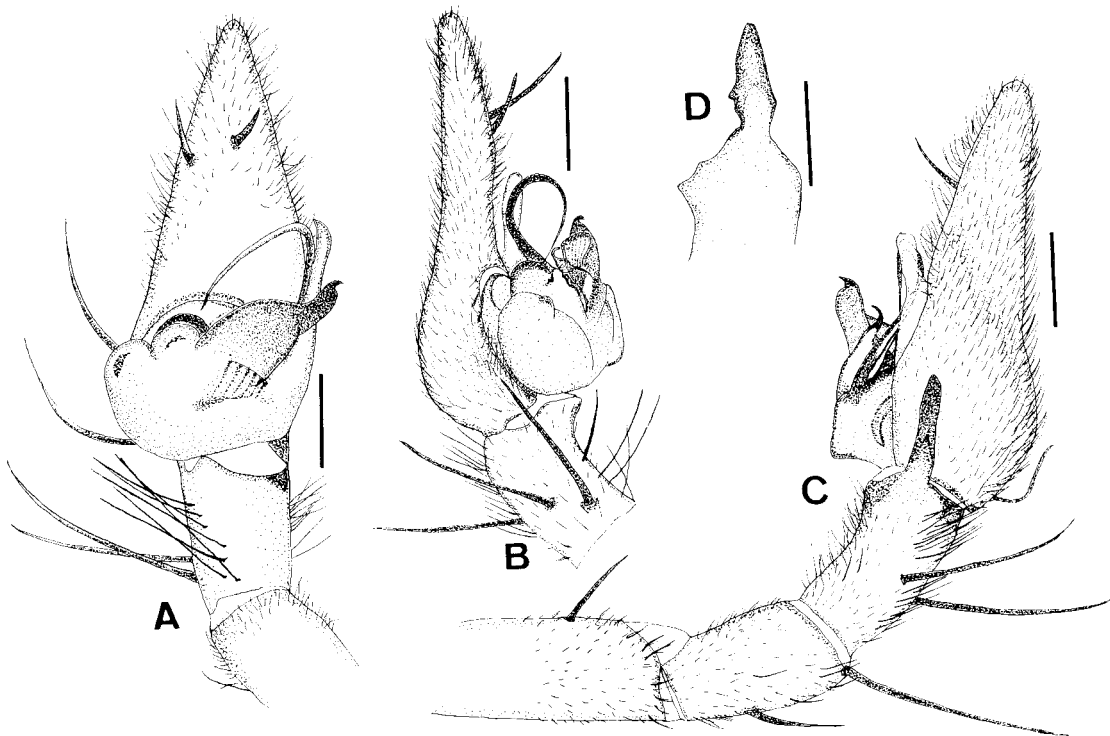


Figure 2. *Perenethis venusta* L. Koch 1878 in Taiwan. A. Left male palp, ventral view; B. same, retrolateral view; C. same, lateral view; D. Retrolateral tibial apophysis of left male palp. Scales = 0.5 mm.

Distribution. Taiwan (new record), Thailand, Singapore, Papua New Guinea, Australia (Sierwald, 1997).

Remarks. In addition to Ilan, Taitung and Tainan Counties in Taiwan, one juvenile each was found in Nantou and Hualien Counties by the senior author (Chen, unpubl. data). This suggests that *P. venusta* is rare, with only five individuals found in Taiwan since 1983, but has a wide distribution in the low mountain areas of Taiwan. An (1976) investigated the spiders from Central Taiwan and collected a specimen of *Tetragonophthalma fascigera* (= *Perenethis fascigera*) from Kuantaochi, Nantou County. *Perenethis fascigera* is known from Japan and Mainland China (Chikuni, 1989; Sierwald, 1997; Song et al., 1999). Sierwald (1997) considered *P. fascigera* a junior synonym of *P. venusta*. There are two minor differences between *P. fascigera* and *P. venusta*. The spermathecal duct of female genitalia is less convoluted in *P. fascigera* than in *P. venusta* and the legs are dark gray ventrally in *P. venusta* but not in *P. fascigera* (Sierwald, 1997). Our specimens match all the diagnostic characters of *P. venusta*. Unfortunately, all figures of Mainland China and Japanese specimens of *P. fascigera* (Chikuni, 1989; Song et al., 1999) are opaque, making comparisons difficult. Furthermore, An's (1976) specimen must have been damaged and discarded; it cannot be found. Thus, the presence of *P. fascigera* in Taiwan remains questionable. The taxonomic status of *P. fascigera* should be revised. *renethis fascigera* needs to be revised in the future.

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台灣產華麗四角蛛之新紀錄 (蜘蛛目：跑蛛科)

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摘 要

本文首次紀錄華麗四角蛛在台灣之發現，並根據台灣標本重新描述及繪圖。四角蛛屬在台灣亦為新紀錄。

關鍵詞：蜘蛛目，跑蛛科，華麗四角蛛，台灣