

Notes on the genus *Psechrus* (Araneae: Psechridae) from Taiwan

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Abstract — Two species of the genus *Psechrus* belonging to the family Psechridae are reported from Taiwan. Female of *Psechrus taiwanensis* Wang & Yin, 2001 is redescribed and male of this species is described for the first time. A new species, *Psechrus kenting*, is described from southern Taiwan.

Key words — taxonomy, *Psechrus*, Psechridae, redescription, new species, Taiwan

Introduction

Twenty-one species of the genus *Psechrus* have been described from China and Indo-Pacific Area (Platnick 2008). Sixteen species of them were revised by Levi (1982) for all species described before 1982, and by Yin et al. (1985) and Wang & Yin (2001) for Chinese ones. Other five species were described by Murphy (1986) from the Philippines, Chen et al. (2002) from China, Yang et al. (2003) from China and Jäger (2007) from Laos.

In Taiwan, Kayashima (1962) first reported a psechrid spider under the name of *Psechrus torvus* Thorell, 1897 and Lee (1964) referred this name. In my previous paper (Yoshida 1978), I recorded an unidentified psechrid species. Later Levi (1982) identified specimens from Taiwan with *P. sinensis* J. Berland & L. Berland, 1914. In spite of these studies Song et al. (1999, p. 397) stated that the epigynum from Taiwan's specimen under the name of *P. sinensis*, which was illustrated by Levi (1982, figs. 38–39), is in fact not that from the species. The Taiwan's specimen seems to belong to the species which was mistakenly identified by Lee (1964) as *P. torvus*. In 2001, Wang & Yin described a new species under the name of *P. taiwanensis* on the basis of the specimen illustrated by Levi (1982).

In my investigations throughout Taiwan in 1977 and 1979, I collected about 20 specimens of the genus *Psechrus*. As a result of my examination, they are classified into two species: *P. taiwanensis* and undescribed species. *P. taiwanensis* is collected from northern and central Taiwan, relatively high altitudinal area. The previous records of *P. torvus* and *P. sinensis* from Taiwan. The other species is collected from southern Taiwan, area of low altitude and high temperature. should be revised as those of *P. taiwanensis*.

In this paper, I wish to report two species of the genus *Psechrus* from Taiwan. Female of *P. taiwanensis* is redescribed and male of this species is described for the first time. The other species is described as new to science.

Holotype and one paratype of the new species described in this paper and some specimens of *Psechrus taiwanensis*

Wang & Yin, 2001 are deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo (NSMT). Other paratype and non-type specimens are preserved in the collection of the Yamagata Prefectural Museum, Yamagata.

Psechrus taiwanensis Wang & Yin, 2001
(Figs. 1–10)

Psechrus torvus: Kayashima 1962, p. 9, figs. 1–4; Lee 1964, p. 18, figs. 3e–g; Chu & Okuma 1974, p. 34; Yin et al. 1985, p. 19.

Psechrus sp. (in part): Yoshida 1978, p. 24, fig. 1, collected from Tsuifen, Chitou and Alishan.

Psechrus sinensis (in part): Levi 1982, p. 123, figs. 38–39.

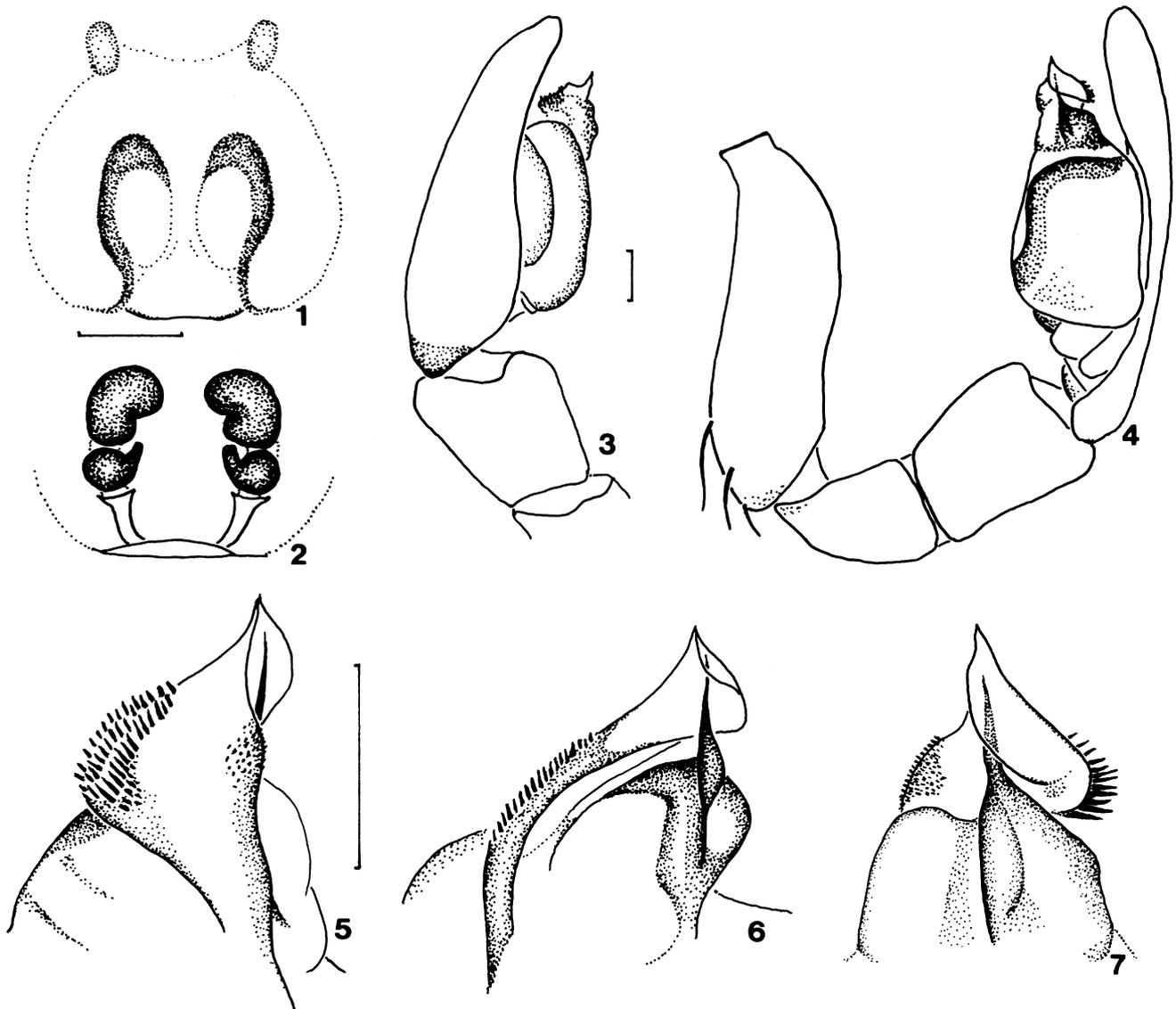
Psechrus sinensis: Chen 1996, p. 134.

Psechrus taiwanensis Wang & Yin 2001, p. 340, figs. 29–30.

Diagnosis. Male. Palpal organ of this species resembles those of the other species of *Psechrus*, but is distinguished from them by embolus with short tip and large base, conductor with umbrella-like large tip and weakly modified femur of male palpus (Figs. 3–7). Discriminating characteristics for female see Wang & Yin (2001).

Measurement (in mm). Female body length 19.0–22.0; carapace length 7.4–8.5; abdomen length 11.1–13.2. Male from Tsuifeng small and male from Penpuchi large; body length 13.0, 21.0; carapace length 6.6, 10.2; abdomen length 6.6, 11.3. Measurements of a female from Meichi and a male from Penpuchi are as follows (♀/♂): Body length 19.0/21.0. Carapace length 7.4/10.2; width 4.8/6.9. Abdomen length 11.9/11.3; width 7.1/6.3. Length of legs: First femur 12.5/17.5, patella and tibia 16.5/23.8, metatarsus 11.6/18.6, tarsus 4.6/7.7; second patella and tibia 13.0/14.7; third patella and tibia 8.7/9.8; fourth patella and tibia 12.3/13.3.

Description. Female. Carapace oblong. Leg formula, 1, 2, 4, 3. Second leg slightly longer than the fourth. First patella and tibia 2.2 times carapace length. Abdomen elongate



Figs. 1–7. *Psechrus taiwanensis* Wang & Yin, 2001, ♀ from Meichi, Nantou County (1–2) and ♂ from Penpuchi, Nantou County (3–7). — 1, epigynum, ventral view; 2, internal genitalia, dorsal view; 3–4, left palp, prolateral (3) and retrolateral (4) views; 5–7, apical part of left palpal organ, prolateral (5), ventral (6) and retrolateral (7) views. Scales: 0.5 mm.

and cylindrical. Genital organ as shown in Figs. 1–2, Levi (1982, figs. 38–39) and Wang & Yin (2001, figs. 29–30): epigynal slits more or less parallel; epigynal median sclerite depressed, slightly longer than wide. Description is also given by Wang & Yin (2001).

Male. Lateral eyes slightly larger than medians. Leg formula, 1, 2, 4, 3. First patella and tibia 2.3 times carapace length. Palpal femur with four distal stout spines, weakly modified (Fig. 3). Palpal organ as shown in Figs. 3–7: embolus with large base and short tip; conductor with umbrella-like large tip, covered with many stout spine-like projections on dorsal surface; tegulum large with U-shaped large duct; cymbium with prolatero-basal small projection.

Specimens examined. 2♀, Yangmingshan, Taipei City, 7–IV–1979; 1♂, Tsuifeng, Nantou County, 23–VII–1977; 1♀, Meichi, Nantou County, 30–III–1979 (NSMT-Ar 8377);

1♀, 1♂, Penpuchi, Nantou County, 2–IV–1979 (NSMT-Ar 8378–8379); 4♀ juveniles, Chitou, Nantou County, 19–VII–1977, 1♀, 20–VII–1977; 3♀ with 3 egg sacs, 2♀ juveniles, 1♂ juvenile, Alishan, Chiayi County, 11–VII–1977 (1♀ with egg sac, NSMT-Ar 8380); all collected by H. Yoshida.

Distribution. Northern and central Taiwan (Fig. 10).

Ecology. This species, as other *Psechrus* species, makes funnel web like that of agelenid spider, a horizontal sheet with a retreat on one end (Figs. 8–9). This web is often over 1 m in length. A spider hangs under the web (Fig. 8), unlike agelenids. Female carries its egg sac in the chelicerae. An egg sac from Alishan, 11–VII–1977, contains 174 juveniles of the first instar.



Figs. 8–9. *Psechrus taiwanensis* Wang & Yin, 2001, from Alishan, Chiayi County, 11–VII-1977. — 8, female; 9, web. Photo: H. Yoshida.

***Psechrus kenting* new species**
(Figs. 10–13)

Psechrus sp. (in part): Yoshida 1978, p. 24, collected from Kenting.

Diagnosis. By superficial appearances, this new species and other species of *Psechrus* are not clearly distinguished from each other. The present new species most resembles *Psechrus taiwanensis* Wang & Yin, 2001, but is distinguished from the latter by genital organs as follows: 1) Epigynal slits not parallel, anterior distance nearly twice as long as posterior; 2) anterior part of epigynal median sclerite largely convex; 3) anterior of seminal receptacles widely separated more than posterior; and 4) additional seminal receptacles small.

Measurement (♀ holotype; in mm). Body length 23.5. Carapace length 9.9; width 6.7. Abdomen length 13.9; width 8.0. Length of legs [total (femur + patella and tibia + metatarsus + tarsus)]: I 55.2 (15.7 + 19.6 + 13.7 + 6.2); II

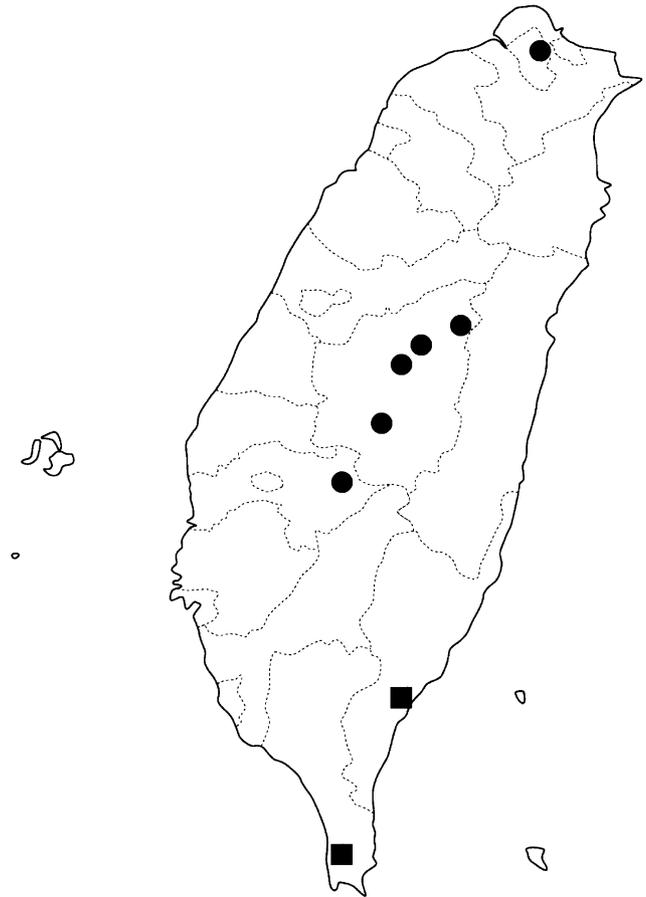
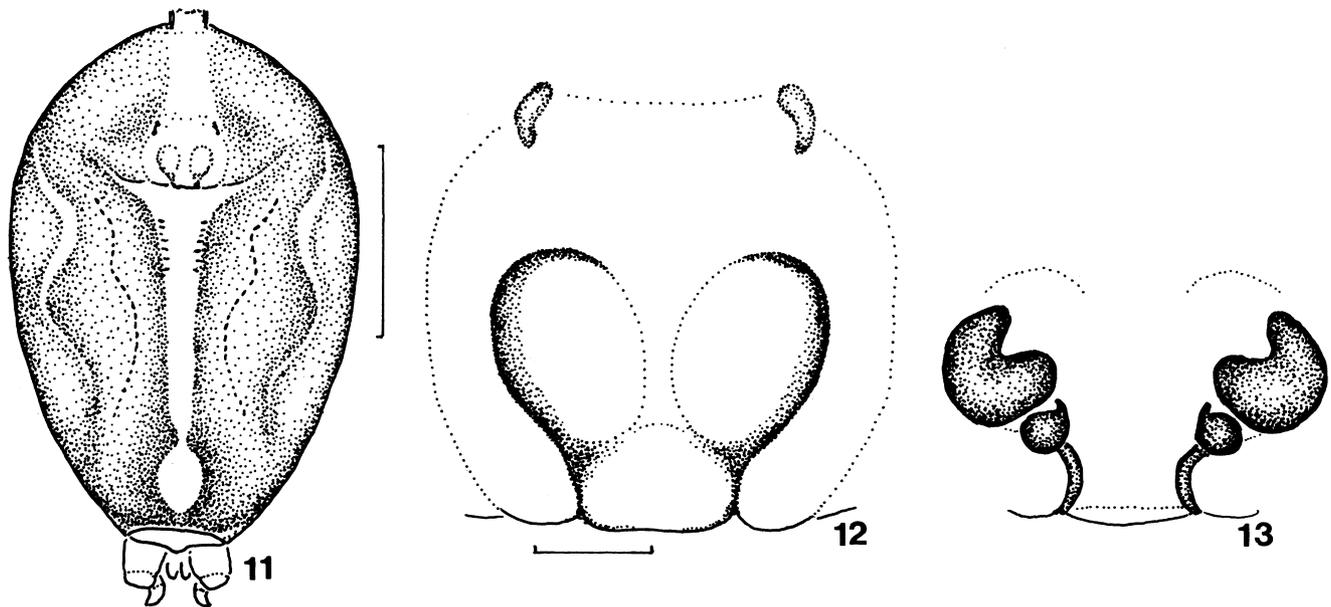


Fig. 10. Distribution of the genus *Psechrus* in Taiwan. — *P. taiwanensis* Wang & Yin, 2001 (●) and *P. kenting* new species (■).

43.2 (12.9 + 15.0 + 10.8 + 4.5); III 31.5 (9.7 + 10.4 + 8.0 + 3.4); IV 44.3 (13.2 + 15.1 + 11.1 + 4.9).

Description. Female (holotype). Carapace oblong. Posterior lateral eye slightly larger than anterior lateral eye; laterals slightly larger than medians. Posterior eye low recurved. Median ocular area, anterior width < length < posterior width. Leg formula, 1, 4, 2, 3. Legs long, first patella and tibia 2.0 times carapace length. Legs with 10–14 spines: on each dorsal and both lateral side of femora and on each ventral and both lateral sides of tibiae and metatarsi. Abdomen elongate and cylindrical (Fig. 11). Genital organ as shown in Figs. 12–13: epigynal slit not parallel, anterior distance nearly twice as long as posterior; anterior part of epigynal median sclerite largely convex and posterior depressed; copulatory ducts indistinct; seminal receptacles large bended tumbler-like, widely separated, each basally with an additional seminal receptacle.

Coloration. Carapace dusky brown with radiated dark flecks and marginal light areas. Chelicerae, maxillae and labium blackish brown. Sternum dark brown with marginal light areas. Legs dusky brown; coxae with ventral light flecks. Dorsum of abdomen dusky brown with an antero-median pale band; venter dusky brown with a median



Figs. 11–13. *Psechrus kenting* new species, ♀ holotype, from Kenting, Pingtung County. — 11, abdomen, ventral view; 12, epigynum, ventral view; 13, internal genitalia, dorsal view. Scales: 5 mm (11) and 0.5 mm (12–13).

longitudinal white band and a large white spot in front of cribellum, and laterally with a pair of thin wavy white bands and dotted dark sclerites (Fig. 11). Epigynum with a pair of blackish slits and brown large disks (Fig. 12). Seminal receptacles black (Fig. 13).

Male. Unknown.

Variation. Female body length 19.3–23.5 mm; carapace length 7.0–9.9 mm; abdomen length 10.8–13.9 mm. Lengths of second and fourth legs are almost equal in paratypes.

Type series. Holotype: ♀, Kenting, Pingtung County, Taiwan, 13–VII–1977 (NSMT-Ar 8381), and paratypes: 1♀, same locality as for the holotype, 14–VII–1977; 1♀, Chihpen spa., Taitung County, 17–VII–1977 (NSMT-Ar 8382); all collected by H. Yoshida.

Distribution. Southern Taiwan (Fig. 10).

Etymology. The specific name is a noun in apposition derived from the type locality.

Ecology. Same as *Psechrus taiwanensis*.

References

- Berland, J. & Berland, L. 1914. Description d'un *Psechrus* nouveau de China. *Bull. Soc. Entomol. Fr.*, 83: 131–133.
- Chen, H.-M., Zhang, J.-X., Song, D.-X. & Kim, J.-P. 2002. A new species of the genus *Psechrus* from China (Araneae: Psechridae). *Korean Arachnol.*, 18: 9–12.
- Chen, S.-H. 1996. A checklist of spiders in Taiwan. *Ann. Taiwan Mus.*, 39: 123–155.
- Chu, Y.-I. & Okuma, C. 1974. A checklist of spiders in Taiwan. *Ann. Taiwan Mus.*, 17: 29–49.
- Jäger, P. 2007. Spiders from Laos with descriptions of new species (Arachnida: Araneae). *Acta Arachnol.*, 56: 29–58.
- Kayashima, I. 1962. On *Psechrus torvus* from Taiwan. *Atypus*, 25: 9–11.
- Lee, C.-L. 1964. The Spiders of Formosa. 84 pp., Personal edition.
- Levi, H. W. 1982. The spider genera *Psechrus* and *Fecenia* (Araneae: Psechridae). *Pacific Ins.*, 24: 114–138.
- Murphy, J. 1986. Additional information concerning the spider family Psechridae. *Bull. Br. Arachnol. Soc.*, 7: 65–68.
- Platnick, N. I. 2008. The world spider catalog, version 9.0. American Museum of Natural History online at <http://research.amnh.org/entomology/spiders/catalog/index.html>
- Song, D.-X., Zhu, M.-S. & Chen, J. 1999. The Spiders of China. Hebei Science and Technology Publishing House, Hebei. 640 pp., 4 pls.
- Wang, X.-P. & Yin, C.-M. 2001. A review of Chinese Psechridae (Araneae). *J. Arachnol.*, 29: 330–344.
- Yang, Z.-Z., Zhang, J.-X., Zhu, M.-S. & Song, D.-X. 2003. A new species in the genus *Psechrus* from China (Araneae: Psechridae). *J. Agri. Univ. Hebei*, 26: 43–45.
- Yin, C.-M., Wang, J.-J. & Zhang, Y.-J. 1985. Study on the spider genus *Psechrus* from China (Araneae: Psechridae). *Nat. Sci. J., Hunan Norm. Univ.*, 1985: 19–27.
- Yoshida, H. 1978. On some Formosan spiders (1). *Atypus*, 71: 21–28.

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