

A NEWLY RECORDED GENUS AND A NEW SPECIES OF THE SPIDER FAMILY PIMOIDAE FROM YUNNAN, CHINA (ARACHNIDA: ARANEAE)

Zi-Zhong Yang

Department of Biochemistry, Dali College, Dali, Yunnan 671000, P. R. China
College of Life Sciences, Hebei University, Baoding, Hebei 071002, P. R. China

Ming-Sheng Zhu

College of Life Sciences, Hebei University, Baoding, Hebei 071002, P. R. China
Email: mingshengzhu@263.net (Corresponding author)

Da-Xiang Song

College of Life Sciences, Hebei University, Baoding, Hebei 071002, P. R. China

ABSTRACT. – The pimoid genus *Weintrauboa* is newly recorded from Yunnan, China, and a new species, *Weintrauboa yunnan*, new species, is described.

KEY WORDS. – Araneae, Pimoidae, *Weintrauboa*, new species, Yunnan, China, taxonomy.

INTRODUCTION

The linyphiid subfamily Pimoinae Wunderlich, 1986 with two genera (*Louisfagea* and *Pimoa*) was supposed as the sister group of the rest of linyphiids by Wunderlich (1986). Hormiga (1993, 1994) elevated it to the family rank (*Louisfagea* excluded) and corroborated the sister relationship of the families Pimoidae and Linyphiidae. Two other genera *Weintrauboa* and *Nanoa* were found in recent years (Hormiga, 2003; Hormiga et al., 2005). Up to now, 25 living species and 6 Tertiary amber fossil species were recorded from the world (Griswold et al., 1999; Hormiga, 1994, 2003; Wunderlich, 2004; Platnick, 2005; Hormiga et al., 2005).

An interesting thing about this group is its disjunct distribution. Most of extant pimoids live in the west coast of North America, the Alps, the Apennines and the Cantabrian Mountains of Europe, the Himalayas, the Hengduan Mountains, Japan and adjacent islands of Asia. It was considered a relictual group with an ancestral widespread Holarctic distribution and subsequent extinction in the intervening areas (Hormiga, 1994). Six Baltic amber fossil *pimoa* species found by Wunderlich (2004) have more or less proved the conclusion of Hormiga.

There are only two pimoid species recorded from China: *Pimoa anatolica* Hormiga, 1994 and *Pimoa lihengae* Griswold et al., 1999. On examining specimens collected from Yunnan of China, a new species of the genus *Weintrauboa* was found from the pine trunk close to the ground, named

W. yunnan, new species, which can be easily distinguished from the other two species by the un-enlarged metatarsal I base in males. The diagnosis and distribution of this genus are also revised.

MATERIALS AND METHODS

Dissected epigynes are digested nonchitinous tissues for 10 - 15 minutes in 10% boiling solution of potassium hydroxide (KOH). All illustrations are made in 75% alcohol solution under the XTL - II compound microscope. The measurements of legs are as follow: total length (femur, patella plus tibia, metatarsus, tarsus). Two male palps of paratypes were critical point dried and photographed under the KYKY-2800 scanning electron microscope. The morphological terms follow Hormiga, 2003. All measurements given are in millimeters. Type specimens are deposited in the Museum of Hebei University (MHBUS), China, the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore and Dali College, Yunnan, China (DLC).

The following abbreviations are used: ALE - anterior lateral eye, ALS - anterior lateral spinneret, AME - anterior median eye, BH - basal haematodocha, C - conductor, CD - copulatory duct, CO - copulatory opening, E - embolus, EF-embolic flap, FD - fertilization duct, MA - median apophysis, MOA - median ocular area, P - paracymbium, PCS - pimoid cymbial sclerite, PEP - pimoid embolic process, PLE - posterior lateral

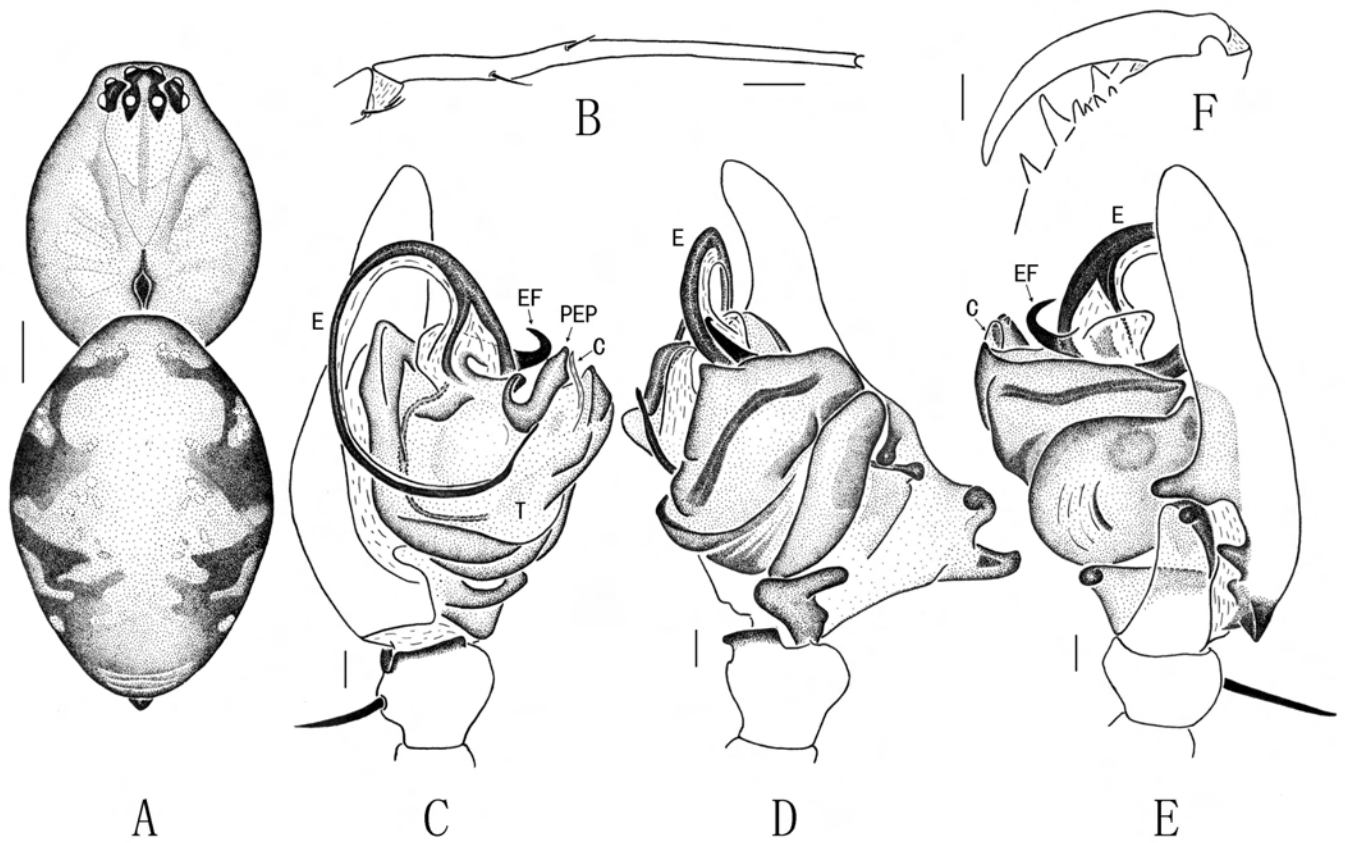


Fig. 1. *Weintrauboa yunnan*, new species, male: A, body, dorsal view; B, first metatarsus, lateral view; C, left palp, medial view; D, left palp, ventral view; E, left palp, lateral view; F, left chelicera, posterior view. Scale bars: A, B = 0.5 mm; C-F = 0.1 mm.

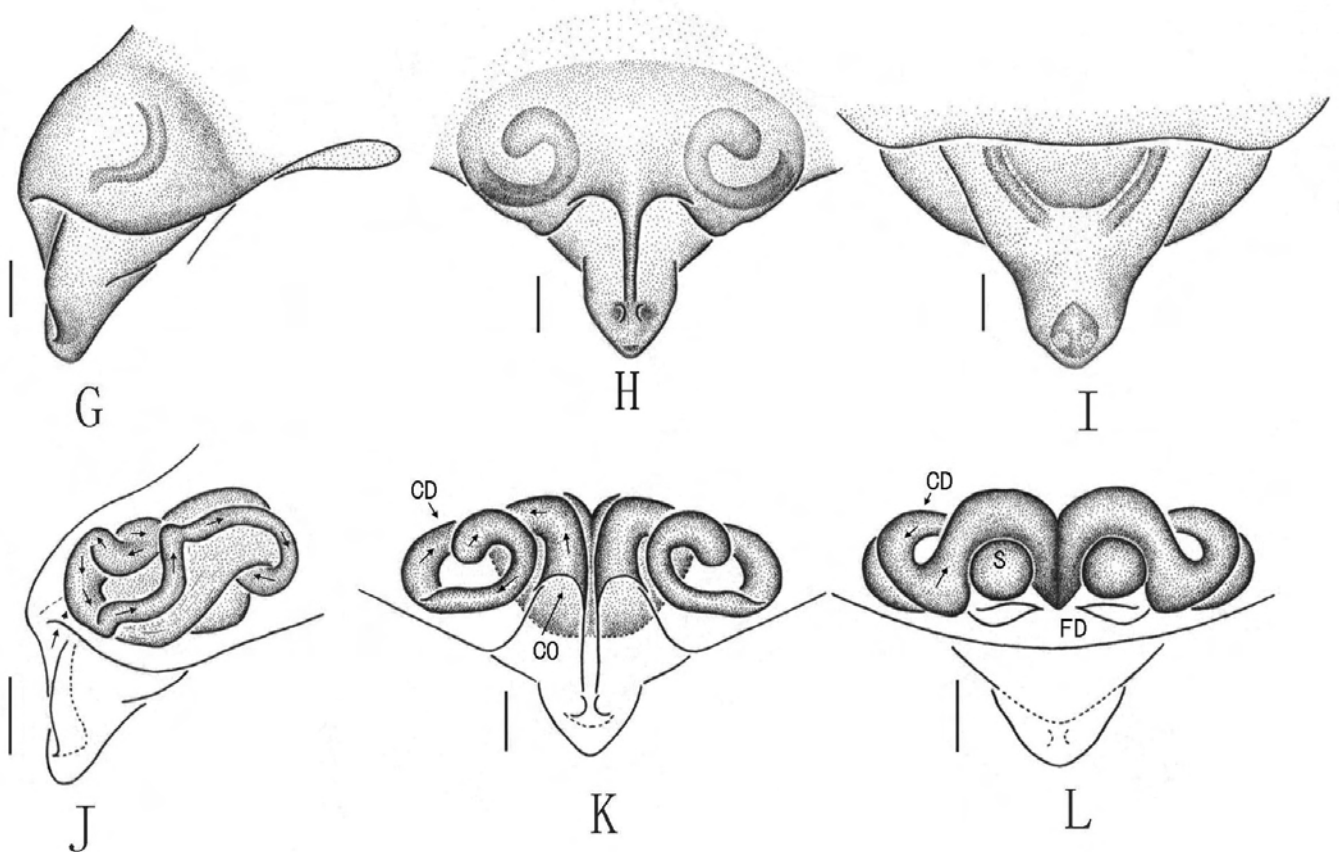


Fig. 2. *Weintrauboa yunnan*, new species, female. G, epigynum, lateral view; H, same, ventral view; I, same, dorsal view; J, epigynum (cleared), lateral view; K, same, ventral view; L, same, dorsal view. Scale bars: G-L = 0.1 mm.

eye, PLE - posterior lateral spinneret, PME - posterior median eye, S - spermatheca, T - tegulum.

TAXONOMY

FAMILY PIMOIDAE WUNDERLICH, 1986

Pimoinae - Wunderlich, 1986: 16.

Pimoidae - Hormiga (1993), type genus by monotypy *Pimoida* Chamberlin & Ivie. See also Hormiga (1994, 2003), Wunderlich (2004), Hormiga, Buckle & Scharff (2005).

Weintrauboa Hormiga, 2003

Weintrauboa Hormiga, 2003: 269.

Type species. – *Linyphia contortipes* Karsch, 1881, by original designation.

Diagnosis. – This genus is similar to *Pimoida* in body shape

and eye pattern, but differs from the latter by: tibial dorsal process of male palp absent; distal end of cymbium digitiform; cymbial denticulate process absent; cymbial cusps located on the dorsal surface (Figs. 3M - N); a small elongated membrane and the embolic flap connected to the base of the embolus; embolus long; sinuous metatarsal I base in males enlarged or unenlarged; cheliceral stridulatory striae absent; fertilization ducts mesally pointed (Fig. 2L).

Description. – see Hormiga, 2003: 272.

Distribution. – Japan, Russia (Far East area) and China (Yunnan).

Weintrauboa yunnan, new species (Figs. 1 - 4)

Material examined. – Holotype - male (MHB), Mount Gong, Fengyi Town, 25°30'N 100°18'E, Alt. 2050 m, Dali City, Yunnan Province, China, coll. Zhi-Xiang Li, 4 Nov.2001.

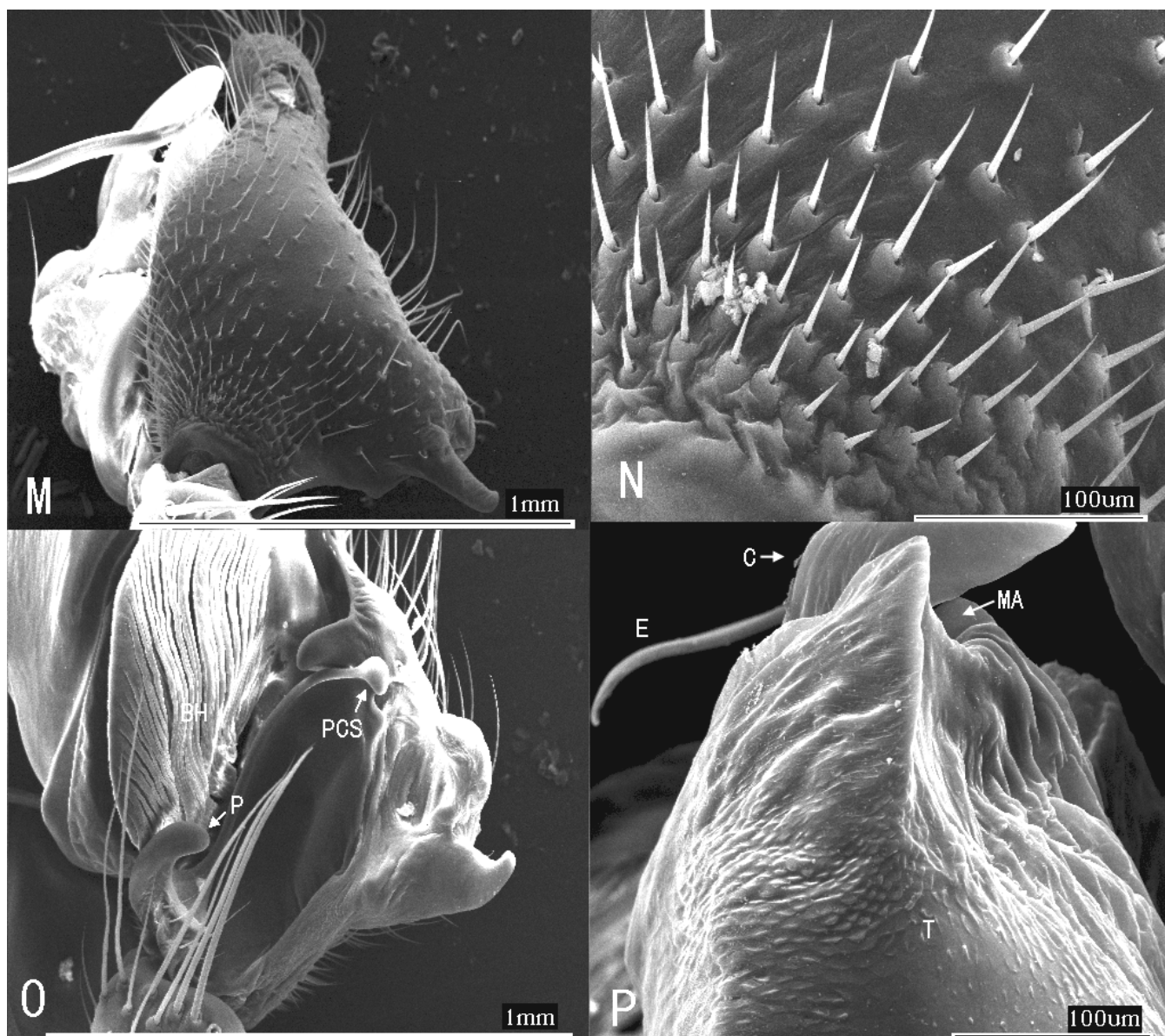


Fig. 3. *Weintrauboa yunnan*, new species, SEM: M, male right palpal cymbial cusps; N, same, enlarged; O, left palpal paracymbium and pimoid cymbial sclerite, ectal; P, detail tegular division, ectal.

Paratypes – 1 female (MHB), same data as holotype; 1 male (ZRC), same data as holotype; 4 males (DLC), same data as holotype; 1 male (DLC), Wenping town, 27°11'N 103°32'E, Ludian County, coll. Lian-Bing Zhou, 28 Jan.2005; 1 female (ZRC), Yongren County, 26°04'N 101°41'E, coll. Hong-Ming Wang, 15 Feb.2005.

Diagnosis. – The new species can be easily distinguished from the other two species by the unenlarged metatarsus I of male. It is quite similar to *Weintrauboa chikunii* (Oi, 1979) (Hormiga, 2003: 276, Figs. 2 - 3, 6 - 7), but differs from the latter by: the bifurcated base of embolus, the narrow ventral plate of the epigynum, the dorsally sphere-shaped spermathecae.

Etymology. – The species name is a noun in apposition taken from the type locality.

Description. – **Male.** Holotype: total length 5.10: cephalothorax 2.35 long, 2.04 wide; abdomen 3.06 long, 2.04 wide. Thoracic fovea conspicuous and oval, cephalic region

dark brown. Anterior eye row recurved, posterior eye row slightly recurved and slightly wider than anterior; ALE, PLE and PME with primary tapetum, AME absent. Eye sizes: AME 0.13, ALE 0.13, PME 0.13, PLE 0.15. AME - AME 0.13, PME - PME 0.13, ALE - PLE 0.03, AME - ALE 0.10, PME - PLE 0.15. MOA front width 0.35, back width 0.40. Clypeus height 2.69 times one AME diameter. Cephalic groove obvious. Chelicerae large, stridulatory striae absent, with 3 strong prolateral and 4 weak retrolateral teeth (Fig. 1F). Maxillae brown, longer than wide. Labium brown, wider than long. Sternum 1.53 long, 1.38 wide, chestnut, posterior margin pointed, slightly extending between coxae IV. Legs brown, slightly longer and slender, and autospasy at the patella-tibia junction; legs I - IV generally with dark annuli from femur to metatarsus, but metatarsus inconspicuous. Femur I 1.51 times the length of cephalothorax. Femora I - II with 2 dorsal spines; III - IV with 1 dorsal spine. Patellae I - IV with 1 dorsal spine. Tibiae I - IV with 2 dorsal spines, 1 prolateral and retrolateral spine, 3 pairs of ventral spines.

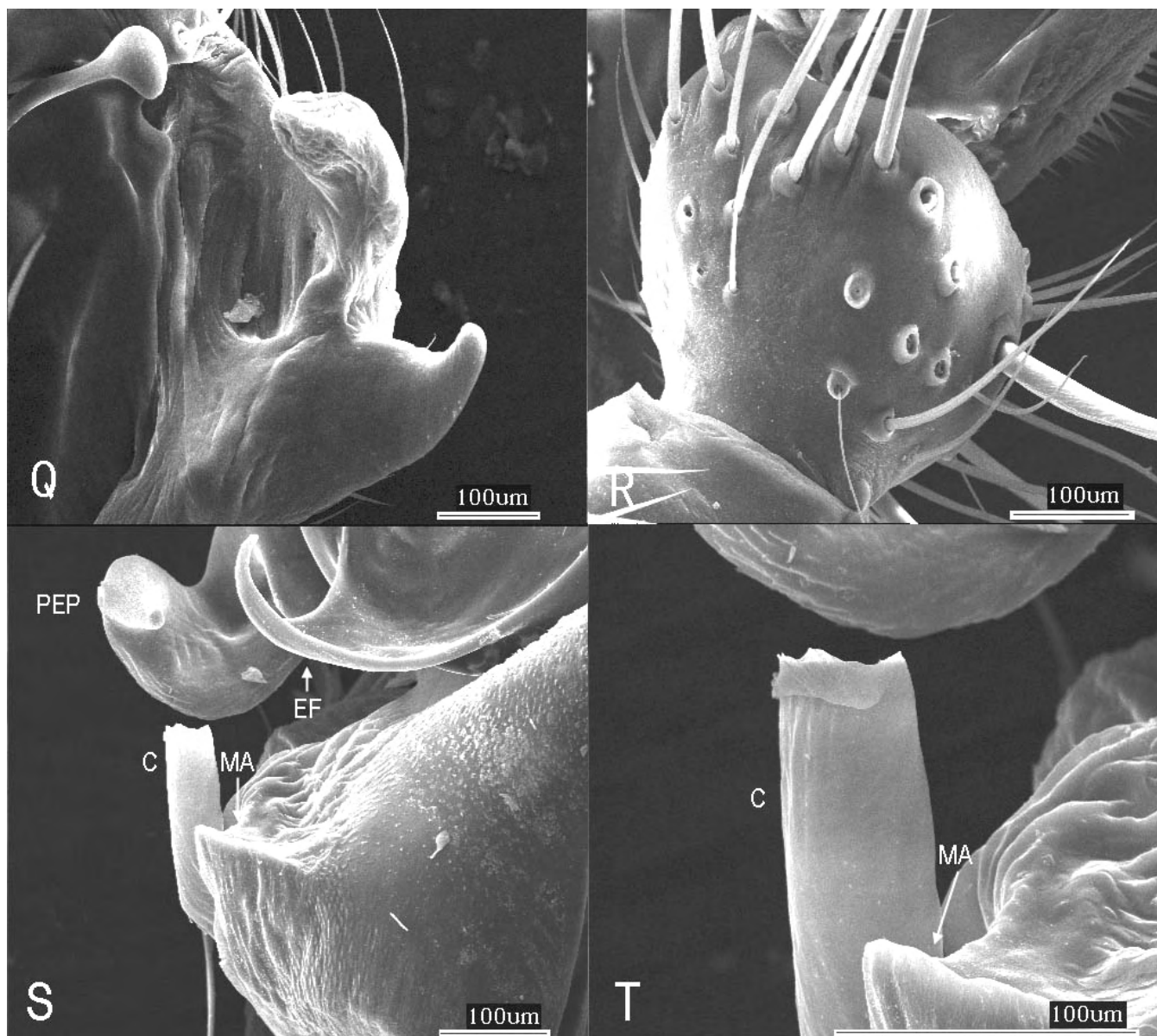


Fig. 4. *Weintrauboa yunnan*, new species, SEM: Q, cymbial dorsoectal processes; R, left palpal tibia, retrolateral; S, embolic flap, detail; T, conductor, detail.

Metatarsus I proximal third sinuous and unenlarged (Fig. 2B); metatarsi I - II with 1 prolateral and retrolateral spine, 1 pair of ventral spines; III - IV with 2 dorsal spines, 2 pairs of ventral spines. Superior claws with a tooth. Measurement of legs: I 13.87 (3.57 + 4.79 + 3.88 + 1.63); II 12.45 (3.37 + 4.18 + 3.47 + 1.43); III 8.47 (2.45 + 2.65 + 2.35 + 1.02); IV 10.20 (2.86 + 3.26 + 2.86 + 1.22). Leg formula: 1243. Palpal tibia wider than long, with 2 prolateral (Fig. 4R) and 1 retrolateral trichobothriae, fourteen thick macrosetae (Fig. 4R); distal end of cymbium finger-like (Figs. 1C - E); cymbial dorsoectal processes heavily sclerotized (Fig. 4Q), cuspules absent. posterior surface of dorsum of cymbium with rows cuspules (Figs. 3M - N); embolus long (Fig. 1C), with membrane, embolic flap with a slightly sclerotized hook-shaped process (Figs. 1C - E, 4S), conductor small and thin (Fig. 4T); paracymbium connected with cymbium, cymbial sclerite spoon-shaped. Abdomen brown, dorsum with some dark brown patterns and white spots (Fig. 1A); ventral slightly light. Colulus brownish, approximately triangular, with six short setae. Tracheal spiracle narrowed, and be located before the spinnerets. Six spinnerets, ALS brownish, longer than PLS, PLS brown .

Female. Total length 5.20: cephalothorax 2.04 long, 1.63 wide; abdomen 3.47 long, 2.55 wide. Eye sizes: AME 0.10, ALE 0.13, PME 0.13, PLE 0.13. AME - AME equal to AME - ALE, 0.10, ALE - PLE 0.03, PME - PME 0.13, PME - PLE 0.15. MOA front width 0.30, back width 0.38. Clypeus height 2.60 times one AME diameter. Chelicerae with 3 strong prolateral and 5 weak retrolateral teeth. Sternum 1.22 long, 1.06 wide. Femur I 1.25 times the length of cephalothorax. Tibia with 1 prolateral and 2 retrolateral trichobothrium. Femora I - IV with 1 dorsal spine, I with 1 prolateral spine. Patellae I - IV with 2 dorsal spines. Tibiae I - IV with 2 dorsal, prolateral and retrolateral spines, 3 pairs of ventral spines. Metatarsi I - II with 1 prolateral and retrolateral spine, 1 pair of ventral spines, III - IV with 2 prolateral, retrolateral spines, 2 pairs ventral spines. Measurement of legs: I 9.49 (2.57 + 3.12 + 2.41 + 1.39); II 8.69 (2.48 + 2.84 + 2.18 + 1.19); III 7.04 (2.14 + 2.30 + 1.68 + 0.92); IV 8.11 (2.35 + 2.55 + 2.19 + 1.02). Legs formula: 1243. Epigynal plate narrow, epigynal shield wider; copulatory opening located on the base of epigynal plate; copulatory ducts long (Figs. 2J - L); fertilization ducts mesally pointed. Dorsal abdomen without dark pattern.

Variation. – Male cephalothorax ranges in length from 2.24 to 2.35 (n = 6; average 2.33). Female cephalothorax ranges in length from 2.04 to 2.14 (n = 2; average 2.09). Male total length ranges from 5.10 to 5.71 (n = 5; average 5.53). Female total length ranges from 4.69 to 5.41 (n = 2; average 5.05).

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