

THE OONOPID SPIDERS (ARANEAE: OONOPIDAE) FROM HAINAN ISLAND, CHINA

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ABSTRACT. – Nine species of oonopid spiders belonging to four genera are reported from Hainan Island, China, including six new species, *Ischnothyreus campanaceus* (female, male), *I. falcatus* (female, male), *I. hanae* (female), *I. qianlongae* (male), *Oonopinus corneus* (male) and *Opopaea gibbifera* (female, male). Three other species, *Gamasomorpha anhuiensis*, *I. narutomii* and *I. peltifer*, are newly recorded. All the species except *G. anhuiensis* and *I. peltifer*, are diagnosed, described and illustrated.

KEY WORDS. – Hainan Island, taxonomy, Oonopidae, new species, new record, China.

INTRODUCTION

Oonopids are small (1–4 mm) haplogyne spiders. They are mostly yellowish, orange or reddish-brown, sometimes whitish or even pink in colour (Saaristo & van Harten, 2006). They can be distinguished from other haplogynes by having six eyes which are usually closely grouped and touching, sternum usually with 3 pairs of radial furrows, abdomen usually covered by scuta, tracheal spiracles which are paired and anteriorly positioned, and tarsus with onychium bearing two claws. Oonopids are usually found in shaded but dry conditions, e.g., in leaf litter, under rocks and under bark (Xu, 1996).

The Oonopidae is a relatively small family with 68 genera and 472 species (Platnick, 2007). Eight genera and 19 species are distributed in China (Hu, 2001; Song et al., 1999). However, the taxonomy of the family is still poorly known even on the generic level, and only a small fraction of the species of this family has apparently been discovered and described (Saaristo, 2001).

Hainan Island, a province situated at the southernmost part of China, is considered as a tropical biodiversity rich region (Anonymous, 2006). However, the taxonomy on the oonopids has not been done until recently. Only one species, *Opopaea cornuta*, was formerly recorded in Ledong County (Song et al., 2002). In an expedition to Hainan Island with the objective of collecting cave fauna, some oonopids were collected. A total of 4 genera and 9 species are reported in the present paper, six of them are new to science, and all are new to Hainan Island.

MATERIALS AND METHODS

Specimens were examined using an Olympus SZX12 stereomicroscope. Further details were studied under an Olympus BX51 compound microscope. All illustrations were made using a drawing tube and inked on ink jet plotter paper. Male palps and female genitalia were examined and illustrated. Vulvae of female were cleared in lactic acid. All measurements were measured using an Olympus BX51 compound microscope and given in millimeters (mm). Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). Legs segments were measured on their dorsal side. Taxonomic descriptions partly follow the format of Saaristo (2001) and Saaristo & van Harten (2006). All type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences in Beijing (IZCAS).

TAXONOMY

Oonopidae Simon, 1890

Gamasomorpha Karsch, 1881

Gamasomorpha anhuiensis Song & Xu, 1984

Material examined. – 1 male (IZCAS), Mountain Wuzhishan (18°49'N 109°39'E), Wuzhishan City, Hainan Island, China, coll. Y. Song, X. Han and Y. Tong, 16 Apr.2005; male holotype and 1 male paratype (IZCAS).

Distribution. – China (new to Hainan, Anhui).

***Ischnothyreus* Simon, 1893**

***Ischnothyreus campanaceus*, new species**
(Fig. 1A–I)

Holotype. – Male (IZCAS), Mountain Wuzhishan (18°49'N 109°39'E), Wuzhishan City, Hainan Island, China, coll. Y. Song, X. Han and Y. Tong, 16 Apr.2005.

Paratypes. – 2 males, 4 females (IZCAS), same data as holotype.

Diagnosis. – The female of the new species is similar to *I. linzhiensis* Hu, 2001 (male unknown), but can be distinguished by the distinctly short and clearly winding tube in the middle line of the postepigastric scutum, and the distinctly long abdominal dorsal scutum; the male is similar to *I. shillongensis* Tikader, 1968 (Brignoli, 1978), but can be distinguished by the modifications on base of cheliceral fang and the outgrowths on apical part of embolus.

Description. – **Male.** Body length 1.47; carapace 0.80 length, 0.64 width; abdomen 0.70 length, 0.44 width. Sides of carapace yellowish-brown, dorsally yellow, scutum yellow, chelicerae, sternum, legs and ventral scutum light yellow. Carapace with pair of dark brown, egg-shaped patches behind eyes; dorsally with three rows of short hairs. Eyes six in two rows, quite compactly arranged; ALE slightly separated; posterior eyes in a straight row, touching each other. Base of fang with prominent processes; retromargin of fang furrow with a small tooth. Labium wider than long, endites with pointed tip. Leg I: femur with 2 prolateral and 1 small retrolateral spine, patella spineless, tibia with 4 pairs, metatarsus with 2 pairs of long ventral spines. Leg II spinatoin is similar to leg I except that femur with only one prolateral spine. Legs III and IV spineless. Measurements of legs: I 1.89 (0.56, 0.25, 0.47, 0.39, 0.22); II 1.83 (0.55, 0.24, 0.44, 0.39, 0.21); III 1.61 (0.49, 0.23, 0.26, 0.39, 0.24); IV 2.33 (0.67, 0.32, 0.49, 0.56, 0.29). Leg formula: $4 > 1 > 2 > 3$. Dorsal scutum of abdomen oval-shaped, covering nearly entirely abdominal length. Bulbus of palp elongated, gradually tapering apically, obtusely bent before apex. Embolic part not divided into distinct lobes, bearing some membranous outgrowths.

Female. Similar to male, but sides of carapace deeper in colour, without dorsal egg-shaped patches, base of fang unmodified, tip of endites truncated, dorsal scutum of abdomen shorter, about five-sixths abdominal length. Body length 1.52–1.57; carapace 0.70–0.78 length, 0.62–0.65 width; abdomen 0.85–0.94 length, 0.55–0.57 width. Measurements of legs: I 2.04 (0.61, 0.27, 0.54, 0.41, 0.21); II 2.04 (0.61, 0.27, 0.51, 0.43, 0.22); III 1.74 (0.49, 0.26, 0.35, 0.42, 0.22); IV 2.48 (0.69, 0.40, 0.54, 0.56, 0.29). Postepigastric scutum elongated hexagonal. A strongly winding tube visible through cuticle, originated from near the middle of epigastric sulcus and running posteriorly into the bell-shaped atrium. Internal course of tube explicit, same as the course when see from ventral view.

Etymology. – Specific name comes from the Latin “*campanaceus* = bell-shaped”, in reference to the bell-shaped atrium in female.

***Ischnothyreus falcatus*, new species**
(Fig. 2A–K)

Holotype. – Male (IZCAS), Bawangling National Natural Reserve (19°04'N 109°08'E), Changjiang County, Hainan Island, China, coll. Y. Song, X. Han and Y. Tong, 22 Mar.2005.

Paratypes. – 1 female (IZCAS), same data as holotype; 1 male (IZCAS), Xianren Cave (19°57'N 110°12'E), Shishan Town, Haikou City, Hainan Island, China, coll. Y. Song, X. Han, G. Deng and Y. Tong, 16 Mar.2005.

Diagnosis. – The male of this new species can be easily recognized by the sickle-shaped process on laterodorsal surface of chelicerae, a similar structure can also be found in *I. flagellichelis* Xu, 1989 (Xu, 1989), but in *I. flagellichelis* the process is flagelliform, with two segments and a claw on the tip; the female of this new species is characterized by the trapezoid-shaped atrium.

Description. – **Male.** Body length 1.28; carapace 0.72 length, 0.56 width; abdomen 0.67 length, 0.40 width. Carapace deep orange, chelicerae, sternum, legs, dorsal and ventral scutum light yellow. Carapace with pair of dark-brown, egg-shaped patches behind eyes; with three rows of short hairs. Eyes six in two rows, large, nearly equally sized, compactly arranged; ALE slightly separated; posterior eyes in a straight row, touching each other. Chelicerae with a sickle-shaped process on median of laterodorsal surface, which straight upwards, slowly curved mesially, then abruptly turned outwards; retromargin of fang furrow with a small tooth, promargin with some tiny indistinct teeth; base of cheliceral fang modified. Labium wider than long, endites with pointed tip. Leg I: femur with 2 prolateral and 1 small retrolateral spine, patella spineless, tibia with 4 pairs, metatarsus with 2 pairs of very long ventral spines. Leg II is similar to leg I except femur with only one prolateral spine. Legs III and IV spineless. Measurements of legs: I 1.72 (0.53, 0.21, 0.44, 0.35, 0.19); II 1.70 (0.52, 0.22, 0.41, 0.36, 0.19); III 1.43 (0.44, 0.19, 0.29, 0.33, 0.18); IV 2.12 (0.63, 0.28, 0.48, 0.49, 0.24). Leg formula: $4 > 1 = 2 > 3$. Abdomen with small dorsal scutum, about two-seconds abdominal length. Bulbus of palp elongated, gradually tapering apically, obtusely bent before apex. Embolic part not divided into distinct lobes, bearing some membranous outgrowths.

Female. Similar to male, but chelicerae without sickle-shaped process, base of cheliceral fang unmodified, tip of endites truncated. Body length 1.21; carapace 0.67 length, 0.59 width; abdomen 0.68 length, 0.42 width. Measurements of legs: I 1.80 (0.56, 0.22, 0.48, 0.35, 0.19); II 1.79 (0.53, 0.23, 0.46, 0.38, 0.19); III 1.57 (0.47, 0.22, 0.29, 0.36, 0.23); IV 2.22 (0.63, 0.34, 0.50, 0.51, 0.24). Postepigastric scutum rectangular, with straight posterior margin. A strongly winding tube visible through cuticle, originated from near the middle of epigastric sulcus and running posteriorly into the trapezoid-shaped atrium.

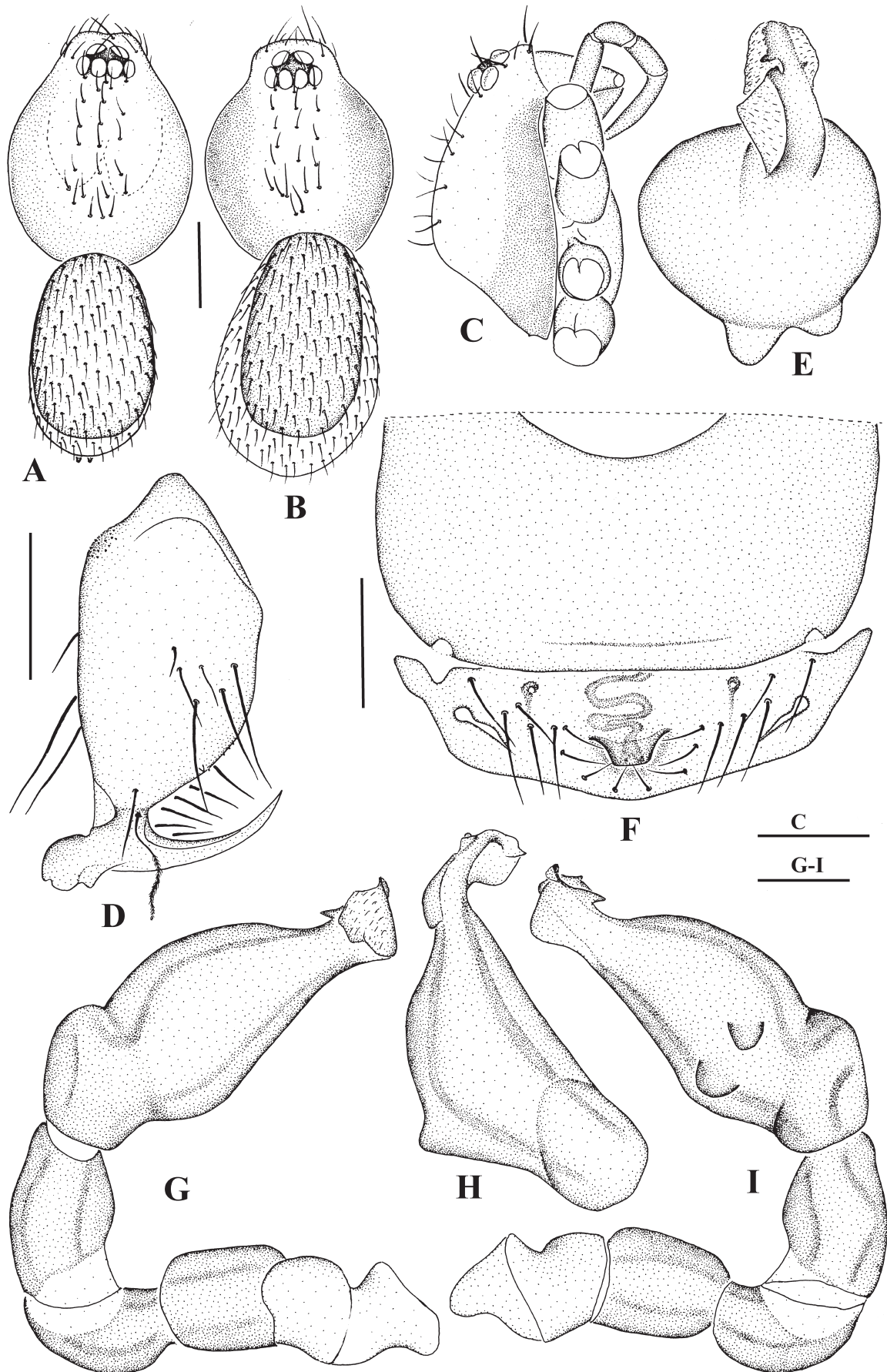


Fig. 1. *Ischnothyreus campanaceus*, new species: A, male, dorsal view; B, female, dorsal view; C, carapace of female, lateral view; D, left male chelicera, posterior view; E, left male palpal bulb, apical view; F, ventral scutum of female, ventral view; G, H, I, left male palp in prolateral, dorsal and retrolateral view. Scales: A-C = 0.3 mm, D, F = 0.1 mm, E, G-I = 0.05 mm.

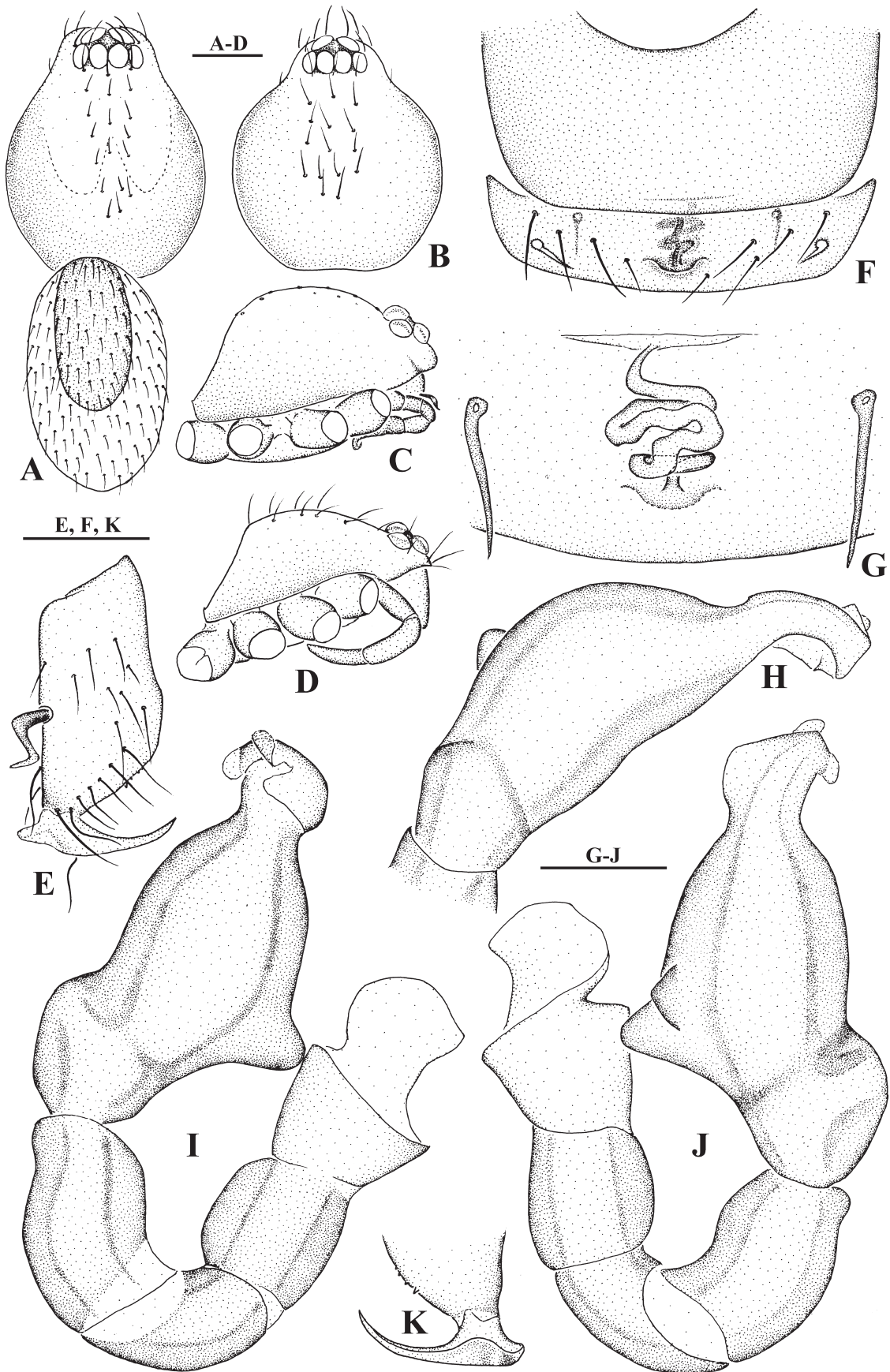


Fig. 2. *Ischnothyreus falcatus*, new species: A, male, dorsal view; B, carapace of female, dorsal view; C, carapace of male, lateral view; D, carapace of female, lateral view; E, right male chelicera, frontal view; F, ventral scutum of female, ventral view; G, genital area of female, dorsal view; H, I, J, left male palp in dorsal, prolateral and retrolateral view; K, distal part of male chelicera, posterior view. Scales: A-D = 0.2 mm, E, F, K = 0.1 mm, G-J = 0.05 mm.

Etymology. – Specific name comes from the Latin “*falcatus* = sickle-shaped”, and refers to the sickle-shaped process on laterodorsal surface of male chelicerae.

***Ischnothyreus hanae*, new species**
(Fig. 3A–D)

Holotype. – Female (IZCAS), Bawangling National Natural Reserve (19°04'N, 109°08'E), Changjiang County, Hainan Island, China, coll. Y. Song, X. Han, G. Deng and Y. Tong, 22 Mar.2005.

Paratypes. – 1 female (IZCAS), same data as holotype.

Diagnosis. – The female of this new species (male unknown) is similar to the widely distributed species *I. peltifer* (Simon, 1891) (Saaristo, 2001), but can be distinguished by the distinctly longer abdominal dorsal scutum, the shape of ventral postepigastric scutum and the goblet like atrium of female.

Description. – **Female.** Body length 1.18–1.29; carapace 0.61–0.62 length, 0.50–0.52 width; abdomen 0.60–0.69 length, 0.32–0.35 width. Carapace and dorsal scutum brown; chelicerae, sternum, legs and ventral scuta yellow. Carapace with three rows of short hairs dorsally. Eyes six in two rows, quite compactly arranged; eyes sizes relatively smaller than

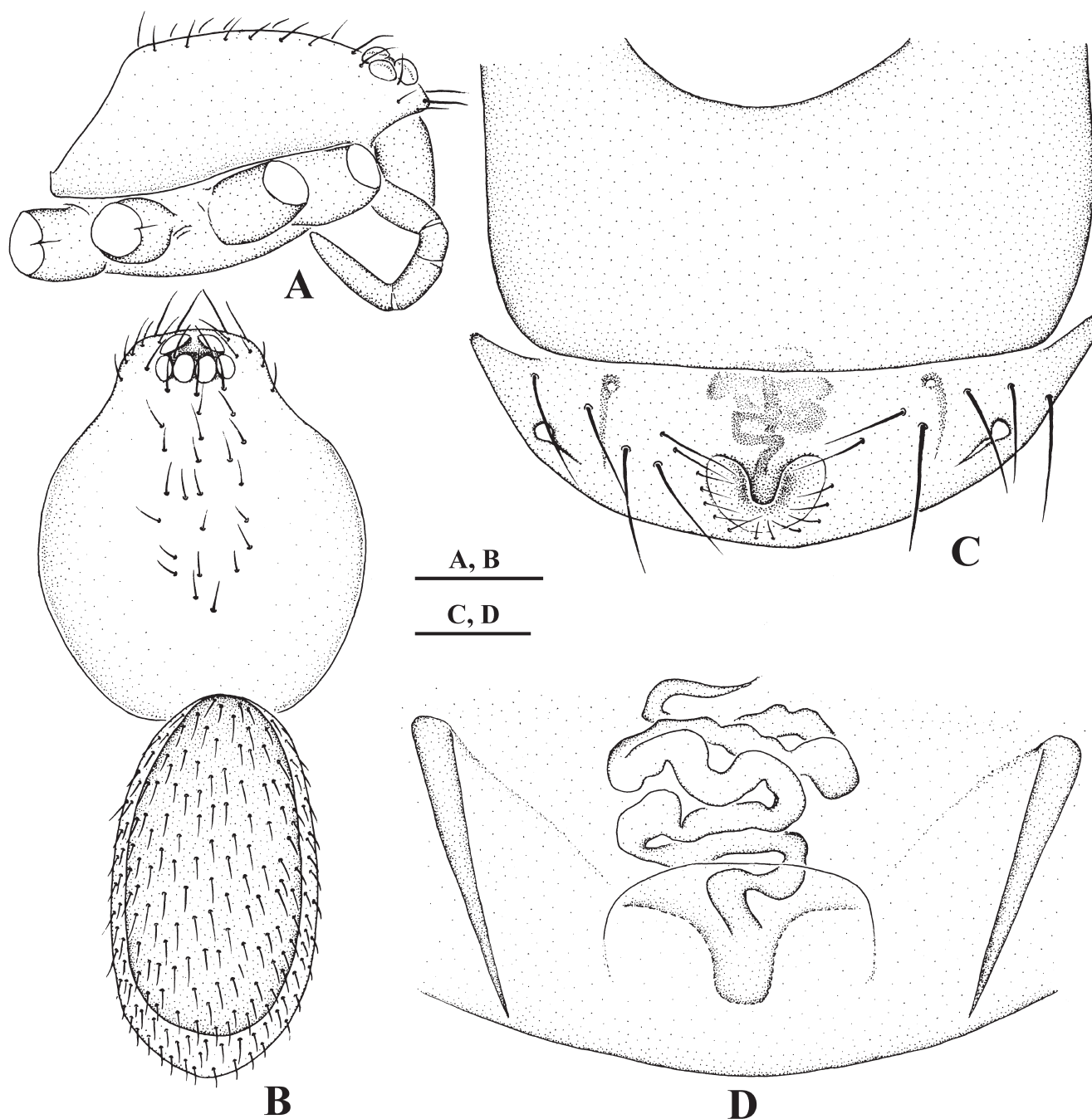


Fig. 3. *Ischnothyreus hanae*, new species: A, carapace of female, lateral view; B, female, dorsal view; C, ventral scutum of female, ventral view; D, genital area of female, dorsal view. Scales: A, B = 0.2 mm, C = 0.05 mm, D = 0.025 mm.

those of *I. falcatus*, new species; ALE about one-fourth of their diameter apart; posterior eyes in a slightly procurved row, touching each other. Labium wider than long, tip of endites truncated. Leg I: femur with 2 prolateral spines, patella spineless, tibia with 4 pairs, metatarsus with 2 pairs of very long ventral spines. Leg II is similar to leg I except femur with only one prolateral spine. Legs III and IV spineless. Measurements of legs: I 1.47 (0.43, 0.21, 0.37, 0.29, 0.17); II 1.46 (0.40, 0.22, 0.36, 0.30, 0.18); III 1.22 (0.36, 0.15, 0.24, 0.28, 0.19); IV 1.78 (0.51, 0.25, 0.39, 0.39, 0.24). Leg formula: $4 > 1 = 2 > 3$. Dorsal scutum long oval-shaped, about four-fifths to five-sixths abdominal length. Postepigastric scutum elongated triangular. A strongly winding tube visible through cuticle, originated from near the middle of epigastric sulcus and running posteriorly into the goblet like atrium.

Male. Unknown.

Discussion. – The species *I. falcatus*, new species and *I. hanae*, new species (male unknown) are collected in the same locality, but the females of these two species can be easily distinguished by the length of abdominal scutum and the shape of atrium. Based on the similarity of the shorter abdominal scutum (most species of *Ischnothyreus* with longer abdominal dorsal scutum in male than that in female (Chickering, 1968), but the female of *I. hanae*, new species has a distinctly longer abdominal dorsal scutum than the male of *I. falcatus*, new species. This suggests that they might not be the same species), the steeper lateral view of carapace, the larger sizes of eyes, and the body colour, it will be able to help match the male and female.

Etymology. – This species is named after the collector Mrs. Xu Han.

***Ischnothyreus qianlongae*, new species**
(Fig. 4A–G)

Holotype. – Male (IZCAS), Qianlong Cave (18°35'N 109°25'E), Maogan Town, Baoting County, Hainan Island, China, coll. Y. Song, X. Han, G. Deng and Y. Tong, 13 Apr.2005.

Diagnosis. – The male of this new species (female unknown) is similar to *I. narutomii* (Nakatsudi, 1942) (Oi, 1958; Lee, 1964), but can be distinguished by the modifications on base of cheliceral fang, the complicated membranous outgrowths on apical part of embolus, and the blackish brown sides of carapace.

Description. – **Male.** Body length 1.51; carapace 0.84 length, 0.65 width; abdomen 0.67 length, 0.42 width. Sides of carapace blackish brown, dorsally yellow, dorsal scutum brown, chelicerae, sternum and ventral scutum light yellow, legs yellow. Carapace with pair of dark brown, egg-shaped patches behind eyes; dorsally with three rows of short hairs. Eyes six in two rows, quite compactly arranged; ALE separated only by a line; posterior eyes in a straight row, touching each other. Base of cheliceral fang with prominent

processes; retromargin of fang furrow with a small tooth. Labium wider than long; endites with pointed tip. Leg I: femur with 2 prolateral and 1 small retrolateral spine, patella spineless, tibia with 4 pairs, metatarsus with 2 pairs of very long ventral spines. Leg II is similar to leg I except femur with only one prolateral spine. Measurements of legs: I 2.13 (0.62, 0.27, 0.56, 0.43, 0.25); II 2.15 (0.63, 0.28, 0.52, 0.47, 0.25); III 1.85 (0.56, 0.25, 0.35, 0.44, 0.25); IV 2.65 (0.75, 0.36, 0.55, 0.64, 0.35). Leg formula: $4 > 1 = 2 > 3$. Dorsal scutum about covering five-sixths abdominal length. Bulbus of palp elongated, gradually tapering apically, obtusely bent before apex. Embolic part not divided into distinct lobes, bearing complicated membranous outgrowths.

Female. Unknown.

Etymology. – Specific name comes from the type locality.

***Ischnothyreus narutomii* (Nakatsudi, 1942)**
(Fig. 5A–D)

Material examined. – 2 males (IZCAS), Baoyou Cave (19°06'N 109°01'E), Baoyou Village, Qicha Town, Changjiang County, Hainan Island, China, coll. Y. Song, X. Han, G. Deng and Y. Tong, 3 Apr.2005.

Diagnosis. – The male of this species (female unexamined) can be distinguished from the other congeners by the distinctly lobes on apical part of embolus, connected by developed membranous outgrowths.

Redescription. – **Male.** Body length 1.88; carapace 0.97 length, 0.74 width; abdomen 0.89 length, 0.52 width. Sides of carapace yellowish brown to gray, dorsally yellow, chelicerae, sternum, legs, dorsal and ventral scutum light yellow. Carapace with pair of dark brown, egg-shaped patches behind eyes; dorsally with three rows of short hairs. Eyes six in two rows, quite compactly arranged; ALE separated only by a line; posterior eyes in a straight row, touching each other. Base of cheliceral fang unmodified. Labium wider than long; endites with pointed tip. Leg I: femur with 2 prolateral and 1 small retrolateral spine, patella spineless, tibia with 4 pairs, metatarsus with 2 pairs of very long ventral spines. Leg II is similar to leg I except femur with only one prolateral spine. Measurements of legs: I 2.97 (0.85, 0.37, 0.83, 0.64, 0.28); II 3.19 (0.91, 0.39, 0.82, 0.74, 0.33); III 2.65 (0.79, 0.35, 0.56, 0.67, 0.28); IV 3.73 (1.07, 0.50, 0.87, 0.93, 0.36). Leg formula: $4 > 2 > 1 > 3$. Abdomen oval-shaped, dorsal scutum about three-fourths abdominal length. Bulbus of palp elongated, gradually tapering apically, obtusely bent before apex. Embolic part divided into distinct lobes, connected by some membranous outgrowths.

Female. Unexamined.

Distribution. – China (new to Hainan, Taiwan), Japan.

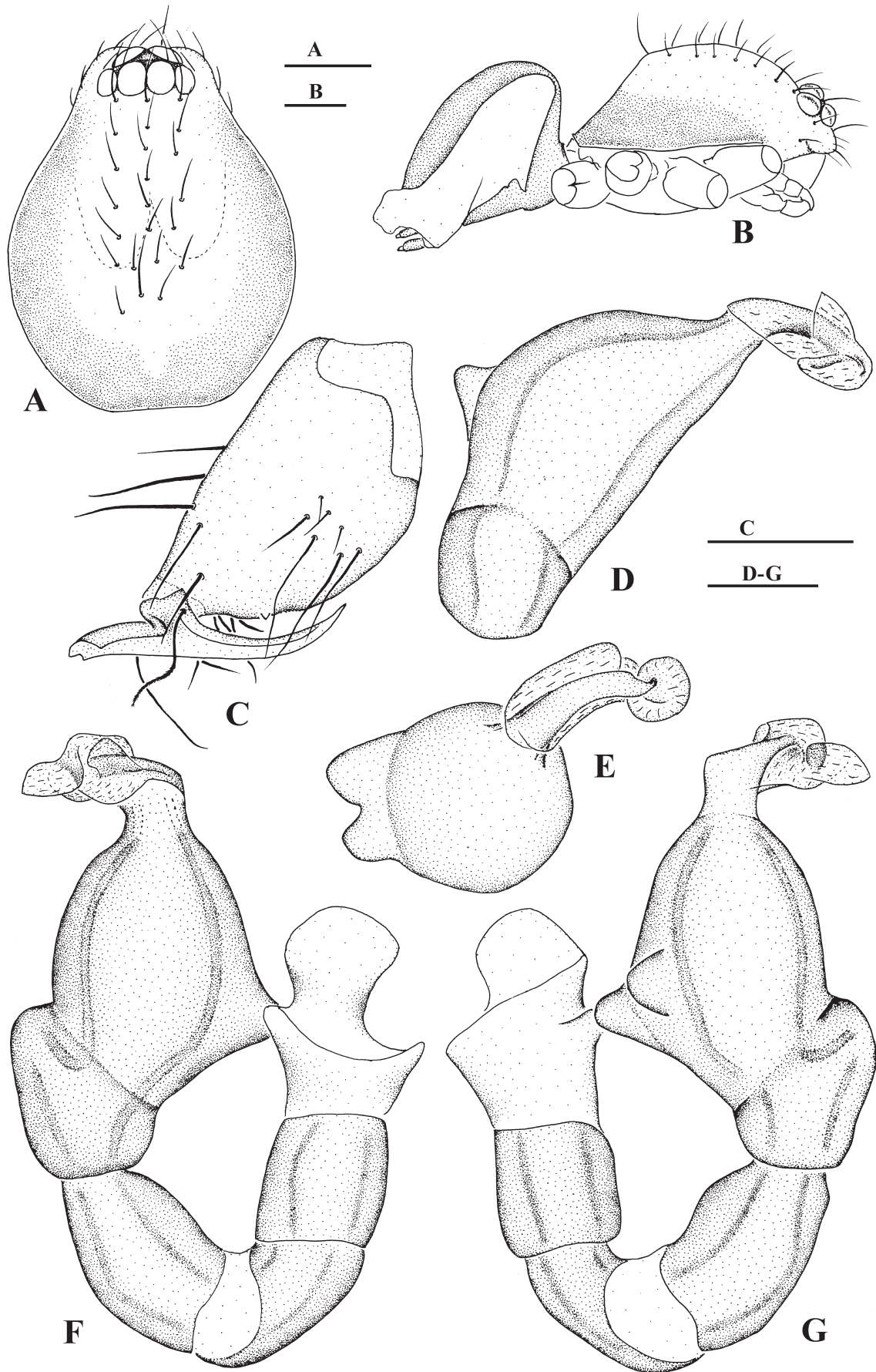


Fig. 4. *Ischnothyreus qianlongae*, new species: A, carapace of male, dorsal view; B, male, lateral view; C, left male chelicera, posterior view; D, left male palp, dorsal view; E, left male palpal bulb, apical view; F, left male palp, prolateral view; G, left male palp, retrolateral view. Scales: A, B = 0.2 mm, C = 0.1 mm, D-G = 0.05 mm.

Ischnothyreus peltifer (Simon, 1891)

Material examined. – 1 female (IZCAS), Mountain Wuzhishan (18°49'N 109°39'E), Wuzhishan City, Hainan Island, China, coll. Y. Song, X. Han and Y. Tong., 16 Apr.2005.

Remarks. – This species has been well described by Saaristo (2001).

Distribution. – New record for Hainan, although it appears to be widely distributed in southern China. According to Saaristo (2001), this species is easily transported by man and maybe widely distributed in the tropics.

Oonopinus Simon, 1893

Oonopinus corneus, new species
(Fig. 6A–D)

Holotype. – Male (IZCAS), cave without name (18°59'N 108°53'E), Yalong Village, Donghe Town, Dongfang City, Hainan Island, China, coll. Y. Song, X. Han, G. Deng and Y. Tong, 31 Mar.2005.

Diagnosis. – The male of this new species (female unknown) is similar to *Oonopinus kilikus* Suman, 1965 from Hawaii and Seychelles (Saaristo, 2001), but can be distinguished by the cone-shaped protuberance on inner side of posterior

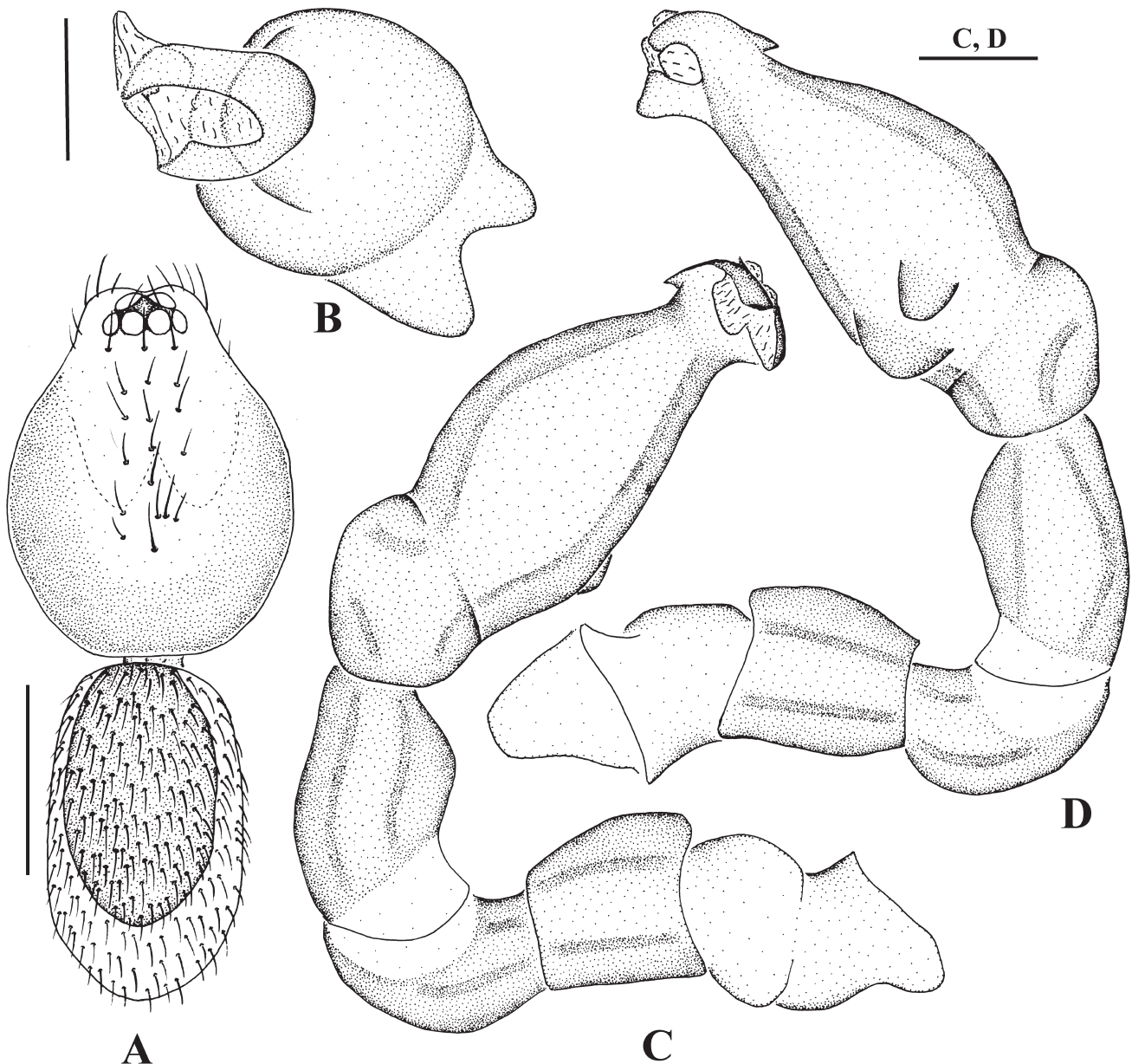


Fig. 5. *Ischnothyreus narutomii* (Nakatsudi, 1942): A, male, dorsal view; B, left male palpal bulb, apical view; C, left male palp, prolateral view; D, left male palp, retrolateral view. Scales: A = 0.5 mm, B–D = 0.05 mm.

surface of chelicerae, the higher height of clypeus, the dense hairs on dorsal and lateral surfaces of carapace, and the short, thick and upstanding hairs on cymbium of palp.

Description. – **Male.** Body length 1.44; carapace 0.69 length, 0.48 width; abdomen 0.76 length, 0.50 width. Carapace smooth, with densely hairs on dorsal and lateral surfaces. Eyes large, forming almost H-shaped figure. Height of clypeus nearly equally to diameter of ALE. Chelicerae with a cone-shaped protuberance on inner sides of posterior surface. Legs with some scattered spines on tibia and metatarsi of leg III and IV. Legs Measurements: I 1.67 (0.53, 0.25, 0.39, 0.33,

0.17); II 1.65 (0.50, 0.25, 0.39, 0.33, 0.18); III 1.32 (0.42, 0.20, 0.25, 0.28, 0.17); IV 1.99 (0.58, 0.27, 0.48, 0.47, 0.19). Leg formula: $4 > 1 = 2 > 3$. Abdomen egg-shaped, without scutum. Colulus indiscernible.

Male palp white except dark brown embolus. Embolus long, thread-like, slightly curved, at base abruptly mesially. Narrow, highly translucent ‘conductor’ running pressed tightly against embolus and up to apex of it. No other accessories at base of embolus. Tibia, especially cymbium with short, thick and upstanding hairs.

Female. Unknown.

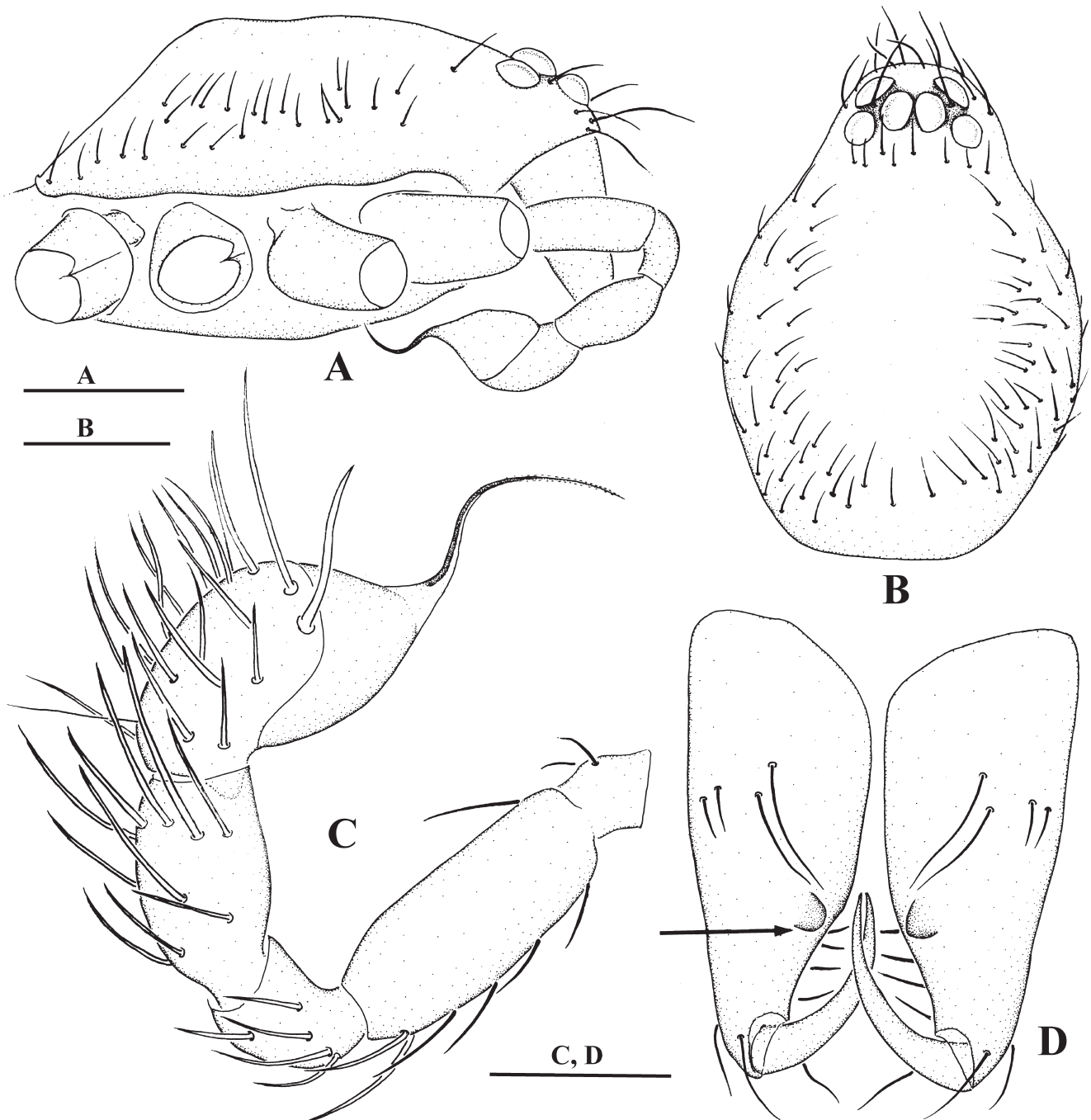


Fig. 6. *Oonopinus corneus*, new species: A, carapace of male, lateral view; B, carapace of male, dorsal view; C, left male palp, prolateral view; D, male chelicerae, posterior view (the arrow refers to the protuberance). Scales: A, B = 0.2 mm, C, D = 0.1 mm.

Etymology. – Specific name from the Greece “*corn-* = horn-shaped”, and refers to the cone-shaped protuberance on inner sides of posterior surface of chelicerae.

***Opopaea* Simon, 1891**

***Opopaea gibbifera*, new species**
(Fig. 7A–G)

Holotype. – Male (IZCAS), Mountain Wuzhishan (18°49'N 109°39'E), Wuzhishan City, Hainan Island, China, coll. Y. Song, X. Han and Y. Tong, 16 Apr.2005.

Paratypes. – 2 males, 9 females (IZCAS), same data as holotype.

Diagnosis. – The new species is similar to *Opopaea cornuta* Yin & Wang, 1984 (Yin & Wang, 1984), in having cone-shaped tubercles on posterior corners of carapace, but can be distinguished in male by the bulge on posterior part of sternum between coxae IV, the pointed projection on anterior end of endites, the slender palpal femur, the relatively longer palpal patella, and the long extension on the border of bulbus and embolus; in female by the presence of a small triangular parmula in genital area; and in both sexes by the finely longitudinal striae on sides of carapace.

Description. – **Male.** Reddish-brown species with yellowish-brown legs. Body length 1.39–1.42; carapace 0.61–0.67 length, 0.51–0.54 width; abdomen 0.84–0.89 length, 0.62–0.64 width. Posterior margin of carapace concaved; sides with finely longitudinal striae; dorsal area smooth with some mesially pointing hairs at lateral edges and pair of cone-shaped tubercles on posterior corners, one larger and one very small, both bearing up-standing long hairs. Eyes rather large, PLE relatively smaller; AME about half their diameter apart, touching posterior lateral eyes; posterior eyes in a slightly retro-curved row, touching each other. Height of clypeus about one and half diameters of AME. Sternum smooth, with distinguished radial furrows; posterior part between coxae IV strongly bulged, cone-shaped in lateral view. Anterior end of endites with a small, sharply pointed projection. Legs short, thick and spineless. Measurements of legs: I 1.26 (0.42, 0.22, 0.27, 0.22, 0.13); II 1.30 (0.44, 0.21, 0.27, 0.24, 0.14); III 1.10 (0.36, 0.17, 0.22, 0.21, 0.14); IV 1.54 (0.47, 0.24, 0.35, 0.29, 0.19). Leg formula: 4 > 1 = 2 > 3. Abdominal dorsal scutum oval-shaped, sparsely covered with short hairs. Lobes on anterolateral corners of petiolar tube distinct, ridges developed, but without forming a scutal cove; opercula small, oval-shaped. Sperm pore clearly discernible, transverse. Patella of palp significantly larger than cymbiobulbus; fenestra rather large; cymbiobulbus with a long extension on the border of bulbus and embolus.

Female. Body length 1.39–1.67; carapace 0.65–0.68 length, 0.52–0.56 width; abdomen 1.04–1.06 length, 0.76–0.79 width. Height of clypeus equal to or nearly shorter than one diameter of AME. Sternum without cone-shaped tubercle like in male. Endites without projections. Measurements of legs: I 1.33 (0.42, 0.24, 0.28, 0.25, 0.14); II 1.31 (0.42, 0.24, 0.27,

0.24, 0.14); III 1.09 (0.36, 0.18, 0.21, 0.21, 0.13); IV 1.57 (0.47, 0.24, 0.41, 0.28, 0.17). Postgynal depression of epigastric area shallow; parmula black, small.

Etymology. – Specific name from the Latin “*gibbifer* = with tuber”, in reference to the cone-shaped bulge on posterior part of sternum between coxae IV in male.

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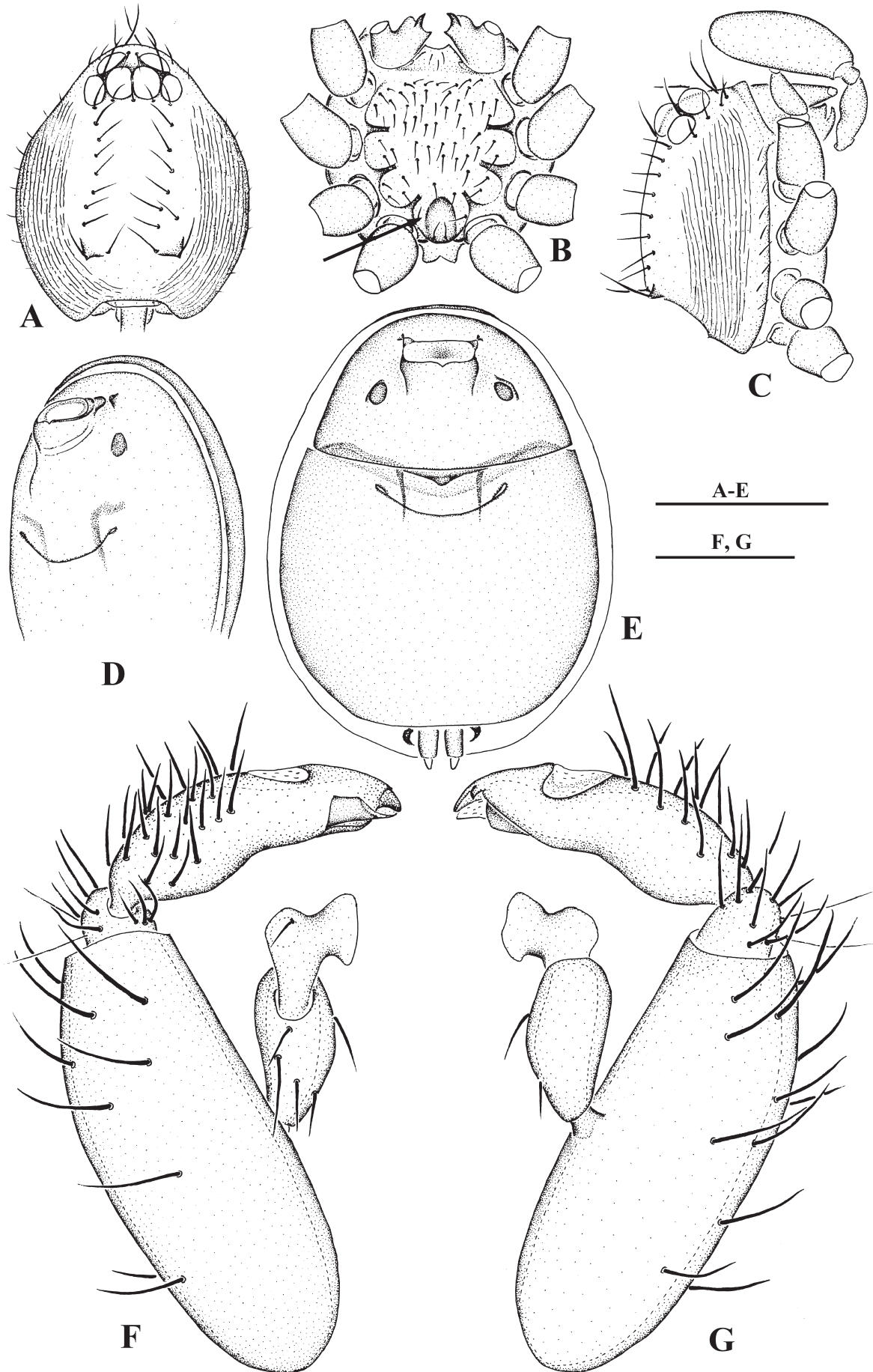


Fig. 7. *Opopaea gibbifera*, new species: A, carapace of male, dorsal view; B, sternum of male, ventral view (the arrow refers to the bulge between coxae IV); C, carapace of male, lateral view; D, anterior part of male abdomen, obliquely ventral view; E, abdomen of female, ventral view; F, left male palp, prolateral view; G, left male palp, retrolateral view. Scales: A-E = 0.4 mm, F, G = 0.1 mm.

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