



## Fifteen new species of the spider genus *Pholcus* (Araneae: Pholcidae) from Southeast Asia

TINGTING DONG<sup>1,2</sup>, GUO ZHENG<sup>1,4</sup>, ZHIYUAN YAO<sup>3</sup> & SHUQIANG LI<sup>2,3,4</sup>

<sup>1</sup>College of Life Science, Shenyang Normal University, Shenyang, Liaoning 110034, China

<sup>2</sup>Southeast Asia Biodiversity Research Institute, Chinese Academy of Sciences, Mengla, Yunnan 666303, China

<sup>3</sup>Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

<sup>4</sup>Corresponding authors. Guo Zheng, E-mail: zhengguo@synu.edu.cn; Shuqiang Li, E-mail: lisq@ioz.ac.cn

### Table of contents

Abstract .....	201
Introduction .....	202
Material and methods .....	202
Taxonomy .....	202
Family Pholcidae C.L. Koch, 1850 .....	202
Subfamily Pholcinae C.L. Koch, 1850 .....	202
Genus <i>Pholcus</i> Walckenaer, 1805 .....	202
<i>Pholcus bidentatus</i> species group .....	203
<i>Pholcus hinsonensis</i> Yao & Li <b>sp. nov.</b> .....	203
<i>Pholcus tharnlodensis</i> Yao & Li <b>sp. nov.</b> .....	203
<i>Pholcus ethagala</i> species group .....	208
<i>Pholcus kottawagamaensis</i> Yao & Li <b>sp. nov.</b> .....	208
<i>Pholcus gracillimus</i> species group .....	211
<i>Pholcus cenranaensis</i> Yao & Li <b>sp. nov.</b> .....	211
<i>Pholcus krachensis</i> Yao & Li <b>sp. nov.</b> .....	214
<i>Pholcus halabala</i> species group .....	214
<i>Pholcus anaiensis</i> Yao & Li <b>sp. nov.</b> .....	214
<i>Pholcus ballarini</i> Yao & Li <b>sp. nov.</b> .....	219
<i>Pholcus gou</i> Yao & Li <b>sp. nov.</b> .....	222
<i>Pholcus wan</i> Yao & Li <b>sp. nov.</b> .....	222
<i>Pholcus zhuchuandiani</i> Yao & Li <b>sp. nov.</b> .....	227
<i>Pholcus quinquenotatus</i> species group .....	230
<i>Pholcus Chiangmaiensis</i> Yao & Li <b>sp. nov.</b> .....	230
<i>Pholcus taptaoensis</i> Yao & Li <b>sp. nov.</b> .....	233
<i>Pholcus yichengicus</i> species group .....	233
<i>Pholcus kaebaiensis</i> Yao & Li <b>sp. nov.</b> .....	233
<i>Pholcus musensis</i> Yao & Li <b>sp. nov.</b> .....	238
<i>Pholcus songkhonensis</i> Yao & Li <b>sp. nov.</b> .....	241
Acknowledgments .....	241
References .....	245

### Abstract

Fifteen new species from six species groups of the genus *Pholcus* Walckenaer, 1805 are described from Southeast Asia: *Pholcus hinsonensis* **sp. nov.** (male & female, Thailand) and *P. tharnlodensis* **sp. nov.** (male & female, Thailand) from the *P. bidentatus* species group; *P. kottawagamaensis* **sp. nov.** (male & female, Sri Lanka) from the *P. ethagala* species group; *P. cenranaensis* **sp. nov.** (male & female, Indonesia) and *P. krachensis* **sp. nov.** (male, Thailand) from the *P. gracillimus* species group; *P. anaiensis* **sp. nov.** (male, Indonesia), *P. ballarini* **sp. nov.** (male & female, Thailand), *P. gou* **sp. nov.** (male & female, Myanmar), *P. wan* **sp. nov.** (male & female, Thailand) and *P. zhuchuandiani* **sp. nov.** (male & female, Indonesia) from the *P. halabala* species group; *P. Chiangmaiensis* **sp. nov.** (male & female, Thailand) and *P. taptaoensis*

**sp. nov.** (male & female, Thailand) from the *P. quinquenotatus* species group; *P. kaebiyaiensis* **sp. nov.** (male & female, Thailand), *P. musensis* **sp. nov.** (male & female, Thailand) and *P. songkhonensis* **sp. nov.** (male & female, Thailand) from the *P. yichengicus* species group.

**Key words:** taxonomy, morphology, biodiversity, pholcid, Pholcinae

## Introduction

Pholcidae C. L. Koch, 1850 is the ninth largest spider family (World Spider Catalog 2016) and has a worldwide distribution with most of the biodiversity concentrated in the tropics and subtropics (Huber 2003, 2005, 2011, 2015; Yao & Li 2012, 2013; Yao *et al.* 2015; Huber *et al.* 2016). Pholcid spiders occupy a wide range of habitats in a variety of ecosystems, e.g., in buildings, under rocks, in caves, in leaf litter and on underside of leaves (Huber 2005).

*Pholcus* Walckenaer, 1805, the largest genus of the family (World Spider Catalog 2016), is diagnosed by the following characters: male chelicerae usually with three pairs of apophyses; bulb usually with uncus and appendix; external genitalia usually strongly sclerotized and with ‘knob’ (Huber 2011). The genus contains 330 valid species (Huber *et al.* 2016; World Spider Catalog 2016), of which nearly one third are from China (Li & Wang 2016). Southeast Asia, as a biodiversity hotspot, only harbors 66 of those species (Huber *et al.* 2016; World Spider Catalog 2016), with *Pholcus quinquenotatus* Thorell, 1878 as the first described species from Indonesia. Most Southeast Asian species were recently described by Huber (2011), Huber *et al.* (2016), Yao and Li (2013), and Yao *et al.* (2014, 2015), from Laos, Vietnam, Philippines, Thailand, Malaysia, Sri Lanka, Singapore, Myanmar and Indonesia. In this paper, we describe 15 new species of the genus from six species groups: *P. halabala* species group, *P. ethagala* species group, *P. gracillimus* species group, *P. quinquenotatus* species group, *P. bidentatus* species group and *P. yichengicus* species group, collected in Sri Lanka, Myanmar, Thailand and Indonesia, bringing the total Southeast Asian *Pholcus* fauna to 81 species, of which Thailand has the highest diversity (24 species).

## Material and methods

Specimens were examined and measured with a LEICA M205 C stereomicroscope. Images were captured with an Olympus C7070 wide zoom digital camera (7.1 megapixels) mounted on an Olympus SZX12 dissecting microscope, and they were montaged using Helicon Focus 6.6.1 image stacking software (Khmelik *et al.* 2006). Male and female genitalia were examined and illustrated after dissection. External genitalia were previously treated in a 10% warm solution of potassium hydroxide (KOH). The left male pedipalps were typically studied (any exceptions are indicated in figure legends). All specimens were preserved in 75% ethanol. All measurements are given in millimeters. Leg measurements are shown as: total length (femur + patella + tibia + metatarsus + tarsus). Leg podomeres were measured on their dorsal side. The distribution map was generated with ArcView GIS 3.2. Terminology and taxonomic descriptions follow Huber (2011). The following abbreviations are used in the descriptions: ALE, anterior lateral eye; AME, anterior median eye; PME, posterior median eye, L/d = length/diameter.

Types of *Pholcus gou* **sp. nov.** and *P. kaebiyaiensis* **sp. nov.** are deposited in the Senckenberg Museum in Frankfurt (SMF), Germany (curator: Peter Jäger). Other material studied is deposited in the Institute of Zoology, Chinese Academy of Sciences (IZCAS) in Beijing, China (curator: Jun Chen).

## Taxonomy

### Family Pholcidae C.L. Koch, 1850

### Subfamily Pholcinae C.L. Koch, 1850

### Genus *Pholcus* Walckenaer, 1805

*Pholcus* Walckenaer 1805: 80. Simon 1893: 470. Huber 2000: 77. Huber 2001: 108. Zhang & Zhu 2009: 6. Huber 2011: 124. Type species: *Aranea phalangioides* Fuesslin, 1775 [= *Pholcus phalangioides* (Fuesslin, 1775)]

**Diagnosis and description.** See Huber (2011).

### *Pholcus bidentatus* species group

**Diagnosis and description.** See Huber (2011).

### *Pholcus hinsonensis* Yao & Li sp. nov.

Figs 1–2, 31C–D

**Type material. Holotype:** male, Tham (cave) Yan Sang Won (14°44.928'N, 101°01.740'E, elevation 130 m), Hin Son Village, Kaeng Koi District, **Saraburi, Thailand**, 19 October 2014, H. Zhao, Y. Li and Z. Chen leg.

**Paratypes:** 2 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

**Diagnosis.** This species resembles *P. tharnlodensis* sp. nov. (Figs 3–4) in having a similar procurus (Figs 1A–D) and female genitalia (Fig. 2A) but can be distinguished by short eye-stalks on the male ocular area (Fig. 31C), by the presence of frontal and distal apophyses on the male chelicerae (Fig. 2D), by the presence of a pointed apophysis distally on the uncus (Fig. 2C), and by the absence of hooks distally on the appendix (Fig. 2C).

**Description. Male (holotype):** Total length 5.51 (5.93 with clypeus), carapace 1.28 long, 1.36 wide, opisthosoma 4.23 long, 1.39 wide. Leg I: – (11.85 + 0.64 + 11.67 + – + –), leg II: 31.02 (8.40 + 0.63 + 7.76 + 13.14 + 1.09), leg III: 20.32 (6.09 + 0.56 + 4.81 + 7.95 + 0.91), leg IV: 26.26 (8.14 + 0.58 + 6.54 + 10.06 + 0.94); tibia I L/d: 93. Distance PME–PME 0.34; diameter PME 0.12; distance PME–ALE 0.05; distance AME–AME 0.03; diameter AME 0.08. Sternum wider than long (0.89/0.67). Habitus as in Figs 2E–F. Carapace yellowish, with brown marks posteriorly and marginally; ocular area yellowish; sternum yellowish, with radiating marks. Legs yellowish, patellae, distal parts of femora and tibiae, and proximal parts of metatarsus dark brown, subdistal parts of femora and tibiae whitish, darker rings absent. Opisthosoma yellowish, with brown spots dorsally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk, with small median projection between PME (Fig. 31C). Thoracic furrow absent. Chelicerae as in Fig. 2D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, each with two teeth, and a pair of inconspicuous frontal apophyses. Pedipalps as in Figs 1A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis proximally; procurus simple, presence of a ventral membranous process and a prolatero-dorsal spine (arrow in Fig. 1A); uncus with scales; appendix broad and with scales; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 6.5%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

**Female:** Similar to male, habitus as in Figs 2G–H. Total length 6.05 (6.15 with clypeus), carapace 1.50 long, 1.66 wide, opisthosoma 4.55 long, 1.32 wide; tibia I: 10.90; tibia I L/d: 63. Distance PME–PME 0.26; diameter PME 0.12; distance PME–ALE 0.05; distance AME–AME 0.05; diameter AME 0.08. Sternum wider than long (0.98/0.78). Ocular area without eye-stalks and median projections between PME (Fig. 31D). External genitalia (Fig. 2A) with a small knob. Vulva (Fig. 2B) with a sclerotized anterior arch and two oval pore plates.

**Distribution.** Thailand (Saraburi, type locality; Fig. 32).

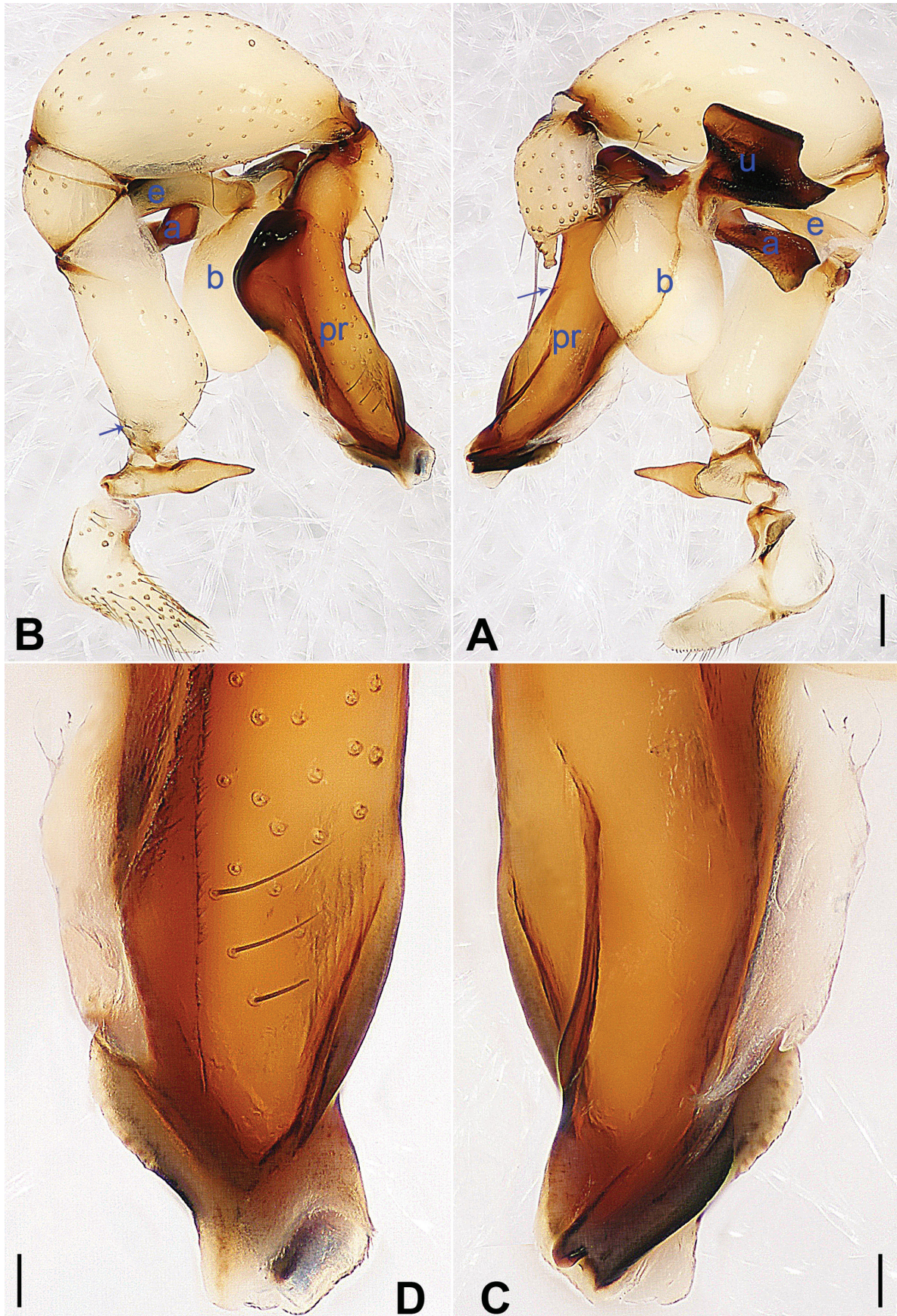
**Natural history.** The species was found in the entrance zone of the cave.

### *Pholcus tharnlodensis* Yao & Li sp. nov.

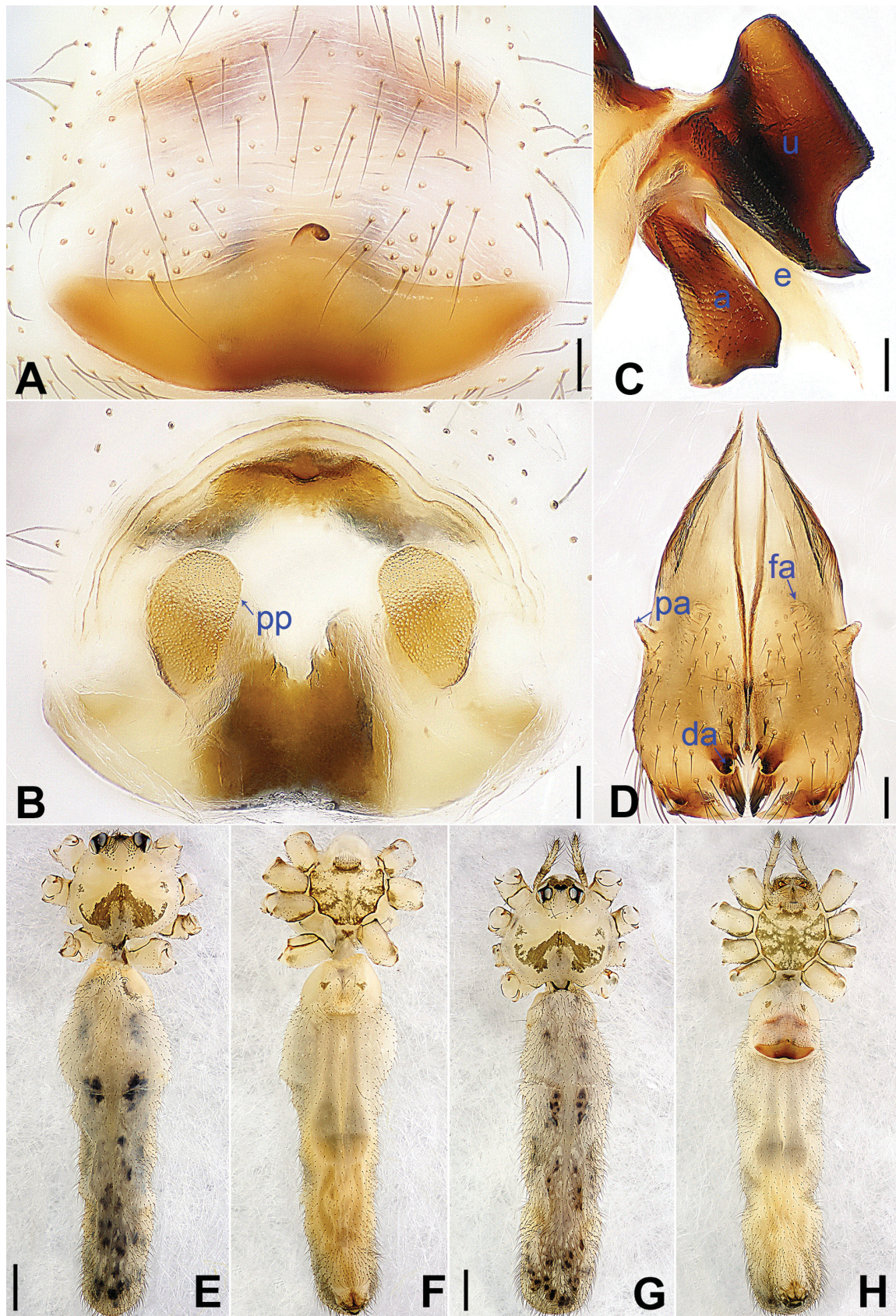
Figs 3–4, 31A–B

**Type material. Holotype:** male, Tharn Lod Cave (08°31.183'N, 98°33.915'E, elevation 116 m), Tham Thong Lang, Tap pud District, **Phang Nga, Thailand**, 27 October 2014, H. Zhao, Y. Li and Z. Chen leg. **Paratypes:** 1 male and 2 females, same data as holotype.

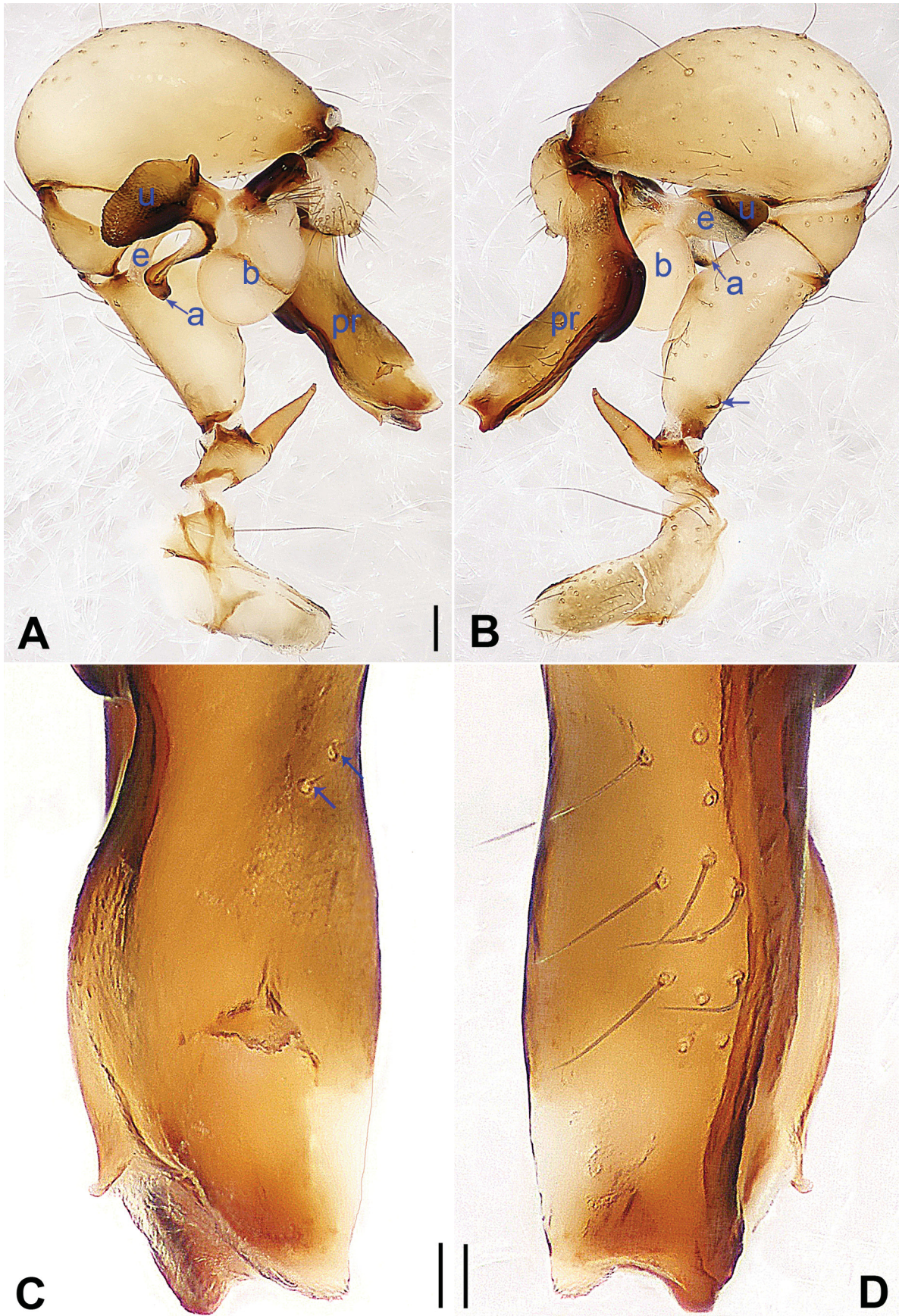
**Etymology.** The specific name refers to the type locality; adjective.



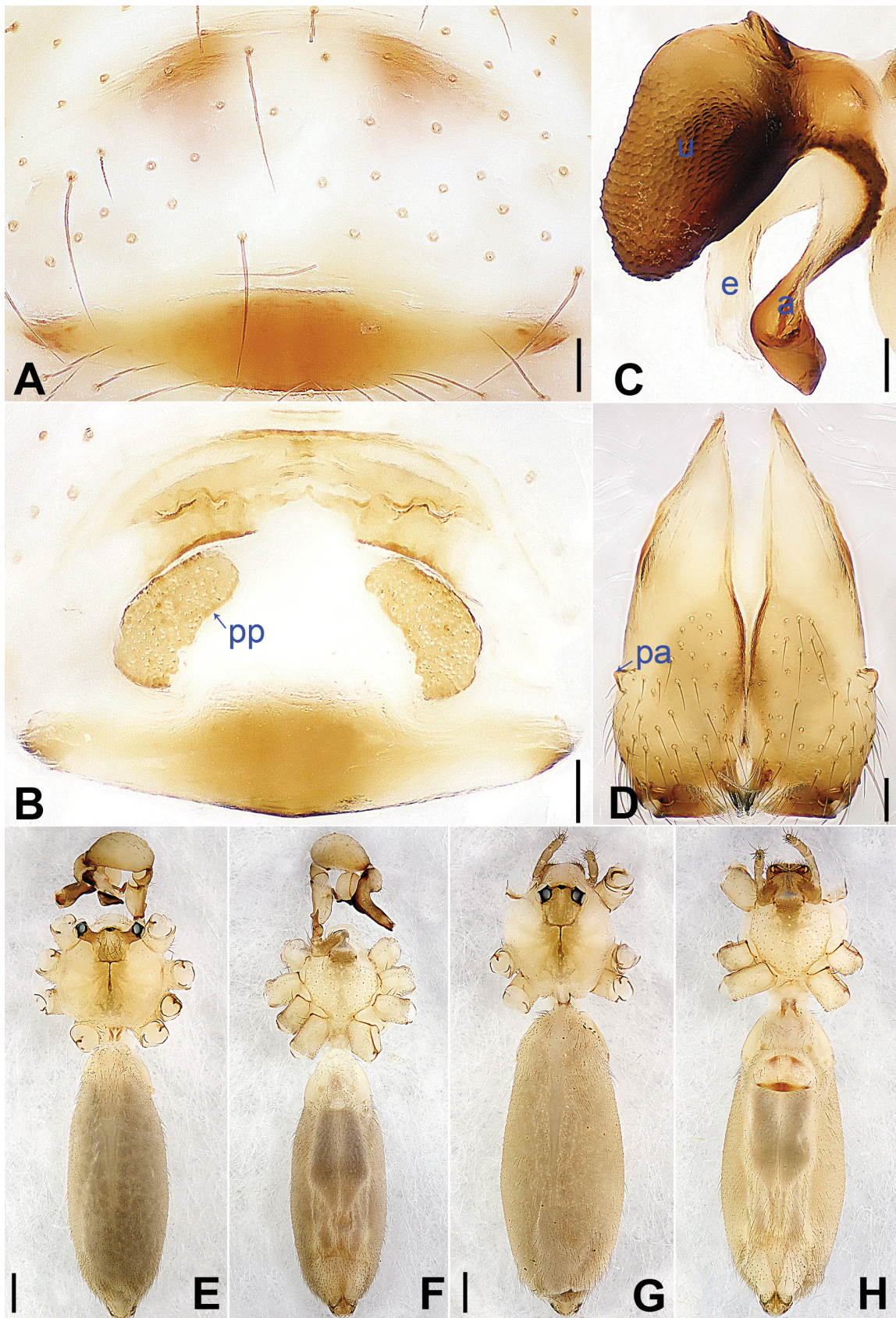
**FIGURE 1.** *Pholcus hinsonensis* sp. nov., holotype male. A–B. Right pedipalp (A. Prolateral view, arrow points at prolatero-dorsal spine; B. Retrolateral view, arrow points at dorsal apophysis); C–D. Distal part of procursus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procursus, u = uncus. Scale bars: 0.20 (A–B), 0.05 (C–D).



**FIGURE 2.** *Pholcus hinsonensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (A–D), 0.60 (E–H).



**FIGURE 3.** *Pholcus tharnlodensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view, arrow points at dorsal apophysis); C–D. Distal part of procurus (C. Prolateral view, arrows point at prolatero-dorsal spines; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.20 (A–B), 0.05 (C–D).



**FIGURE 4.** *Pholcus tharnlodensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, e = embolus, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.07 (A–C), 0.10 (D), 0.50 (E–H).

**Diagnosis.** This species resembles *P. hinsonensis* **sp. nov.** (Figs 1–2) in having a similar procurus (Figs 3A–D) and female genitalia (Fig. 4A) but can be distinguished by long eye-stalks on the male ocular area (Fig. 31A), by the absence of frontal and distal apophyses on the male chelicerae (Fig. 4D), by a distally blunt uncus (Fig. 4C), and by a distally hooked appendix (Fig. 4C).

**Description. Male (holotype):** Total length 4.89 (5.26 with clypeus), carapace 1.33 long, 1.48 wide, opisthosoma 3.56 long, 1.33 wide. Leg I: 54.64 (12.82 + 0.75 + 13.46 + 25.13 + 2.48), leg II: 36.08 (9.29 + 0.64 + 9.29 + 15.26 + 1.60), leg III: 23.45 (6.54 + 0.67 + 5.83 + 9.23 + 1.18), leg IV: 30.56 (8.72 + 0.69 + 7.63 + 12.12 + 1.40); tibia I L/d: 96. Distance PME-PME 0.63; diameter PME 0.11; distance PME-ALE 0.03; distance AME-AME 0.02; diameter AME 0.03. Sternum wider than long (1.02/0.88). Habitus as in Figs 4E–F. Carapace yellowish, with yellow marks extending to ocular area; ocular area yellowish; clypeus yellowish; sternum yellowish. Legs yellowish, distal parts of femora and tibiae whitish, darker rings absent. Opisthosoma yellowish, with indistinct spots dorsally. Ocular area elevated; each eye triad on top of a long, laterally directed eye-stalk (Fig. 31A). Thoracic furrow absent. Chelicerae as in Fig. 4D, with pair of unsclerotized apophyses proximolaterally. Pedipalps as in Figs 3A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis proximally; procurus simple, with two prolatero-dorsal spines distally (arrows in Fig. 3C), and a hooked ventral apophysis distally; uncus with scales; appendix hooked; embolus weakly sclerotized, with some transparent projections distally. Retrolateral trichobothrium of tibia I at 6.3%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately eight distinct pseudosegments.

**Female:** Similar to male, habitus as in Figs 4G–H. Total length 5.26 (5.71 with clypeus), carapace 1.42 long, 1.36 wide, opisthosoma 3.84 long, 1.52 wide; tibia I: 15.06; tibia I L/d: 48. Distance PME-PME 0.28; diameter PME 0.11; distance PME-ALE 0.03; distance AME-AME 0.02; diameter AME 0.03. Sternum wider than long (1.01/0.96). Ocular area without eye-stalks (Fig. 31B). External genitalia (Fig. 4A) without knob. Vulva (Fig. 4B) with a sclerotized anterior arch and two oval pore plates.

**Distribution.** Thailand (Phang Nga, type locality; Fig. 32).

**Natural history.** The species was found in the aphotic zone inside the cave.

### *Pholcus ethagala* species group

**Diagnosis and description.** See Huber (2011).

### *Pholcus kottawagamaensis* Yao & Li **sp. nov.**

Figs 5–6

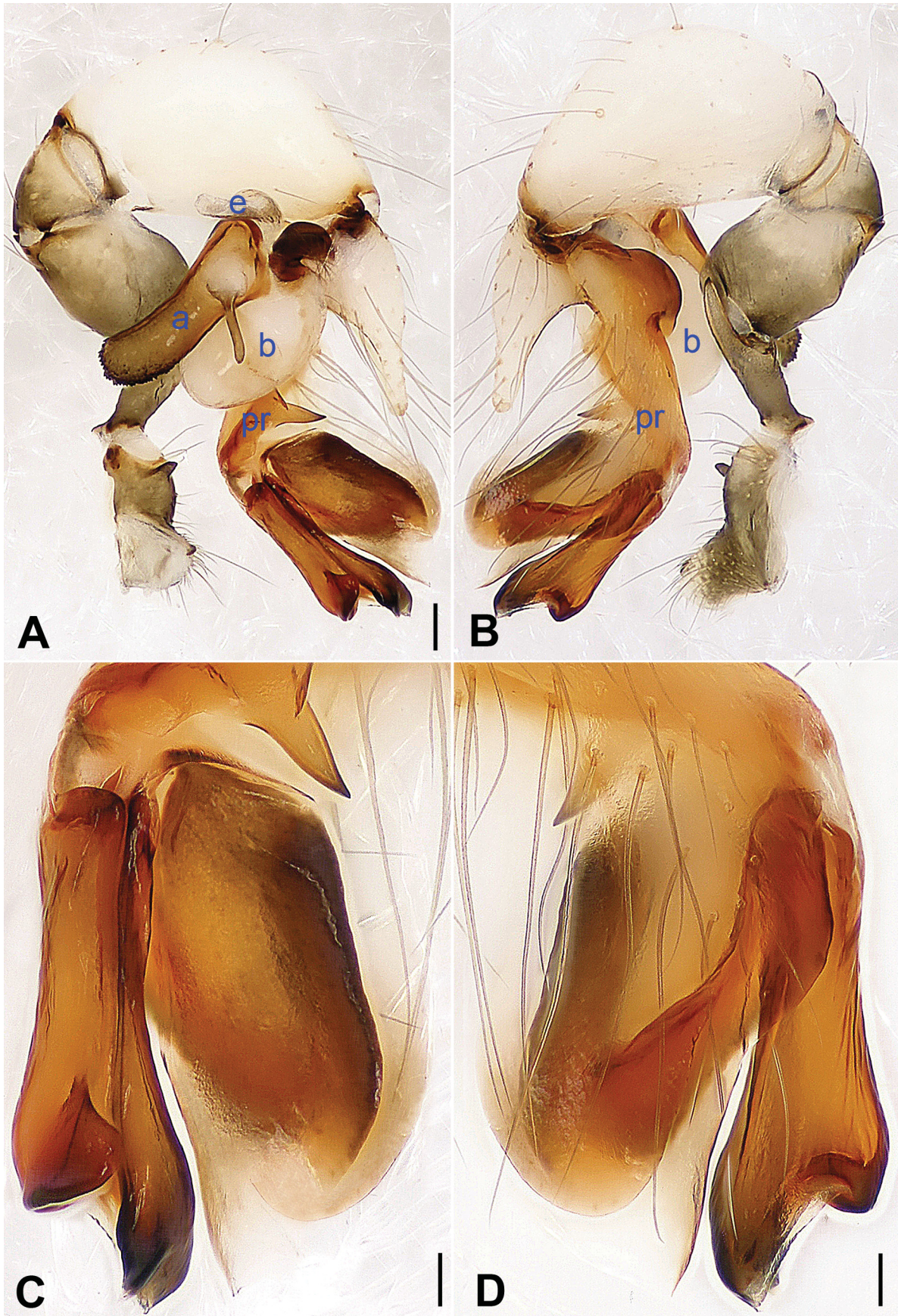
**Type material. Holotype:** male, Kottawagama Village (06°05.822'N, 80°18.560'E, elevation 63 m), Yabballamulla, Galle District, **Sri Lanka**, 14 October 2014, Z. Yao and Q. Zhao leg. **Paratypes:** 1 male and 3 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

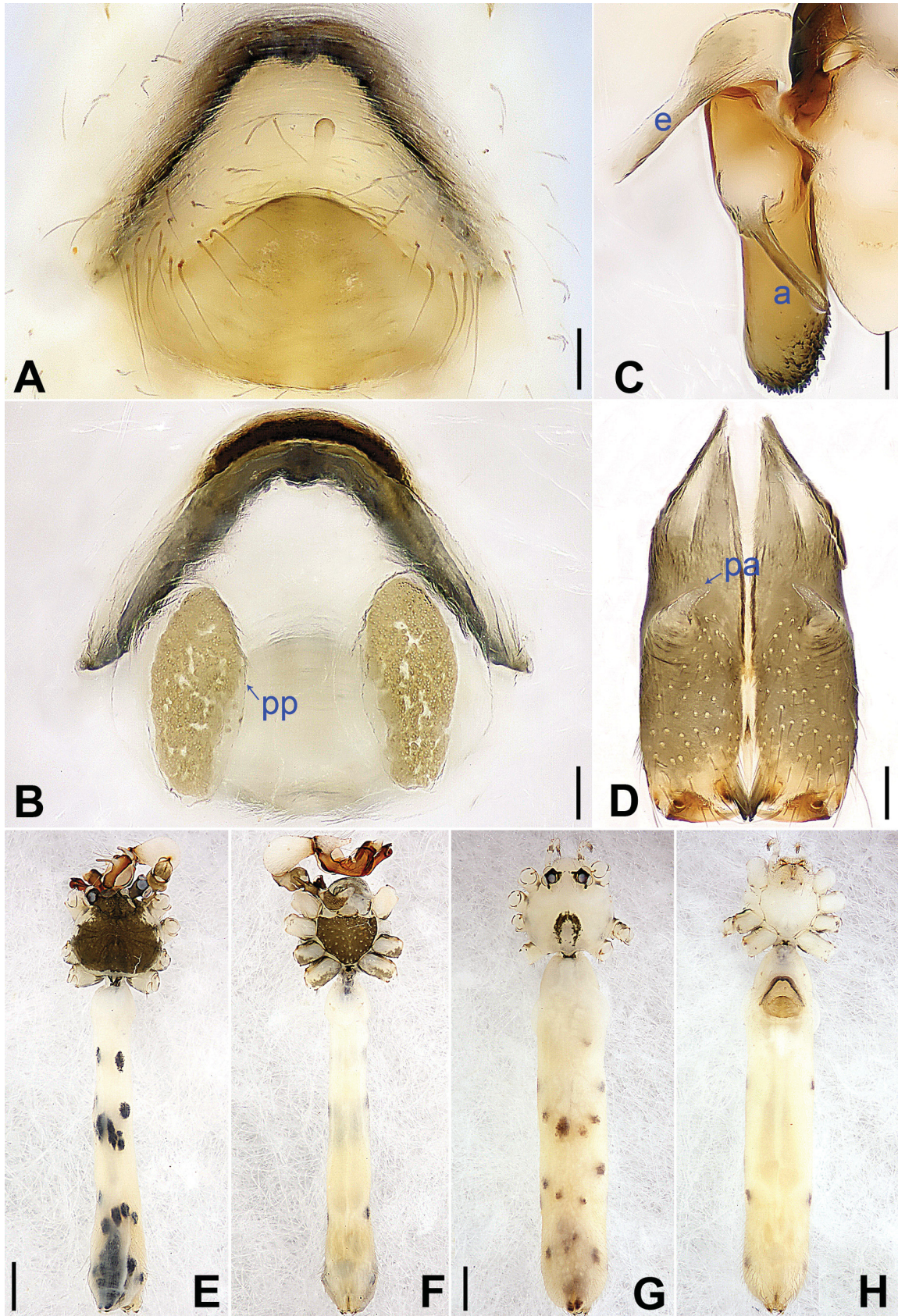
**Diagnosis.** This species resembles *P. maturata* Huber, 2011 (see Huber 2011: 177, figs 745–748, 777–778, 805–808) in having a similar procurus (Figs 5A–B) and female genitalia (Fig. 6A) but can be distinguished by the relatively long proximo-lateral apophyses on the male chelicerae (Fig. 6D) and by the presence of a slender subproximal apophysis and the absence of subdistal apophyses on appendix (Fig. 6C).

**Description. Male (holotype):** Total length 4.42 (4.55 with clypeus), carapace 0.81 long, 0.98 wide, opisthosoma 3.44 long, 0.65 wide. Leg I: 49.96 (11.54 + 0.48 + 10.64 + 24.74 + 2.56), leg II: 30.53 (7.37 + 0.44 + 7.69 + 13.78 + 1.25), leg III: 14.83 (4.23 + 0.39 + 3.68 + 5.71 + 0.82), leg IV missing; tibia I L/d: 97. Distance PME-PME 0.09; diameter PME 0.13; distance PME-ALE 0.04; AME absent. Sternum wider than long (0.64/0.52). Habitus as in Figs 6E–F. Carapace dark brown, ocular area dark brown; sternum dark brown. Legs yellowish, patellae, distal part of tibiae, and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma yellowish, with dark grey spots dorsally and laterally. Ocular area elevated; each eye triad on top of a long, laterally directed eye-stalk (as in *P. tharnlodensis* **sp. nov.**, cf. Fig. 31A), with small median conical projection in place of AME. Thoracic furrow absent. Chelicerae as in Fig. 6D, with a pair of unsclerotized





**FIGURE 5.** *Pholcus kottawagamaensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus. Scale bars: 0.10 (A–B), 0.05 (C–D).



**FIGURE 6.** *Pholcus kottawagamaensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, e = embolus, pa = proximo-lateral apophysis, pp = pore plate. Scale bars: 0.08 (A–D), 0.50 (E–H).

proximo-lateral apophyses slightly curved inwards. Pedipalps as in Figs 5A–B; coxa with a small retrolatero-ventral apophysis; trochanter with a long ventral apophysis; femur widened proximally; procurus simple proximally but complex distally; appendix with small apophyses distally and a slender branch subproximally; embolus weakly sclerotized; no uncus. Retrolateral trichobothrium of tibia I at 2.9%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately seven distinct pseudosegments.

**Female:** Similar to male, habitus as in Figs 6G–H. Total length 5.21 (5.45 with clypeus), carapace 1.00 long, 1.06 wide, opisthosoma 4.21 long, 0.83 wide; tibia I: 8.85; tibia I L/d: 60. Distance PME-PME 0.26; diameter PME 0.10; distance PME-ALE 0.05; AME absent. Sternum wider than long (0.70/0.56). Carapace yellowish, with brown U-pattern posteriorly, ocular area yellowish; sternum yellowish. Opisthosoma yellowish. Ocular area without eye-stalks and median projections. External genitalia (Fig. 6A) with a long knob. Vulva (Fig. 6B) with a sclerotized anterior arch and two oval pore plates.

Distribution. Sri Lanka (Galle, type locality; Fig. 32).

**Natural history.** The species was found on the underside of leaves.

### *Pholcus gracillimus* species group

**Diagnosis and description.** See Huber (2011).

### *Pholcus cenranaensis* Yao & Li sp. nov.

Figs 7–8

**Type material. Holotype:** male, Cave without a name (04°56.322'S, 119°50.364'E, elevation 356 m), Benteng Orchard, Cenrana Village, Maros, **South Sulawesi, Indonesia**, 23 August 2014, H. Zhao and Z. Yao leg.

**Paratypes:** 2 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

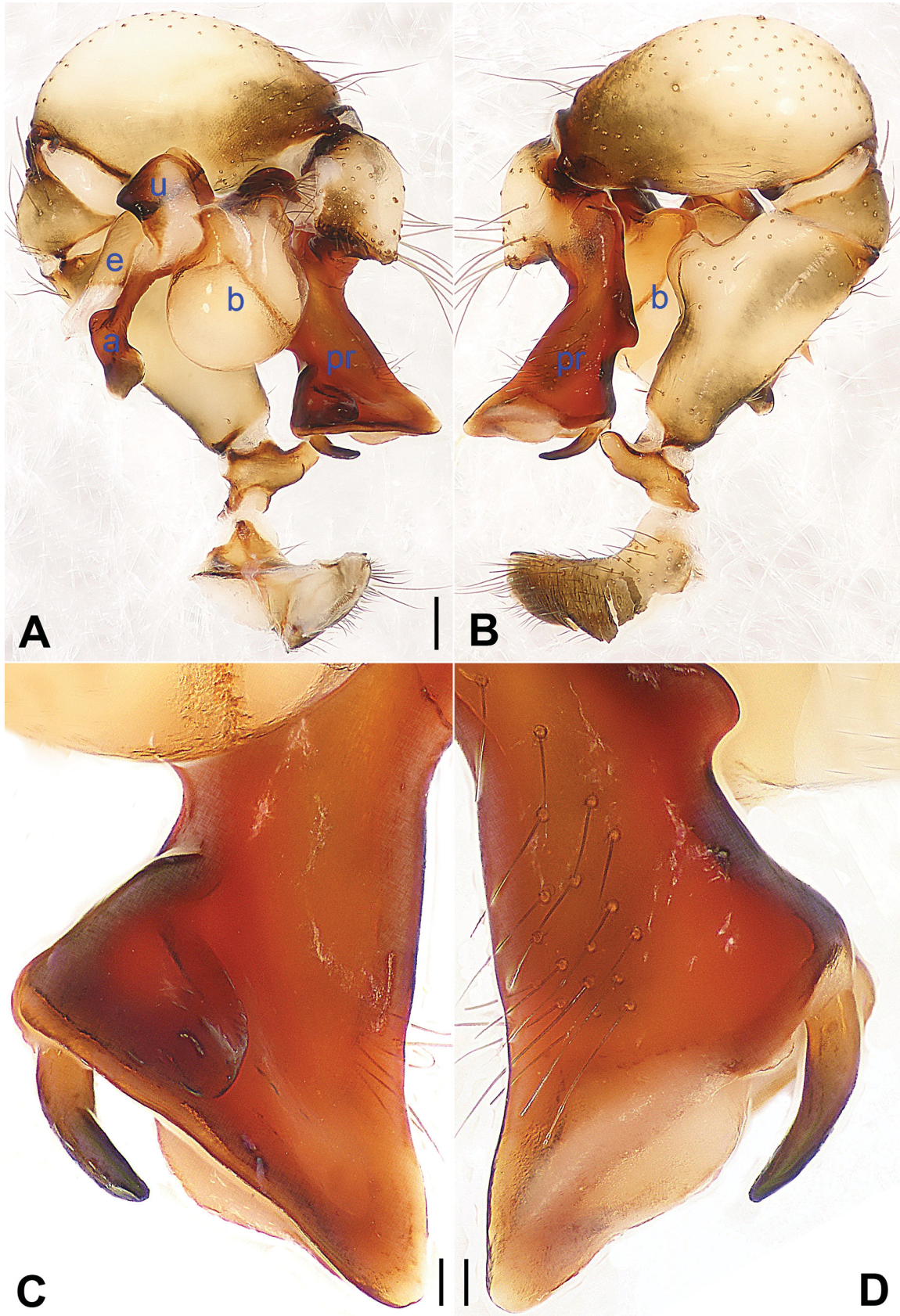
**Diagnosis.** This species resembles *P. camba* Huber, 2011 (see Huber 2011: 287, figs 1367, 1369–1370, 1400–1401, 1435–1439) in having similar male chelicerae (Fig. 8D), appendix (Fig. 8C), and vulva (Fig. 8B) but can be distinguished by the absence of pointed proximal apophyses on the uncus (Fig. 8C), by the dorsally straight procurus (Figs 7C–D), and by the absence of knobs on the female external genitalia (Fig. 7A).

**Description. Male (holotype):** Total length 8.32 (8.65 with clypeus), carapace 1.91 long, 2.09 wide, opisthosoma 6.41 long, 1.44 wide. Leg I: – (19.23 + 1.01 + 19.68 + – + –), leg II: – (12.95 + 0.96 + 12.82 + 20.64 + –), leg III: 32.02 (9.42 + 0.81 + 8.01 + 12.18 + 1.60), leg IV: 44.56 (12.82 + 0.91 + 11.03 + 17.56 + 2.24); tibia I L/d: 94. Distance PME-PME 0.63; diameter PME 0.18; distance PME-ALE 0.06; distance AME-AME 0.09; diameter AME 0.09. Sternum wider than long (1.35/0.15). Habitus as in Figs 8E–F. Carapace yellowish, with broad brown marks extending to ocular area; ocular area brown; clypeus yellowish, with brownish marks; sternum brown. Legs brown, distal parts of femora and tibiae whitish, darker rings absent. Opisthosoma pale grey, with broad brown bands medially. Ocular area elevated; each eye triad on top of a long, laterally directed eye-stalk (as in *P. tharnlodensis* sp. nov., cf. Fig. 31A). Thoracic furrow absent. Chelicerae as in Fig. 8D, with a pair of proximo-lateral apophyses. Pedipalps as in Figs 7A–B; trochanter with a short ventral apophysis; procurus large and simple, with a spine-like process distally; uncus small; appendix hooked; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 4.4%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

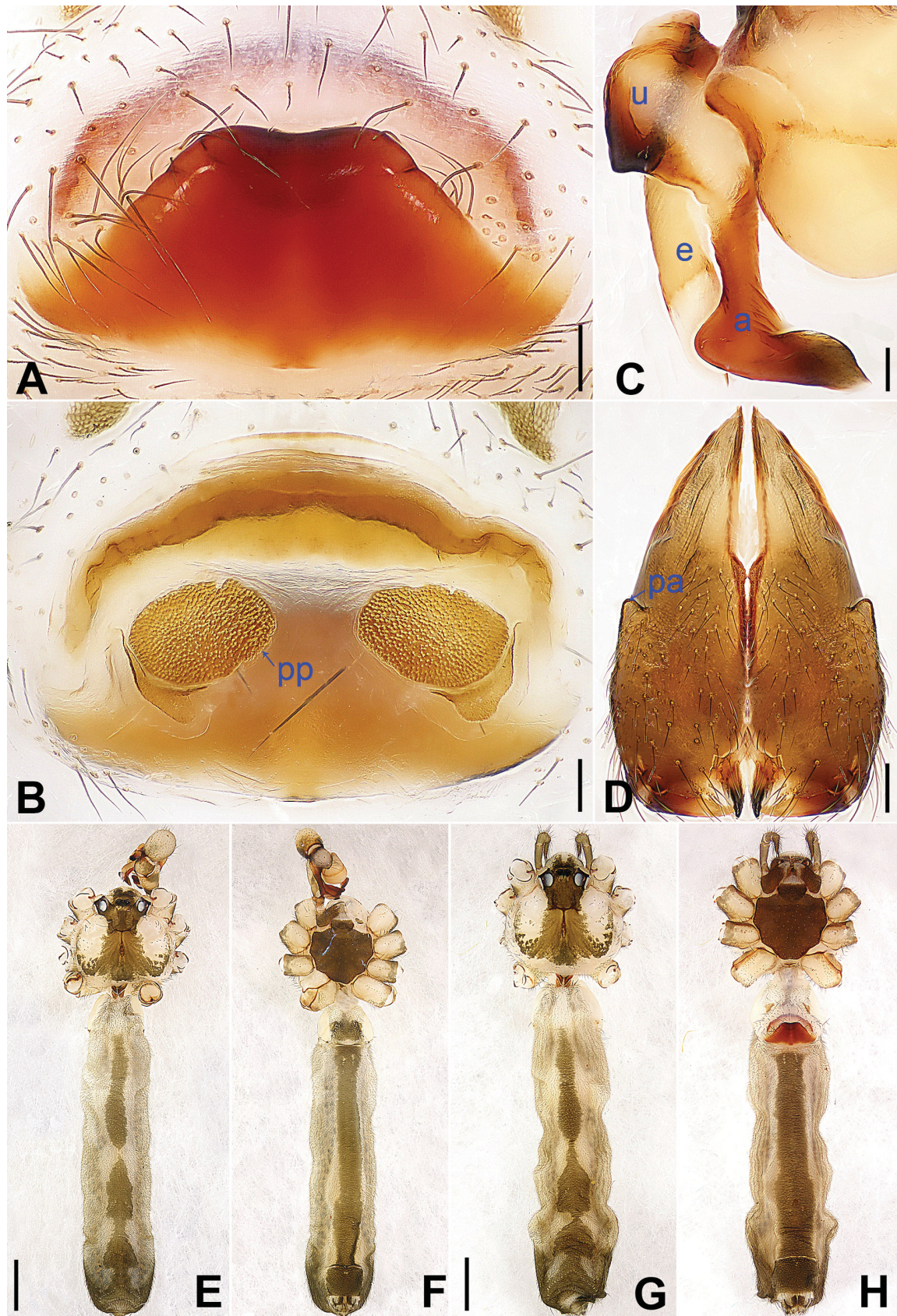
**Female:** Similar to male, habitus as in Figs 8G–H. Total length 7.53 (7.92 with clypeus), carapace 1.82 long, 2.09 wide, opisthosoma 5.71 long, 1.62 wide; tibia I: 15.45; tibia I L/d: 74. Distance PME-PME 0.39; diameter PME 0.18; distance PME-ALE 0.05; distance AME-AME 0.06; diameter AME 0.08. Sternum wider than long (1.26/1.13). Ocular area without eye-stalks. External genitalia (Fig. 8A) without knob. Vulva (Fig. 8B) with a sclerotized anterior arch and two elliptic pore plates.

**Distribution.** Indonesia (South Sulawesi, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.



**FIGURE 7.** *Pholcus cenranaensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.20 (A–B), 0.05 (C–D).



**FIGURE 8.** *Pholcus cenranaensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, e = embolus, pa = proximo-lateral apophysis, pp = pore plate, u = unculus. Scale bars: 0.10 (A–C), 0.15 (D), 1.00 (E–H).

***Pholcus krachensis* Yao & Li sp. nov.**

Figs 9–10

**Type material. Holotype:** male, Cave without a name (14°11.400'N, 99°01.555'E, elevation 334 m), Wang Krach, Sai Yok District, **Kanchanaburi, Thailand**, 2 November 2014, H. Zhao, Y. Li and Z. Chen leg. **Paratype:** 1 male, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

**Diagnosis.** This species resembles *P. negara* Huber, 2011 (see Huber 2011: 285, figs 1361–1363, 1396–1397, 1425–1429) and *P. ruteng* Huber, 2011 (see Huber 2011: 287, figs 1364–1366, 1398–1399, 1430–1434) in having a similar uncus (Fig. 10A) and appendix (Fig. 10A), but can be distinguished by the presence of frontal apophyses on the male chelicerae (Fig. 10B), by a slender ventral apophysis on pedipalpal trochanter (Figs 9A–B), by the indistinct dorsal apophysis subdistally on the procurus (arrows in Figs 9A, C), and by the presence of a long subdistal branch on the appendix (arrow in Fig. 10A).

**Description. Male (holotype):** Total length 7.16 (7.44 with clypeus), carapace 1.65 long, 1.58 wide, opisthosoma 5.51 long, 1.24 wide. Leg I: 69.36 (17.24 + 0.83 + 16.92 + 31.09 + 3.28), leg II: 45.87 (12.31 + 0.83 + 11.60 + 18.91 + 2.22), leg III: 31.02 (9.29 + 0.75 + 7.50 + 11.92 + 1.56), leg IV: 39.25 (11.47 + 0.75 + 9.62 + 15.38 + 2.03); tibia I L/d: 90. Distance PME-PME 0.42; diameter PME 0.13; distance PME-ALE 0.03; distance AME-AME 0.05; diameter AME 0.05. Sternum wider than long (1.17/1.03). Habitus as in Figs 10E–G. Carapace yellowish, with brown radiating marks extending to ocular area; ocular area yellowish, with two symmetric brown patches retrolaterally; sternum dark brown. Legs yellowish, distal parts of femora and tibiae whitish, darker rings absent. Opisthosoma pale grey, with brown and dark brown marks peripherally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. hinsonensis* sp. nov., cf. Fig. 31C). Thoracic furrow absent. Chelicerae as in Fig. 10B, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, each with two teeth, and a pair of small, inconspicuous frontal apophyses. Pedipalps as in Figs 9A–B; trochanter with a slender ventral apophysis; femur with a distinct ventral modification; procurus simple proximally but complex distally; uncus with a scaly edge; appendix hooked, with a long subdistal branch; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 3.3%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 15 distinct pseudosegments.

**Female:** Unknown.

**Distribution.** Thailand (Kanchanaburi, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.

***Pholcus halabala* species group**

**Diagnosis and description.** See Huber (2011) and Huber *et al.* (2016).

***Pholcus anaiensis* Yao & Li sp. nov.**

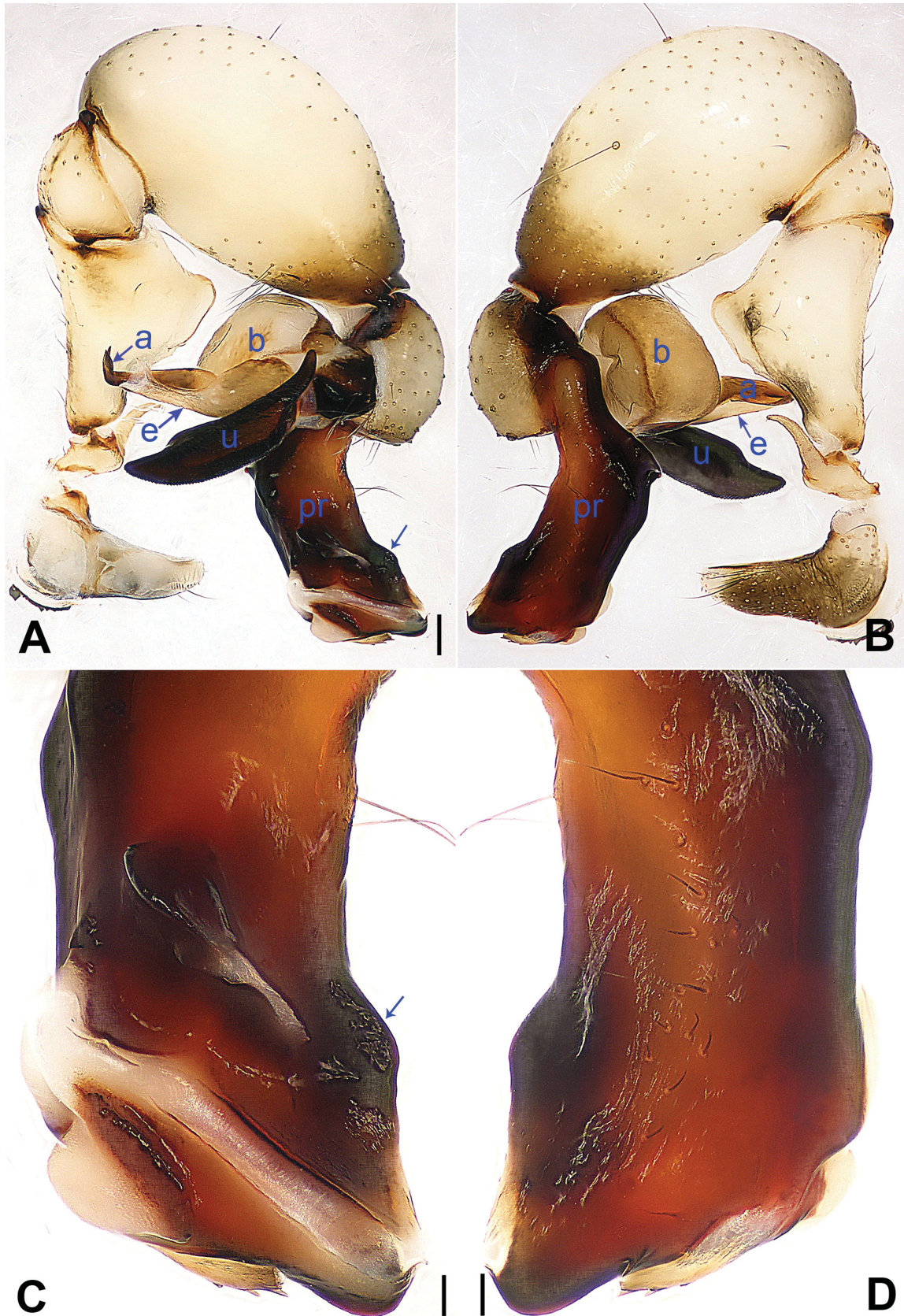
Figs 11–12

**Type material. Holotype:** male, near waterfall (00°29.303'S, 100°20.375'E, elevation 385 m), Anai, Mountain Singalang, Padangpanjang, **West Sumatra, Sumatra, Indonesia**, 10 May 2014, Z. Yao leg.

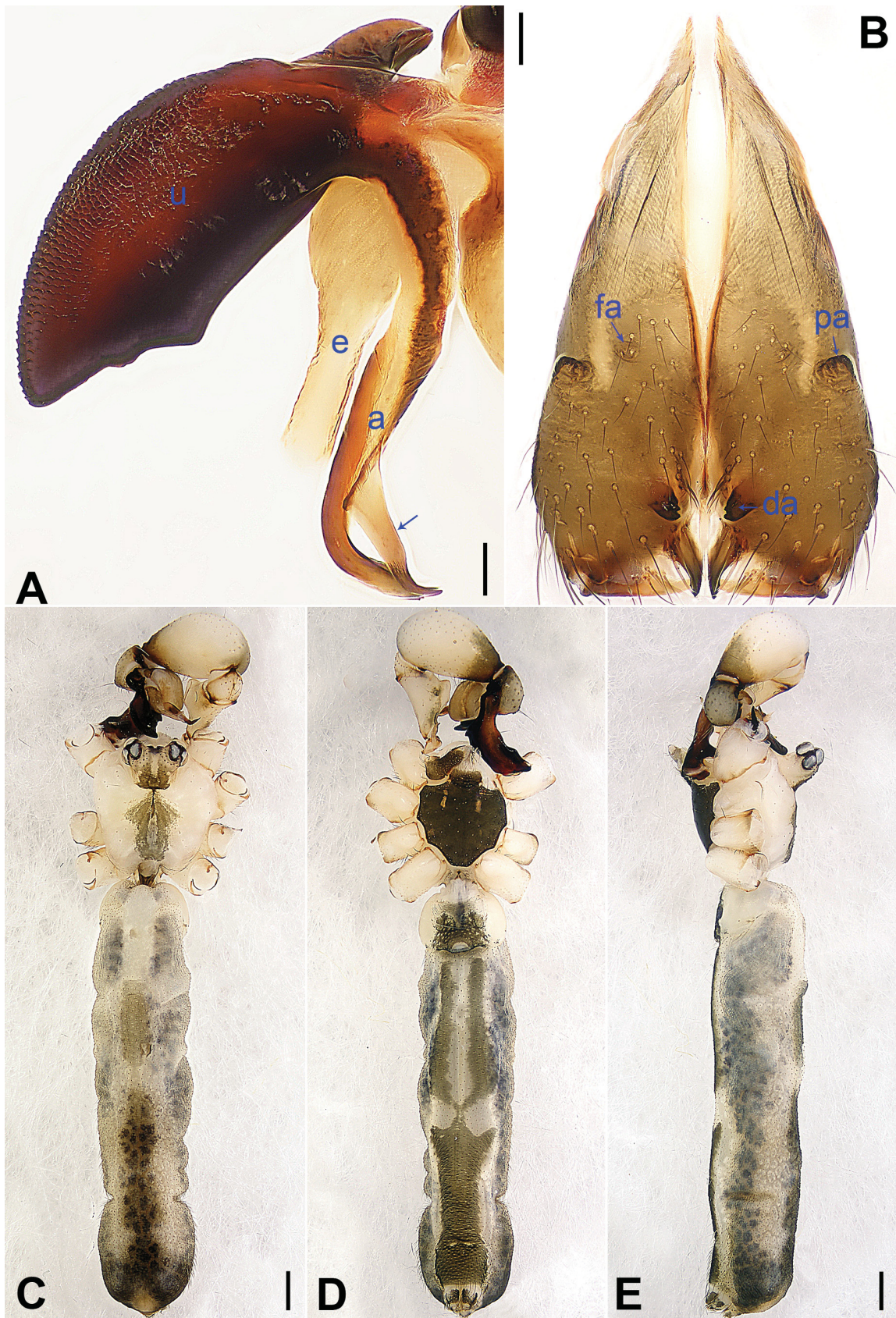
**Etymology.** The specific name refers to the type locality; adjective.

**Diagnosis.** This species resembles *P. halabala* Huber, 2011 (see Huber 2011: 128, figs 495–496, 517–518, 530–535), *P. sepaku* Huber, 2011 (see Huber 2011: 131, fig. 536), *P. lintang* Huber, 2016 (see Huber *et al.* 2016: 13, figs 11–12, 34–38, 93–95), and *P. zhuchuandiani* sp. nov. (Figs 19–20) in having similar male chelicerae (Fig. 12B) and a similar uncus (Fig. 12A) but can be distinguished by the distally pointed appendix (Fig. 12A) and by the presence of a small, pointed dorsal flap medially on the procurus (arrow in Fig. 11C).

**Description. Male (holotype):** Total length 3.99 (2.29 with clypeus), carapace 1.02 long, 1.06 wide, opisthosoma 2.97 long, 0.76 wide. Leg I and leg II missing, leg III: – (4.49 + 0.46 + 3.85 + 4.74 + –), leg IV: 22.39 (6.73 + 0.45 + 5.13 + 9.10 + 0.98). Distance PME-PME 0.36; diameter PME 0.08; distance PME-ALE 0.05; distance AME-AME 0.08; diameter AME 0.05. Sternum wider than long (0.80/0.65). Habitus as in Figs 12E–G.

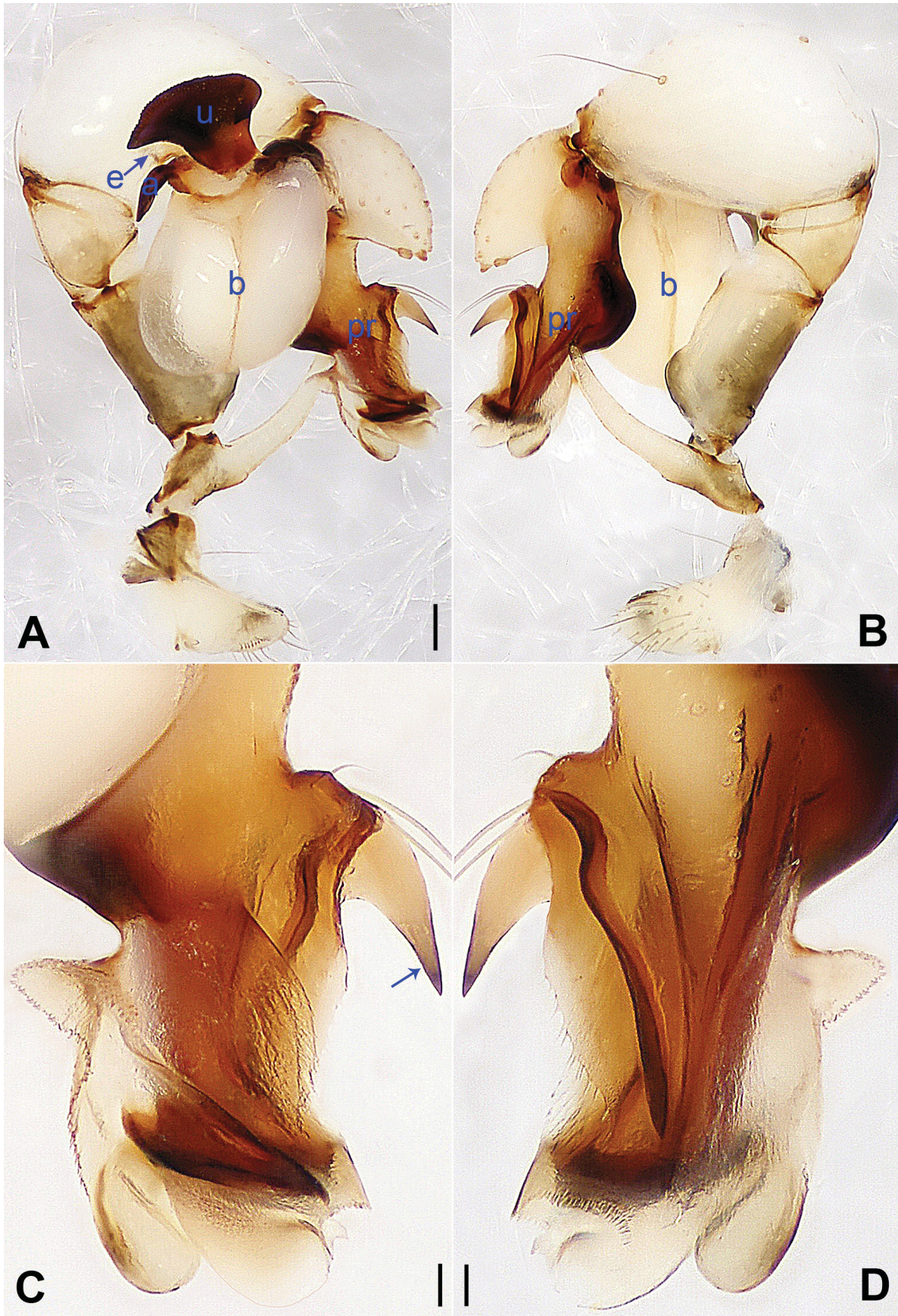


**FIGURE 9.** *Pholcus krachensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view, arrow points at indistinct dorsal apophysis subdistally on procurus; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrow points at indistinct dorsal apophysis subdistally on procurus; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = unculus. Scale bars: 0.15 (A–B), 0.05 (C–D).

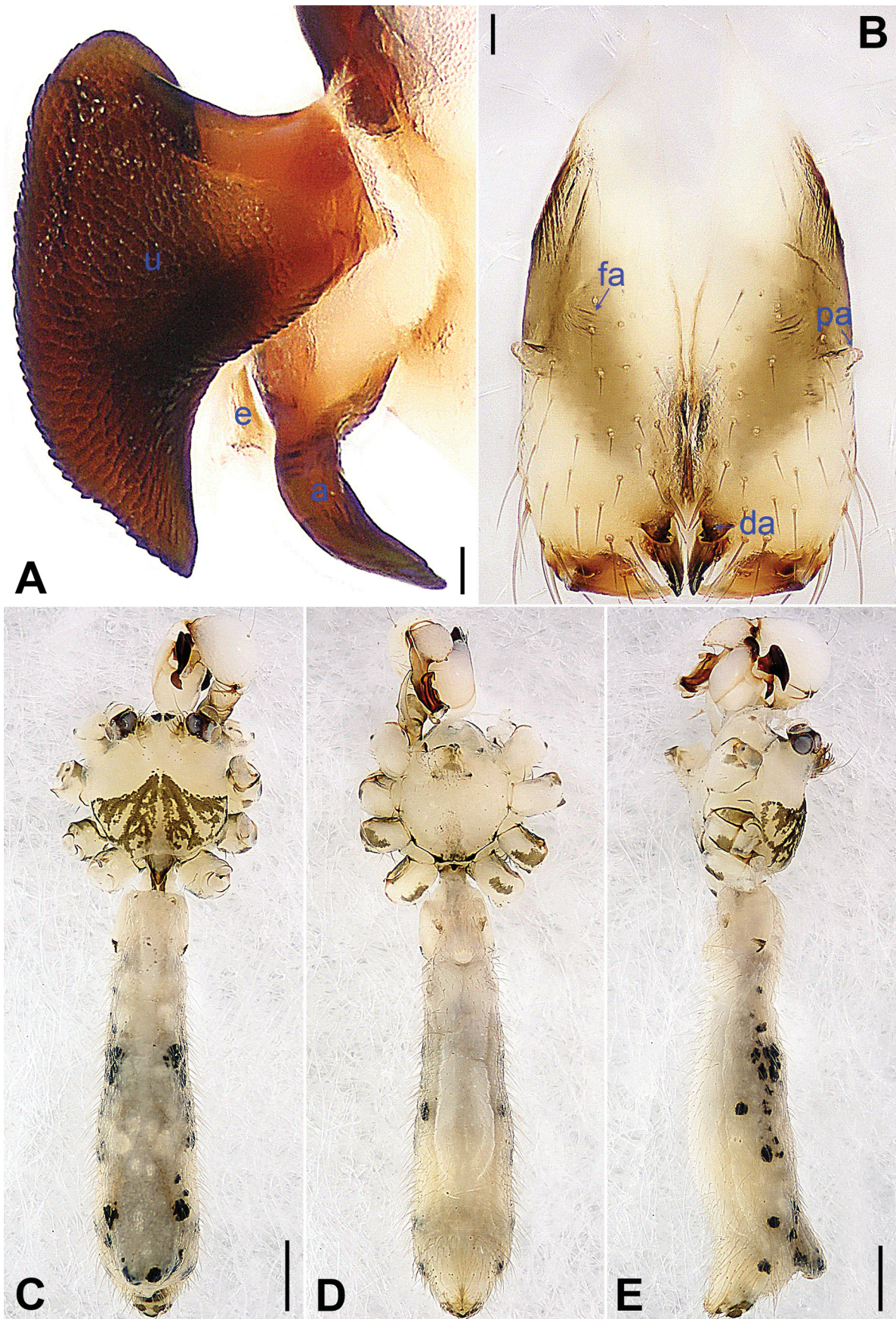


**FIGURE 10.** *Pholcus krachensis* sp. nov., holotype male. A. Bulbal apophyses, prolateral view, arrow points at long subdistal branch; B. Chelicerae, frontal view; C–E. Habitus (C. Dorsal view; D. Ventral view; E. Lateral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, u = uncus. Scale bars: 0.08 (A), 0.10 (B), 1.00 (C–E).





**FIGURE 11.** *Pholcus anaiensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrow points at pointed dorsal flap medially on procurus; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.03 (C–D).



**FIGURE 12.** *Pholcus anaiensis* sp. nov., holotype male. A. Bulbal apophyses, prolateral view; B. Chelicerae, frontal view; C–E. Habitus (C. Dorsal view; D. Ventral view; E. Lateral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, u = uncus. Scale bars: 0.03 (A), 0.05 (B), 0.50 (C–E).

Carapace yellowish, with brown radiating marks; ocular area yellowish; sternum yellowish, with little brown spots retrolaterally. Legs yellowish, patellae dark yellow, distal parts of tibiae and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma pale grey, with dark brown spots laterally and whitish spots dorsally, elongate abdomen that is pointed dorso-posteriorly. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk, with a bunch of short macrosetae between PME (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 12B, with a pair of proximo-lateral apophyses, a pair of black distal apophyses with two teeth each, and a pair of indistinct frontal apophyses. Pedipalps as in Figs 11A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis proximally; procurus simple proximally but complex distally, with a small, pointed dorsal flap medially; uncus with scales; appendix pointed distally (Fig. 12A), embolus weakly sclerotized. Legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

**Female:** Unknown.

**Distribution.** Indonesia (West Sumatra, type locality; Fig. 32).

**Natural history.** The species was found on the underside of leaves.

### *Pholcus ballarini* Yao & Li **sp. nov.**

Figs 13–14

**Type material. Holotype:** male, Cave without a name (07°03.692'N, 99°50.666'E, elevation 38 m), Thung wa District, **Satun, Thailand**, 1 December 2013, F. Ballarin leg. **Paratypes:** 1 male and 2 females, same data as holotype.

**Etymology.** The specific name is a patronym in honor of the collector F. Ballarin; noun (name) in genitive case.

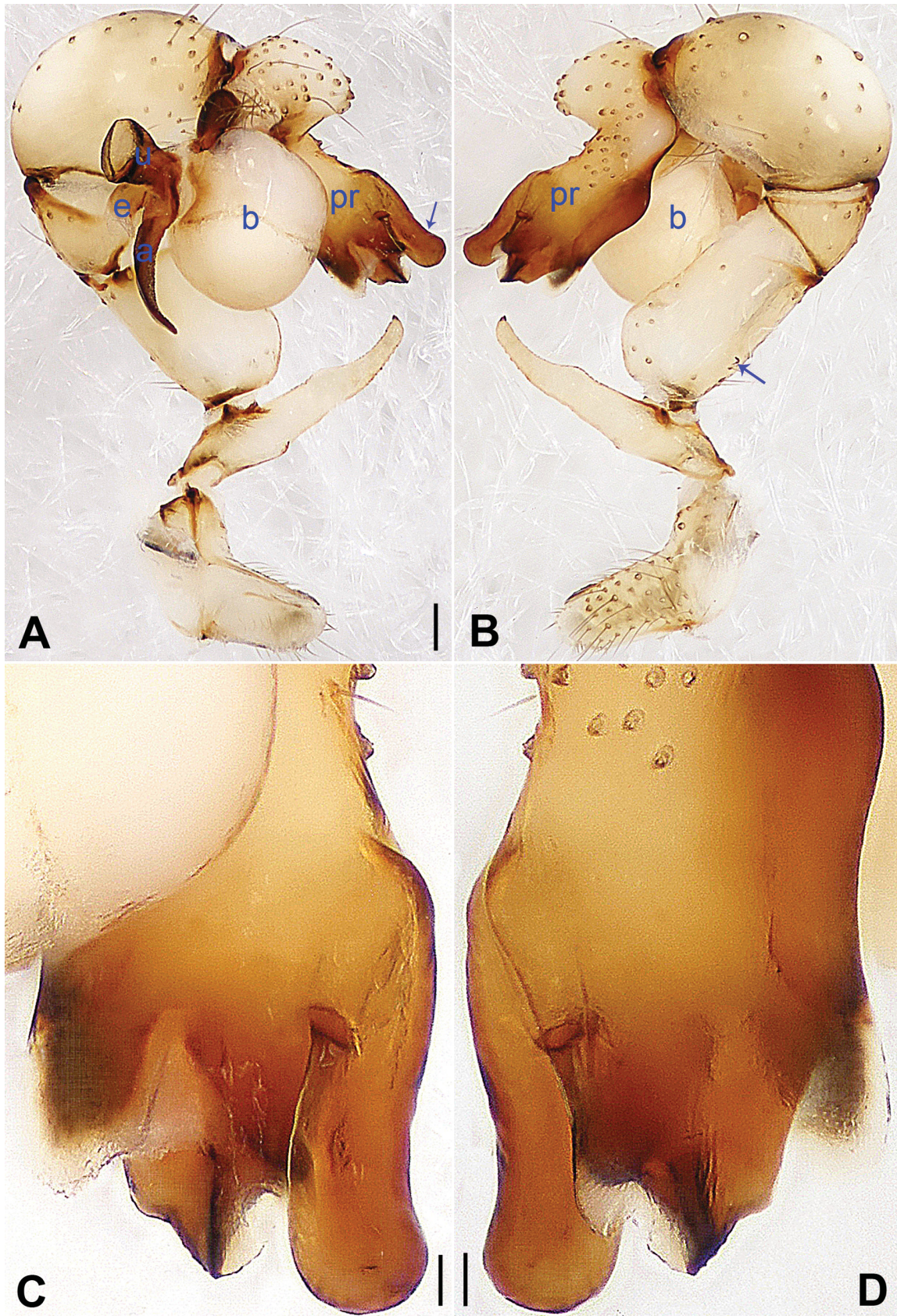
**Diagnosis.** The species resembles *P. kuhapimuk* Huber, 2016 (see Huber *et al.* 2016: 17, figs 49–51, 58–62, 96–98), in having a similar uncus (Fig. 14C), appendix (Fig. 14C), and female genitalia (Figs 14A–B) but can be easily distinguished by the presence of a large, blunt dorsal flap subdistally on the procurus (arrow in Fig. 13A) and by the absence of sclerotized ventral apophyses subproximally on the procurus (Fig. 13B).

**Description. Male (holotype):** Total length 3.83 (4.09 with clypeus), carapace 1.14 long, 1.25 wide, opisthosoma 2.69 long, 0.94 wide. Leg I, leg II and leg III missing, leg IV: 28.15 (8.33 + 0.52 + 6.54 + 11.67 + 1.09). Distance PME-PME 0.28; diameter PME 0.11; distance PME-ALE 0.06; distance AME-AME 0.03; diameter AME 0.07. Sternum wider than long (0.84/0.66). Habitus as in Figs 4E–F. Carapace yellowish, with brown marks; sternum yellowish, with brown marks posteriorly, ocular area yellowish. Legs yellowish, patellae, distal parts of tibiae and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma pale brown dorsally, yellowish ventrally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 14D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, each with two teeth, and a pair of indistinct frontal apophyses. Pedipalps as in Figs 13A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis retrolaterally; procurus simple proximally but complex distally, with a large, blunt dorsal flap subdistally (arrow in Fig. 13A); uncus sclerotized proximally but membranous distally; appendix curved with scales; embolus sclerotized, with some transparent projections distally. Legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

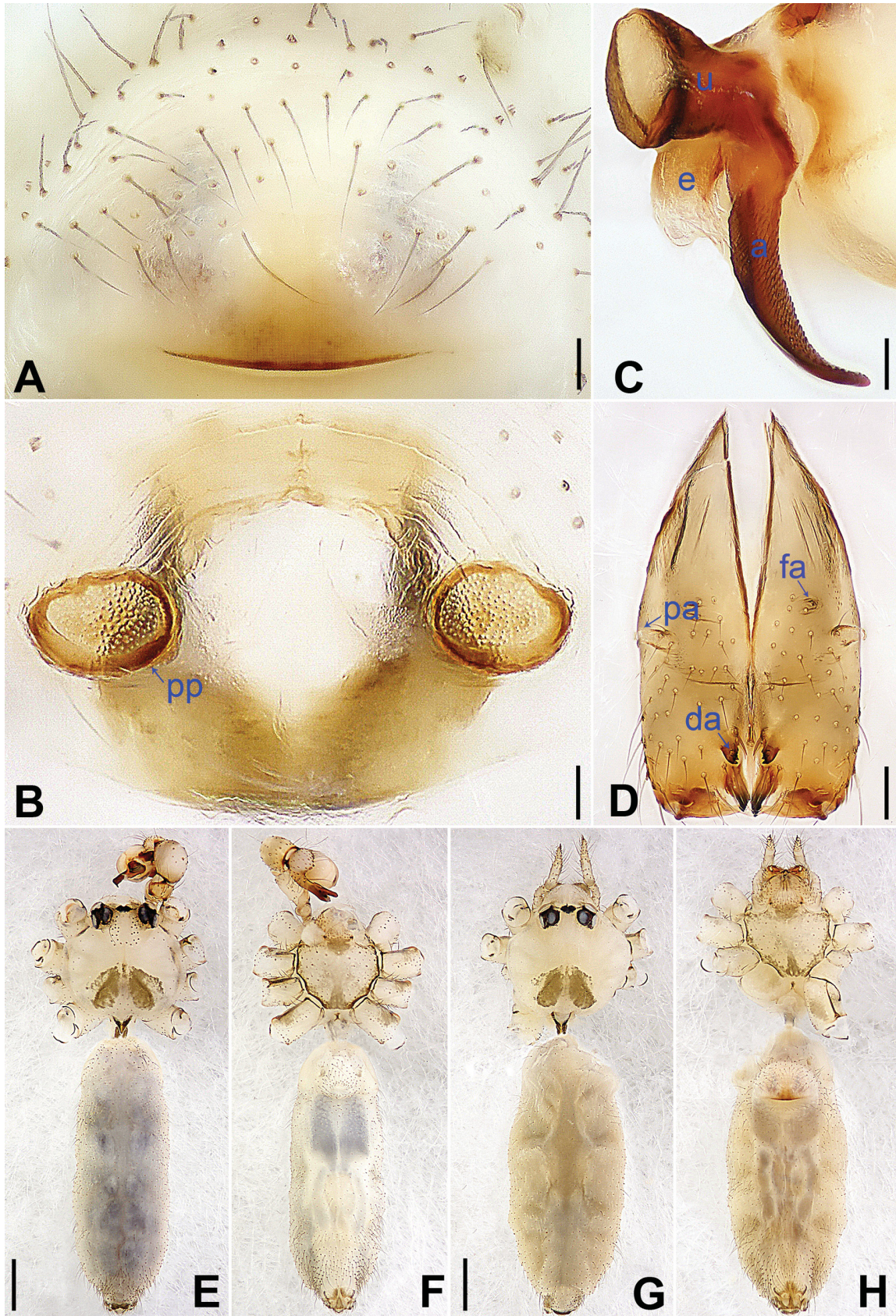
**Female:** Similar to male, habitus as in Figs 14G–H. Total length 3.68 (3.92 with clypeus), carapace 1.09 long, 1.16 wide, opisthosoma 2.59 long, 1.09 wide; leg I missing in all females. Distance PME-PME 0.22; diameter PME 0.09; distance PME-ALE 0.04; distance AME-AME 0.03; diameter AME 0.06. Ocular area without eye-stalks. Sternum wider than long (0.75/0.63). External genitalia (Fig. 14A) with a long, weakly sclerotized knob. Vulva (Fig. 14B) with a sclerotized anterior arch and two nearly rounded pore plates.

**Distribution.** Thailand (Satun, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.



**FIGURE 13.** *Pholcus ballarini* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view, arrow points at large, blunt dorsal flap on procurus; B. Retrolateral view, arrow points at indistinct retrolatero-dorsal apophysis); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.03 (C–D).



**FIGURE 14.** *Pholcus ballarini* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.05 (A–C), 0.10 (D), 0.50 (E–H).

***Pholcus gou* Yao & Li sp. nov.**

Figs 15–16

**Type material. Holotype:** male, above Kampetlet, below Mountain Oasis Resort (21°11.727'N, 94°02.018'E, elevation 1585 m), **South Chin State, Myanmar**, 17 May 2014, P. Jäger leg. **Paratype:** 1 female, same data as holotype.

**Etymology.** The specific name is from the Chinese pinyin for hook (gōu), in reference to the shape of procurus distally; noun.

**Diagnosis.** This species resembles *P. pyu* Huber, 2011 (see Huber 2011: 142, figs 505–507, 523–524, 574–579) in having similar male chelicerae (Fig. 16D), uncus (Fig. 16C) and female external genitalia (Fig. 16A) but can be distinguished by the presence of a sclerotized apophysis distally and a membranous dorsal process subdistally on the procurus (arrows in Fig. 15C) and by the large pore plates on the vulva (Fig. 16B).

**Description. Male (holotype):** Total length 4.76 (5.00 with clypeus), carapace 1.08 long, 1.06 wide, opisthosoma 3.68 long, 0.96 wide. Leg I: 38.44 (9.36 + 0.48 + 9.74 + 717.50 + 1.36), leg II: 25.5 (6.84 + 0.46 + 6.47 + 10.77 + 0.96), leg III: 14.63 (4.36 + 0.42 + 3.64 + 5.51 + 0.70), leg IV: 21.87 (6.72 + 0.41 + 5.32 + 8.46 + 0.96); tibia I L/d: 97. Distance PME-PME 0.32; diameter PME 0.08; distance PME-ALE 0.04; distance AME-AME 0.03; diameter AME 0.05. Sternum wider than long (0.71/0.65). Habitus as in Figs 16E–F. Carapace yellowish, with nearly triangular brown marks posteriorly; ocular area brownish, with a median brown band; sternum yellowish. Legs yellowish, patellae, distal parts of femora and tibiae, and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma pale grey, with dark brown spots dorsally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. zhuchuandiani* sp. nov., cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 16D, with a pair of proximo-lateral apophyses; a pair of dark brown distal apophyses with two teeth each. Pedipalps as in Figs 15A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis proximally; procurus with a sclerotized apophysis distally and a membranous dorsal process subdistally; bulb without uncus; appendix complex with four apophyses (arrows in Fig. 16C, one of them only visible in retrolateral view); embolus short, weakly sclerotized. Retrolateral trichobothrium of tibia I at 2.8%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 13 distinct pseudosegments.

**Female:** Similar to male, habitus as in Figs 16G–H. Total length 4.97 (5.17 with clypeus), carapace 0.97 long, 0.94 wide, opisthosoma 4.00 long, 1.03 wide; tibia I: 6.09; tibia I L/d: 61. Distance PME-PME 0.23; diameter PME 0.07; distance PME-ALE 0.03; distance AME-AME 0.03; diameter AME 0.03. Sternum wider than long (0.67/0.56). Carapace with brown V-pattern posteriorly and brown marks marginally. Ocular area yellowish, without eye-stalks. External genitalia (Fig. 16A) with a small indistinct knob. Vulva (Fig. 16B) with a sclerotized anterior arch and two nearly elliptic pore plates.

**Distribution.** Myanmar (South Chin State, type locality; Fig. 32).

**Natural history.** The species was found in secondary forest along stream.

***Pholcus wan* Yao & Li sp. nov.**

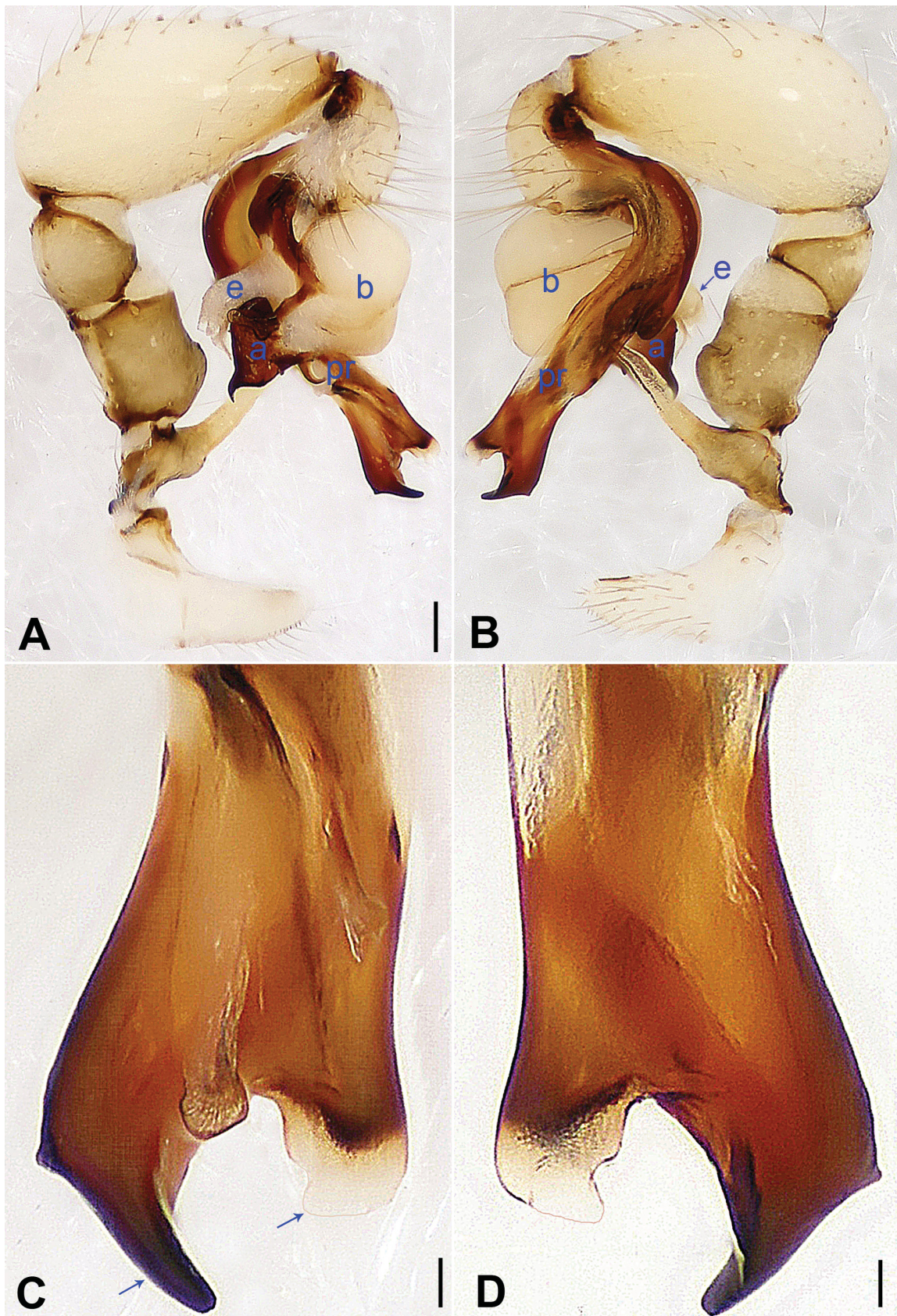
Figs 17–18

**Type material. Holotype:** male, Cave without a name (06°59.395'N, 99°48.393'E, elevation 50 m), La-ngu District, **Satun, Thailand**, 4 December 2013, F. Ballarin leg. **Paratypes:** 2 females, same data as holotype.

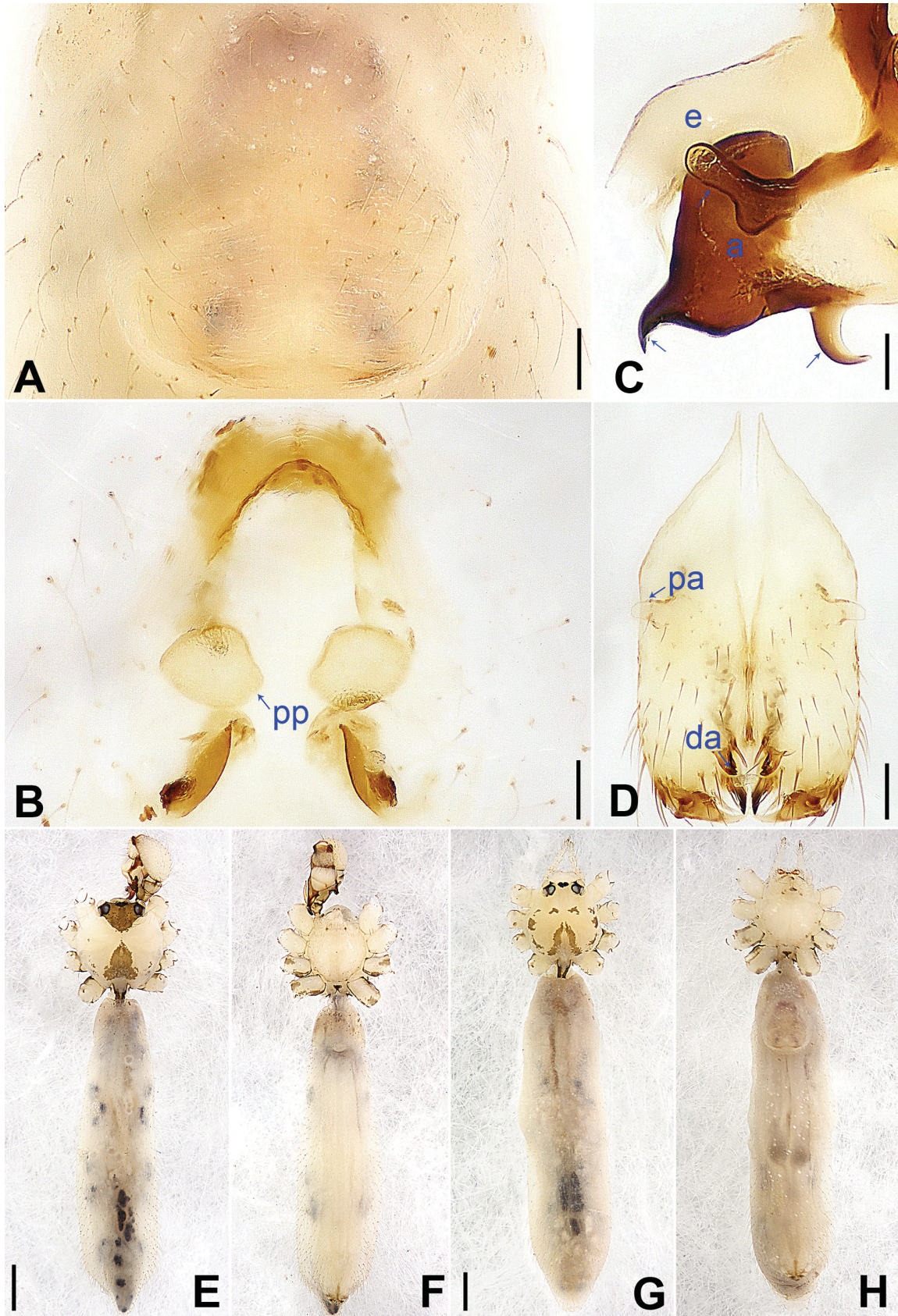
**Etymology.** The specific name is from the Chinese pinyin for curved (wān), in reference to the acutely curved procurus; adjective.

**Diagnosis.** The species can be easily distinguished from all known congeners in the *P. halabala* species group by the elongate and strongly curved procurus (Figs 17A–B), the presence of two laterally directed, large, distal apophyses on the appendix (arrows in Fig. 18C), and by the elongate weakly sclerotized area of the female external genitalia (Fig. 18A).

**Description. Male (holotype):** Total length 5.81 (6.15 with clypeus), carapace 1.60 long, 1.70 wide, opisthosoma 4.21 long, 1.33 wide. Leg I: 68.75 (16.41 + 0.88 + 16.41 + 31.85 + 3.20), leg II: 45.43 (11.74 + 0.81 + 11.67 + 19.68 + 1.53), leg III: 29.25 (8.72 + 0.81 + 7.18 + 11.22 + 1.32), leg IV: 38.59 (10.90 + 0.81 + 9.49 + 15.51 + 1.88). Distance PME-PME 0.54; diameter PME 0.11; distance PME-ALE 0.05; distance AME-AME 0.03;

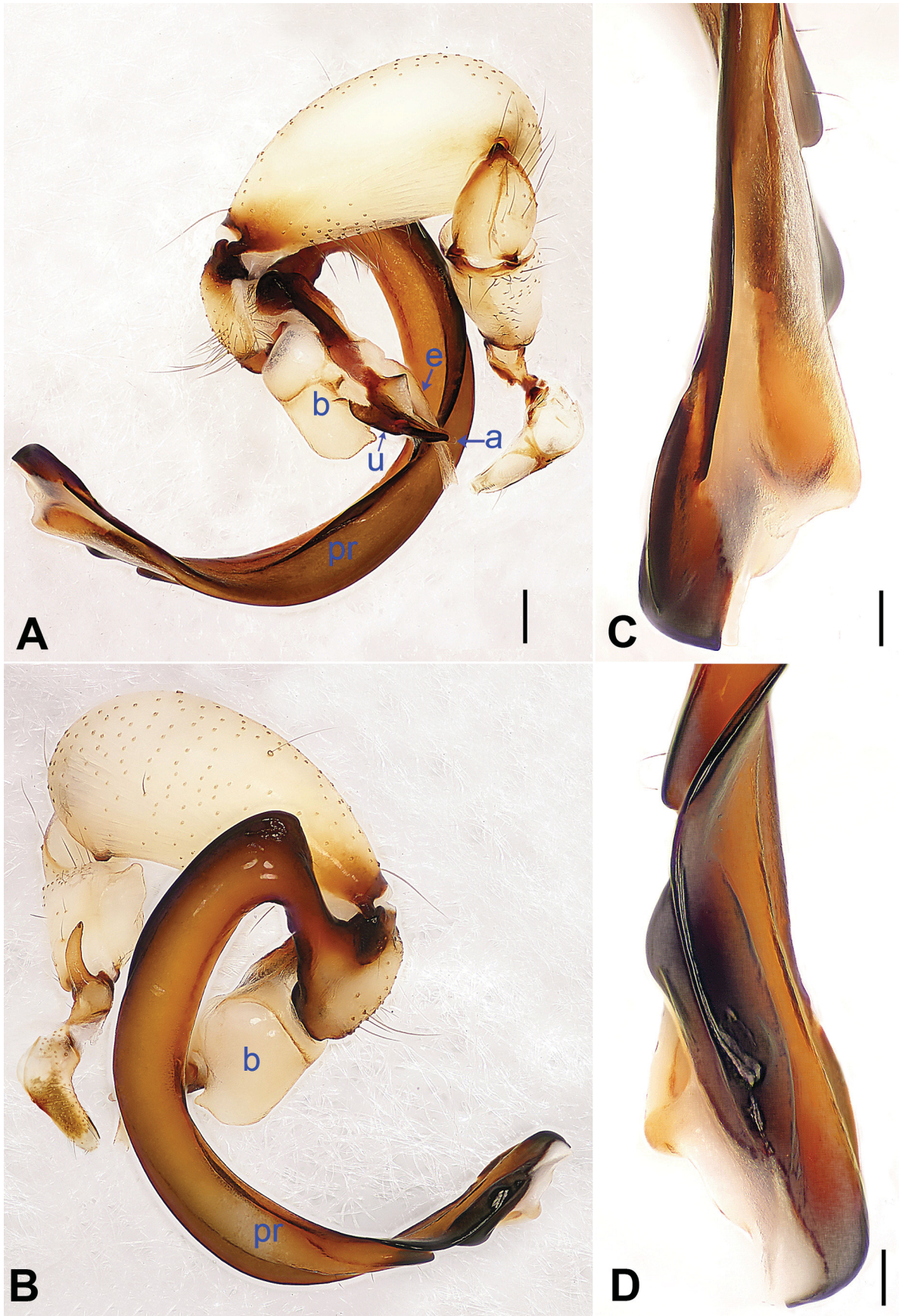


**FIGURE 15.** *Pholcus gou* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrows point at sclerotized distal apophysis and membranous subdistal-dorsal process on procurus respectively; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus. Scale bars: 0.10 (A–B), 0.02 (C–D).

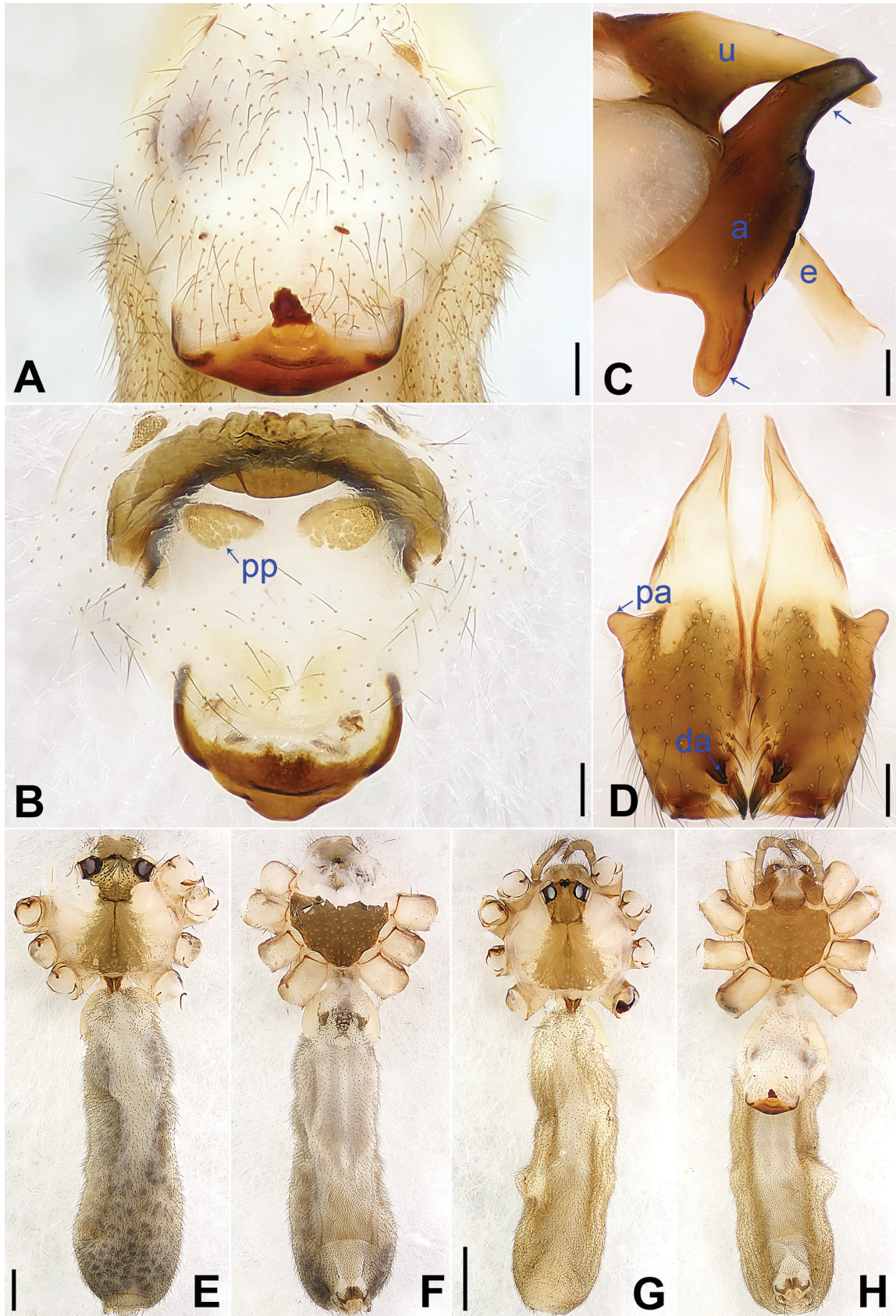


**FIGURE 16.** *Pholcus gou* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view, arrows point at apophyses on appendix; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, pa = proximo-lateral apophysis, pp = pore plate. Scale bars: 0.08 (A–B, D), 0.05 (C), 0.50 (E–H).





**FIGURE 17.** *Pholcus wan* sp. nov., holotype male. A–B. Right pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.03 (A–B), 0.10 (C–D).



**FIGURE 18.** *Pholcus wan* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view, arrows point at two large distal apophyses on appendix; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.20 (A–C), 0.08 (D), 0.50 (E–H).

diameter AME 0.06. Sternum wider than long (1.02/0.91). Habitus as in Figs 18E–F. Carapace yellowish, with brown marks extending to ocular area; ocular area brown; sternum brown. Legs pale brown, distal parts of femora and tibiae whitish, darker rings absent. Opisthosoma pale grey, with brown spots dorsally and laterally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 18D, with a pair of proximo-lateral apophyses; a pair of dark brown distal apophyses with two teeth each. Pedipalps as in Figs 17A–B; trochanter with a long curved posterior apophysis; femur with a distinct ventral modification retrolaterally; procurus long and strongly curved, nearly three times longer than tibia of procurus, simple proximally but complex distally; uncus small; appendix with two large distal apophyses directed towards laterally; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 4.4%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 16 distinct pseudosegments.

**Female:** Similar to male, habitus as in Figs 18G–H. Total length 6.41 (6.64 with clypeus), carapace 1.80 long, 2.03 wide, opisthosoma 4.61 long, 1.41 wide; tibia I: 15.26; tibia I L/d: 72. Distance PME-PME 0.33; diameter PME 0.16; distance PME-ALE 0.04; distance AME-AME 0.26; diameter AME 0.06. Sternum wider than long (1.30/1.10). Ocular area without eye-stalks. External genitalia (Fig. 18A) with a knob. Vulva (Fig. 18A) with a sclerotized anterior arch and two oval pore plates.

**Distribution.** Thailand (Satun, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.

### ***Pholcus zhuchuandiani* Yao & Li sp. nov.**

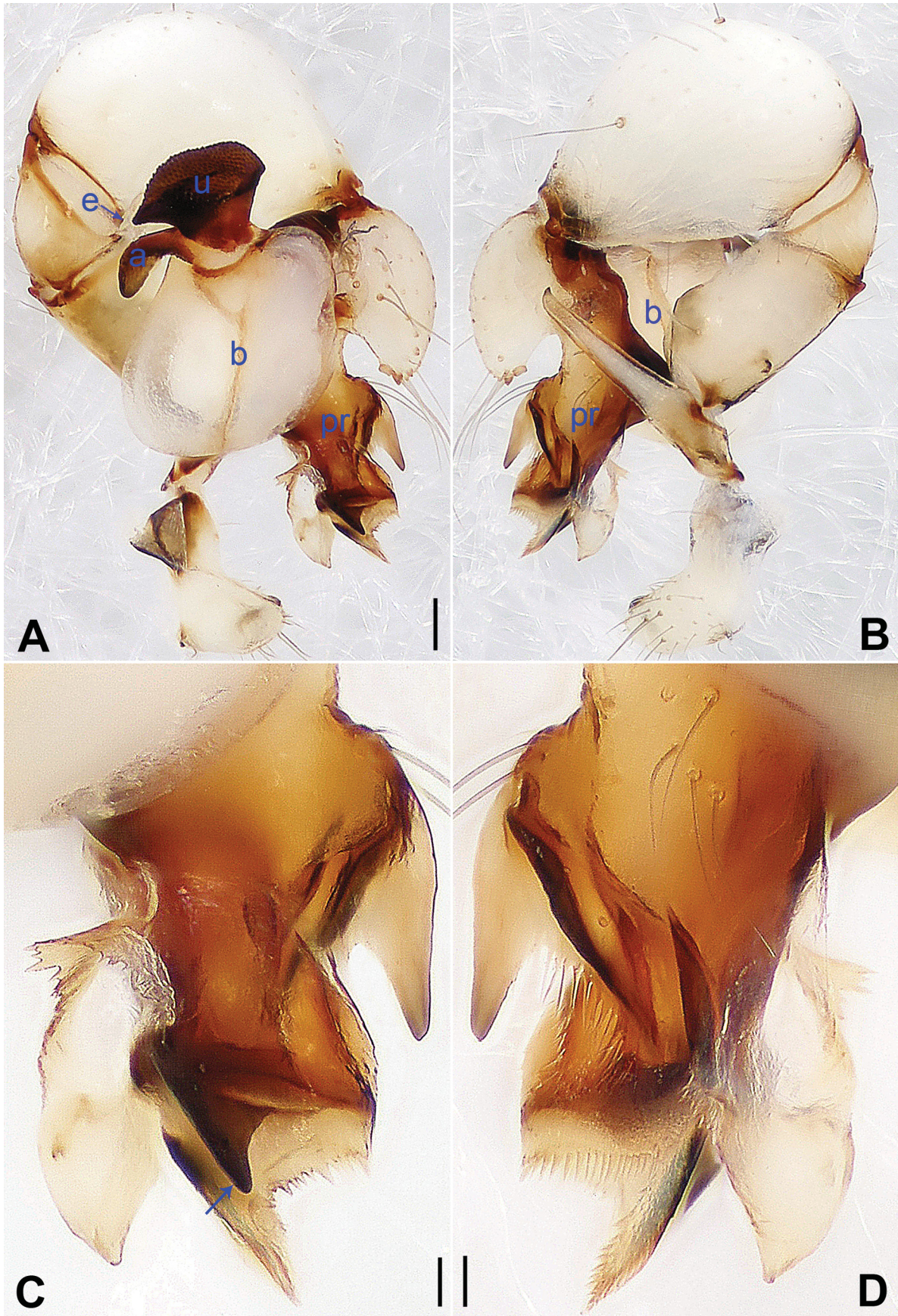
Figs 19–20, 31E–F

**Type material. Holotype:** male, Camp of Internation Timber Corp. of Indonesia (01°05.292'S, 116°41.094'E, elevation 64 m), Penajam, **East Kalimantan, Indonesia**, 16 August 2014, H. Zhao and Z. Yao leg. **Paratypes:** 1 male and 1 female, same data as holotype.

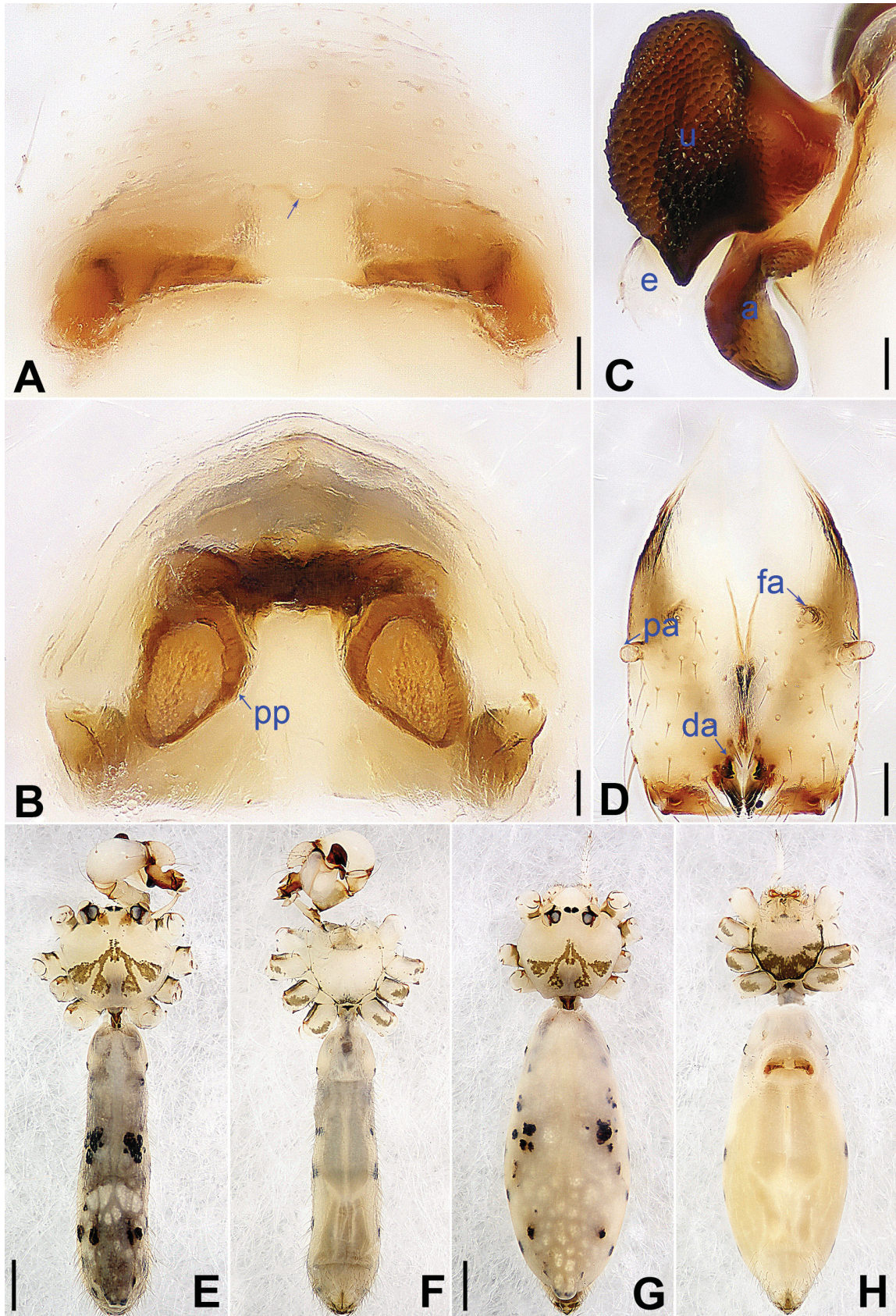
**Etymology.** The specific name is a patronym in honor of the late Professor Chuandian Zhu for his contribution on taxonomy of spiders from China; noun (name) in genitive case.

**Diagnosis.** This species resembles *P. halabala* Huber, 2011 (see Huber 2011: 128, figs 495–496, 517–518, 530–535), *P. sepacku* (see Huber 2011: 131, fig. 536) and *P. lintang* Huber, 2016 (see Huber *et al.* 2016: 13, figs 11–12, 34–38, 93–95) in having similar male chelicerae (Fig. 20D), uncus, appendix (Fig. 20C), and female genitalia (Figs. 20A–B) but can be distinguished by the presence of a sclerotized, angular prolateral apophysis subdistally on the procurus (arrow in Fig. 19C). This species also resembles *P. anaiensis* **sp. nov.** (Figs 11–12) in having similar male chelicerae (Fig. 20D) and uncus (Fig. 20C) but can be distinguished by a distally blunt appendix (Fig. 20C) and the presence of a sclerotized, angular prolateral apophysis subdistally on the procurus (arrow in Fig. 19C).

**Description. Male (holotype):** Total length 3.84 (4.04 with clypeus), carapace 1.03 long, 1.13 wide, opisthosoma 2.81 long, 0.75 wide. Leg I: 33.82 (6.73 + 0.48 + 8.85 + 16.67 + 1.09), leg II: 22.39 (6.09 + 0.48 + 5.64 + 9.29 + 0.89), leg III: 13.66 (4.10 + 0.42 + 3.32 + 5.13 + 0.69), leg IV: 19.87 (6.09 + 0.42 + 4.68 + 7.82 + 0.86); tibia I L/d: 80. Distance PME-PME 0.33; diameter PME 0.11; distance PME-ALE 0.04; distance AME-AME 0.05; diameter AME 0.05. Sternum wider than long (0.75/0.56). Habitus as in Figs 20E–F. Carapace yellowish, with brown radiating marks; ocular area yellowish; clypeus and sternum yellowish. Legs yellowish, patellae yellow, distal parts of tibiae and proximal parts of metatarsi brown, darker rings absent. Opisthosoma pale grey, with dark brown and whitish spots dorsally and laterally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk, with a bunch of short macrosetae between PME (Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 20D, with a pair of weakly sclerotized proximolateral apophyses, a pair of black distal apophyses with two teeth each, and a pair of frontal apophyses. Pedipalps as in Figs 19A–B; trochanter with a long ventral apophysis; femur with a dorsal apophysis proximally and distinct ventral modification; procurus with a large dorsal flap medially and a sclerotized, angular prolateral apophysis subdistally (arrow in Fig. 19C); uncus with scales; appendix (Fig. 20D) bent with scales, embolus weakly sclerotized with some transparent projections distally. Retrolateral trichobothrium of tibia I at 7.1%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 17 distinct pseudosegments.



**FIGURE 19.** *Pholcus zhuchuandiani* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrow points at sclerotized prolateral apophysis; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.03 (C–D).



**FIGURE 20.** *Pholcus zhuchuandiani* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view, arrow points at knob; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.05 (A–C), 0.10 (D), 0.50 (E–H).

**Female:** Similar to male, habitus as in Figs 20G–H. 4.00 (4.34 with clypeus), carapace 0.96 long, 1.06 wide, opisthosoma 3.04 long, 1.26 wide; tibia I: 6.86; tibia I L/d: 64. Sternum wider than long (0.71/0.59). Distance PME-PME 0.24; diameter PME 0.09; distance PME-ALE 0.05; distance AME-AME 0.05; diameter AME 0.06. Sternum with brown marks posteriorly. Ocular area without eye-stalks and bunch of short macrosetae (Fig. 31F). External genitalia (Fig. 20A) with a small, nearly transparent knob. Vulva (Fig. 20B) with a sclerotized anterior arch and two nearly oval pore plates.

**Distribution.** Indonesia (East Kalimantan, type locality; Fig. 32).

**Natural history.** The species was found on the underside of leaves.

### *Pholcus quinquenotatus* species group

**Diagnosis and description.** See Huber (2011).

### *Pholcus chiangmaiensis* Yao & Li sp. nov.

Figs 21–22

**Type material. Holotype:** male, PL 36 Cave (19°21.027'N, 99°01.698'E, elevation 474 m), **Chiangmai, Thailand**, 29 June 2014, S. Li leg. **Paratypes:** 1 male and 2 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

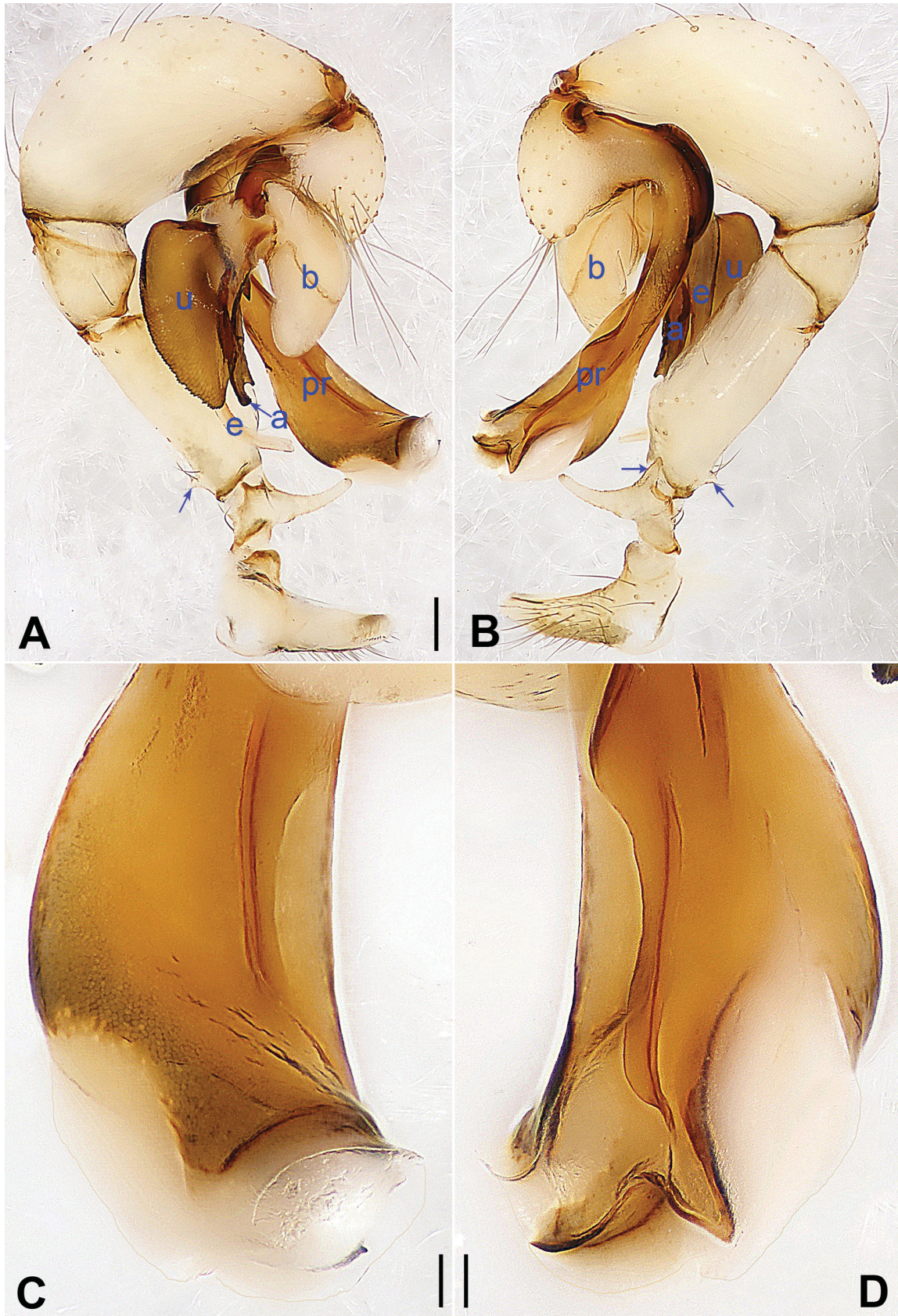
**Diagnosis.** This species resembles *P. namou* Huber, 2011 (see Huber 2011: 298, figs 1378–1379, 1409–1410, 1471–1475) in having similar male chelicerae (Fig. 22D), unculus (Fig. 22C), and female external genitalia (Fig. 22A) but can be distinguished by the absence of dorsal apophyses subdistally on the procurus (Figs 21C–D), by the presence of a large angular branch proximally and a small angular branch subdistally on the appendix (arrows in Fig. 22C), and by the nearly rounded pore plates of the vulva (Fig. 22B).

**Description. Male (holotype):** Total length 4.61 (4.87 with clypeus), carapace 1.33 long, 1.19 wide, opisthosoma 3.28 long, 1.17 wide. Leg I: 48.11 (11.67 + 0.62 + 11.86 + 22.12 + 1.84), leg II: 31.22 (8.53 + 0.64 + 7.82 + 13.14 + 1.09), leg III: 18.43 (5.45 + 0.53 + 4.55 + 7.05 + 0.85), leg IV: 25.81 (7.50 + 0.55 + 6.41 + 10.26 + 1.09); tibia I L/d: 95. Distance PME-PME 0.38; diameter PME 0.11; distance PME-ALE 0.03; distance AME-AME 0.05; diameter AME 0.05. Sternum wider than long (0.90/0.63). Habitus as in Figs 22E–F. Carapace yellowish, with nearly triangular brown marks; ocular area brown; sternum yellowish, with brown marks. Legs yellowish, patellae, distal parts of femora and tibiae, and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma pale grey, with brown and whitish marks. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. hinsonensis* sp. nov., cf. Fig. 31C). Thoracic furrow absent. Chelicerae as in Fig. 22D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses with three teeth each. Pedipalps as in Figs 21A–B; trochanter with a long ventral apophysis, and an angular branch subproximally; femur with a dorsal apophysis proximally; procurus long, weakly sclerotized distally; unculus large, with a scaly edge; appendix with a large angular branch proximally and a small angular branch subdistally; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 6.6%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 15 distinct pseudosegments.

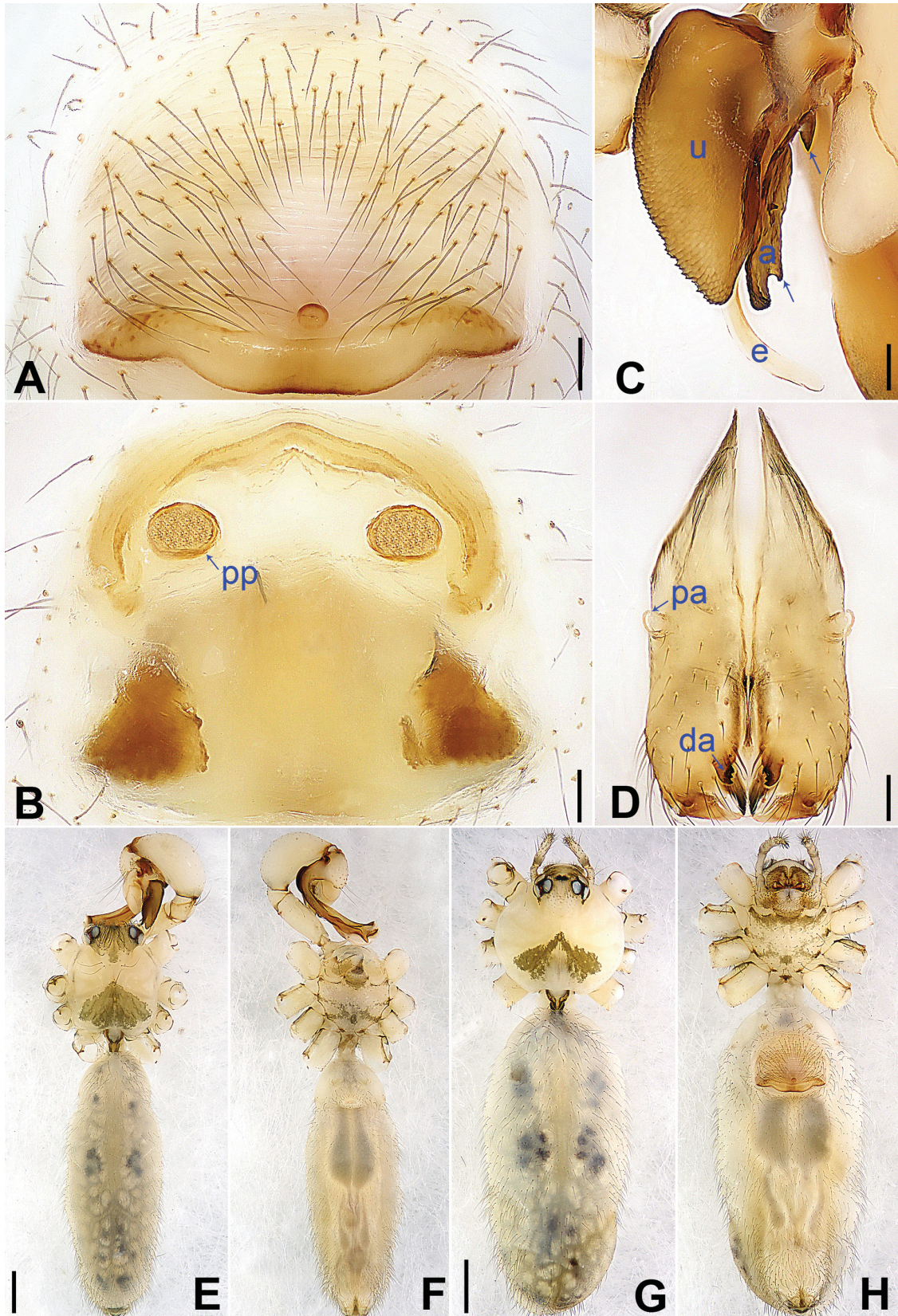
**Female:** Similar to male, habitus as in Figs 22G–H. Total length 4.97 (5.12 with clypeus), carapace 1.41 long, 1.13 wide, opisthosoma 3.56 long, 1.70 wide; tibia I: 9.29; tibia I L/d: 63. Distance PME-PME 0.25; diameter PME 0.11; distance PME-ALE 0.04; distance AME-AME 0.03; diameter AME 0.05. Sternum wider than long (0.96/0.70). Carapace with V-pattern posteriorly. Ocular area yellowish, without eye-stalks. External genitalia (Fig. 22A) with a small knob. Vulva (Fig. 22B) with a sclerotized anterior arch and two nearly rounded pore plates.

**Distribution.** Thailand (Chiangmai, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.



**FIGURE 21.** *Pholcus chiangmaiensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view, arrow points at dorsal apophysis; B. Retrolateral view, left arrow points at branch of trochanter ventral apophysis, right arrow points at dorsal apophysis); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.20 (A–B), 0.05 (C–D).



**FIGURE 22.** *Pholcus chiangmaiensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view, arrows point at large angular branch proximally and small angular branch subdistally on appendix respectively; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (A–D), 0.50 (E–H).



***Pholcus taptaoensis* Yao & Li sp. nov.**

Figs 23–24

**Type material. Holotype:** male, Tap Tao Cave (19°39.670'N, 99°07.050'E, elevation 590 m) **Chiangmai, Thailand**, 29 June 2014, S. Li leg. **Paratypes:** 3 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

**Diagnosis.** This species resembles *P. namou* Huber, 2011 (see Huber 2011: 298, figs 1378–1379, 1409–1410, 1471–1475) in having similar male chelicerae (Fig. 24D), bulbal apophyses (Fig. 24C), and female genitalia (Figs. 24A–B) but can be distinguished by the procurcus being strongly bifurcated distally (Figs 23A–B).

**Description. Male (holotype):** Total length 3.86 (4.17 with clypeus), carapace 1.17 long, 1.33 wide, opisthosoma 2.69 long, 1.09 wide. Leg I: – (10.58 + 0.58 + 10.90 + – + –), leg II: 28.84 (7.69 + 0.59 + 7.21 + 12.18 + 1.17), leg III: 17.22 (5.26 + 0.52 + 4.17 + 6.41 + 0.86), leg IV: 24.03 (7.56 + 0.56 + 5.64 + 9.17 + 1.10); tibia I L/d: 87. Distance PME–PME 0.33; diameter PME 0.11; distance PME–ALE 0.05; distance AME–AME 0.15; diameter AME 0.05. Sternum wider than long (0.88/0.65). Habitus as in Figs 24E–F. Carapace yellowish, with V-pattern posteriorly; ocular area brownish; sternum yellowish, with brown marks. Legs yellowish, patellae, distal parts of femora and tibiae, and proximal parts of metatarsi dark brown, darker rings absent. Opisthosoma pale grey, with brown and whitish marks. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. hinsonensis* sp. nov., cf. Fig. 31C). Thoracic furrow absent. Chelicerae as in Fig. 24D, with a pair of weakly sclerotized proximo-lateral apophyses, a pair of black distal apophyses, each with three teeth. Pedipalps as in Figs 23A–B; trochanter with a long ventral apophysis; procurcus simple proximally, bifurcated distally; uncus with a scaly edge; appendix with scales and a branch proximally; embolus weakly sclerotized, with a transparent projection distally. Retrolateral trichobothrium of tibia I at 7.2%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

**Female:** Similar to male, habitus as in Figs 24G–H. Total length 4.72 (4.87 with clypeus), carapace 1.36 long, 1.48 wide, opisthosoma 3.36 long, 1.48 wide; tibia I: 9.62; tibia I L/d: 60. Distance PME–PME 0.25; diameter PME 0.10; distance PME–ALE 0.03; distance AME–AME 0.03; diameter AME 0.05. Sternum wider than long (0.94/0.81). Opisthosoma yellowish. Ocular area without eye-stalks. External genitalia (Fig. 24A) with a long knob. Vulva (Fig. 24B) with a sclerotized anterior arch and two long pore plates.

**Distribution.** Thailand (Chiangmai, type locality; Fig. 32).

**Natural history.** The species was found in the entrance zone of the cave.

***Pholcus yichengicus* species group**

**Diagnosis and description.** See Huber (2011).

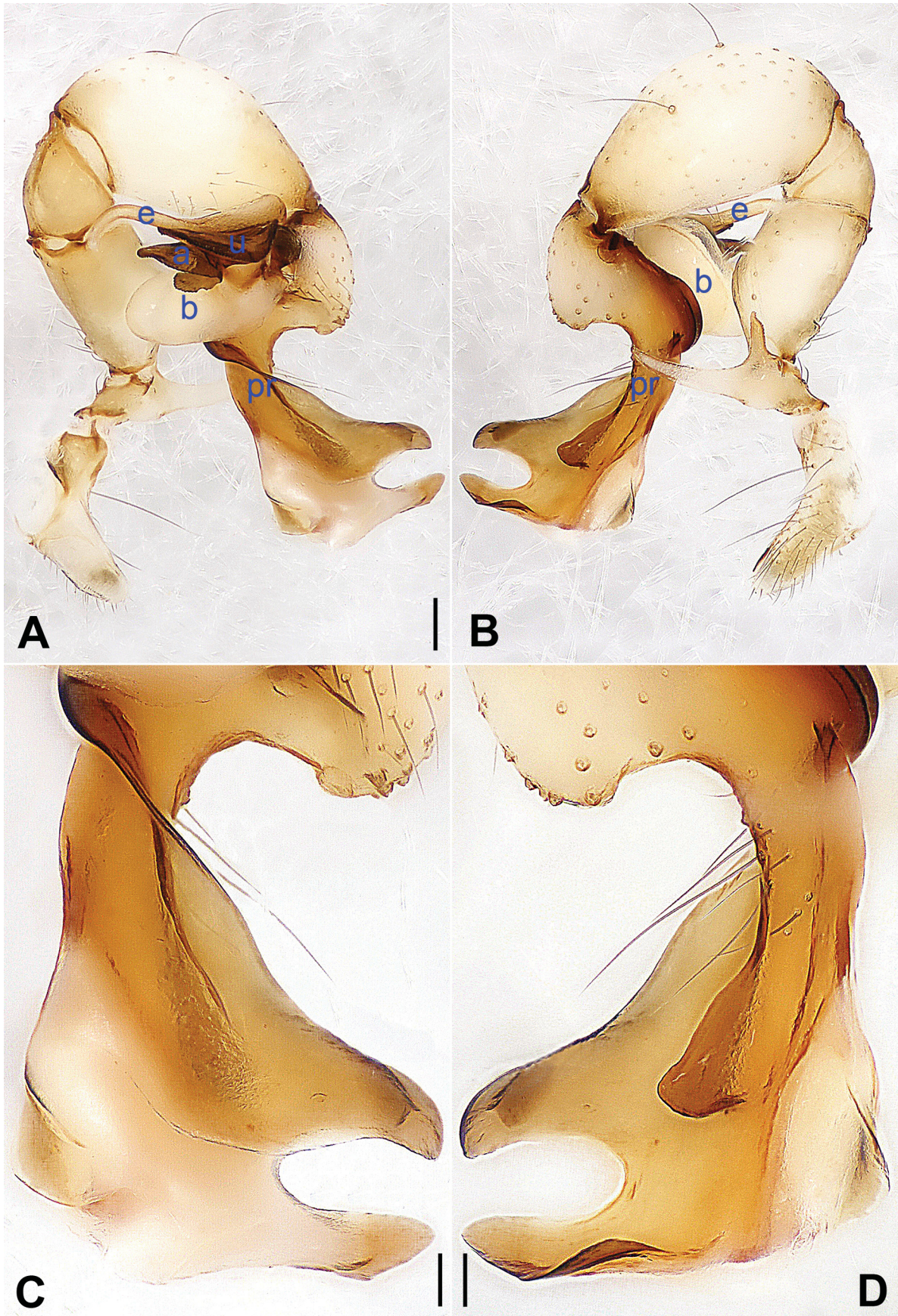
***Pholcus kaebyaiensis* Yao & Li sp. nov.**

Figs 25–26

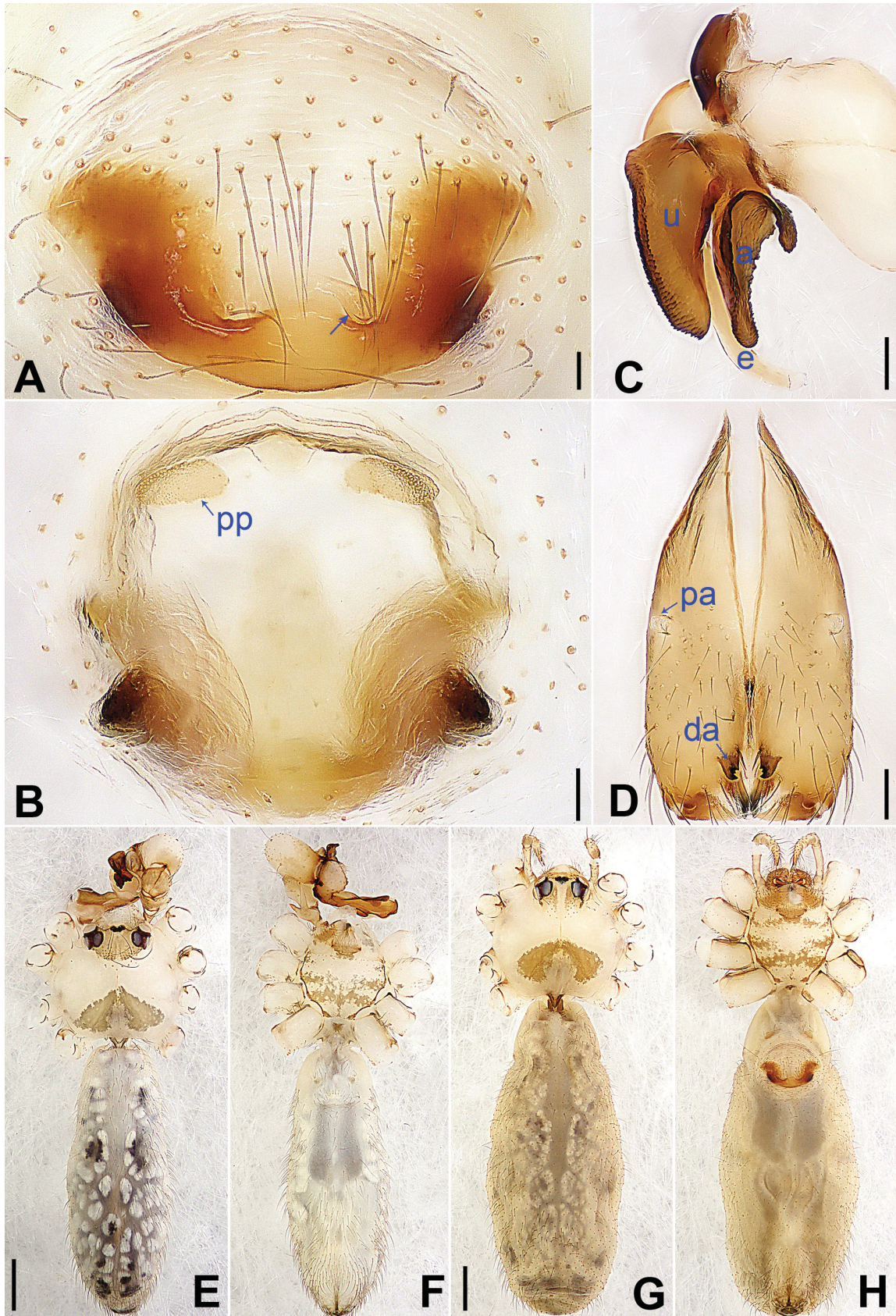
**Type material. Holotype:** male, Tham (cave) Kaeb Yai (19°34.620'N, 99°03.681'E, elevation 684 m), 25 km North North-East of Chiang Dao, **Chiangmai, Thailand**, 26 June 2014, P. Jäger and E. Grall leg. **Paratype:** 1 female, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

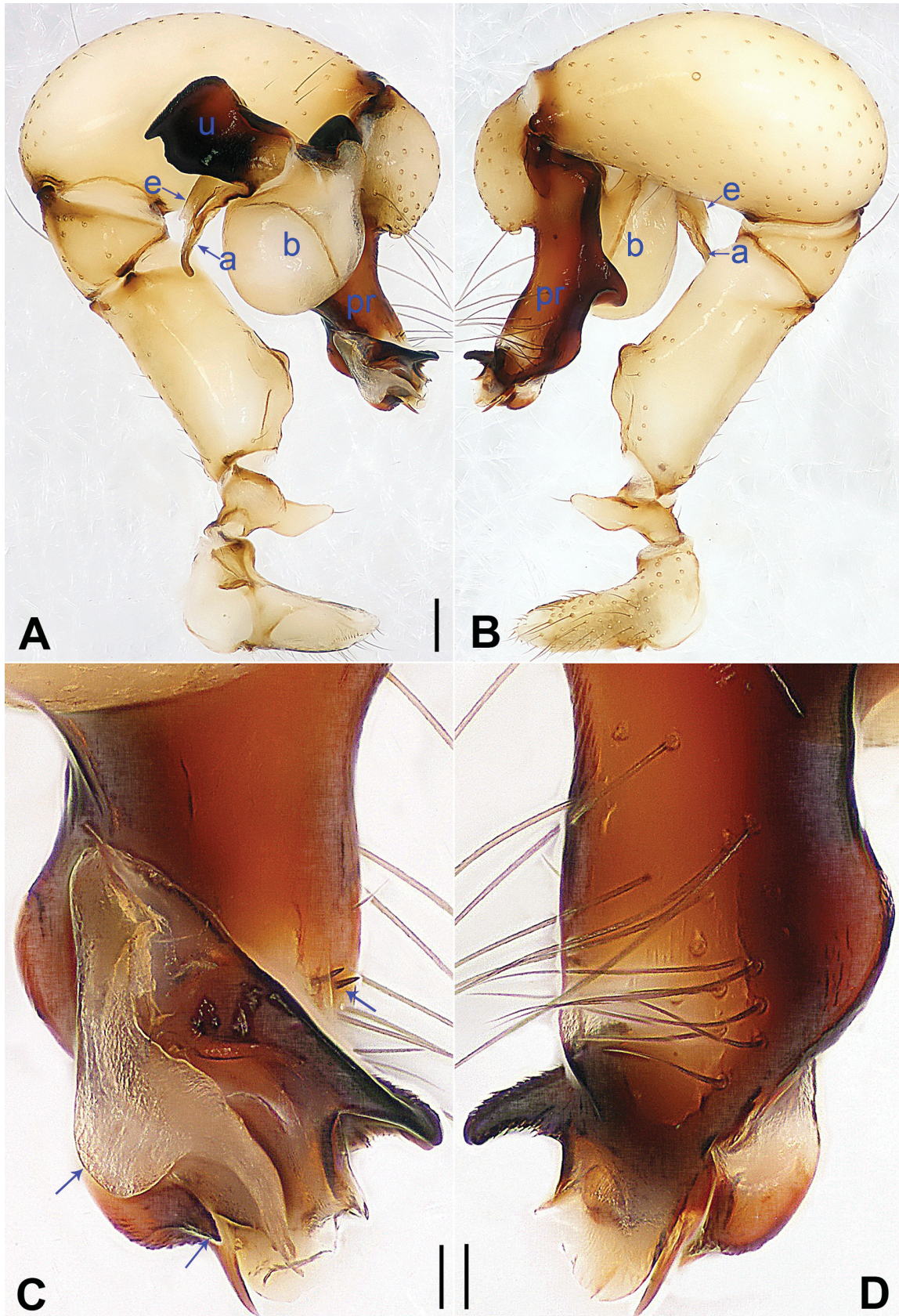
**Diagnosis.** This species resembles *P. musensis* sp. nov. (Figs 27–28) in having similar male chelicerae (Fig. 26D), uncus (Fig. 26C), and female external genitalia (Fig. 26A) but can be distinguished by the presence of a nearly angular median branch on the appendix (Fig. 26C), by the strongly protruding medially prolatero-distal membranous process on the procurcus (arrow in Fig. 25C), by the presence of a large, sclerotized retrolateral apophysis (with a small, pointed prolateral apophysis; arrow in Fig. 25C) distally on the procurcus, by the anterior arch of the vulva strongly protruding medially (Fig. 26B). This species also resembles *P. songkhonensis* sp. nov. (Figs 29–30) in having similar male chelicerae (Fig. 26D), bulbal apophyses (Fig. 26C), and female external genitalia (Fig. 26A) but can be distinguished by the short eye-stalks on the male ocular area (as in *P. zhuchuandiani* sp. nov., cf. Fig. 31E), by the strongly protruding medially prolatero-distal membranous process on the procurcus (arrow in Fig. 25C), and by the nearly elliptic pore plates on vulva (Fig. 26B).



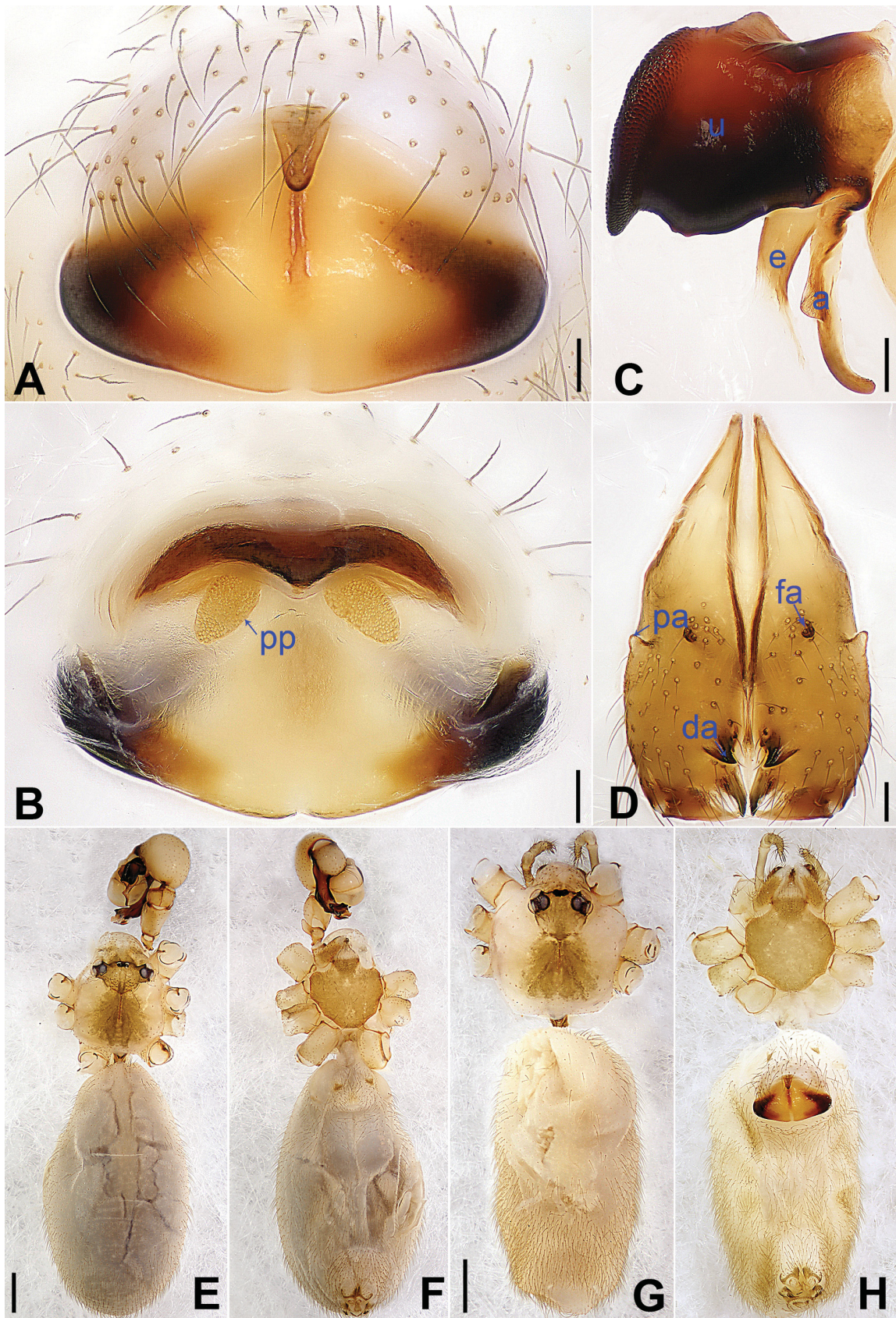
**FIGURE 23.** *Pholcus taptaoensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.08 (C–D).



**FIGURE 24.** *Pholcus taptaoensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view, arrow points at knob; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.05 (A–B), 0.10 (C–D), 0.50 (E–H).



**FIGURE 25.** *Pholcus kaebiyaiensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, up arrow points at prolatero-dorsal spines, left arrow points at prolatero-distal membranous process, right arrow points at small, pointed prolateral apophysis; D. Retrolateral view). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.20 (A–B), 0.05 (C–D).



**FIGURE 26.** *Pholcus kaebiyaiensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.10 (A–D), 0.60 (E–H).

**Description. Male (holotype):** Total length 5.12 (5.64 with clypeus), carapace 1.40 long, 1.40 wide, opisthosoma 3.72 long, 2.13 wide. Leg I: 60.10 (14.36 + 0.80 + 14.17 + 24.10 + 6.67), leg II: 35.39 (9.74 + 0.72 + 8.97 + 14.42 + 1.54), leg III: 25.18 (7.31 + 0.70 + 6.35 + 9.62 + 1.20), leg IV: 32.02 (9.10 + 0.71 + 8.21 + 12.50 + 1.50); tibia I L/d: 89. Distance PME-PME 0.52; diameter PME 0.13; distance PME-ALE 0.02; distance AME-AME 0.06; diameter AME 0.06. Sternum wider than long (0.94/0.86). Habitus as in Figs 26E–F. Carapace yellowish, with brown marks extending to ocular area; ocular area yellow, with two median brown bands; sternum yellow. Legs yellow, darker rings absent. Opisthosoma pale brown, without spots. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 26D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, and a pair of frontal apophyses. Pedipalps as in Figs 25A–B; trochanter with a short ventral apophysis; femur with a distinct ventral modification; procurus simple proximally but complex distally, with two prolatero-dorsal spines distally (arrow in Fig. 25C); uncus with a scaly edge; appendix hooked, with a median branch; embolus sclerotized, with some transparent projections distally. Retrolateral trichobothrium of tibia I at 7.3%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 11 distinct pseudosegments.

**Female:** Similar to male, habitus as in Figs 26G–H. Total length 4.47 (4.81 with clypeus), carapace 1.36 long, 1.44 wide, opisthosoma 3.11 long, 1.56 wide; tibia I: 9.87; tibia I L/d: 66. Distance PME-PME 0.26; diameter PME 0.10; distance PME-ALE 0.03; distance AME-AME 0.05; diameter AME 0.05. Sternum wider than long (0.95/0.80). Ocular area without eye-stalks. External genitalia (Fig. 26A) with a knob. Vulva (Fig. 26B) with a sclerotized anterior arch and two nearly elliptic pore plates.

**Distribution.** Thailand (Chiangmai, type locality; Fig. 32).

**Natural history.** The species was found in the aphotic zone inside the cave.

### *Pholcus musensis* Yao & Li **sp. nov.**

Figs 27–28

**Type material. Holotype:** male, Wat Dearoop Song Cave 1 (14°33.708'N, 101°24.064'E, elevation 397 m), Musee Village, Pak Chong District, **Nakhon Ratchasima, Thailand**, 23 October 2014, H. Zhao, Y. Li and Z. Chen leg.

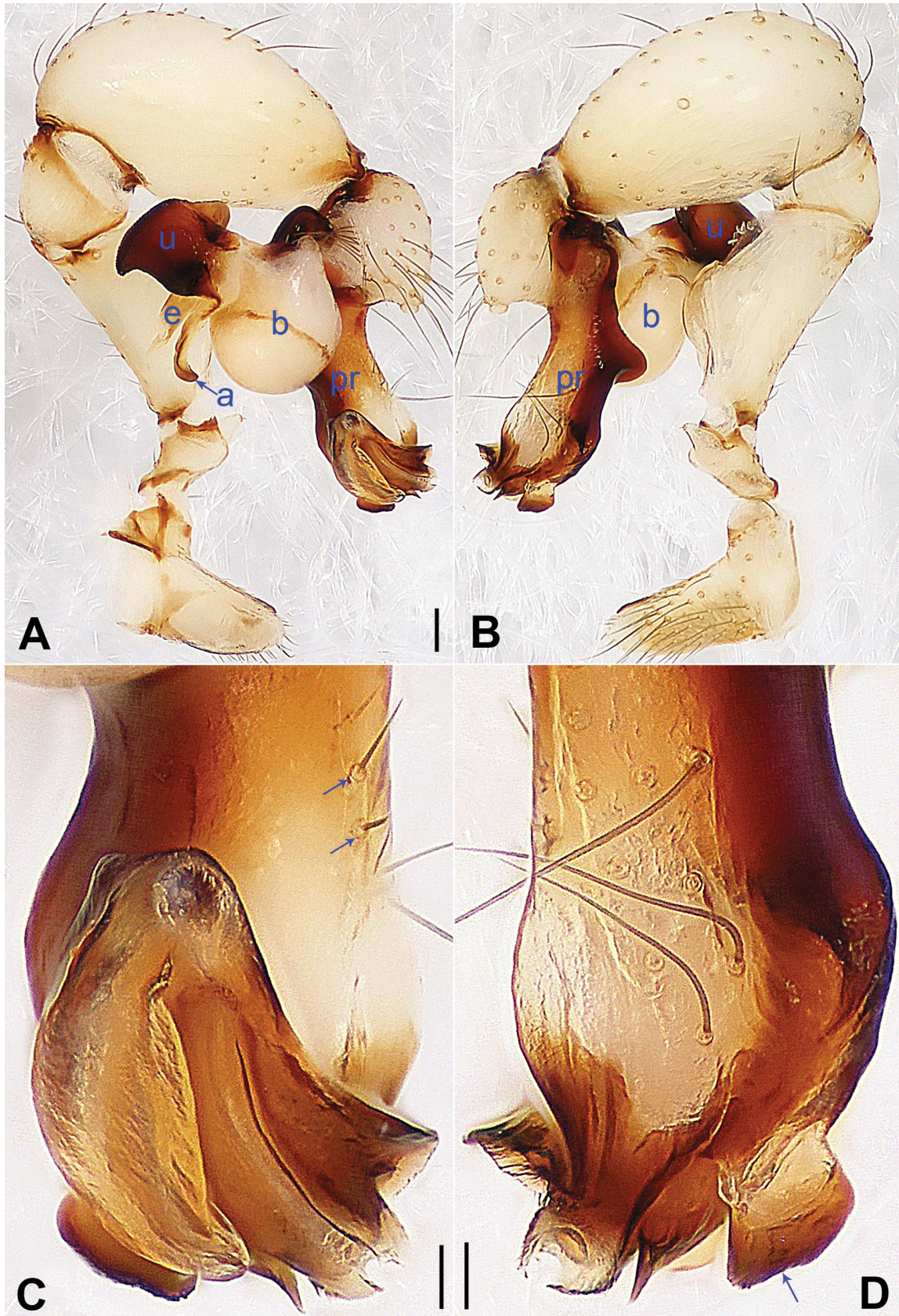
**Paratypes:** 2 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

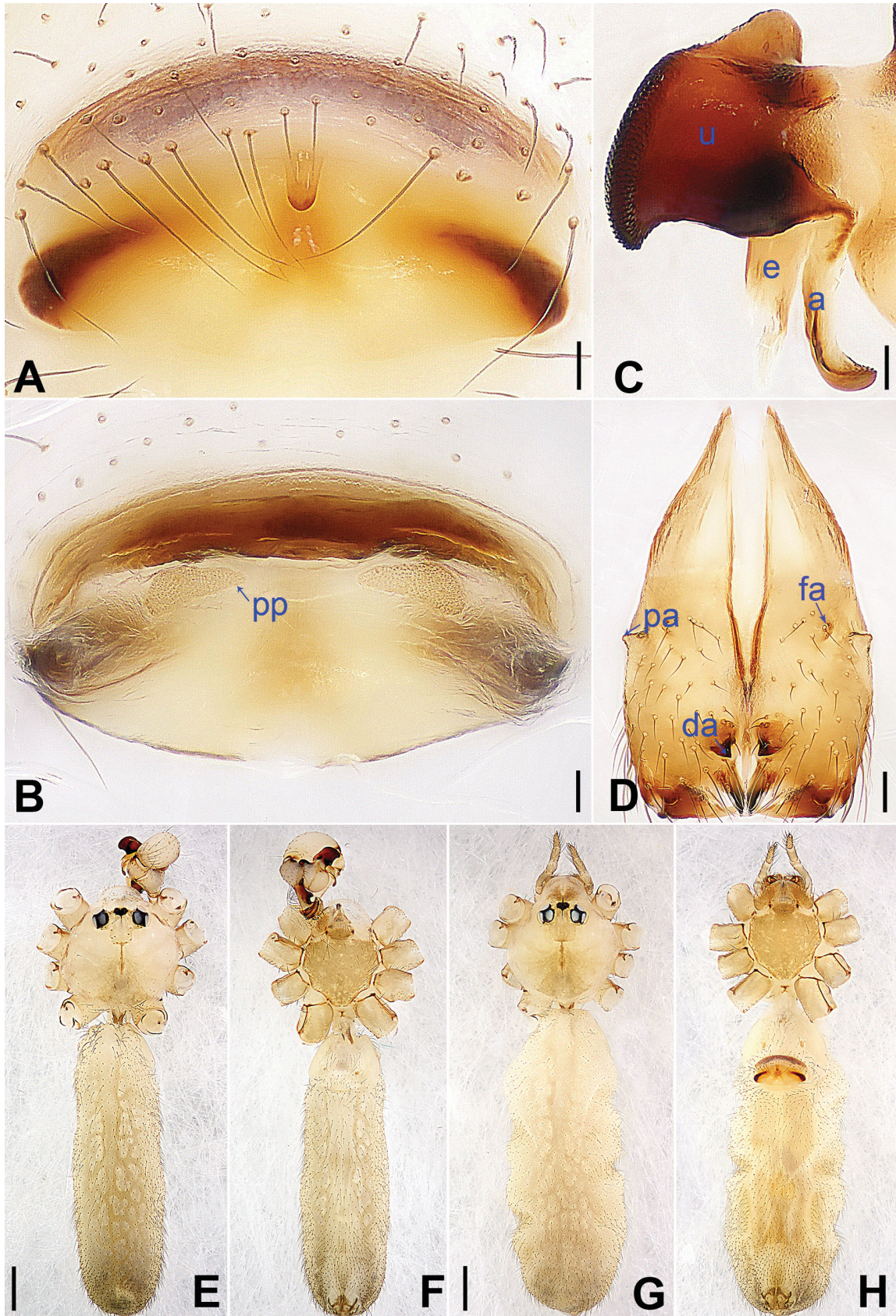
**Diagnosis.** This species resembles *P. kaebyaiensis* **sp. nov.** (Figs 25–26) and *P. songkhonensis* **sp. nov.** (Figs 29–30) in having similar male chelicerae (Fig. 28D), uncus (Fig. 28C), and female external genitalia (Fig. 28A) but can be distinguished by the absence of branches on the appendix (Fig. 28C), by the presence of a large, sclerotized retrolateral apophysis distally on the procurus (arrow in Fig. 27D), by the anterior arch of the vulva not protruding medially (Fig. 28B); also distinguished from *P. songkhonensis* **sp. nov.** by the short eye-stalks on male ocular area (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E).

**Description. Male (holotype):** Total length 4.50 (4.87 with clypeus), carapace 1.22 long, 1.41 wide, opisthosoma 3.28 long, 1.03 wide. Leg I missing, leg II: 28.7 (7.82 + 0.64 + 7.30 + 11.54 + 1.40), leg III: 20.77 (6.09 + 0.60 + 5.13 + 8.01 + 0.94), leg IV: 26.20 (7.69 + 0.56 + 6.41 + 10.34 + 1.20). Distance PME-PME 0.32; diameter PME 0.10; distance PME-ALE 0.03; distance AME-AME 0.05; diameter AME 0.06. Sternum wider than long (0.88/0.78). Habitus as in Figs 28E–F. Carapace yellowish, with brown median line and indistinct yellow marks; ocular area yellowish; sternum yellowish, with whitish marks. Legs yellowish, distal parts of femora and tibiae whitish, darker rings absent. Opisthosoma yellowish, with whitish spots dorsally. Ocular area elevated; each eye triad on top of a short, laterally directed eye-stalk (as in *P. zhuchuandiani* **sp. nov.**, cf. Fig. 31E). Thoracic furrow absent. Chelicerae as in Fig. 28D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, and a pair of small frontal apophyses. Pedipalps as in Figs 27A–B; trochanter with a short ventral apophysis; femur with a distinct ventral modification; procurus with two prolatero-dorsal spines (arrows in Fig. 27C), distally complex; uncus with a scaly edge; appendix hooked; embolus weakly sclerotized, with some transparent projections distally. Legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae.

**Female:** Similar to male, habitus as in Figs 28G–H. Total length 4.48 (4.87 with clypeus), carapace 1.16 long, 1.25 wide, opisthosoma 3.32 long, 1.31 wide; leg I missing in all females. Distance PME-PME 0.20; diameter



**FIGURE 27.** *Pholcus musensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrows point at prolatero-dorsal spines; D. Retrolateral view, arrow points at large, sclerotized retrolateral apophysis). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.05 (C–D).



**FIGURE 28.** *Pholcus musensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = unculus. Scale bars: 0.05 (A–C), 0.10 (D), 0.50 (E–H).



PME 0.09; distance PME-ALE 0.03; distance AME-AME 0.03; diameter AME 0.05. Sternum wider than long (0.80/0.72). Opisthosoma with indistinct spots dorsally. External genitalia (Fig. 28A) with a knob. Vulva (Fig. 28B) with a sclerotized anterior arch and two nearly triangular pore plates.

**Distribution.** Thailand (Nakhon Ratchasima, type locality; Fig. 32).

**Natural history.** The species was found in the aphotic zone inside the cave.

***Pholcus songkhonensis* Yao & Li sp. nov.**

Figs 29–30

**Type material. Holotype:** male, Tham (cave) Bo Pla Cave (14°39.625'N, 100°58.115'E, elevation 73 m), Song Khon Village, Kaeng Koi District, **Saraburi, Thailand**, 20 October 2014, H. Zhao, Y. Li and Z. Chen leg.

**Paratypes:** 2 males and 3 females, same data as holotype.

**Etymology.** The specific name refers to the type locality; adjective.

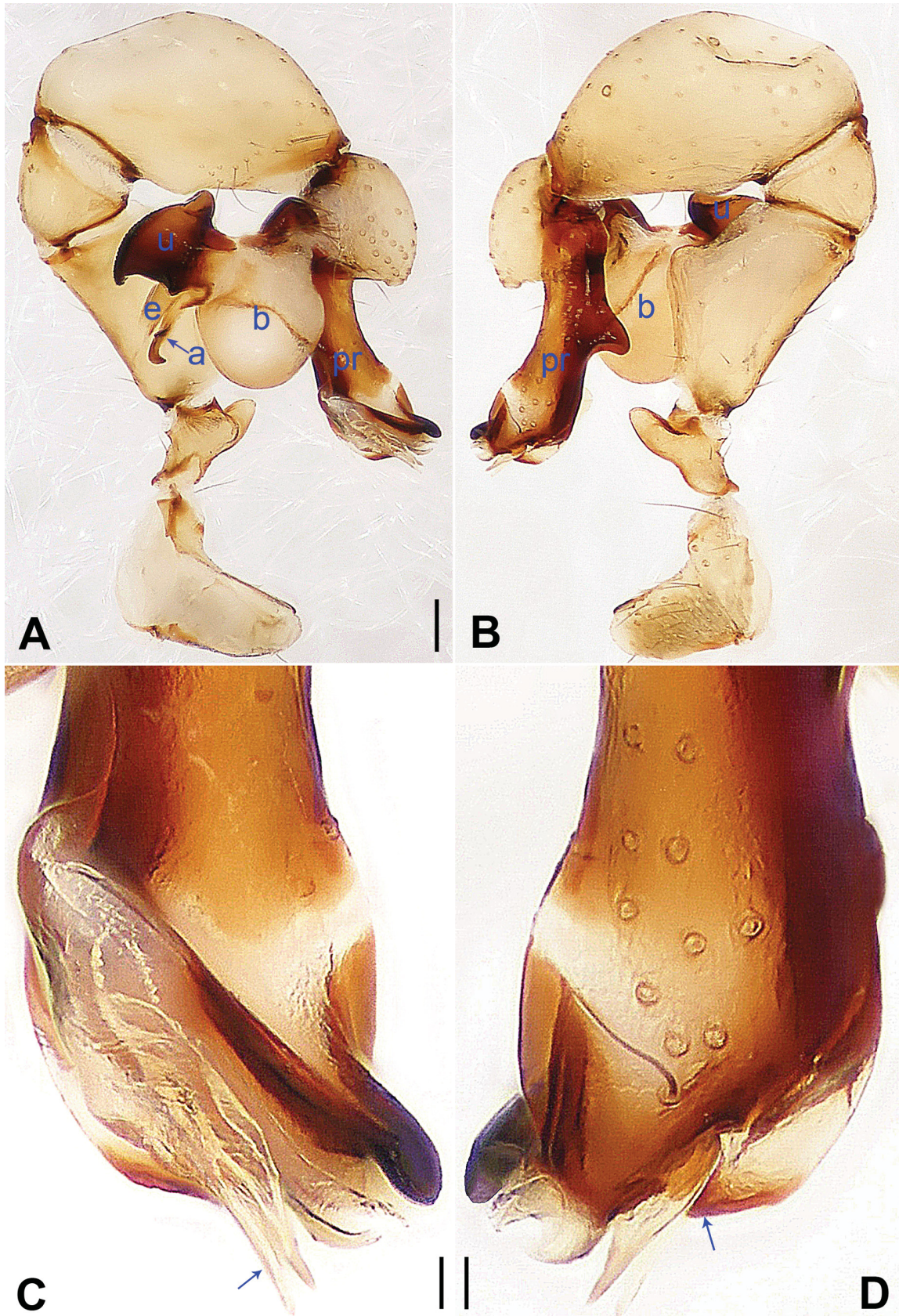
**Diagnosis.** This species resembles *P. kaebyaiensis* sp. nov. (Figs 25–26) and *P. musensis* sp. nov. (Figs 27–28) in having similar male chelicerae (Fig. 30D), uncus (Fig. 30C), and female external genitalia (Fig. 30A) but can be distinguished by the presence of long eye-stalks on the male ocular area (as in *P. tharnlodensis* sp. nov., cf. Fig. 31A), by a pointed, sclerotized retrolateral apophysis distally on the procurus (arrow in Fig. 29D), by the narrow prolatero-distal membranous process on the procurus (arrow in Fig. 29C); also distinguished from *P. musensis* sp. nov. by the strongly protruding medially anterior arch of the vulva (Fig. 30B) and by the presence of an angular median branch on the appendix (Fig. 30C).

**Description. Male (holotype):** Total length 3.87 (4.10 with clypeus), carapace 1.06 long, 1.33 wide, opisthosoma 2.81 long, 0.94 wide. Leg I: 44.22 (10.64 + 0.58 + 11.03 + 20.03 + 1.94), leg II: 29.96 (7.82 + 0.59 + 7.69 + 12.56 + 1.30), leg III: 21.07 (6.09 + 0.55 + 5.19 + 8.27 + 0.97), leg IV: 27.11 (7.88 + 0.55 + 6.60 + 10.90 + 1.18); tibia I L/d: 92. Distance PME-PME 0.38; diameter PME 0.10; distance PME-ALE 0.03; distance AME-AME 0.04; diameter AME 0.04. Sternum wider than long (0.88/0.70). Habitus as in Figs 30E–F. Carapace yellowish, with yellow marks extending to ocular area; ocular area yellowish; sternum yellowish. Legs yellowish, distal parts of tibiae whitish, darker rings absent. Opisthosoma yellowish, without spots. Ocular area elevated; each eye triad on top of a long, laterally directed eye-stalk (as in *P. tharnlodensis* sp. nov., cf. Fig. 31A). Thoracic furrow absent. Chelicerae as in Fig. 30D, with a pair of proximo-lateral apophyses, a pair of black distal apophyses, and a pair of small frontal apophyses. Pedipalps as in Figs 29A–B; trochanter with a short ventral apophysis; femur with a distinct ventral modification; procurus simple proximally but complex distally; uncus with a scaly edge; appendix hooked, with an angular median branch; embolus weakly sclerotized. Retrolateral trichobothrium of tibia I at 6.8%; legs with short vertical setae on tibiae, metatarsi and tarsi; without spines and curved setae; tarsus I with approximately 13 distinct pseudosegments.

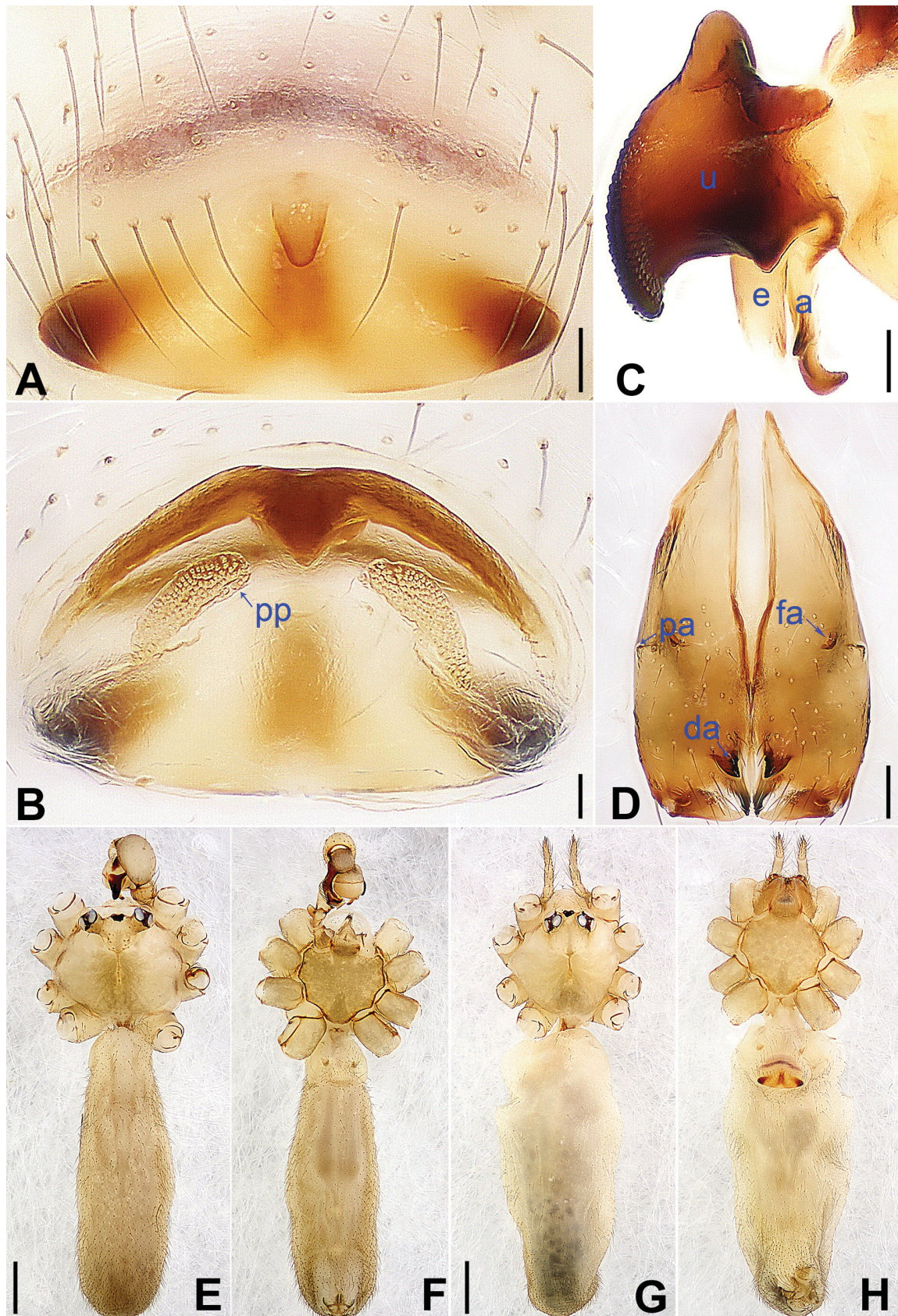
**Female:** Similar to male, habitus as in Figs 30G–H. Total length 3.94 (4.23 with clypeus), carapace 1.02 long, 1.06 wide, opisthosoma 2.92 long, 1.02 wide; tibia I: 10.13; tibia I L/d: 84. Distance PME-PME 0.17; diameter PME 0.11; distance PME-ALE 0.02; distance AME-AME 0.03; diameter AME 0.04. Sternum wider than long (0.85/0.75). Ocular area without eye-stalks. External genitalia (Fig. 30A) with a short knob. Vulva (Fig. 30B) with a sclerotized anterior arch and two long pore plates.

**Distribution.** Thailand (Saraburi, type locality; Fig. 32).

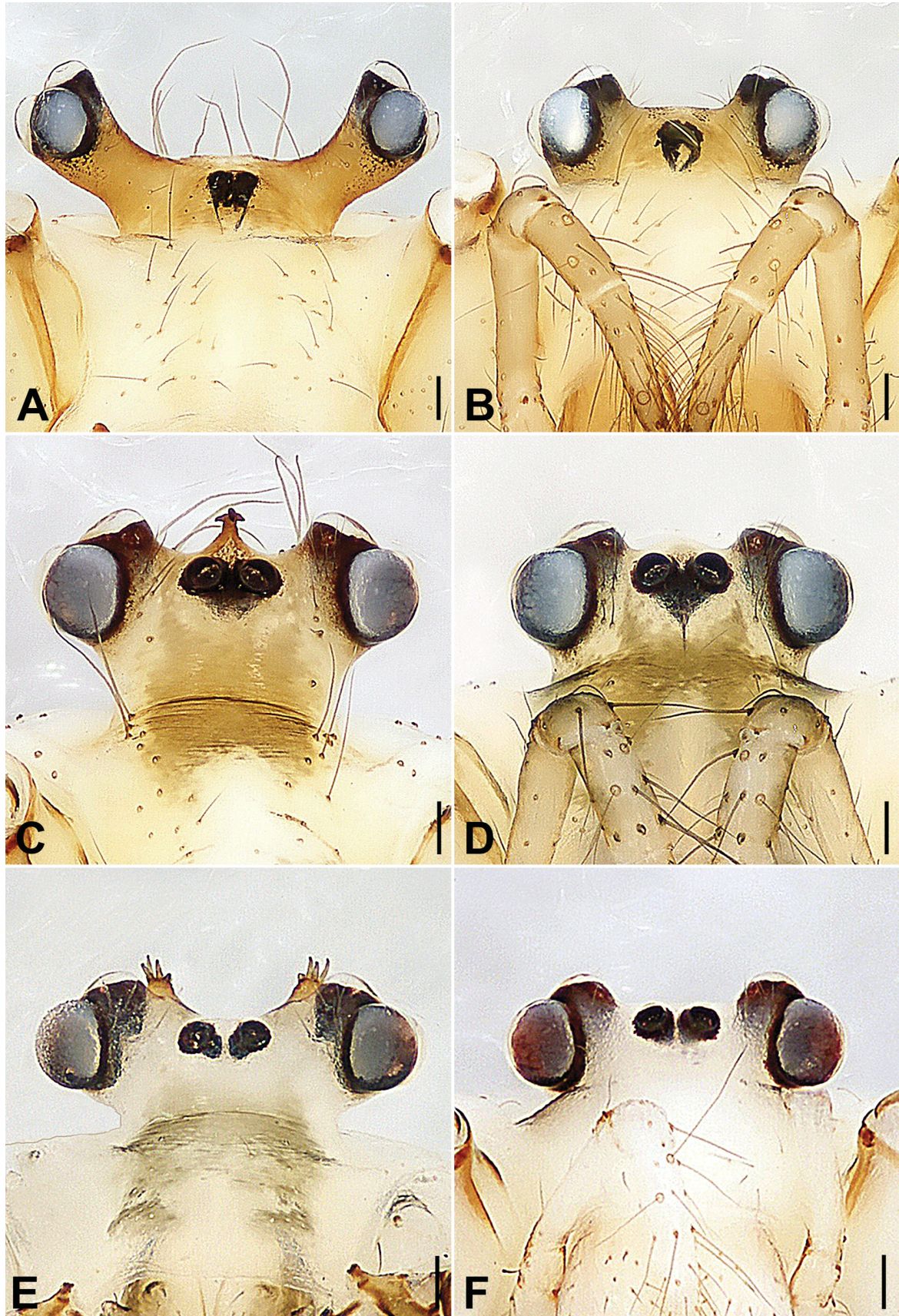
**Natural history.** The species was found in the aphotic zone inside the cave.



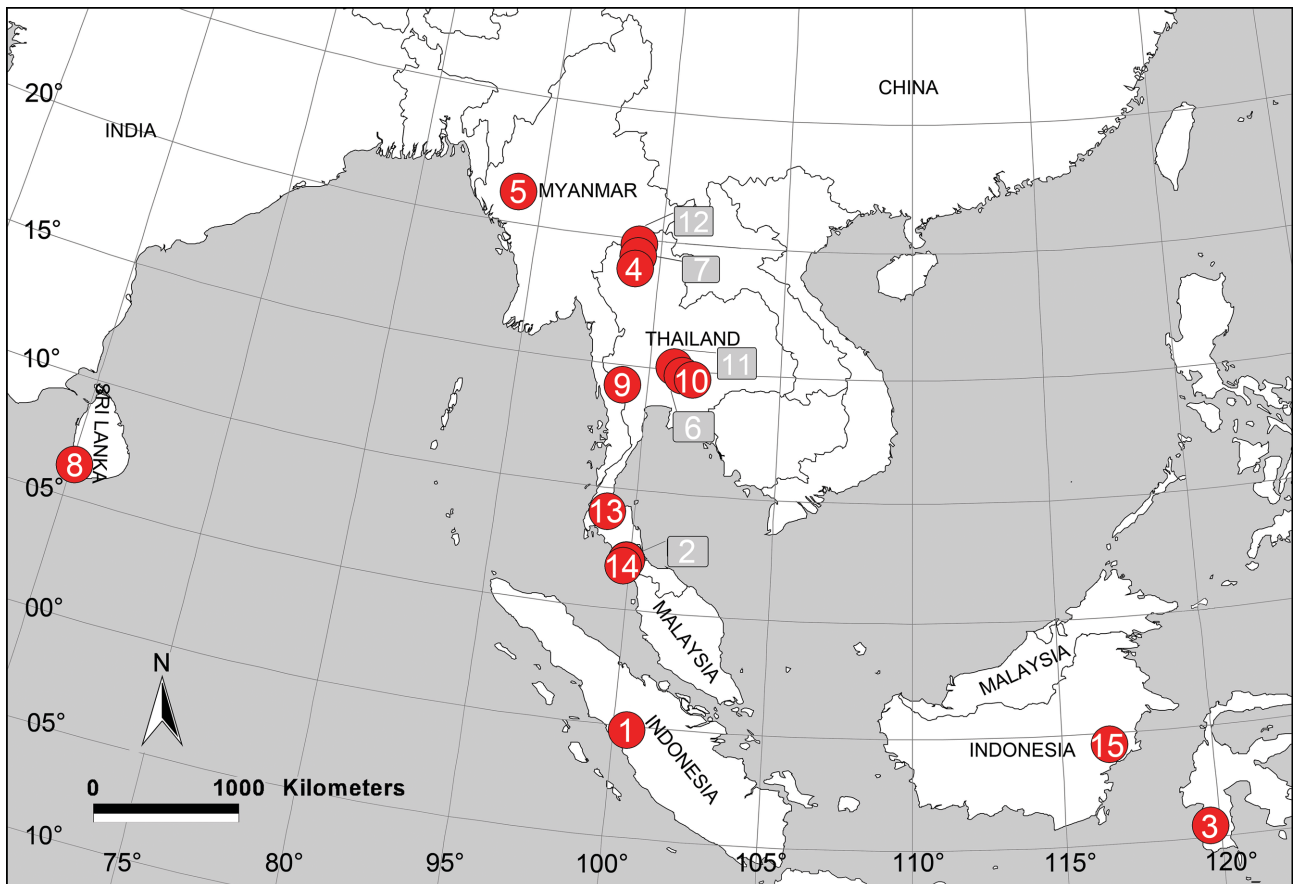
**FIGURE 29.** *Pholcus songkhonensis* sp. nov., holotype male. A–B. Pedipalp (A. Prolateral view; B. Retrolateral view); C–D. Distal part of procurus (C. Prolateral view, arrow points at narrow prolatero-distal membranous process; D. Retrolateral view, arrow points at retrolateral apophysis). a = appendix, b = bulb, e = embolus, pr = procurus, u = uncus. Scale bars: 0.10 (A–B), 0.05 (C–D).



**FIGURE 30.** *Pholcus songkhonensis* sp. nov., holotype male (C–F) and paratype female (A–B, G–H). A. External genitalia, ventral view; B. Vulva, dorsal view; C. Bulbal apophyses, prolateral view; D. Chelicerae, frontal view; E–H. Habitus (E, G. Dorsal view; F, H. Ventral view). a = appendix, da = distal apophysis, e = embolus, fa = frontal apophysis, pa = proximo-lateral apophysis, pp = pore plate, u = uncus. Scale bars: 0.05 (A–C), 0.10 (D), 0.50 (E–H).



**FIGURE 31.** Male and female ocular area, frontal view. A–B. *Pholcus tharnlodensis* **sp. nov.**, holotype male (A) and paratype female (B). C–D. *P. hinsonensis* **sp. nov.**, holotype male (C) and paratype female (D). E–F. *P. zhuchuandiani* **sp. nov.**, holotype male (E) and paratype female (F). Scale bars: 0.10 (A–F).



**FIGURE 32.** Distribution records of new *Pholcus* species from Southeast Asia. ① *Pholcus anaiensis* sp. nov.; ② *P. ballarini* sp. nov.; ③ *P. cenranaensis* sp. nov.; ④ *P. chiangmaiensis* sp. nov.; ⑤ *P. gou* sp. nov.; ⑥ *P. hinsonensis* sp. nov.; ⑦ *P. kaebyaiensis* sp. nov.; ⑧ *P. kottawagamaensis* sp. nov.; ⑨ *P. krachensis* sp. nov.; ⑩ *P. musensis* sp. nov.; ⑪ *P. songkhonensis* sp. nov.; ⑫ *P. taptaoensis* sp. nov.; ⑬ *P. tharnlodensis* sp. nov.; ⑭ *P. wan* sp. nov.; ⑮ *P. zhuchuandiani* sp. nov.

## Acknowledgments

The manuscript benefited greatly from comments by Facundo Martín Labarque and two anonymous referees. Peter Jäger kindly provided some specimens examined here. We thank Sarah Crews for improving the English of our manuscript. This study was supported by the Southeast Asia Biodiversity Research Institute, Chinese Academy of Sciences (2015CASEABRI005), the National Natural Sciences Foundation of China to Shuqiang Li (NSFC-31471960, 31272280), Guo Zheng (NSFC-31172121, 31372224) and Zhiyuan Yao (NSFC-31372170). Part of the laboratory work was financially supported by Eco-Environmental Research Center Foundation of Shenyang Normal University (EERC-T-201502), Liaoning Excellent Talents in University (LJQ2012094).

## References

- Huber, B.A. (2000) New World pholcid spiders (Araneae: Pholcidae): A revision at generic level. *Bulletin of the American Museum of Natural History*, 254, 1–348.  
[http://dx.doi.org/10.1206/0003-0090\(2000\)254<0001:NWPSAP>2.0.CO;2](http://dx.doi.org/10.1206/0003-0090(2000)254<0001:NWPSAP>2.0.CO;2)
- Huber, B.A. (2001) The pholcids of Australia (Araneae, Pholcidae): taxonomy, biogeography, and relationships. *Bulletin of the American Museum of Natural History*, 260, 1–144.  
[http://dx.doi.org/10.1206/0003-0090\(2001\)260<0001:TPOAAP>2.0.CO;2](http://dx.doi.org/10.1206/0003-0090(2001)260<0001:TPOAAP>2.0.CO;2)
- Huber, B.A. (2003) High species diversity in one of the dominant groups of spiders in East African montane forests (Araneae: Pholcidae: *Buitinga* n. gen., *Spermophora* Hentz). *Zoological Journal of the Linnean Society*, 137, 555–619.  
<http://dx.doi.org/10.1046/j.1096-3642.2003.00053.x>
- Huber, B.A. (2005) The pholcid spiders of Africa (Araneae: Pholcidae): state of knowledge and directions for future research.

- In: Huber B.A., Sinclair, B.J. & Lampe, K.-H. (Eds.), *African Biodiversity: Molecules, Organisms, Ecosystems*. Springer Verlag, the Netherlands, pp. 181–186.  
[http://dx.doi.org/10.1007/0-387-24320-8\\_15](http://dx.doi.org/10.1007/0-387-24320-8_15)
- Huber, B.A. (2011) Revision and cladistic analysis of *Pholcus* and closely related taxa (Araneae, Pholcidae). *Bonner Zoologische Monographien*, 58, 1–509.
- Huber, B.A. (2015) Small scale endemism in Brazil's Atlantic Forest: 14 new species of *Mesabolivar* (Araneae, Pholcidae), each known from a single locality. *Zootaxa*, 3942 (1), 1–60.  
<http://dx.doi.org/10.11646/zootaxa.3942.1.1>
- Huber, B.A., Petcharad, B., Leh, M.U., C., Koh, J.K.H. & Ghazali, A.R.M. (2016) The Southeast Asian *Pholcus halabala* species group (Araneae, Pholcidae): new data from field observations and ultrastructure. *European Journal of Taxonomy*, 190, 1–55.  
<http://dx.doi.org/10.5852/ejt.2016.190>
- Khmelik, V.V., Kozub, D. & Glazunov, A. (2006) Helicon Focus 6.6.1. Available from: <http://www.heliconsoft.com/heliconfocus.html> (accessed 2 Sept. 2015)
- Li, S. & Wang, X. (2016) Endemic spiders in China. Available from: <http://www.ChineseSpecies.com> (accessed 18 April 2016)
- Simon, E. (1893) *Histoire Naturelle des Araignées*. Paris, 1, 257–488.
- Walckenaer, C.A. (1805) *Tableau des Aranéides ou Caractères Essentiels des Tribus, Genres, Familles et Races que Renfermele Genre Aranea de Linné, Avec la Désignation des Espèces Comprises dans Chacune de ces Divisions*. Paris, 88 pp.
- World Spider Catalog (2016) The world spider catalog, version 17.0. Natural History Museum Bern. Available from: <http://wsc.nmbe.ch> (accessed 18 April 2016)
- Yao, Z. & Li, S. (2012) New species of the spider genus *Pholcus* (Araneae: Pholcidae) from China. *Zootaxa*, 3289, 1–271.
- Yao, Z. & Li, S. (2013) New and little known pholcid spiders (Araneae: Pholcidae) from Laos. *Zootaxa*, 3709 (1), 1–51.  
<http://dx.doi.org/10.11646/zootaxa.3709.1.1>
- Yao, Z., Li, S. & Jäger, P. (2014) Four new species of pholcine spiders (Araneae: Pholcidae) from Southeast Asia. *Zootaxa*, 3793 (3), 331–349.  
<http://dx.doi.org/10.11646/zootaxa.3793.3.2>
- Yao, Z., Pham, D. & Li, S. (2015) Pholcid spiders (Araneae: Pholcidae) from northern Vietnam, with descriptions of nineteen new species. *Zootaxa*, 3909 (1), 1–82.  
<http://dx.doi.org/10.11646/zootaxa.3909.1.1>
- Zhang, F. & Zhu, M. (2009) A review of the genus *Pholcus* (Araneae: Pholcidae) from China. *Zootaxa*, 2037, 1–114.