

A NEW SPECIES OF *CHAERILUS* SIMON, 1877 (SCORPIONES, CHAERILIDAE) FROM THAILAND

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ABSTRACT. – A new species belonging to the genus *Chaerilus* Simon, 1877, *Chaerilus thai*, new species, is described from an evergreen rain forest in Bala-Hala Wildlife Sanctuary in the South of Thailand. For comparative purposes a precise diagnosis is again proposed for *Chaerilus celebensis* Pocock, 1894, originally described from Luwu Celebes Islands (Sulawesi). This species was recently redescribed by Lourenço & Ythier (2008) and proved to be the subject of subsequent misidentifications.

KEY WORDS. – Scorpion, Chaerilidae, *Chaerilus*, new species, Thailand.

INTRODUCTION

In recent publications several historical aspects, but also other insights concerning the taxonomy of the genus *Chaerilus* Simon, 1877 were the subject of discussion (Qi et al., 2005; Lourenço, 2008; Lourenço & Ythier, 2008; Lourenço & Zhu, 2008; Zhu et al., 2008). These studies clearly suggest that publications done in absence of the necessary background, such as the revision by Kovařík (2000), remain unsatisfactory. Presently, other studies concerning obscure or poorly characterized species of this genus are in preparation by the senior author. One good example, already discussed by Lourenço & Ythier (2008) and Lourenço & Zhu (2008), is the one represented by *Chaerilus celebensis* Pocock, 1894. This species, originally described from Luwu, Celebes (Sulawesi) Island, was the subject of several misidentifications; see for example the description of *Chaerilus petrzekai* Kovařík, 2000 from the South of Vietnam (Kovařík, 2000, Lourenço & Zhu, 2008). For this reason, Lourenço & Ythier (2008) recently proposed a redescription of this species, based on freshly collected material in Luwu, Celebes (Sulawesi) Island. In this contribution we propose again a precise diagnosis for *C. celebensis*, followed by some previously unpublished illustrations of this species. Moreover, one new species is described from an evergreen rain forest in Bala-Hala Wildlife Sanctuary in the South of Thailand.

MATERIALS AND METHODS

Specimens were examined and measured under a Wild M5 stereomicroscope with an ocular micrometer. Illustrations were produced using a Leica M165c stereomicroscope with a drawing tube. All measurements follow Stahnke (1970) and are given in millimetres (mm). Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Hjelle (1990). Specimens used in this taxonomic work come from the Muséum national d'Histoire naturelle, Paris (MNHN), Natural History Museum, London (BMNH), Zoologisches Museum, Hamburg (ZMUH) and Museum of Hebei University, Baoding (MHBU).

TAXONOMY

Chaerilidae Pocock, 1893

***Chaerilus* Simon, 1877**

***Chaerilus celebensis* Pocock, 1894** (Figs. 1, 2, 5B,D; Table 1)

Chaerilus celebensis Pocock, 1894: 93; Kraepelin, 1899: 158; Kraepelin, 1913: 145; Fage, 1946: 72 (misidentification); Takashima, 1945: 99; Kovařík, 2000: 43; Lourenço & Ythier, 2008: 27.

Table 1. Morphometric values (in mm) of *Chaerilus celebensis*, female from Malino, Luwu, Celebes (MNHN) and *Chaerilus thai*, new species, female holotype (MHBU).

| Morphometric Parameters | <i>Chaerilus celebensis</i> (Female) | <i>Chaerilus thai</i> (Female) |
|-------------------------|--------------------------------------|--------------------------------|
| Total length | 25.8 | 15.8 |
| Carapace: | | |
| – length | 4.2 | 2.8 |
| – anterior width | 2.3 | 1.6 |
| – posterior width | 4.3 | 2.9 |
| Metasomal segment I: | | |
| – length | 1.5 | 0.9 |
| – width | 2.2 | 1.3 |
| Metasomal segment II: | | |
| – length | 1.8 | 1.0 |
| – width | 1.8 | 1.2 |
| Metasomal segment III: | | |
| – length | 1.9 | 1.1 |
| – width | 1.7 | 1.1 |
| Metasomal segment IV: | | |
| – length | 2.0 | 1.3 |
| – width | 1.5 | 1.1 |
| Metasomal segment V: | | |
| – length | 3.4 | 2.1 |
| – width | 1.5 | 1.0 |
| – depth | 1.3 | 0.9 |
| Vesicle: | | |
| – width | 1.6 | 1.3 |
| – depth | 1.4 | 1.1 |
| Pedipalp: | | |
| – Femur length | 3.8 | 2.1 |
| – Femur width | 1.6 | 1.0 |
| – Patella length | 4.1 | 2.4 |
| – Patella width | 1.9 | 1.1 |
| – Chela length | 7.8 | 4.5 |
| – Chela width | 2.6 | 1.5 |
| – Chela depth | 2.4 | 1.6 |
| Movable finger: | | |
| – length | 3.8 | 2.2 |

Material examined. – 1 female-juvenile holotype (BMNH-1896.10.6.5.), Indonesia, Luwu, Celebes (Sulawesi) Island, coll. M. Weber, 6 Jun.1896; 1 female (ZMUH), Indonesia, Luwu, Celebes (Sulawesi) Island, Sadara-Spitze, coll. Sarasin, 4 Mar.1897; 1 female (MNHN), Indonesia, Luwu, Celebes (Sulawesi) Island, Malino, slopes of the Lompobatang, 1500 m alt., coll. P. Leclerc, 6 Jul.1986; 1 male-juvenile (MHNH), Indonesia, Luwu, Celebes (Sulawesi) Island, Tacipi-Lampo, Bone, coll. P. Leclerc, 17 Jul.1986; 1 female-juvenile (MHBU), Indonesia, Luwu, Celebes (Sulawesi) Island, Tacipi-Lampo, Bone, coll. P. Leclerc, 15 Jul.1986.

Diagnosis. – Species with small to moderate size in relation to the other species of the genus with 22 to 26 mm in total length.

Coloration. – Basically reddish-yellow to yellowish-brown. Carapace reddish to reddish-brown, with two posterior spots on posterior edge; tergites yellowish, intensely marked with brownish confluent spots. Metasoma: All segments yellowish with variegated brownish spots; dorsal surface of segments not spotted; carinae dark reddish-brown. Telson yellowish with diffused brownish spots; aculeus reddish. Chelicerae yellowish with rather diffused variegated spots; fingers with reddish teeth. Pedipalps: reddish to reddish-brown with some diffused brownish spots; carinae blackish-brown; chela fingers very dark. Legs yellowish with diffused brownish variegated spots. Venter and sternites yellowish; with the exception of the pectines, all other structures are marked with rather diffused brownish spots (note: coloration is extensively

described because of the diagnostic importance of this character in relation to closely related species). Morphology: Carapace with the anterior margin weakly concave; carinae weakly marked; moderately granular in males, more densely granular in females; furrows moderately to weakly deep. Metasomal carinae moderately to strongly granular; ventral carinae absent from segment I. Dentate margins of fixed and movable fingers of pedipalp chela with 6-7 rows of granules, not well delimited. Pectinal tooth count 3-4 in males, 3 in females. Genital operculum plates have a sub-oval shape. Trichobothriotaxy of type B, orthobothriotaxic.

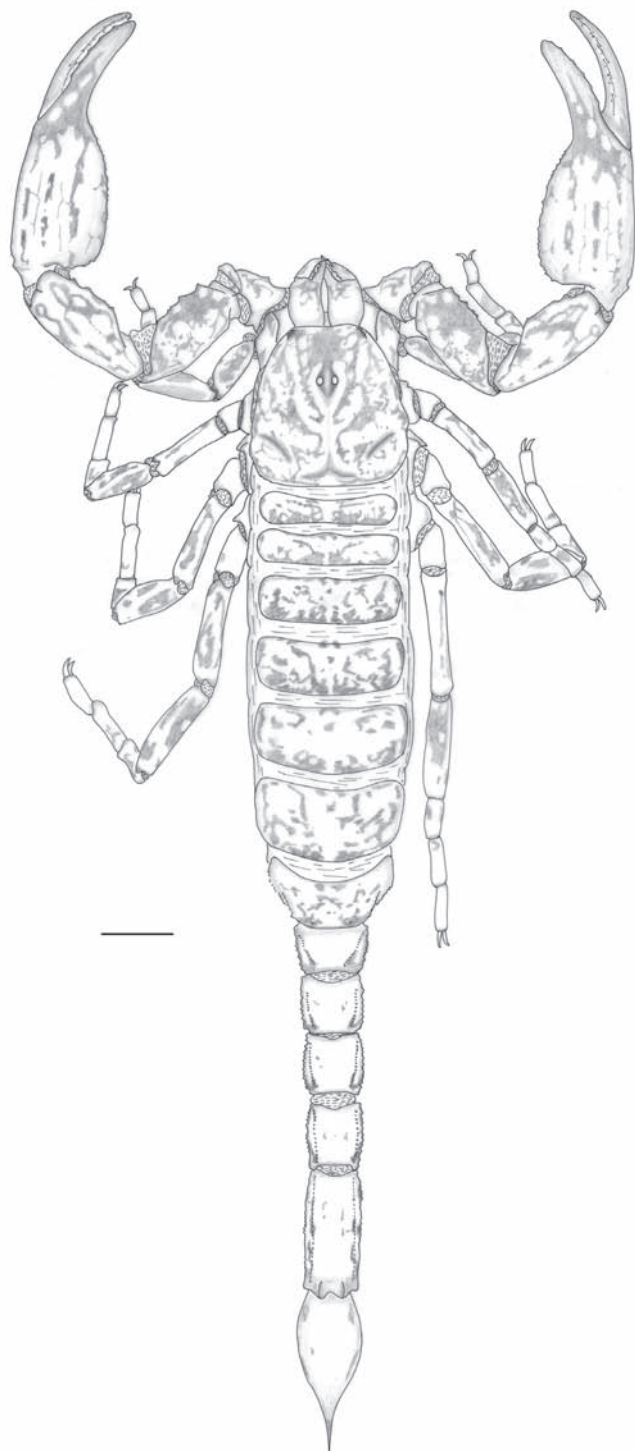


Fig. 1. *Chaerilus celebensis* Pocock, 1894. Female (MHBU). Habitus. Scale bar = 1.0mm.

Distribution. – *C. celebensis* has been cited from different locations, including some outside Indonesia. These correspond, however, to misidentifications, and this species can only be confirmed up to know from Celebes (Sulawesi) Island.

Chaerilus thai, new species

(Figs. 3, 4, 5A, C, E; Table 1)

Material examined. – Holotype: female (MHBU), Thailand, Narathiwat Province, Waeng District, Bala-Hala Wildlife Sanctuary (250 m alt., evergreen rain forest), coll. D. Huber, 8 Jun.1998.

Paratypes. – No paratypes.

Diagnosis. – New species of small size compared to the other species of the genus, with a total length of 15.8 mm. Carapace with the anterior margin straight, almost acarinate and weakly granulated to smooth; furrows shallow. Metasomal carinae moderately marked; ventral carinae vestigial on segments I and II, weakly marked on segment III. Dentate margins of fixed and movable fingers of pedipalp chela with 6 rows of granules, not well delimited. Pectinal tooth count 4-4 in female. Genital operculum plates have a sub-oval shape. Trichobothriotaxy of Type B, orthobothriotaxic.

Relationships. – By its general morphology and the pattern of pigmentation, *Chaerilus thai*, new species, can be associated with *Chaerilus celebensis* Pocock. The new species can, however, be distinguished by the following features: (i) a smaller total size and distinct morphometric values (see Table 1), (ii) a carapace very weakly granulated to smooth, (iii) an overall darker pigmentation than that of *C. celebensis*; are particularly marked the dorsal surface of metasomal segments I to IV, pedipalps, chelicerae and ventral aspect, including pectines.

Description. – **Female** (holotype).

Coloration: Basically yellowish, with a dark variegated pigmentation on body and appendages. Carapace yellowish, strongly marked with blackish pigmentation, in particular on the anterior half. Tergites with the same colour and pigmentation of the carapace. Metasoma: All segments yellowish with dark variegated pigmentation; dorsal surface of segments I-IV with dark square-shaped spots; carinae not darker than the tegument. Telson yellowish with diffused brownish spots; aculeus yellowish at the base and reddish at the extremity. Chelicerae yellowish intensely marked with variegated spots; fingers with reddish teeth. Pedipalps: yellowish with dark variegated pigmentation; femur and patella with dark brown spots, better marked on femur; chela fingers much darker than chela hand. Legs yellowish intensely marked with brownish spots. Venter and sternites brownish-yellow; all the structures are marked with brownish spots, including pectines.

Morphology: Carapace with anterior margin straight, almost acarinate and very weakly granular to smooth; furrows

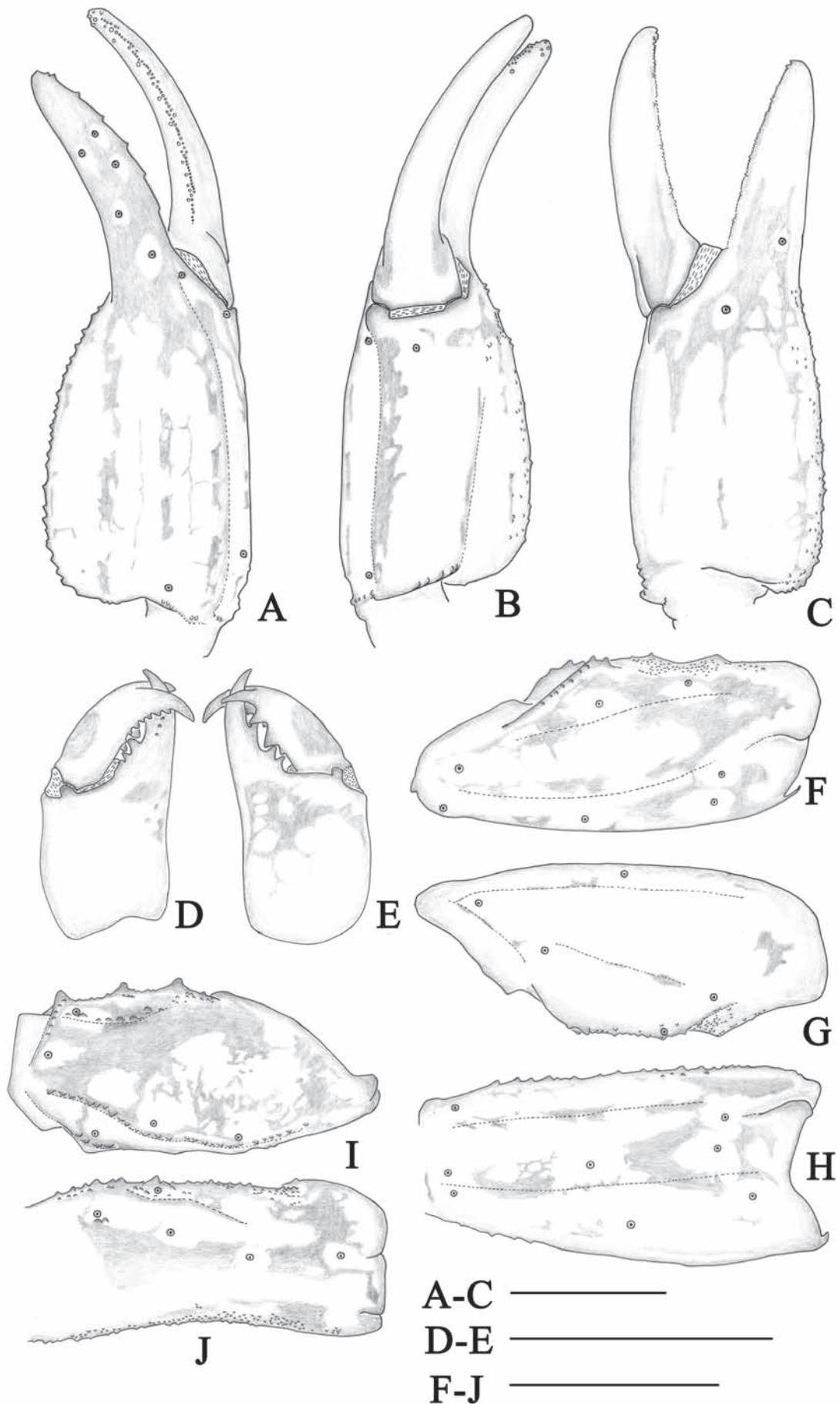


Fig. 2. *Chaerilus celebensis* Pocock, 1894. Female (MHBUS). A–C: Chela, dorso-external (A), ventral (B) and internal (C) view; D, E: Chelicera, ventral (D) and dorsal (E) view; F–H: Patella, dorsal (F), ventral (G) and external (H) view; I, J: Femur, dorsal (I) and external (J) view. Scale bars = 1.0mm.

shallow. Two pairs of lateral eyes; median eyes moderate, about twice the size of lateral eyes; median eyes anterior to the centre of the carapace. Tergites with only very minute granulation; carinae obsolete. Sternum pentagonal, longer than wide; genital operculum plates with a sub-oval shape. Pectinal tooth count 4-4 in female holotype. Sternites smooth with spiracles small and round; carinae absent from VII. Metasoma: Segments I and II wider than long; III as long as wide; IV and V longer than wide. All the carinae moderately granular; ventral carinae vestigial on segments I and II, weakly marked on segment III; segment V with five carinae and spinoid granules on ventral surface. Vesicle smooth, with a short aculeus. Pedipalps: Femur with five carinae; dorsal internal and dorsal external moderately granular; ventral internal weakly granular; ventral external vestigial. Patella with five to six carinae; dorsal and ventral weakly granular to smooth. Chela with seven to eight carinae, all weakly granular; ventral median carinae weak. Tegument with very few granulations almost smooth. Finger almost as long as manus with 6 rows of granules on the dentate margins, not well delimited. Chelicerae characteristic of the family Chaerilidae (Vachon, 1963). Trichobothriotaxy of type B; orthobothriotaxic (Vachon, 1974); femur with 9 trichobothria, patella with 14, and chela with 14. Legs with

pedal spurs moderately developed. Tarsi with two rows of thin setae.

Etymology. – The specific name makes reference to Thailand, the country where the new species was collected.

Distribution. – Narathiwat Province, Thailand (present study). *Chaerilus thai* new species, is the first record properly documented of the presence of this genus in Thailand. Kovařík (2000) indicated, as a new record, the presence of *Chaerilus cavernicola* Pocock from Trang Thailand. This species, however, was described from Caves Ngatau near Pajacombo in Sumatra, and its presence in Thailand is doubtful. Moreover, this last species has no possible affinities with the new species.

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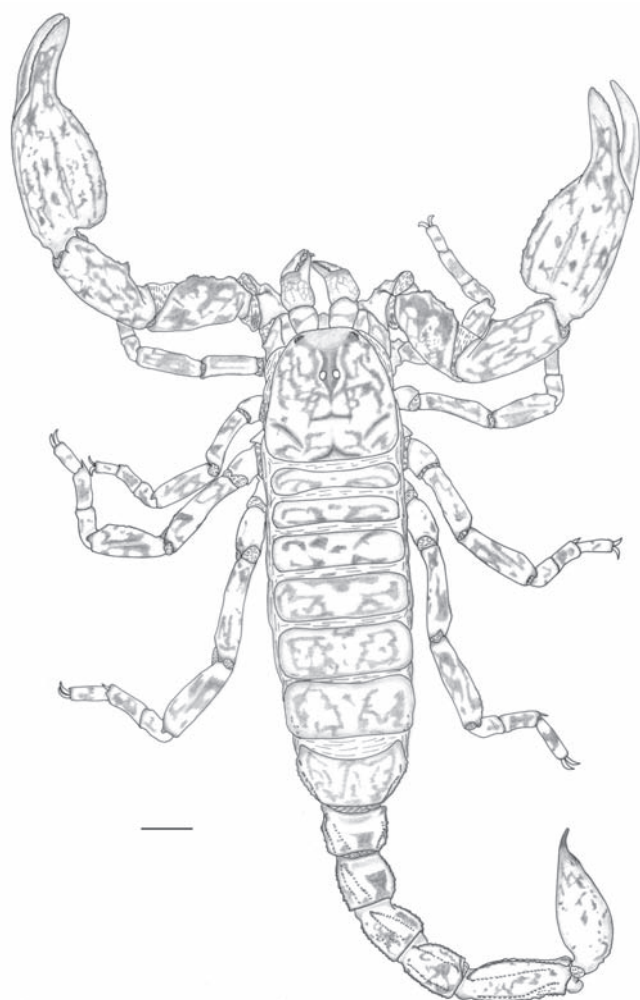


Fig. 3. *Chaerilus thai*, new species. Female holotype (MHBHU). Habitus. Scale bar = 1.0mm.

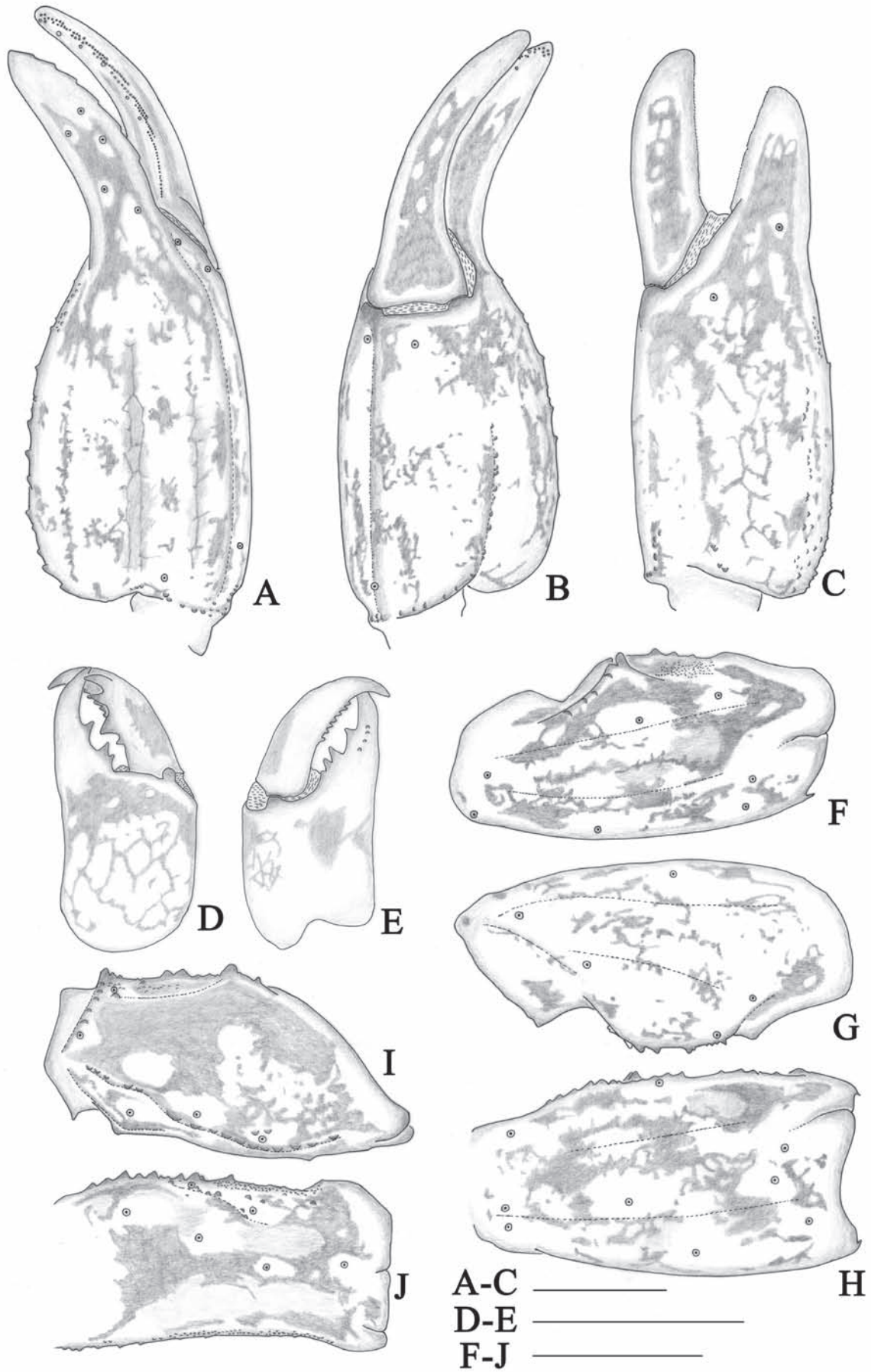


Fig. 4. *Chaerilus thai*, new species. Female holotype (MHBUS). A–C: Chela, dorso-external (A), ventral (B) and internal (C) view; D, E: Chelicera, ventral (D) and dorsal (E) view; F–H: Patella, dorsal (F), ventral (G) and external (H) view; I, J: Femur, dorsal (I) and external (J) view. Scale bars = 1.0mm.

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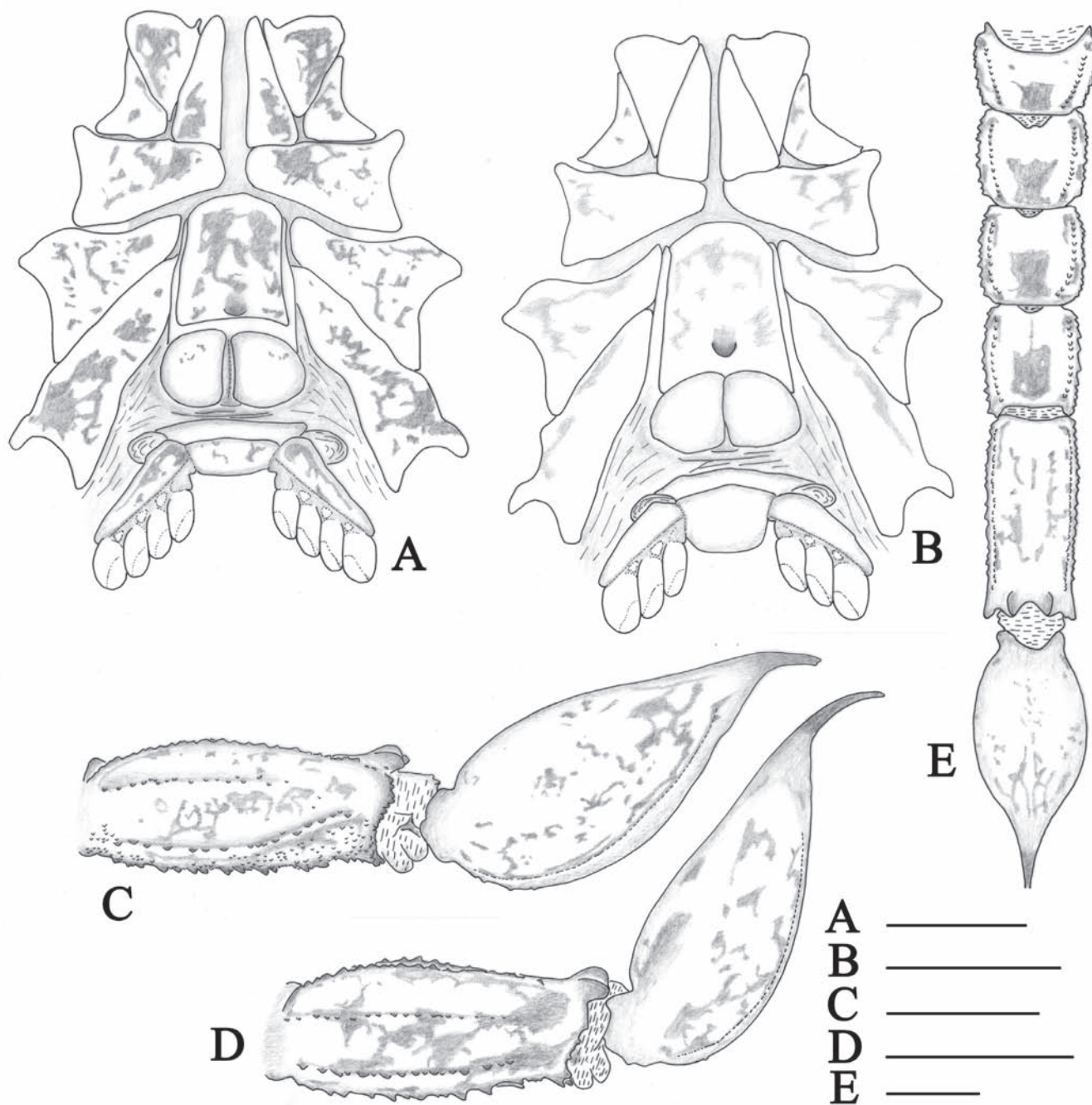


Fig. 5. A, C, E, *Chaerilus thai*, new species. Female holotype (MHBU); B, D, *Chaerilus celebensis* Pocock, 1894. Female (MHBU); A, B, Ventral view showing the pigmentation of coxapophyses, sternum, genital operculum and pectines; C–D, Metasomal segment V and telson, lateral view; E, Metasomal segment I–V and telson, dorsal view. Scale bars = 1.0mm.