

A new spider species of the genus *Sudharmia* from Sumatra, Indonesia (Araneae, Liocranidae)

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Abstract: A new spider species, *Sudharmia tridenticula* sp. nov., is described from primary evergreen forests of Sumatra, Indonesia.

Key words: New species; Sumatra; Indonesia; *Sudharmia*; alpha-taxonomy

印度尼西亚苏门答腊 *Sudharmia* 属蜘蛛—新种记述——*Sudharmia tridenticula* (蜘蛛目, 光盔蛛科)

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摘要: 在印度尼西亚苏门答腊原始常绿森林中发现一蜘蛛, 经鉴定, 该物种为 *Sudharmia* 属一新种 *Sudharmia tridenticula* sp. nov.。

关键词: 新种; 印度尼西亚; 苏门答腊; *Sudharmia* 属; α-分类学

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Deeleman-Reinhold (2001) recently published a thorough revision of the Asian Clubionidae, Liocranidae, Corinnidae and Miturgidae. As a result of this tremendous work, a considerable number of publications dealing with descriptions of new taxa were subsequently produced following her classification (Dankittipakul & Singtripop, 2008a, b, 2011; Dankittipakul et al, 2011; Jäger, 2007; Jäger & Dankittipakul, 2010; Jäger & Praxaysombath, 2009; Ono, 2009; Zhang & Fu, 2010; Zhang et al, 2009a, b, c, d, 2010).

The spider genus *Sudharmia* was established by Deeleman-Reinhold (2001) for two liocranid species inhabiting primary evergreen forests of Sumatra. The genus is well-defined and can be easily recognized by its peculiar genitalic morphology. Members of *Sudharmia* bear close resemblance to those of *Otacilia* Thorell in their general appearance but differ by the possession of a wider and more convex carapace. Several characters

unique to species of *Sudharmia* are: the leg tarsi and metatarsi are almost equal in length, the distinctly enlarged and sclerotized embolus is situated on an apical part of the tegulum, the male palpal femur is usually compressed, the epigyne is represented by anteriorly advanced chitinized ridges situated just below the pedicel, and the lack of chitinized anterior bursae.

The biology of the *Sudharmia* is poorly understood, aside from their ground-dwelling habitat. All specimens in collections have been collected by sifting wet organic humus in the primary evergreen forests of Sumatra. The relatively narrow distribution of *Sudharmia* makes it seem likely that a few additional species remain to be discovered.

1 Material and Methods

Type specimens are deposited in the collection of Muséum d'histoire naturelle, Geneva, Switzerland

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(MHNG). External morphology was examined, measured and drawn with an Olympus SZX-9 stereomicroscope and an Olympus BX-40 equipped with a drawing tube and photographic devices. Measurements of leg segments were taken from the dorsal side. All measurements are in mm. Epigynes were drawn in natural and cleared state (after immersing in 96% lactic acid for 10–20 min).

Abbreviations used in the text and in the figures are as follows: AER, anterior eye row; AME, anterior median eyes; DTA: distal tibial apophysis; E, embolus; FD, fertilization duct; ID, insemination duct; PA, patellar apophysis; PER, posterior eye row; PME, posterior median eyes; PTA, proximal tibial apophysis; RTA: retrolateral tibial apophysis; S, spermatheca; ST, subtegulum; TA, tegular apophysis. Spination: d, dorsal;

pl, prolateral; rl, retrolateral; v, ventral. Arrangement refers to number of spines from proximal to distal part.

In text ‘Fig.’ and “Figs” refer to figures herein, while ‘fig.’ and “figs” refer to figures published elsewhere.

2 Results

Liocranidae Simon, 1897

Sudharmia Deeleman-Reinhold, 2001

Type species: *S. pongorum* Deeleman-Reinhold, 2001, by original designation

2.1 *Sudharmia tridenticula* sp. nov. (Fig. 1a–e)

Type material: Holotype ♂, Indonesia, Sumatra, West Sumatra Province, Batang Palupuh Rafflesia Sanctuary, 12 km north of Bukittinggi, S00°14'32", E100°21'10", 900–1 000 m, primary forest, June 2nd–3rd,

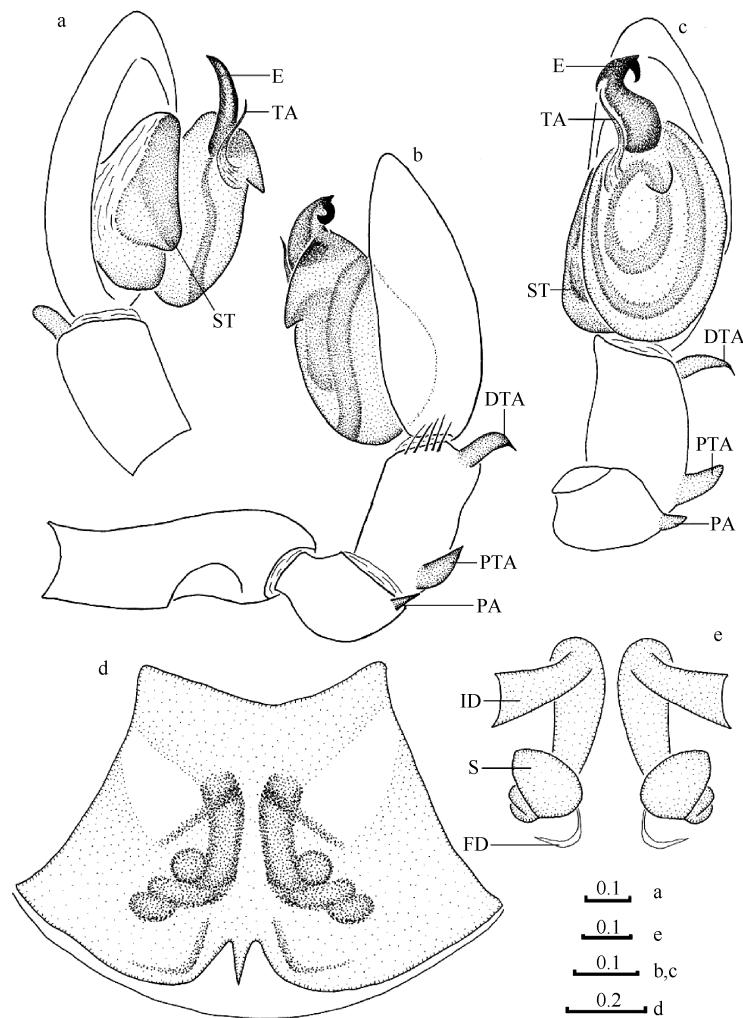


Fig. 1 The illustrations of *Sudharmia tridenticula* sp. nov.

a–c) male holotype ; d–e) female paratype; a) left male palp, prolateral; b) ditto, retrolateral; c) ditto, ventral (slightly tilt); d) epigyne, ventral; e) internal genitalia, dorsal

2006, P.J. Schwendinger leg. (MHNG, Sum-06/05).

Paratypes: 1♂, 1♀, data as holotype (MHNG, Sum-06/05); 4♂, 2♀, West Sumatra Province, Rimbo Panti Nature Reserve, ca. 30 km north of Lubuksikaping, N^o20°20'46", E100°04'09", 300–400 m, primary forest, June 11th–13th 2006, P.J. Schwendinger leg. (MHNG, Sum-06/18).

Etymology: The specific epithet is derived from a combination of Latin words (*tri*=three; *denticulus*=with denticles), and refers to three apophyses on the male palpal patella and tibia.

Diagnosis: Males of this *S. tridenticula* sp. nov. can be distinguished from those of *S. beroni* Deeleman-Reinhold, 2001 and *S. pongorum* Deeleman-Reinhold, 2001 by the hook-shaped subapical extension on the embolus (Fig.1b,c; additional extension absent in those of *S. beroni* and *S. pongorum*), and by the presence of a short apophysis on the palpal patella (Fig.1b,c, PA) and two longer ones on the palpal tibia (Fig.1b,c, PTA and DTA) (a patellar apophysis is absent and only a single retrolateral tibial apophysis is present in those two species). Females can be easily distinguished by the internal ducts running mid-longitudinally (Fig. 1d–e) (median ducts short and indistinct in those of *S. beroni* and *S. pongorum*).

Description: Male (holotype): Total length 2.26; prosoma 1.26 long, 0.84 wide; opisthosoma 1.40 long, 1.04 wide. Leg formula 4123. Leg measurements. I 4.75 (2.13, 1.43, 0.70, 0.49), II 3.30 (0.93, 1.20, 0.66, 0.49), III 2.58 (0.71, 0.77, 0.60, 0.49), IV 4.30 (1.10, 1.66, 0.88, 0.66). Spination. Leg I: femur pr-1, tibia v-2-2-2-2-2-2, metatarsus v-2-2; leg II: femur d-1; tibia pv-2-2-2-2-2; metatarsus v-2-2; leg IV femur d-1.

Prosoma anteriorly narrowed, widest between coxae II, in profile highest just in front of deep, longitudinal fovea. Carapace brown, with black fovea and dark brown pattern; integument finely punctated. Sternum convex, yellowish brown. Legs yellowish, except femora I & II dark brown. Femora I & II enlarged. Metatarsi III & IV apically with preening brush. Eye subequal in size, circular, clear, except AME dark, encircled with black ring; AER straight; PER slightly recurved, wider than AER. Opisthosoma ovoid; dorsum dark grey, posteriorly with three pale transverse median chevrons; dorsal scutum coriaceous, rectangular, its anterior margin narrower than posterior one, occupying approximately 1/3 opisthosomal length; venter pale, without pattern.

Palp (Fig.1a–c). Femur medially with deep, semi-

circular excavation. Patella provided with triangular, sharply pointed retrolateral apophysis. Tibia more or less cylindrical in ventral view, slightly excavated medially in lateral view; RTA absent; proximal tibial apophysis (PTA) digitiform, apically rounded, directed anteriad; distal tibial apophysis (DTA) cylindrical, apex elongated, sharply pointed, directed dorsad. Tegulum elongate-ovoid, subapically with slightly elevated triangular, medially situated hump. Sperm duct thin, encircling tegulum, forming two loops. Tegular apophysis lanceolated, hyaline, semi-transparent, originating subapically, apex reaching half length of embolus. Embolus situated apically, sigmoid-shaped in ventral view, heavily sclerotized, with hook-shaped subterminal extension.

Female (paratype): total length 2.42; prosoma 1.10 long, 0.94 wide; opisthosoma 1.32 long, 1.12 wide. Leg formula 4123. Leg measurements. I 3.51 (0.94, 1.36, 0.72, 0.47), II 3.15 (0.88, 1.15, 0.64, 0.48), III 2.46 (0.68, 0.72, 0.56, 0.48), IV 4.08 (1.04, 1.57, 0.84, 0.62). Spination. Leg I: femur pr-1, tibia v-2-2-2-2-2-2-2, metatarsus v-2-2; leg II: femur d-1; tibia pv-2-2-2-2-2-2; metatarsus v-2-2-2; leg IV femur d-1.

Coloration and pattern. General appearance as in male but PME smallest; legs brown, distal part distinctly paler than proximal part, almost yellow; opisthosoma pale, lacking distinctive pattern; dorsal scutum absent.

Genitalia (Fig.1d,e). Epigynal region with shallow lateral depressions obliquely situated; posterior margin excavated and provided with triangular median extension. Internal genitalia represented by simple duct system consisting of tubular ducts running mid-longitudinally, posterior part extending laterally to form simple coils and terminally enlarged spermathecae. Fertilization ducts acuminate.

Natural history: Types of *S. tridenticula* sp. nov. were collected by sifting decomposed organic litter in primary evergreen forests (300–1 000 m).

Distribution: Indonesia (West Sumatra Province).

3 Discussion

The genus *Sudharmia* was originally established for two liocranid spiders confined to humid, primary evergreen forests of Sumatra. The genus currently includes 3 species: *S. beroni*, *S. pongorum*, and *S. tridenticula* sp. nov. All species occur in the mountainous regions of West Sumatra.

Of interest is the modification of the proximal and

distal apophyses on the retrolateral side of the male palpal tibia, in addition to the possession of a patellar apophysis and a deep retrolateral excavation of femora. These apophyses are rather long, and enlarged (Fig. 1c), and it is reasonable to assume that they perform some clasping function during mating. Males with these modified apophyses (*S. tridenticula* sp. nov. and *S. pongorum*) also have some forms of modification on their femora, usually represented by an elevated ridge or a depression on the ventro-distal surface. These palpal

modifications bear close resemblance to the males of *Otacilia*. However, males of *Sudharmia* can be easily distinguished by the enormously enlarged embolus, while the embolus is generally represented by a small, spiniform sclerite in those of *Otacilia*.

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