

The male of *Heteropoda ocyalina* (Simon, 1887) (Araneae: Sparassidae: Heteropodinae)

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Summary

The previously unknown male of *Heteropoda ocyalina* (Simon, 1887) is described for the first time. The female is redescribed from new material from the south coast of Java, Indonesia. Illustrations of the female copulatory organs are provided showing new details such as glandular pores of the internal duct system and slit sense organs of the epigyne. According to the male copulatory organs, especially the shape of the RTA, the conductor apophysis and the embolic projection, the species is considered to belong to the *Heteropoda javana*-group.

Introduction

Simon (1887) described a new genus, *Parhedrus* Simon, 1887, accommodating two females he described as *Parhedrus ocyalinus*. He listed the following diagnostic characters: differences in the shape of the prosoma, the eye arrangement and the clypeus. All these characters were considered not diagnostic by Jäger (2002), who synonymised the genus with *Heteropoda* Latreille, 1804, transferred three species and synonymised *Parhedrus fasciatus* Reimoser, 1927 with *P. ocyalinus*. Instead of using somatic characters, the diagnosis for the genus *Heteropoda* was restricted to characters of the copulatory organs (Jäger, 2001: 19; 2002: 40; 2008: 242). Characters of the female copulatory organs and additional characters (body pattern, eye arrangement, prosoma shape, cheliceral dentition, leg claw and palpal claw) of *Heteropoda ocyalina* were illustrated and a species diagnosis was given based on the female copulatory organs in combination with the exceptional shape of the opisthosoma by Jäger (2002: figs. 96–105).

During a visit made by the second author to the Natural History Museum in Vienna a series of one male, four females, one subadult female and one juvenile was recognised as belonging to *H. ocyalina*. As the male of this species was not known until now, it is described in the present paper. Special characters in the male palp are discussed in relation to the systematic position of the species. The female copulatory organs are illustrated showing new details. A pre-epigyne of the subadult female is also illustrated. A standard description of the female is provided, as no comparable data were available from earlier publications.

Material and methods

The examined spiders were preserved in 70% denatured ethanol. Examination and drawings were carried out with a Leica MZ 16 stereomicroscope with camera lucida attachment. The female copulatory organ was dissected and the sclerotised internal duct system was cleared in 96% DL-lactic acid (C₃H₆O₃). All measure-

ments are in mm. Leg formula, leg spination pattern and size classes follow Jäger (2001). Palp and leg lengths are listed as: total (femur, patella, tibia, metatarsus, tarsus). Points of origin of tegular appendages in males are described as clock-positions of the left pedipalpus. The part of the internal duct system with glandular pores (Fig. 7: GP) is called the “turning point”, as at this point the duct system changes its direction. In the schematic course (Fig. 8) this is marked with a “T”, the copulatory orifice with a circle, and the end of the fertilisation duct in the direction of the *uterus externus* with an arrow. As in Jäger (2005: 88), slit sense organs close to the epigynum are illustrated if present as a descriptive character.

Abbreviations used in the text: ALE=anterior lateral eye; AME=anterior median eye; PJ=specimen numbers of Sparassidae examined by Peter Jäger; PLE=posterior lateral eye; PME=posterior median eye; RTA=retrolateral tibial apophysis; I–IV=leg numbers.

Taxonomy

Heteropoda ocyalina (Simon, 1887)

Parhedrus ocyalinus Simon, 1887: 469 (descr. ♀; ♀ syntypes, PJ 691–692, label: Clubionidae, Java, S. baie de Palabouan, in MNHN 1702, examined); Simon, 1897: 55, fig. 42 (illustration of frontal view of prosoma); Jäger, 2001: 19, figs. 151–n (illustration of ♀ copulatory organs).

Parhedrus fasciatus Reimoser, 1927: 1 (descr. immature; immature holotype, PJ 1624, label: Pulu Berhala b. Sumatra, van der Meer Mohr leg., NHMW, examined).

Heteropoda ocyalina: Jäger, 2002: 47, figs. 96–105 (illustration of ♀ copulatory organ and somatic characters, synonymisation with *P. fasciatus*).

Additional material examined: 1♂ (PJ 3123), 4♀ (PJ 3124–3127), 1 subadult ♀ (PJ 3128), 1 juvenile (PJ 3129), Indonesia, Java, south coast, collected by sweeping shrubs and plants on the ground, 16 March 1958, ex coll. Hamann, in Natural History Museum Vienna (PJ 3125 in Senckenberg Museum).

Extended diagnosis: Medium sized Heteropodinae (body length ♂ 12.7, ♀ 11.2–14.1), with distinctly elongated opisthosoma. Males can be recognised by: (1) retrolateral apophysis on conductor (Figs. 2, 5: CA); (2) prolateral embolic projection (Figs. 1–2, 5: EP); (3) RTA with retrolaterad dorsal part, without basal apophysis *sensu* Jäger (2008: figs. 155–156) but with strongly developed ventral RTA (Figs. 2–3) and tip of dorsal RTA with two apices (Fig. 4). Females may be recognised by: (1) median septum not covered by lateral lobes, exhibiting narrowed posterior margin (Fig. 6); (2) presence of posterior pockets at lateral lobes (Fig. 6: PP); (3) first coils of internal duct system touching each other along the median line (Fig. 7).

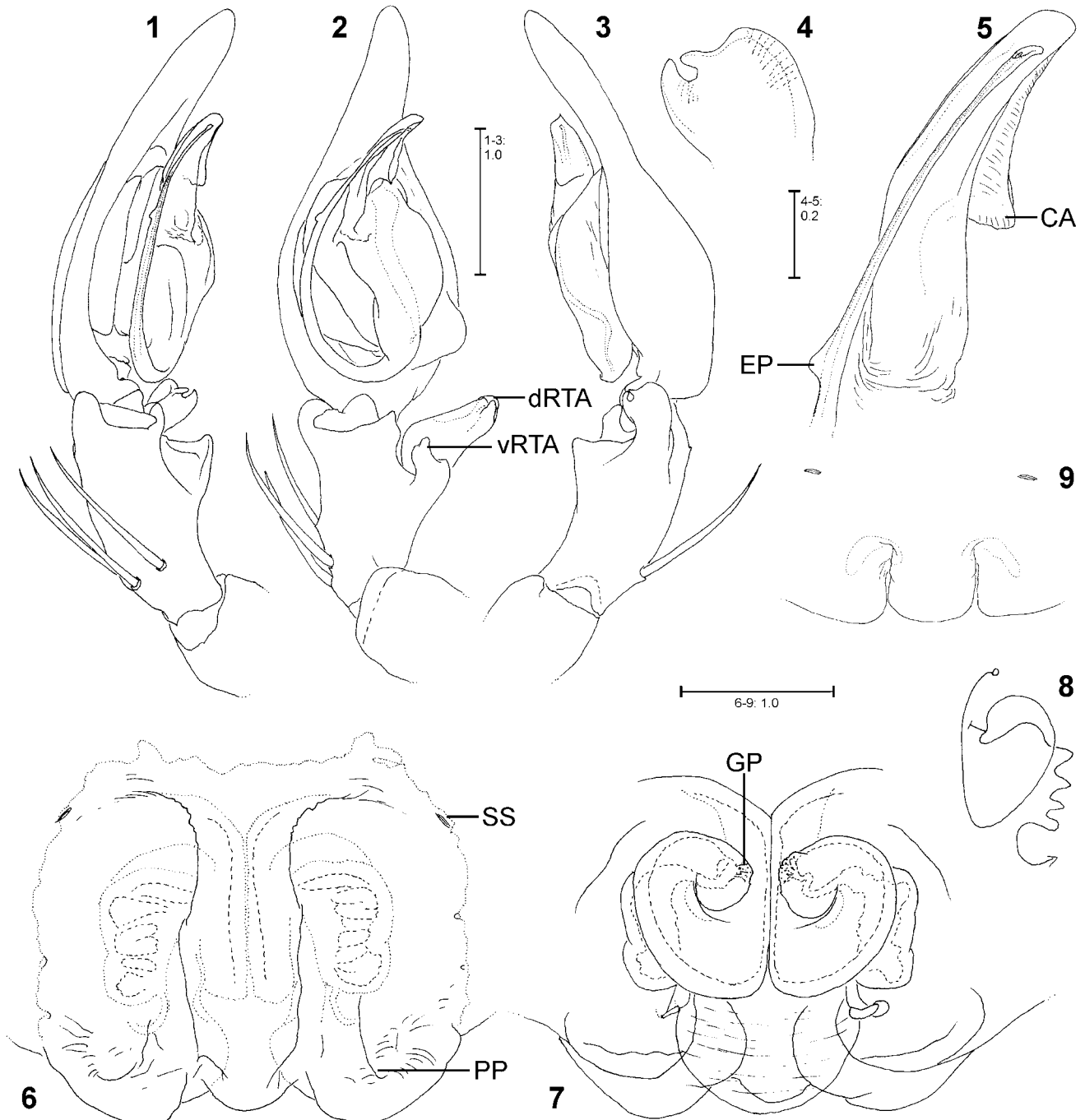
Description: male ($n=1$, Java): Prosoma length 4.8, width 4.2, anterior width of prosoma 2.0, opisthosoma length 7.9, width 2.9. Eyes: AME 0.23, ALE 0.37, PME 0.26, PLE 0.35; AME–AME 0.14, AME–ALE 0.03, PME–PME 0.20, PME–PLE 0.33, AME–PME 0.32, ALE–PLE 0.37; clypeus height at AME 0.75, clypeus height at ALE 0.52. Spination: palp: 131, 101, 2101; legs: femur I 323, II–III 333, IV 331; patella I–IV 101; tibia I

22(3)26, II 2226, III–IV 2026; metatarsus I–II 1014, III 2014, IV 3036. Metatarsus IV ventrally with bristles along entire length, metatarsus III with several bristles in proximal half. Leg formula: 2143. Measurements of palp and legs: palp 8.4 (2.7, 1.2, 1.7, –, 2.8), leg I 35.5 (9.5, 2.5, 10.7, 10.0, 2.8), leg II 35.9 (9.7, 2.6, 10.8, 9.9, 2.9), leg III 22.8 (6.7, 1.9, 6.4, 5.9, 1.9), leg IV 30.3 (8.9, 1.9, 8.0, 8.9, 2.6).

Male palp as in diagnosis. RTA arising medially on tibia. Dorsal RTA massive. Cymbium with distinct retrolateral lobe in proximal half. Conductor arising in 11-o'clock position on tegulum. Embolus arising in

5-o'clock position on tegulum, semicircular. Cheliceral furrow with 32 denticles situated in one patch close to promarginal teeth. Promargin of chelicerae with 3 teeth, retromargin with 4 teeth, right chelicera with base of additional tooth in middle of row (broken off?). Legs more slender than in other *Heteropoda* species.

Coloration: Yellowish-brown with darker brown pattern. Prosoma with dark median band and white line within this band in anterior half. Sternum, ventral coxae, labium and gnathocoxae pale yellow, sternum with few spots marginally. Leg femora mainly prolatero-ventrally spotted, spots fused on femur I basally. Distal



Figs. 1–8: *Heteropoda ocyalina* (Simon, 1887) from Java. 1–3 Left male palp (1 prolateral, 2 ventral, 3 retrolateral); 4 Tip of dorsal RTA, retrolateral; 5 Conductor and tip of embolus, prolateral-distal; 6 Epigyne, ventral; 7 Internal duct system, dorsal; 8 Schematic course of internal duct system of right half, dorsal (T=turning point with glandular pores, circle=copulatory orifice, arrow=end of fertilisation duct in direction of *uterus externus*); 9 Pre-epigyne of subadult female, ventral. CA=conductor apophysis, dRTA=dorsal part of RTA, EP=embolic projection, GP=glandular pores, PP=posterior pockets of epigyne, SS=slit sense organs, vRTA=ventral part of RTA.

margin of patella and proximal part of tibia with triangular pattern, becoming indistinct on anterior legs.

Redescription: female (PJ 3125): Prosoma length 4.4, width 3.8, anterior width of prosoma 2.1, opisthosoma length 7.6, width 2.6. Eyes: AME 0.21, ALE 0.33, PME 0.26, PLE 0.32; AME–AME 0.20, AME–ALE 0.05, PME–PME 0.20, PME–PLE 0.32, AME–PME 0.32, ALE–PLE 0.37; clypeus height at AME 0.66, clypeus height at ALE 0.45. Spination: palp: 131(0), 101, 2121, 1014; legs: femur I 323, II–III 333, IV 331; patella I 001, II 000, III–IV 100; tibia I 2024, II 2025, III 2026, IV 2025 (short distal ventral spines partly replaced by bristles); metatarsus I–II 1014, III 2014, IV 3036. Metatarsus IV ventrally with bristles along entire length, more sparse than in male, metatarsus III ventrally with only few proximal bristles. Leg formula: 2143. Measurements of palp and legs: palp 8.5 (2.4, 1.2, 2.1 –, 2.8), leg I 25.1 (7.0, 2.3, 7.7, 6.2, 1.9), leg II 25.7 (7.5, 2.3, 7.8, 6.2, 1.9), leg III 17.6 (5.4, 1.5, 4.9, 4.3, 1.5), leg IV 22.9 (7.1, 1.3, 6.2, 6.3, 2.0). Cheliceral furrow with 32 denticles situated in one patch close to promarginal teeth. Promargin of chelicerae with 3 teeth, retromargin with 4 teeth, left chelicera with base of additional tooth in middle of row (broken off?). Legs more slender than in other *Heteropoda* species, but less so than in male. Palpal claw with 5 teeth.

Copulatory organ as in diagnosis. Epigynal field with very short anterior bands. Median septum freely visible, without septal pocket. Slit sense organs included in epigynal field (Fig. 6). Internal duct system with glandular pores pointing medially. Fertilisation ducts separated by more than one width of first coil (Figs. 7–8). Pre-epigyne with two parallel furrows forming roughly a rectangle. Slit sense organs separated from furrows by 3–5 times their length (Fig. 9).

Coloration: As in male, but with more distinct pattern. Ventral coxae and sternum with spots. Spots on femora I and II fused in entire proximal half. Patellae ventrally becoming darker from leg I to leg IV.

Variation: Females ($n=4$): prosoma length 4.4–4.8, prosoma width 6.6–9.1.

Relationships: The *Heteropoda* species with an exceptional male palpal conformation were revised by Jäger (2008). Among those, the *Heteropoda javana*-group consists of 14 species (excluding *H. ocyalina*), males of which are known from seven species. Representatives exhibit a conductor apophysis (7 species), an RTA with different shape in comparison with other *Heteropoda* spp. and arising more medially to proximally from the tibia (7 species), an additional basal apophysis between the RTA and cymbium (5 species), an apophysis or projection on the tegulum (3 species), a projection on the embolus (2 species) and a distinct black ventral coloration (7 species; some indistinct, as faded coloration in old material). All these species are considered as being related to *H. javana* (Simon, 1880). *Heteropoda ocyalina* males share the following characters with this group:

RTA arising medially and directed retrolaterally (similar to that of *H. javana*, but without additional basal RTA), conductor apophysis (different from all other known representatives of this species-group in arising medially and not basally from the conductor), and an embolic projection. The most striking difference in comparison with the *javana*-group members is the elongated shape of the opisthosoma, which is almost unique within the entire genus and shared only by *H. boiei* (Doleschall, 1859), although in a less pronounced form. A further difference is the absence of the typical and striking ventral black coloration (e.g. Jäger, 2008: figs 395, 404) and the brightly coloured bristles on the posterior half of the dorsal opisthosoma, which are also present in *H. davidbowie* Jäger, 2008 (Jäger, 2008: figs. 391–392, 394). Unique is the retrolateral tip of RTA with two apices. The female copulatory organ shows no similarity with any of the members of the *javana*-group (10 species). Because of additional similarities in the male palp (shape of tegulum, especially transition to embolus base, course of sperm-duct) and congruence in the geographic distribution of the *javana*-group (Taiwan, southern China mainland, Laos, Vietnam, Malaysia, West Indonesia: Sumatra, Java) *H. ocyalina* is considered as being a relative of *H. javana*, but its exact systematic position within the *H. javana*-group cannot be determined.

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