

Arcuphantes catillus n. sp., a new spider species (Araneae: Linyphiidae) from Korea

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Abstract: *Arcuphantes catillus* n. sp., a new species of the genus *Arcuphantes* Chamberlin and Ivie, 1943 is described from Korea. The present species is distinguishable from its known similar congeners by a conspicuous proximal process and a blunt lateral process of the paracymbium, feathery tipped lamellar extension of the pseudolamella, and bowl-like posterior part of radix. The present new species was collected from the leaf litter layer of mixed forest on a hillock around rice fields with a pitfall trap.

Keywords: description, illustration, morphology, Micronetinae

INTRODUCTION

The fifty-seven spiders belonging to the genus *Arcuphantes* Chamberlin and Ivie, 1943 have been recorded to date. Among them, eighteen species are found in Korea and all species are Korean endemic (NIBR 2019; World Spider Catalog 2021). The genus *Arcuphantes* was erected with *A. fragilis* Chamberlin and Ivie, 1943 as the type species (Chamberlin and Ivie 1943). This genus is currently placed in the subfamily Micronetinae Hull, 1920 (Tanasevitch 2021). Somatic characters in micronetines are comparatively conservative in general and recent taxonomic revisions are based mainly on genital characters (Ma *et al.* 2016). Male palpal characters vary greatly across species, having few common features shared by all of these species to distinguish them from other micronetine genera. Paracymbium of male palp has a small basal protrusion with a broadly divided distal end bearing a spiny projection in the middle (Chamberlin and Ivie 1943; Ono *et al.* 2001; Ma *et al.* 2016). During a long-term survey of the spider fauna around a Korean rice agroecosystem, two males of *Arcu-*

phantes catillus n. sp. were collected among the leaf litter layer of mixed forest in hillock around rice fields with a pitfall trap and the species is newly described with measurements and morphological illustrations.

MATERIALS AND METHODS

The external morphology was examined using a stereoscopic microscope (S8APO; Leica, Singapore) and illustrated. Photographs of the body were taken with a CANON 650D with 60 mm macro-lens. Measurements of each part of the body were taken with an ocular micrometer scale and are recorded in mm. Leg and palp measurements are given as leg number, total length (femur, patella + tibia, metatarsus, tarsus). Terminology used to describe the palpal characters follows Saaristo and Tanasevitch (1996), Saaristo *et al.* (2006) and Seo (2013). Abbreviations: ALE = anterior lateral eye, AME = anterior median eye, PLE = posterior lateral eye, PME = posterior median eye, AER = anterior eye row, PER = posterior eye row in eye region, d = dorsum in leg

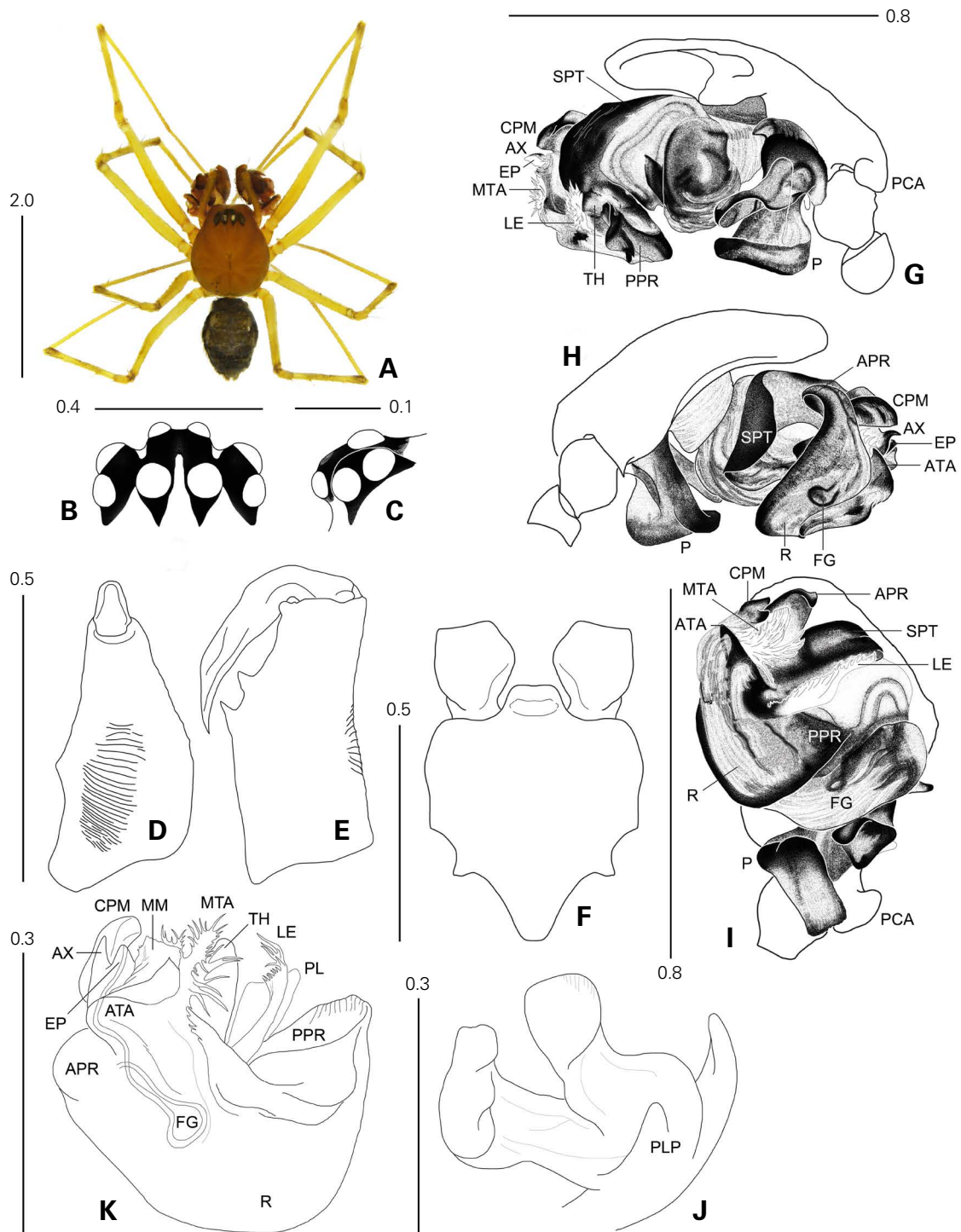


Fig. 1. *Arcuphantes catillus* n. sp., male holotype: A. body (habitus), dorsal view; B. eye region, from above; C. ditto, lateral view; D. chelicera, dorsal view; E. ditto, lateral view; F. endite, labium and sternum, ventral view; G. male palp (left), retrolateral view; H. ditto, proteral view; I. ditto, ventral view; J. paracymbium, anterolateral view; K. embolic division, dorsal view (APR, anterior part of radix; ATA, anterior part of terminal apophysis; AX, apex of embolus; CPM, chitinized part of median membrane; EP, embolus proper; FG, Fickert's gland; LE, lamellar extension of pseudolamella; MM, median membrane; MTA, median part of terminal apophysis; P, paracymbium; PCA, proximal cymbial apophysis; PL, pseudolamella; PLP, paracymbial lateral process; PPR, posterior part of radix; R, radix; SPT, suprategulum; TH, thumb of embolus). Scale bars in mm.

spination. Examined materials are deposited in the National Institute of Biological Resources, Incheon, Republic of Korea.

Family Linyphiidae Blackwall, 1859

Genus *Arcuphantes* Chamberlin & Ivie, 1943

***Arcuphantes catillus* n. sp.**

사발나사접시거미(신칭)(Fig. 1)

Type material. Holotype male, 13 June 2018, Mt. Homyeongsan, Homyeong-ri, Chenongpyeong-myeon, Gapeong-gun, Gyeonggi-do, Korea (37°45'34.85"N, 127°29'18.82"E, alt. 373 m). Paratype one male, same data as holotype, leg. S.T. Kim and J.S. IM.

Etmology. The species name is derived from the Latin noun 'catillus' meaning bowl, referring to the shape of posterior part of a radix in male palp.

Diagnosis. *Arcuphantes catillus* n. sp. resembles *A. pennatus* Paik, 1983 and *A. pennatoides* Seo, 2018 in general appearance and palpal characters, but can be easily distinguished from *A. pennatus* by the conspicuous proximal process, blunt lateral process of paracymbium, feathery tipped lamellar extension of pseudolamella (Paik 1983: Fig. 11; Seo 2018: Fig. 15I, J), and from *A. pennatoides* by the thick and feathery tipped lamellar extension of pseudolamella, bowl like posterior part of radix and a prominent medial process of the paracymbium and lack of the medial process of the paracymbium (Seo 2018: Fig. 15E, G, H).

Description. Male holotype. Total length 2.27 (habitus); Carapace 1.20 long, 1.00 wide; dusky reddish brown, suboval, cervical and radial furrows distinct, longitudinal fovea needle-shaped (Fig. 1A), head region slightly elevated. All eyes on slightly raised eye tubercles and encircled with black, eight eyes in two rows, AER recurved and PER almost straight from above (Fig. 1B, C); AER 0.39, PER 0.42, AME 0.06, ALE 0.10, PME 0.08, PLE 0.08, AME-AME 0.02, AME-ALE 0.04, PME-PME 0.04, PME-PLE 0.06, AME-PME 0.09, ALE-PLE contiguous. Chelicera 0.61 long, 0.31 wide; reddish brown with two prominent promarginal teeth, no teeth on retromargin; stridulating files on dorsal surface (Fig. 1D, E). Endite 0.33 long, 0.25 wide; mottled reddish brown, truncate anteriorly. Labium 0.10 long 0.22 wide; mottled reddish brown. Sternum 0.57 long, 0.60 wide; mottled reddish brown, shield-shaped, slightly convex, precoxal triangles between legs II and III, and III and IV (Fig. 1F). Legs uniform yellow, no annuli, slender and very long, leg formula I - II ≡ IV - III; I 6.28

(1.62, 2.08, 1.65, 0.93), II 5.47 (1.44, 1.78, 1.43, 0.82); III 4.13 (1.20, 1.30, 1.02, 0.61), IV 5.44 (1.60, 1.70, 1.40, 0.74); palp 1.68 (0.67, 0.23, -, 0.78), leg spination; I (patella 0-1d, tibia 1-1d, metatarsus 1-0-0-0-0d), II (patella 0-1d, tibia 1-0d, metatarsus 1-0-0-0-0d), III (patella 0-1d, tibia 1-0d, metatarsus 1-0-0d), IV (patella 0-1d, tibia 1-0d) (Fig. 1A). Abdomen 1.10 long, 0.72 wide; dark blackish brown, ovoid, paired light longitudinal bands along the margin, light irregular spots scattered, widest at middle (Fig. 1A). Male palp: tibia unmodified with three long bristles; cymbium with proximal cymbial apophysis with round tip, bent retrolaterally; paracymbium bifurcated with broad lower branch, curved upper branch and proximal process and lateral process with a blunt tip (Fig. 1G-J). Embolic division: anterior part of radix thumb-shaped, posterior part heavily chitinized and bowl-shaped; sperm duct inside the radix rather long and originated from Fickert's gland; pseudolamella broad with feather-like lamella extension; anterior terminal apophysis blunt anterodorsally; median membrane chitinized basally, margin membranous and serrated; median part of terminal apophysis membranous and plumose-shaped; embolus proper small and blunt; apex small and pointed; thumb large and elongated; chitinized part of median membrane large (Fig. 1K).

Female unknown.

Distribution. Korea (Mt. Homyeongsan, Gyeonggi-do).

Remarks. Present new species was collected among the leaf litter layer of mixed forest in hillock around rice fields with a pitfall trap.

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