

A new species of the genus *Foenatopus* Smith (Hymenoptera: Stephanioidea: Stephanidae) from India

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Abstract

Foenatopus achterbergi sp. n., a new species of the stephanid genus, is described and illustrated from Karnataka, India. The new species is compared with all the possible closely allied species from the Oriental region.

Key words: *Foenatopus*, new species, India

Introduction

The genus *Foenatopus* Smith, 1861 (Hymenoptera: Stephanioidea: Stephanidae), is generally considered as problematic with about 50% of all Stephanidae lumped together in this genus based on similarities in morphology (Aguar *et al.* 2010). *Foenatopus* is known from the Afrotropical, Neotropical, Palearctic and Oriental regions (Hong *et al.* 2011). From the Indian subcontinent, nine species were keyed out by Narendran & Sureshan (2003) under the genus *Diastephanus* Enderlein, but they were later transferred to the genus *Foenatopus* by Aguair (2004). At present, the following nineteen species are known from India: *F. aequalis* Elliott, 1928, *F. anupam* (Narendran & Sureshan, 2003), *F. bilineatus* (Elliott, 1919), *F. chinnarensis* (Sureshan, 1997), *F. daccaensis* (Narendran & Sureshan, 2003), *F. frontilinea* (Morley, 1917), *F. idukkiensis* Sureshan & Narendran, 2013, *F. indicus* (Westwood, 1851), *F. iridipennis* Elliott, 1919, *F. jodhpurensis* Narendran, 2001, *F. keralensis* (Narendran & Sureshan, 2003), *F. longicaudalis* Elliott, 1919, *F. maheshi* Narendran, 2001, *F. priyae* (Narendran & Sureshan, 2003), *F. rugiceps* Elliott, 1919, *F. similicus* Narendran, 2001, *F. stom* (Narendran & Sureshan, 2003), *F. sudhae* (Narendran & Sureshan, 2003), and *F. wynadensis* (Sureshan & Narendran, 1997) (Sureshan, 1997; Sureshan & Narendran, 1997; Narendran *et al.* 2001; Narendran & Sureshan 2003; Aguair 2004). Hong *et al.* (2011) revised the Chinese Stephanidae and treated 12 species under this genus. In the present study the authors aim to describe a new species of *Foenatopus* from India with comparison notes on closely allied species from the Oriental region.

Material and methods

The types of the present study are deposited in the National Insect Museum of ICAR-National Bureau of Agricultural Insect Resources, Bengaluru, India. The new species was compared with the holotype of *Foenatopus* (= *Diastephanus*) *frontilinea* (Morley, 1917) present in the Natural History Museum, London (BMNH) by the senior author and by consulting Sureshan (1997), Sureshan & Narendran (1997), Narendran *et al.* (2001), Narendran & Sureshan (2003) and Hong *et al.* 2011. Morphological nomenclature follows Aguair (2001), van Achterberg (2002) and Hong *et al.* (2011).

Species description

Foenatopus achterbergi Gupta & Gawas sp. nov.

Figs 1, 2A–J

Brief diagnosis. Body shiny (Fig. 1); vertex transversely striate (Fig. 2A); frons with 2 yellowish streaks on the extreme lateral sides and with yellow diffused infuscation in the middle (Fig. 2B); yellowish patch on temple not clearly defined (Fig. 2C); pronotum anteriorly with some fine shallow transverse rugulae, laterally coriaceous or finely reticulate (Figs 2D, 2E); scutellum moderately shiny (Fig. 2E); pterostigma elongate and acute apically, 2-CU1 weakly developed and $0.2 \times$ as long as vein cu-a (Fig. 2G); both large tooth-like processes on hind femur pale yellowish (Fig. 2I); pygidial impression visible; ovipositor sheath $0.96 \times$ as long as body length; subapical ivory band of ovipositor sheath $0.9 \times$ as long as its blackish apex (Fig. 1).



FIGURE 1. *Foenatopus achterbergi* sp. n. female, lateral habitus.

Type material. Holotype (ICAR-NBAIR), ♀, India: Karnataka: Sangam, 18.vii. 2018, coll. Sandesh M. Gawas. Paratype, 1 ♀ (ICAR-NBAIR), same data as holotype.

Description. Holotype: female body length 22.5 mm, fore wing length 5.6 mm, and ovipositor sheath length 21.0 mm.

Colour. Brownish to blackish; frons with 2 yellowish streaks on the extreme lateral sides along the inner orbits with yellow diffused infuscation centrally merging with the yellow lateral streaks; temple ventrally yellowish along eye; wing membrane hyaline, wing veins brown; pterostigma ivory/translucent with dark brown margins; pronotum, hind tibia (in apical half), and metasoma largely dark brown; hind femur blackish brown; fore and middle legs largely brownish and with some yellowish parts; large ventral tooth-like processes of hind femur ivory; subapical ivory band of ovipositor sheath $0.9 \times$ as long as apical blackish part.

Head. Flagellum with 29 flagellomeres; frons coarsely transversely striate (Fig. 2B); coronal area rugose and coronal teeth acute, with two coarse transverse rugae between ocelli; vertex slightly convex and finely transversely striate, striations posteriorly reaching occipital carina (Fig. 2A); temples smooth and matt, narrowed and rounded behind eyes (Fig. 2C).

Mesosoma. Neck (Fig. 2D) elongate and rather robust, at about same level as middle of pronotum, anteriorly distinctly emarginate, dorsally with weak transverse carinae/rugulae, medio-longitudinally slightly impressed; middle pronotum transversely reticulate striate; posterior pronotum distinctly elevated and smooth and shiny, convex laterally (Fig. 2E); mesoscutum anterior half finely reticulate striate and posteriorly coarsely foveolate; axillae with reticulate striations; scutellum with fine reticulations and moderately shiny, sparsely with a few punctures laterally (Fig. 2E); mesopleuron anterior one third rugose and covered with dense setae, remainder largely aciculate; convex part of metapleuron rather robust, largely strongly reticulate-foveolate; both anterior and ventral foveae large; propodeum largely spaced foveolate, foveolae medium-sized, circular and well defined, with microsculptured interspaces (Fig. 1).

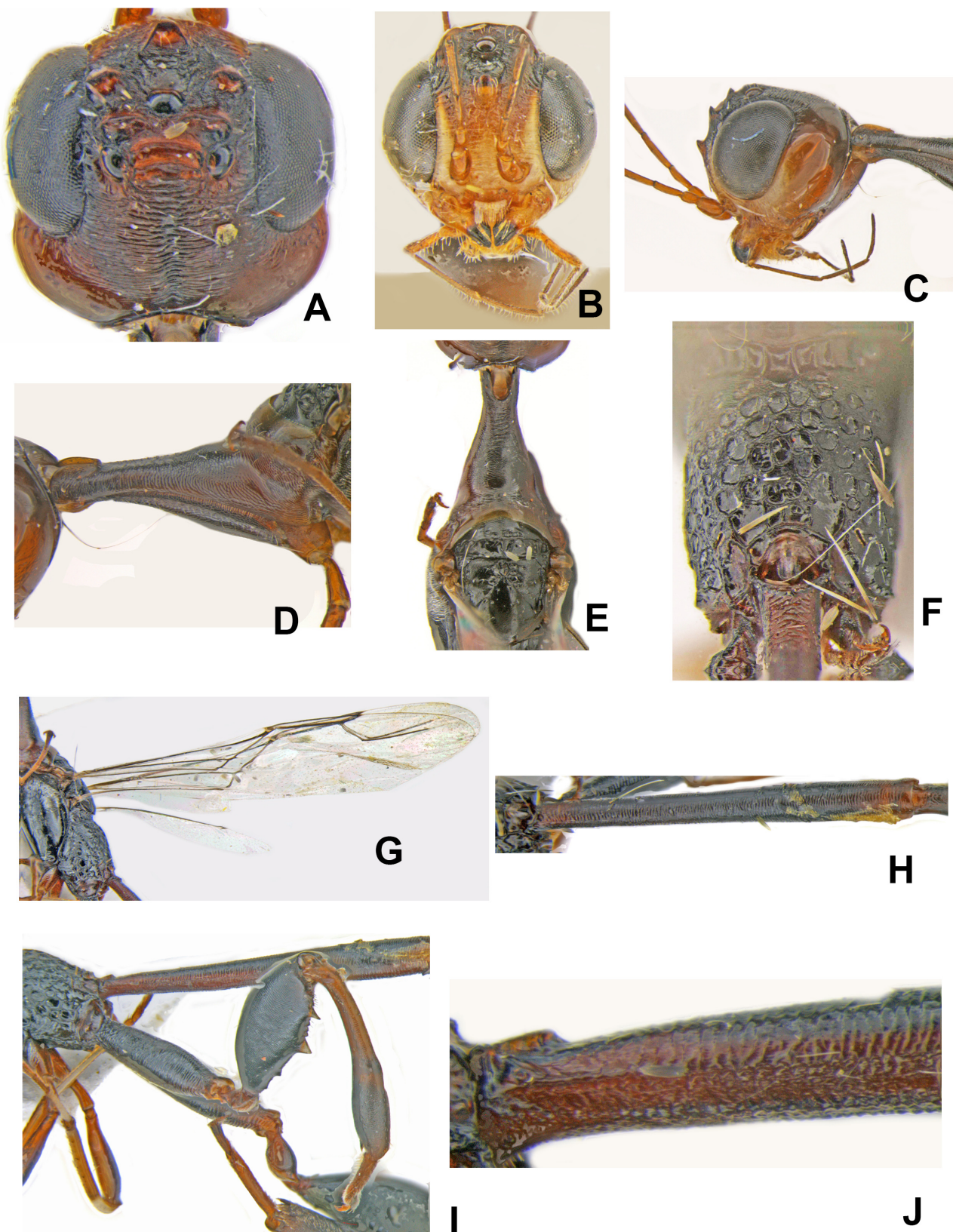


FIGURE 2. *Foenatopus achterbergi* sp. n. female. A—Head, dorsal aspect; B—Head, frontal aspect; C—Head, lateral aspect; D—Pronotum, lateral aspect; E—Pronotum, dorsal aspect; F—Propodeum; G—Wings; H—First tergite; I—Hind leg; J—First tergite, in part.

Wings. Fore wing (Fig. 2G): wing membrane hyaline; vein 2-CU1 weakly developed and $0.2 \times$ as long as vein cu-a; pterostigma elongate, subparallel-sided and acute apically, $3.1 \times$ as long as vein r and $14.2 \times$ as its maximum width; vein r ends $0.2 \times$ length of pterostigma behind level of apex of pterostigma; vein SR1 nearly parallel to costal margin and $2.1 \times$ vein r, vein SR1 and vein r obtusely angled.

Legs. Hind coxa largely transversely striate, anterior one third rugose; hind femur densely transversely strigate, ventrally with two large and unequal acute ivory tooth-like processes (basal one nearly equilateral and apical one narrow, much longer than wide), basally with 2 obtuse tubercles separated at a distance (Fig. 2I); hind tibia coriaceous, $1.2 \times$ as long as hind femur, basal narrow part of hind tibia almost equal to widened part; inner side of widened part basally depressed, medially convex and granulate, apically setose; length of basitarsus $5.5 \times$ as its width and ventrally densely bristly setose.

Metasoma. First tergite finely transversely striate, $10.4 \times$ as long as its maximum width, $2.4 \times$ second tergite and $1.6 \times$ remainder of metasoma; pygidial area indistinctly differentiated, apically truncate, laterally slightly impressed, medially weakly convex with uneven margin; subapical ivory band of ovipositor sheath $0.9 \times$ as long as apical blackish part (Fig. 1); ovipositor sheath $0.96 \times$ as long as body length.

Distribution. India (Karnataka).

Etymology. The species is named after the renowned hymenopteran taxonomist Prof. Cornelis van Achterberg who has always been very kind, supportive, generous, prompt and extremely helpful to the senior author. She is inspired by the way Dr van Achterberg patiently explains the queries and provides suggestions.

Comments: This new species runs in the key to species of the genus *Foenatopus* from China and adjacent regions by Hong *et al.* 2011 to the couplet with *F. yangi*. It shows similarity with *F. yangi* in general appearance however it can be separated by the following characters: (1) pterostigma elongate and acute apically, $3.1 \times$ as long as vein r and $14.2 \times$ its maximum width vs somewhat rounded apically, $2.9 \times$ as long as vein r and $13.7 \times$ its maximum in *F. yangi*; (2) first tergite $10.4 \times$ as long as its maximum width, $2.4 \times$ second tergite and $1.6 \times$ remainder of metasoma vs $14.2 \times$ as long as its maximum width, $2.2 \times$ second tergite and $0.9 \times$ remainder of metasoma in *F. yangi*; (3) subapical ivory band of ovipositor sheath $0.9 \times$ as long as apical blackish part vs $2.5 \times$ as long as apical blackish part in *F. yangi*. The new species is similar to the recently published *F. weii* Chen *et al.*, 2016, from China (Chen *et al.* 2016) because of the shape of the pterostigma, the absence of pale middle stripe on frons, anterior half of pronotum coriaceous and propodeum with medium-sized circular foveolae. It differs as follows: pair of tooth-like processes of hind femur pale yellowish vs black in *F. weii*; first metasomal tergite about $10 \times$ as long as its maximum width and 2.4 times second tergite vs $14\text{--}15 \times$ and $3.5 \times$, respectively; pronotum moderately slender in dorsal view vs very slender; vertex moderately transversely striate medially vs very finely transversely striate medially; subapical ivory band of ovipositor sheath $0.9 \times$ as long as apical blackish part vs $1.9 \times$; and frons almost entirely pale yellowish laterally vs only ventral half.

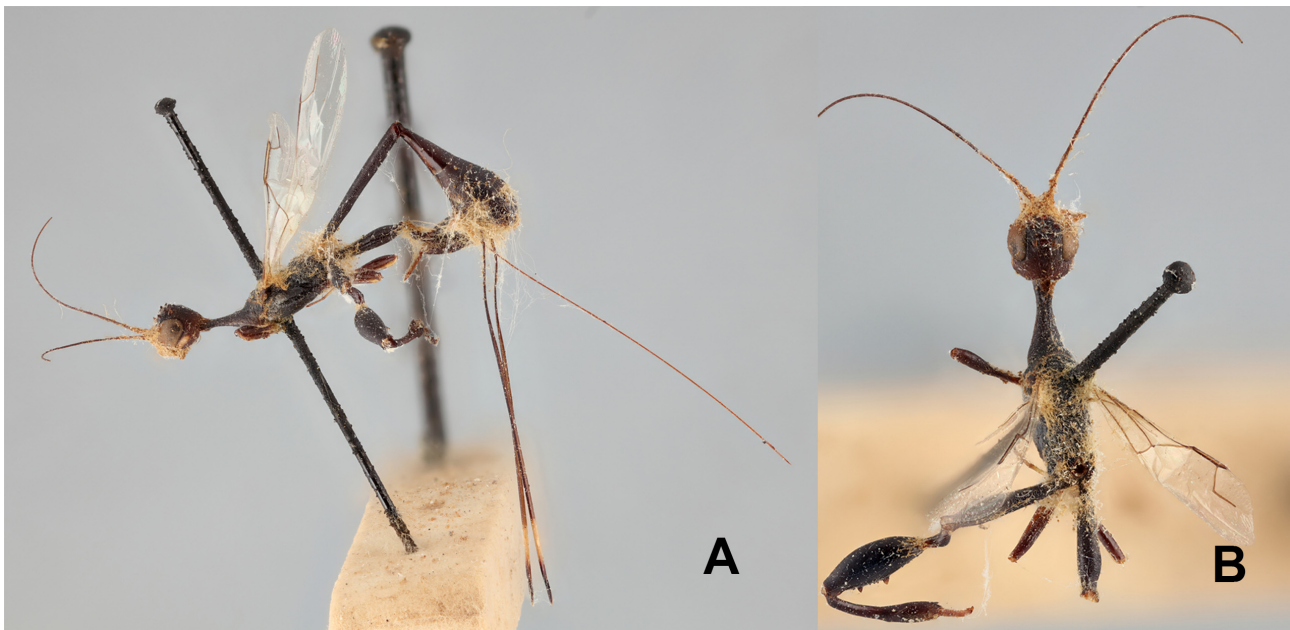


FIGURE 3. *Foenatopus* (= *Diastephanus*) *frontilinea* at BMNH, London. A, lateral habitus; B, Head and mesosoma, in part.

This new species is somewhat similar to *F. chinnarensis* (Sureshan, 1997) but differs as follows: pterostigma elongate, subparallel-sided and acute apically, and 14 times as its maximum width vs pterostigma rather obtuse and widened apically and 5.5 times as long as its maximum width in *F. chinnarensis*; apical half of hind tibia dark brown vs brown in *F. chinnarensis*; frons without inverted black “W” vs present in *F. chinnarensis*; propodeum with large, circular and well-defined foveolae vs finely reticulate on anterior half and with deep punctures posteriorly in *F. chinnarensis*. *Foenatopus achterbergi* **sp. nov.** can be separated easily from the similar *F. wynadensis* (Sureshan & Narendran, 1997) in having the hind femur bidentate vs tridentate in the latter.

In the key to species of *Foenatopus* of Indian continent by Narendran *et al.* 2001, this new species keys out near *F. jhodhpurensis* Narendran. However, it can be separated from the latter in not having longitudinal fovea at the propodeum and the ovipositor sheath has a whitish subapical band (vs band absent).

In Narendran & Sureshan (2003), this new species keys out to *F.* (= *Diastephanus*) *frontilinea* (Morley, 1917) based on the presence of two tooth-like processes on the ventral margin of hind femur. However, on examination of the holotype of *Foenatopus frontilinea* at BMNH, London (♀, *Foenatopus* (= *Diastephanus*) *frontilinea* (Morley, 1917); 3a.332; Figs 3 A & B), the new species differs in the following characters: pterostigma acute apically and $14.2 \times$ as long as its maximum width vs pterostigma rather obtuse and $10.3 \times$ as long as its maximum width in *F. frontilinea*.

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