

**ADDITIONS TO THE KNOWLEDGE OF THE GENUS *STILBULA*
SPINOLA (HYMENOPTERA: EUCHARITIDAE) FROM THE
INDIAN SUBCONTINENT WITH THE DESCRIPTION OF
A NEW SPECIES FROM INDIA**

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ABSTRACT: A new species of eucharitid wasps (Hymenoptera: Eucharitidae), namely, *Stilbula venkataramani* sp. nov. is described from Goa, India. A revised key to species from the Indian subcontinent also provided.

KEY WORDS: Hymenoptera, Eucharitidae, *Stilbula*, new species, key, Indian subcontinent

The genus *Stilbula* was erected by Spinola (1811) based on the type species *Ichneumon cyniformis* Rossi. This genus belongs to the tribe Eucharitini of the subfamily Eucharitinae (Heraty, 2002). Forty species are known from worldwide of which 21 species were from Oriental Region and 14 species were recorded from the Indian subcontinent (Heraty, 2002; Girish Kumar & Narendran, 2008; Girish Kumar, 2017; Noyes, 2018). In this paper, a new species is described from Mhadei Wildlife sanctuary of Goa, India. A revised key to species of the Indian subcontinent is also provided.

The holotype is deposited in the 'National Zoological Collections' of the Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, India (ZSIK).

MATERIAL & METHODS

The holotype specimen is collected by using triangular sweep net from Mhadei Wildlife sanctuary of Goa in the Western Ghats of South India. It is studied under LEICA M205 A stereozoom microscope and images captured with the camera model LEICA DFC 500. All efforts to obtain more specimens of this new species both by field collection and through loan from museums did not succeed.

Abbreviations used for the terms used in the text: F = Funicular segment; MPS = Multiporous plate sensilla; OOL = Ocellocular line; POL = Postocellar line.

Stilbula venkataramani sp. nov.

(Figs. 1-7)

Holotype. Female (Fig. 1). Length 3.61 mm. Head and mesosoma with metallic blue-green reflections; petiole and gaster dark brownish black; antenna brownish black with scape, pedicel, base of first funicular segment, last two funicular segments and clava yellowish brown; mandibles brown; ocelli reflecting brownish; eye reflecting reddish brown; legs pale yellow except coxae dark brown, claws dark; tegulae pale brown; fore wing with dark brown infumation adjoining stigma; wing veins brown.

Head. 1.62x as broad as high (excluding mandibles) (Fig. 2) in frontal view; POL 2 x OOL (Fig. 6); median ocellus separated from occipital margin by slightly

less than its own diameter; frons completely striated more or less in a circular manner, converging well below toruli; lower face transversely carinate; smooth and polished area of head below antennal toruli with distinct sparse punctures; vertex with few strong striations; eyes separated by 1.98x their height, bare; gena obliquely striate; malar space 0.75x height of eye in frontal view; tentorial pit and clypeogenal sulci distinct and deep; clypeus smooth with few strong transverse striations on apex; supraclypeal area not well defined, smooth; labrum with 9 digits (Fig. 3); apical tooth of mandible long and thin. Antenna (Fig. 4) 12 segmented; scape 1.71x as long as broad; funicle 9 segmented; F1 2.88x as long as its maximum width, 1.44x as long as F2; scape and pedicel bare; flagellar segments pilose, pilosity well pronounced; MPS numerous, large and exposed; clava ventrally not depressed; antenna shorter than head and mesosoma combined (9.3: 10.2).

Mesosoma. Mesoscutum and scutellum closely punctate, interstices carinate, surface bare; notauli distinct, foveolate; mesoscutum 1.95x as wide as long, with a weak median fovea; SSS deeply impressed, strongly carinate; maximum width of scutellum (at axilla) 1.53x wider than its median length up to frenal groove (Fig. 22); frenal process stout and pitted; scutellar process distinctly shorter (0.26x) than the median length of scutellum; scutellar teeth fork-like, 0.69x as long as scutellar process; propodeum completely punctate, interstices carinate, without a median carina, callus bare; mesepimeron with a large smooth area at middle (Fig. 7); upper mesepimeron completely punctate, interstices carinate; femoral groove broad and transversely carinate, swollen anterior to mid coxa. Legs with fore coxa slightly striated basally; mid coxa striated ventrolaterally; hind coxa and all femora glabrous; all tibiae and tarsi with setae. Fore wing (Fig. 5) 2.76 x as long as broad; wing disc with microtrichia except at basal area bare; hind wing with microtrichia and marginal fringes; hamuli 3 in number.

Metasoma. Petiole 0.45x as long as gaster (Fig. 1), 3.87x as long as hind coxa, shorter (0.87x) than hind femur, smooth and swollen somewhat medially; gaster about as long as head and mesosoma combined (1.46: 1.49), sub oval and smooth; ovipositor not exerted.

Male. Unknown.

Host & Biology. Unknown.

Etymology. The species is named after Dr. K. Venkataraman, former Director of the Zoological Survey of India and a well known marine biologist for his keen interest and support to my studies.

Material Examined. *Holotype:* Female. INDIA: Goa, North Goa district, Mhadei Wildlife sanctuary (15°34'18"N 74°10'15"E"), Coll. P. Girish Kumar, 15.V.2018, ZSIK Regd. No. ZSI/WGRC/I.R.-INV.11249.

Distribution. India: Goa: Mhadei Wildlife sanctuary.

Discussion. In the key of Girish Kumar (2017), this new species comes close to *Stilbula atkinsoni* (Mani & Dubey, 1974) in having: (1) Frons completely striated more or less in a circular manner; and (2) Petiole without a distinct ring or band, entirely dark brownish black. However, this new species distinctly differs from *S. atkinsoni* in the following features: (1) F1 2.88x as long as its maximum width (in *S. atkinsoni* F1 7x as long as broad); (2) Scutellar teeth fork-like, 0.69x as long as scutellar process (in *S. atkinsoni* scutellar teeth widely diverging, 0.30x as long as scutellar process as in Fig. 20B of Mani et al., 1974: 37); (3) Antenna brownish black with scape, pedicel, base of first funicular segment, last two funicular segments and clava yellowish brown (in *S. atkinsoni* antenna entirely brownish black); (4) Legs except coxae pale yellow (in *S. atkinsoni* legs except coxae

brown); and (5) Smaller species, length 3.61 mm (in *S. atkinsoni* length 5.20 mm).

Key to species of *Stilbula* Spinola from the Indian subcontinent

(Modified from Girish Kumar, 2017)

1. Female 2
– Male 9
2. Striations on frons strong, completely striated more or less in a circular manner (Fig. 9 of Narendran & Sheela, 1996, Fig. 21D of Mani et al, 1974) 3
– Striations on frons weak, with longitudinal striations mostly on upper half (Figs. 15 & 26 of Girish Kumar, 2017) 7
3. Petiole without a distinct ring or band 4
– Petiole with a brownish or blackish ring or band at or near middle, rest of portions pale yellow or white or pale brown 6
4. Petiole completely brownish black to very dark brown 5
– Petiole completely pale yellow *S. silentvalliensis* Girish Kumar, 2017
5. Legs except coxae pale yellow; antenna brownish black with scape, pedicel, base of first funicular segment, last two funicular segments and clava yellowish brown; F1 2.88x as long as its maximum width (Fig. 4); Scutellar teeth fork-like, 0.69x as long as scutellar process (Fig. 6) *S. venkataramani* sp. nov.
– Legs except coxae pale yellow; antenna entirely brownish black; F1 7x as long as broad; scutellar teeth widely diverging, 0.30x as long as scutellar process as in Fig. 20 B of Mani et al., 1974 *S. atkinsoni* (Mani & Dubey, 1974)
6. Scutellar teeth bluntly and shortly bifurcate, not diverging; flagellar segments not shorter (see Fig. 21 B of Mani et al., 1974) *S. mysorensis* (Mani & Dubey, 1974)
– Scutellar teeth diverging; flagellar segments shorter (Fig. 8 of Narendran & Sheela, 1996) *S. ashokai* Narendran, 1996
7. Petiole without a ring or band *S. shendurunica* Girish Kumar, 2017
– Petiole with a brownish or blackish ring or band at or near middle, rest of portions pale yellow or white or pale brown 8
8. Scutellar process with a single narrow frenal spine (Fig. 309 of Heraty, 2002); flagellum testaceous; mesoscutal side lobes swollen; body dark brown with bluish reflections; labrum with 6 digits; body length 2.5 mm *S. minispina* Heraty, 2002
– Scutellar process with a slender elongate stalk (Fig. 27 of Girish Kumar, 2017); flagellum dark brown to black; mesoscutal side lobes rounded; body black with dark green metallic reflections; labrum with 9 digits; body length 5 mm *S. tanjorensis* (Mani & Dubey, 1974)
9. Scutellum with an upturned, smooth, cleft frenal process (Fig. 310 of Heraty, 2002); funicular segments slightly swollen apically (Fig. 321 of Heraty, 2002); head black with green reflections; mesosoma mostly black with bluish green reflections, lower half of mesoscutum, upper corner of prepectus, acropleuron and propodeum yellow; wings hyaline except a small infuscate spot around STV (Fig. 322 of Heraty, 2002); labrum with 9 digits *S. nilgiri* Heraty, 2002
– Scutellum not as above; other characters partly or completely different 10
10. Gastral petiole of uniform colour; Body generally with dark metallic green reflections; head black; coxae concolourous with mesosoma, rest of legs brown; antenna brownish yellow; gaster dark metallic green, terminal segment somewhat brown along margins; head coarsely and umbilicately punctate; antenna with dense pubescence; pedicel short and transverse; fore wing with stigma sessile; PMV very long; scutellar process bidentate, about as long as gastral petiole *S. indica* (Mani, 1935)

- Gastral petiole with dark ring or band medially or submedially; other characters partly or completely different 11
11. Posterior process of scutellum with a slender elongated stalk diverging into elongated spines (Fig. 5 of Girish Kumar & Narendran, 2007); frons with weak longitudinal striations seen mostly on upper half (Fig. 4 of Girish Kumar & Narendran, 2007); body black with dark green or shiny bluish green with metallic reflections; stigma distinct (Fig. 1 of Girish Kumar & Narendran, 2007); mesopleuron with a large smooth area (Fig. 1 of Girish Kumar & Narendran, 2007); mouth plate 8 or 9 digitate *S. tanjorensis* (Mani & Dubey, 1974)
– Posterior process of scutellum stouter (Figs. 4 & 8 of Girish Kumar, 2017); other characters partly or completely different 12
12. Mesopleuron distinctly and closely punctate without a patch of smooth area
..... *S. lata* Narendran, 1996
– Mesopleuron (Figs. 1, 6 & 10 of Girish Kumar, 2017) with a distinct smooth area on anterior half 13
13. POL 2x or more than 2x (2.25 - 2.85x) OOL 14
– POL less than 2x (1.60 - 1.68x) OOL 16
14. Fore wing with brown infumation adjoining stigma *S. ashokai* Narendran, 1996
– Fore wing without brown infumation adjoining stigma (Fig. 10 of Girish Kumar, 2017)
..... 15
15. POL 2.80 x OOL (Fig. 4 of Girish Kumar & Narendran, 2008); head and mesosoma black with metallic green reflections; base of coxa brown with metallic green reflections; body length 6.28 mm; stalk of scutellar process as long as broad (Fig. 4 of Girish Kumar & Narendran, 2008); mouth plate 8 digitate (Fig. 3 of Girish Kumar & Narendran, 2008); hamuli 7 in number *S. bangalorica* Girish Kumar & Narendran, 2008
– POL 2.42x OOL (Fig. 13 of Girish Kumar, 2017); head and mesosoma dark brown with metallic black reflections; lateral ocellus reflecting red; base of coxa dark brown without metallic green reflections; body length 4.77 mm; stalk of scutellar process 0.86x as long as broad (Fig. 13 of Girish Kumar, 2017); mouth plate 9 digitate (Fig. 12 of Girish Kumar, 2017); hamuli 3 in number *S. namida* Girish Kumar, 2017
16. Stalk of scutellar process (excluding teeth) 0.86 x as long as broad (Fig. 4 of Girish Kumar, 2017); STV perpendicular to wing margin and finger like (Fig. 1 of Girish Kumar, 2017); petiole 1.42x as long as hind femur (Fig. 1 of Girish Kumar, 2017); F1 1.27x as long as F2; body length 4.47 mm; hamuli 3 in number *S. bullista* Girish Kumar, 2017
– Stalk of scutellar process (excluding teeth) 1.21x as long as broad (Fig. 8 of Girish Kumar, 2017); STV angled to wing margin and stout (Fig. 6 of Girish Kumar, 2017); petiole 1.62x as long as hind femur (Fig. 6 of Girish Kumar, 2017); F1 1.44x as long as F2; body length 5.96 mm; hamuli 4 in number *S. muthangensis* Girish Kumar, 2017

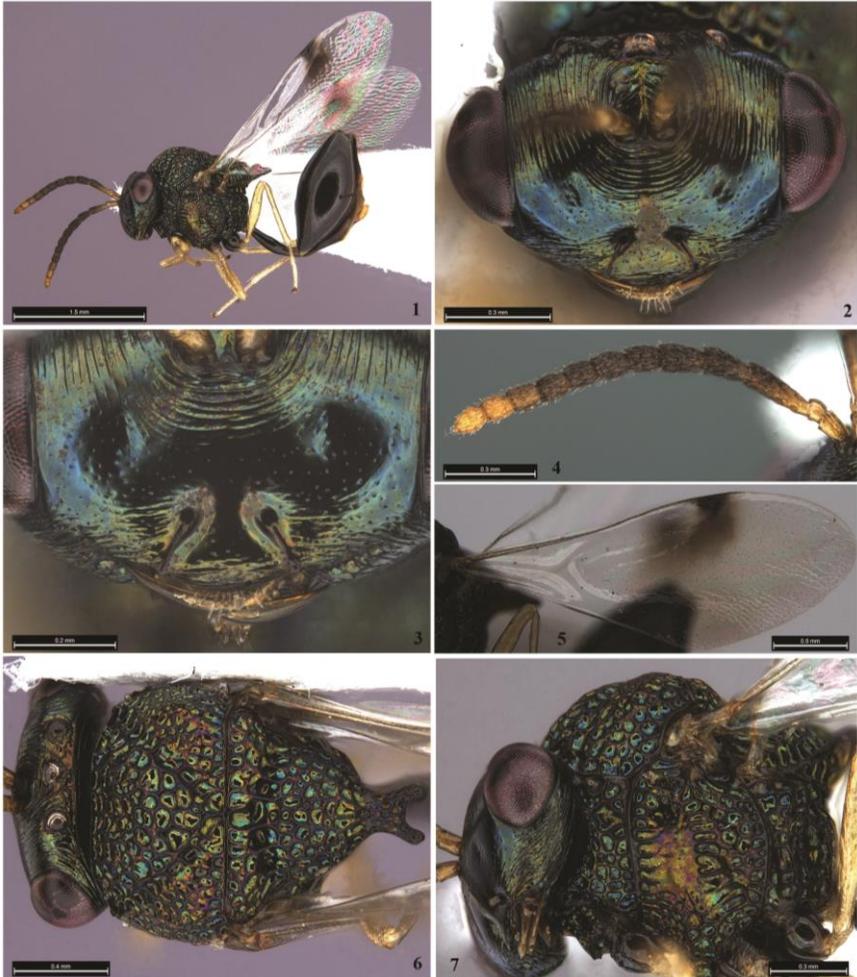
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Figures 1-7. *Stilbula venkataramani* sp. nov., female. 1. Body in profile, 2. Head, frontal view, 3. Lower half of head, 4. Antenna, 5. Forewing, 6. Head and mesosoma, dorsal view, 7. Head and mesosoma, lateral view.