

## A review of the genus *Pararrhynchium* de Saussure (Hymenoptera: Vespidae: Eumeninae) from India with the description of a new species

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### Abstract

The potter wasp genus *Pararrhynchium* de Saussure, 1855, is reviewed from India. A new species, namely, *Pararrhynchium venkataramani* Girish Kumar and Carpenter sp. n. is described from north-east India. A key to species from the Indian subcontinent and an updated Oriental checklist of all known species are also provided.

**Keywords:** *Vespidae*, *Eumeninae*, *Pararrhynchium*, new species, key, checklist, India.

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### Introduction

De Saussure (1855) described the genus *Pararrhynchium* as a division of the genus *Rhynchium* Spinola based on the type species *Rhynchium ornatum* Smith, 1852. This genus is distributed in the Oriental and Palaearctic Regions. Eleven species with six additional subspecies are reported worldwide of which 10 species with five additional subspecies are from the Oriental Region, two species from the Indian subcontinent and one species from India (Giordani Soika, 1986b; Gusenleitner, 1998 & 2006; Nguyen, 2015). In this paper a new species, namely, *Pararrhynchium venkataramani* Girish Kumar and Carpenter sp. n. is described from north-east India. A key to species of the Indian subcontinent and an updated Oriental checklist of species are also provided.

### Materials and Methods

The adult morphological and colour characters were studied and photographed by using pinned and dried specimens under a Leica Stereo microscope with LAS software version 3.6.0. Type specimens are added to the 'National Zoological Collections' of ZSIK.

*Abbreviations used for the Museums:* ZMB — Museum für Naturkunde, Berlin, Germany; ZSIK — Western Ghat Regional Centre, Zoological Survey of India, Kozhikode (= Calicut), India.

*Abbreviations used for the terms:* F = Flagellar segments; H = Head; M = Mesosoma; OOL = Ocellocular distance; POL = Post ocellar distance; S = Metasomal sterna; T = Metasomal terga.

**Genus *Pararrhynchium* de Saussure, 1855**  
*Pararrhynchium* de Saussure, 1855: 173, division of genus *Rhynchium* Spinola. Type species: *Rhynchium ornatum* Smith, 1852, by monotypy.  
*Prorrhynchium* de Saussure, 1855: 174, division of genus *Rhynchium* Spinola. Type species: *Rhynchium smithii* de Saussure, 1855, by monotypy.  
*Prorrhynchium* de Saussure, 1856: 8 (Table des Matières), 348 (Index) (incorrect spelling of *Prorrhynchium* de Saussure).  
*Pararrhynchium* de Saussure, 1862: 182; Giordani Soika, 1973: 122; Giordani Soika, 1986a: 141; Giordani Soika,

1986b: 77, 79 (incorrect spelling of *Pararrhynchium* de Saussure).

*Parrhynchium* Dalla Torre, 1894: 42 (subgenus of *Rhynchium* Spinola; incorrect spelling of *Pararrhynchium* de Saussure) [erroneously gives de Saussure, 1862, as the first reference!].

**Diagnosis:** Propodeal dorsum forming shelf-like area behind metanotum; concavity of propodeum margined by a crest, which is incised dorsally in middle; forewing with prestigma less than half as long as pterostigma; axillary fossa narrower than long, slit-like; tegula not exceeding parategula; apical antennal article of male hooked; T1 transversely carinate, at least on sides.

**Distribution:** Oriental and Palaearctic regions.

**Key to species of *Pararrhynchium* de Saussure from the Indian subcontinent**

(Modified from Nguyen, 2015)

1. T1 with distinct basal transverse carina..... 2  
– T1 with partial transverse carina at base.....  
.....*P. venkataramani* Girish Kumar & Carpenter sp. n.  
India
2. Female clypeus wider than long.....  
.....*P. unifasciatum* Gusenleitner  
Sri Lanka.
- Female clypeus longer than wide.....  
.....*P. paradoxum laetum* Giordani Soika  
India

**1. *Pararrhynchium paradoxum laetum* Giordani Soika, 1986**

*Pararrhynchium* [!] *paradoxum laetum* Giordani Soika, 1986b: 77, 79, female - "SIKKIM" (ZMB); Gusenleitner, 2006: 693 (India: Kalimpong, Melli Bazar, Paykong).

**Diagnosis:** Female: This subspecies is distinguished from the typical form by its colour, and punctation, throughout the body, especially on the terga, which is much finer and denser.

**Colour description:** Female: Black, with antenna and legs brownish-black. Orange-ferruginous as follows: Basal band and two apical spots on clypeus; spot above

interantennal space; speck on temple; broad band on anterior area of dorsal surface of pronotum, combined with thin band along posterior edge; large mark on top of mesepisternum; tegulae; parategulae; wide band, closely interrupted in middle, on scutellum and metanotum; transverse band on T1 on its apical third; regular apical band of same width on T2; narrow and regular apical band on T3; minute specks on sides of apical margin of S2; wings moderately and evenly brown.

**Length** (H+M+T1+T2): Female, 10.5 mm.

**Male:** Unknown.

**Distribution:** India: Sikkim, West Bengal.

**Remarks:** No specimens were available for our studies; hence the description was taken from Giordani Soika (1986b).

**2. *Pararrhynchium venkataramani* Girish Kumar & Carpenter sp. n.**

(Figs. 1-12)

[urn:lsid:zoobank.org:act:B810184D-B5E9-42DE-A5FA-EDDB55F0CFC4](https://zoobank.org/urn:lsid:zoobank.org:act:B810184D-B5E9-42DE-A5FA-EDDB55F0CFC4)

**Diagnosis:** This new species can be distinguished from all other congeners by following combination of characters: epicnemial carina present; T1 with partial basal transverse carina at sides only; gena 1.22x wider than eye (measured through ocular sinus); propodeum with horizontal area shorter than (0.62x) length of metanotum, posterior surface dull, with irregular carinate striations forming punctures on its lower half; female clypeus black with yellow spots at basal and apical lateral margins.

**Description: Holotype female** (Fig. 1): **Head:** in frontal view nearly circular (Fig. 2); clypeus, in lateral view, weakly convex, in frontal view, 1.18x as wide as high (Fig. 3), with dense large punctures, apical margin deeply emarginate medially, forming sharp tooth on lateral sides, width of emargination 0.36x width of clypeus between inner eye margin; mandible with four prominent teeth, outer one bluntly pointed

Plate I



1



2



3



4



5



6

Figs. 1-6 *Pararrhynchium venkataramani* Girish Kumar & Carpenter **sp. n.** Holotype female. 1, Body profile; 2, Head frontal view; 3, Clypeus and mandible; 4, Head dorsal view; 5, Mesosoma dorsal view; 6, Propodeum.

Plate II



7



8



9



10



11



12

Figs. 7-12 *Pararrhynchium venkataramani* Girish Kumar & Carpenter *sp. n.* Figs. 7 & 8 Holotype female. 7, Apical half of forewing; 8, T1 & T2 dorsal view. Figs. 9-12 Paratype male. 9, Body profile; 10, Head frontal view; 11, Clypeus; 12. Antenna.

apically; inner eye margin, in frontal view, about 1.16x further apart from each other at vertex than at clypeus; frons densely covered

with very coarse, flat-bottomed punctures, punctures strongly raised to form reticulation; OOL 1.47x POL; gena 1.22x wider than eye

(measured through ocular sinus), strongly depressed near occipital carina; vertex (Fig. 4) strongly produced behind eye, with cephalic foveae small, with only sparse pubescence, situated close to each other with distance between foveae less than diameter of fovea; depression for cephalic foveae obsolete; two hump-like elevations with fewer punctures in between posterior ocelli and cephalic foveae; vertex and gena with punctures similar to those on frons; distance from posterior ocelli to apical margin of vertex slightly greater than 2x distance from posterior ocelli to inner eye margin. Antennal scape 3.44x as long as its maximum width; F1 1.44x as long as its width; F2 & F3 as long as wide; F4–F9 wider than long; F10 as long as basal width.

**Mesosoma:** Mesosoma (Fig. 5) 1.33x longer than wide in dorsal view; pronotal carina slightly raised, reaching ventral corner of pronotum; mesoscutum weakly convex, 1.1x longer than its maximum width; prescutal furrows deep, not reaching middle of mesoscutum; scutellum almost flattened, scuto-scutellar suture strongly depressed and crenulate; punctures of pronotum, mesoscutum, scutellum and metanotum similar to that of frons; mesepisternum with dense, coarse, well-defined punctures postero-dorsally, barely punctured anteroventrally; epicnemial carina present; dorsal metapleuron with few strong striae; ventral metapleuron with sparse shallow punctures; propodeum (Fig. 6) with horizontal area shorter than (0.62x) length of metanotum; dorsolateral area with coarse and dense punctures; posterior surface concave, dull, with irregular carinate striations forming punctures at its lower half, median carina present posteriorly; upper carina of propodeum curved with V-shaped incision in middle, both sides of incision at top forming teeth behind metanotum.

**Metasoma:** T1 narrower than T2 (Fig. 8), with partial basal transverse carina visible on lateral sides; anterior vertical surface of T1 with dense coarse punctures; dorsal face of T1 1.44x as wide as long; T2 slightly wider than long (1.03x), slightly raised apically; S2 depressed basally; metasomal punctures dense, strong; punctures on T1 coarser than punctures on T2; visible part of T3–T4 with small and shallow punctures; S2 with punctures similar to those on lateral margin of T2; T5–T6 and S5–S6 with minute punctures.

**Colour description:** Black; following parts

yellow: mark on base of mandible; spots on upper lateral corner and spots on lower lateral corner of clypeus; spot on frons; antennal scape beneath; small spot on temple; band on dorsal face of pronotum anteriorly; tegula (except inner margin brownish black); two spots on scutellum and metanotum each; small spot on mesepisternum; propodeal valvulae; apical band on T1 and T2; narrow apical band on S2 except sides. Following parts brown: mandible except basal yellow spot; parategula; apex of all femora and tibia; apical tarsomeres of all legs; narrow apical margins of T3–T5 and S3–S5; ovipositor sheath. Wings pale brown, veins and pterostigma dark brown.

**Length:** Body (H+M+T1+T2), 10.2 mm; fore wing, 9.6 mm.

**Variations:** The paratype female has the following differences from the holotype female: no hump-like elevation on vertex behind posterior ocelli; basal yellow spots fused to form band; parategula with yellow marking; yellow marking on outer side of fore tibia.

**Male** (Figs. 9): Structure as in female, but differing from latter as follows: head (Fig. 10) proportionately smaller, transverse, 1.13x as wide as high in frontal view; inner eye margins strongly convergent, 1.62x further apart from each other at vertex than at clypeus; gena narrow, in lateral view 1.03x as wide as eye (measured through ocular sinus); clypeus in frontal view (Fig. 11) slightly wider than high, apical margin deeply emarginate medially, forming sharp pointed tooth on each lateral side; antenna (Fig. 12) slightly slender than in female, apical antennal article hook-like and reaching beyond 11<sup>th</sup> segment in curved position. Colour similar to that of female except clypeus entirely yellow and tibia and tarsus of all legs with variegated yellow markings. Body length (H+M+T1+T2): 8-8.5 mm; fore wing length: 7.5-8 mm.

**Material examined:** Holotype female, INDIA: Arunachal Pradesh, Upper Siang Dist., Jengging, 5.vi.2008, Coll. G. Srinivasan, ZSIK Regd. No. ZSI/WGRS/I.R-INV.8605. Paratypes: INDIA: Arunachal Pradesh, Changlang Dist., Namdapha National Park, Gibbons Land, 1♀, 21.xii.1982, Coll. S. Biswas & Party, ZSIK Regd. No.

ZSI/WGRS/I.R-INV.8606; Meghalaya, East Garo Hills Dist., Darugiri, 2♂, 14-20.v.1979, Coll. S.B. Roy & Party, ZSIK Regd. Nos. ZSI/WGRS/I.R-INV.8607 & 8608.

**Distribution:** India: Arunachal Pradesh, Meghalaya.

**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 encouragement in our studies.

**Discussion:** This new species comes close to the couplet number 10 of the key to world species of Nguyen (2015) but distinctly differs from *P. striatum* Nguyen, 2015 and *P. concavum* Nguyen, 2015.

#### Checklist of Oriental species of *Pararrhynchium* de Saussure

- (1). *P. concavum* Nguyen, 2015 — Vietnam.
- (2). *P. ishigakiense* (Yasumatsu, 1993) — Japan: Ryūkyū Islands.
- (3a). *P. ornatum bifasciatulum* Giordani Soika, 1986 — China.
- (3b). *P. ornatum infrenis* Giordani Soika, 1973 — China.
- (3c). *P. ornatum multifasciatum* Giordani Soika, 1986 — China.
- (3d). *P. ornatum ornatum* (Smith, 1852) — Japan; China.
- (3e). *P. ornatum sauteri* (von Schulthess, 1934) — Taiwan.
- (4a). *P. paradoxum laetum* Giordani Soika, 1986 — India: Sikkim, West Bengal.
- (4b). *P. paradoxum paradoxum* (Gussakovskii, 1932) — Russia: Siberia; Korea; China; Laos.
- (5). *P. sinense* (von Schulthess, 1913) — China; Laos.
- (6). *P. smithii* (de Saussure, 1855) — China.
- (7). *P. striatum* Nguyen, 2015 — Vietnam.
- (8). *P. taiwanum* Kim and Yamane, 2007 — Taiwan.
- (9). *P. tsunekii* Tano and Yamane, 1983 — Japan: Ryūkyū Islands.
- (10). *P. unifasciatum* Gusenleitner, 1998 — Sri Lanka.
- (11). *P. venkataramani* Girish Kumar and Carpenter **sp. n.** — India: Arunachal Pradesh, Meghalaya.

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