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Description of a new species of *Leiophron* Nees (Hymenoptera: Braconidae: Euphorinae) from India

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ABSTRACT

A new species of the braconid genus, viz., *Leiophron sharifi* Shamim sp. nov. is described and illustrated from India. The new species unambiguously distinguished from *Leiophron (Leiophron) achterbergi* Shamim et al. [16] from India. However, it differs in having length of malar space 1.4 times basal width of mandible, propodeum reticulate-rugose, spiracles at behind middle of first metasomal tergite, length of pterostigma 3 times its width and length of vein 1-R1 0.28 times length of pterostigma.

Keywords: Hymenoptera, Braconidae, Euphorinae, *Leiophron*, new species, India

INTRODUCTION

The braconid genus *Leiophron* Nees erect by von Esenbeck, 1818. It can be easily distinguished by having antennal segments 14–20, apical segment without spine; maxillary palp with 5 segments; labial palp with 2–3 segments; occipital carina usually widely interrupted dorsally, ventrally joining hypostomal carina; malar space about 0.25–0.5 times height of eye; propodeum without postero-median depression; marginal cell of fore wing small; vein SRI ending far before wing apex; vein 1–SR+M of fore wing present, but sometimes absent; vein 2–M of fore wing present; vein M+CU1 of fore wing largely unsclerotized; vein 1–M usually thickened; vein 2–CU1 sclerotized or unsclerotized; hypopygium small, straight ventrally and setose; ovipositor hardly visible, usually shorter than 0.25 times first tergite; ovipositor slender and curved downwards.

Currently, the genus *Leiophron* Nees is divided into four subgenera i.e. *Euphoriana* Gahan [6], *Euphoriella* Ashmead [41], *Euphorus* Nees [12] and *Peristenus* Forster [5]. It is cosmopolitan and specious among the euphorine genera containing 145 described species [20]. The species of *Leiophron* are koinobiont endoparasitoids of the adult stages of various beetles, especially species of Curculionidae, Chrysomelidae, Carabidae and Tenebrionidae ([10], [11], [15], [17], [7], [8], [9], [18], [19], [14], [2], [3]). Only ten described species are known from India [14], *Leiophron cacuminatus* Papp, [14], *Leiophron mutilus* Papp, [14], *Leiophron topali* Papp, [14], *Leiophron achterbergi* Shamim et. al. [16], *Leiophron loani* Shamim et. al. [16], *Leiophron striopetiolus* Shamim et. al. [16], *Leiophron pappi* Shamim et. al. [16], *Leiophron hayati* Shamim et. al. [16], *Leiophron shafeei* Shamim et. al. [16] and *Leiophron parvipetiolus* Shamim et. al. [16]. In this work a new species of *Leiophron* are described herein.

MATERIALS AND METHODS

The specimens were collected by using a sweeping net. Photographs were taken with the help of a digital camera attached to a Stereozoom binocular (Nikon-SMZ1500). Measurements of slide-mounted parts (antenna, hind leg, forewing and hind wing) and card mounted specimens were taken with the help of an ocular micrometer (linear side of 100 divisions) placed in the eye piece of the Stereozoom microscope. The divisions of the ocular micrometer were converted to millimeters.

The terminology and venation follows van Achterberg [21] and surface sculpture follows Eady [4]. Abbreviations used in the text are: POL: Posterior ocellar line (distance between the posterior ocelli); OOL: Ocello-ocular line (distance between posterior ocellus and eye); OD: Ocellar diameter; F: Flagellomere.

The holotypes and paratypes are deposited with Insect Collection, Department of Zoology, Aligarh Muslim University, Aligarh (ZDAMU).

RESULTS AND DISCUSSION

KEY TO SPECIES OF THE GENUS *LEIOPHRON* NEES KNOWN FROM INDIA BASED ON FEMALES

1. Vein r+3–SR absent or spectral, its proximal two-third section desclerotised or effaced-----
-----*L. mutilus* Papp
- Vein r+3–SR present and well developed, its proximal section tubular-----2
2. Notauli well developed; furrow-like and crenulate-----*L. topali* Papp
- Notauli absent or only indicated with brownish patch-----3
3. Surface of first metasomal tergite rugo-rugulose-----
-----*L. cacuminatus* Papp
- Surface of first metasomal tergite longitudinally striate-----4
4. Length of vein 1–R1 of forewing 0.20–0.25 times length of pterostigma; length of eye in dorsal view 2.00–2.50 times temple; intertentorial line 2.50–3.00 times tentorio-ocular line; precoxal sulcus absent; spiracles not protruding, positioned at middle of first tergite; length of the first tergite 3.00–4.25 times its apical width-----
-----5
- Length of vein 1–R1 of forewing 0.27–0.33 times length of pterostigma; length of eye in dorsal view 1.50–1.90 times length of temple; intertentorial line 3.00–5.00 times tentorio-ocular line; precoxal sulcus shortly present; spiracles slightly protruding, present just behind middle of first tergite; length of first tergite 2.00–3.00 times its apical width-----6
5. Mesopleuron smooth, rugae present dorsally; length of hind basitarsus 10.00 times its maximum width-----
-----9
- Mesopleuron entirely smooth; length of hind basitarsus 8.25 times its maximum width-----
-----10
6. Width of head in dorsal view 1.10 times its width; intertentorial line 4.66 times tentorio-ocular line; length of first tergite 2.00 times its apical width; length of eye in dorsal view 1.71 times temple; length of posterior side of stemmaticum 1.66 times its lateral side-----*L. parvipetiolus* Shamim et al
- Width of head in dorsal view 1.20–1.56 times its length; intertentorial line 3.30 times tentorio-ocular line; length of the first tergite 3.00–3.30 times its apical width; length of eye in dorsal view 1.71 times temple; length of posterior side of stemmaticum 1.40–1.50 times its lateral side-----7
7. Propodeum reticulate-rugose; clypeus 2.20 times as wide as long-----
-----*L. sharifi* sp. nov.
- Propodeum anteriorly irregularly rugulose, posteriorly reticulate-rugose; clypeus 3.00 times as wide as long-----
-----8
8. Length of malar space equal to basal width of mandible; pronotal side medially crenulate, remainder smooth; length of metasoma 4.16 times its height; notauli entirely absent; face nearly smooth, setose-----*L. hayati* Shamim et al
- Length of malar space 1.33 times basal width of mandible; pronotal side medially crenulate, dorsally somewhat strigose, ventrally smooth; length of metasoma 3.57 times its height; notauli indicated with brownish patch; face punctate with setae. -----*L. shafeei* Shamim et al

9. Face almost 2.00 times as wide as long; pterostigma 2.00 times as long as wide; length of the first tergite 3.75 times its apical width; length of metasoma 4.36 times its height; forewing 3.75 times as long as wide -----*L. achterbergi* Shamim et al

– Face almost as wide as long; pterostigma 2.50 times as long as wide; length of the first tergite 4.25 times its apical width; length of metasoma 2.94 times its height; forewing 3.18 times as long wide.-----*L. loani* Shamim et al

10. Side of scutellum crenulate; clypeus almost 2.00 times as wide as long; clypeus normal, without projections; propodeum transversely irregularly reticulate- rugose -----*L. striopetiolus* Shamim et al

– Side of scutellum smooth; clypeus almost 3.00 times as wide as long; clypeus with two spine-like projections; propodeum anteriorly irregularly reticulate rugulose, posteriorly irregularly reticulate-rugose.-----*L. pappi* Shamim et al

***Leiophron sharifi* Shamim sp. nov.**

(Figures 1-10)

Body length: 6.1 mm, Forewing: 3.1 mm, Antenna: 3.2 mm

Colour: Yellowish brown except metanotum, propodeum, ovipositor, ovipositor, base of mandibles, brownish yellow; more than half of metasoma, coxa, stemmaticum, ovipositor sheath brown; legs except coxa, basal flagellomere yellow, eyes grayish black, ocelli transparent yellow.

Head: Width of head in dorsal view 1.2 times its length; antenna 15 segments; length of F₁ 1.2 times F₂, length of F₁, F₂, F₃, F₄-F₆, F₇-F₁₂, and F₁₃ 4.6 times, 3.1 times, 3.6 times, 2.2 times, 1.4 times and 2 times their width respectively; length of posterior side of stemmaticum 1.5 times its lateral side; occipital carina dorsally absent; OOL: OD: POL = 10: 3: 8; length of eye in dorsal view 1.3 times its width and 1.6 times temple; temple behind eyes roundly narrowed; temple smooth; frons 1.2 times as wide as long, smooth, near antennal sockets depressed; vertex 2.2 times as wide as long, smooth; face 1.4 times as wide as long, impressed, nearly smooth, somewhat sculpture; intertentorial line 3.3 times tentorio-ocular line; clypeus normal, without projections, smooth, sparsely setose, 2.2 times as wide as long; length of malar space 1.4 times basal width of mandible.

Mesosoma: Length of mesosoma 2.3 times its height and 2 times its width; pronotal side medially fine crenulate, remaining smooth; mesopleuron largely smooth, dorsally some rugae are present; precoxal sulcus small finely striate; notauli absent, brownish patch impressed; mesoscutum smooth; scutellar sulcus wide, deep with strong median longitudinal carina; side of scutellum reticulate-rugose; scutellum, convex, smooth; medio-posterior depression small; metanotum crenulate; propodeum reticulate- rugose.

Wings: Forewing 3.1 times as long as wide; length of pterostigma 3 times its width; length of vein 1-R1 0.28 times length of pterostigma; marginal cell short; 1-M thickened; 1-SR+M present, veins m-cu, 3-CU1, CU1b and 2-1A absent; basal and sub-basal cells glabrous, remaining setose; 1-CU1, 2-CU1 and cu-a present; 1-CU1: 2-CU1 = 1: 8; hind wing 5.43 times as long as wide.

Legs: Hind coxa smooth; length of hind femur, tibia and basitarsus 4.5 times, 8.1 times, and 10.6 times their width respectively; length of hind tibial spurs 0.31 times hind basitarsus.

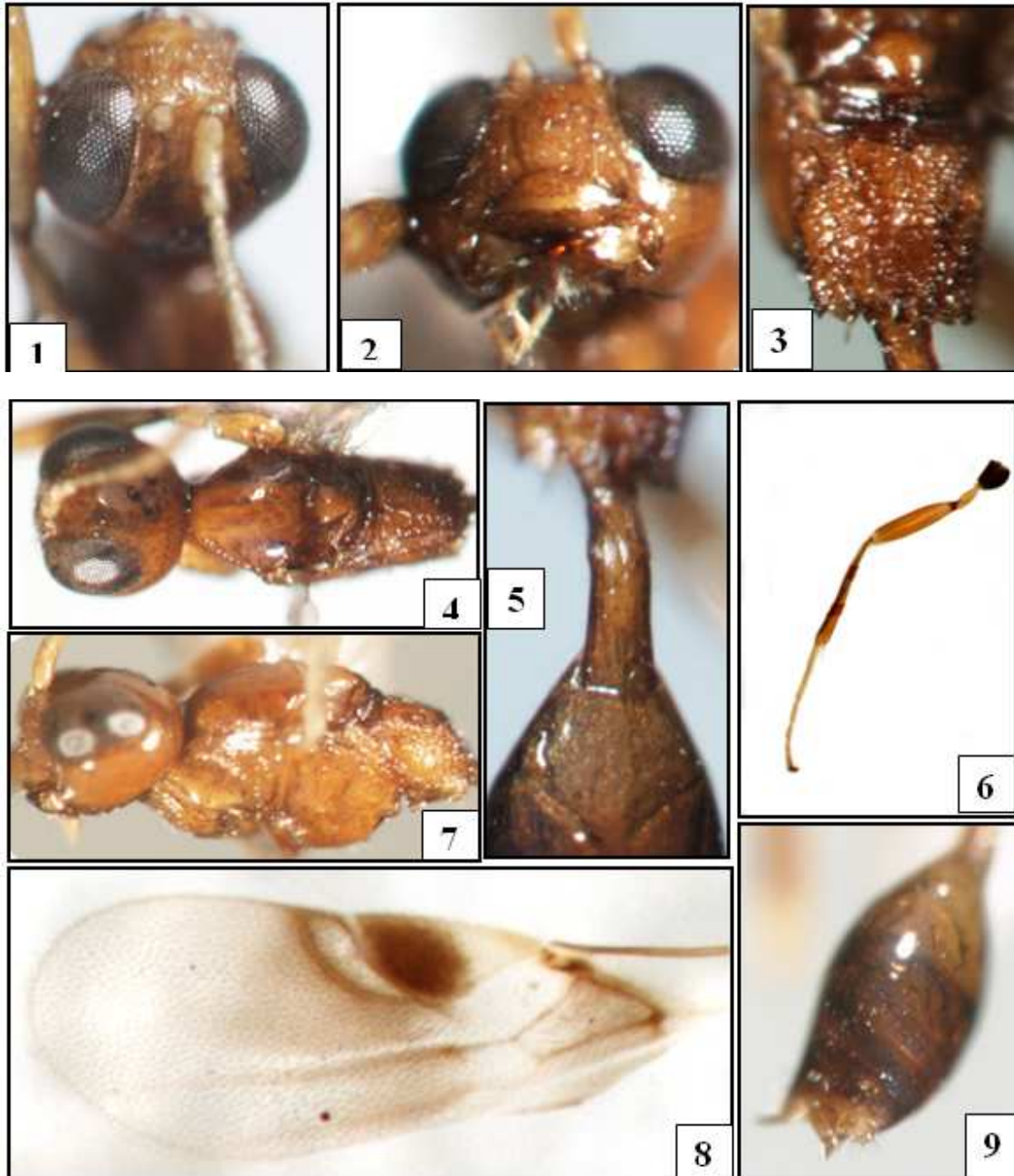
Metasoma: Length of metasoma 2.6 times its width and 3.6 times its height; length of first metasomal tergite 3.3 times its apical width, apical width 1.5 times basal width, its surface longitudinally striate, sub parallel sided, its spiracles at behind middle of first metasomal tergite, slightly protruding; remaining tergite smooth; hypopygium small, setose; ovipositor sheath short, its length 0.04 times fore wing, setose; ovipositor slender curved downwards.

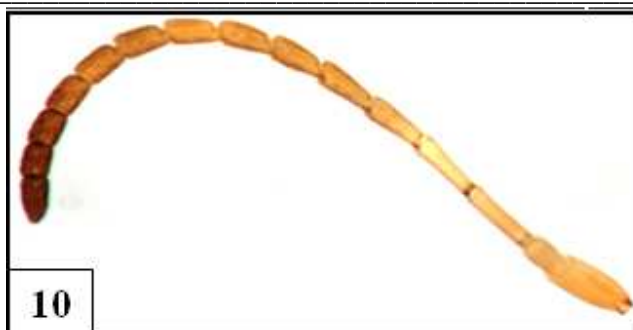
Male: Similar to female except 16 antennomeres.

Type specimens: Holotype ♀, INDIA: Uttar Pradesh, Etawah, 21. iv. 2008, 26° 47' N 79° 02' E, 14 Coll. Mohammad Sharif. Deposited in Insect collection, Department of Zoology, A.M.U. Aligarh (ZDAMU). Paratypes 3♀, 1 ♂, INDIA: Uttar Pradesh, Kanpur, 26° 28' N 80° 24', 15. ix. 2011, Coll. Mohammad Shamim. Deposited in Insect collection, Department of Zoology, A.M.U. Aligarh (ZDAMU). Same as holotype.

Leiophron sharifi Shamim sp. nov. (Figures: 1-10)

1. Head frontal view, 2. Head ventral view, 3. Propodeum, 4. Mesosoma and head, 5. First metasomal tergite, 6. Hind leg, 7. Mesosoma lateral view showing mesopleuron, 8. Forewing, 9. Metasoma showing ovipositor and ovipositor sheath, 10. Antenna





Distribution: INDIA: Uttar Pradesh

Host: Unknown

Etymology: The species is named in memory of my late father, Mohammad Sharif, who collected these braconid parasitoids.

CONCLUSION

This new species *Leiophron sharifi* Shamim sp. nov. resembles *Leiophron (Leiophron) achterbergi* Shamim et al. [16]. However, it differs in having (1) length of malar space 1.4 times basal width of mandible (length of malar space 0.5 times basal width of mandible in *achterbergi*) (2) propodeum reticulate-rugose (propodeum anteriorly irregularly rugulose, posteriorly irregularly reticulate- rugose in *achterbergi*) (3) spiracles at behind middle of first metasomal tergite (spiracles at middle of first metasomal tergite in *achterbergi*) (4) length of metasoma 3.6 times its height (length of metasoma 4.36 times its height in *achterbergi*) (5) length of pterostigma 3 times its width; length of vein 1–R1 0.28 times length of pterostigma (length of pterostigma almost 2 times its width; length of vein 1–R1 0.23 times length of pterostigma in *achterbergi*).

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