

Descriptions of two new species of *Macroteleia* Westwood (Hymenoptera: Scelionidae) from India

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Abstract

This paper describes two new species of *Macroteleia* Westwood, viz., *M. kairalii* sp. n. and *M. shyaama* sp. n. from India. A key to species of India, based on females is also provided.

Keywords: Hymenoptera, Platygasteridae, new species, Scelioninae.

Received: 1 January 2020; Revised: 30 August 2020; Online: 14 September 2020

Introduction

The genus *Macroteleia* (Platygastridae: Scelionidae) was erected by Westwood (1835) based on type species *Macroteleia cleonymoides* Westwood. As per the available host data, members of this genus are egg-parasitoids of long-horned grasshoppers (Orthoptera: Tettigoniidae) (Chen *et al.*, 2013). Ashmead (1893) reared them from *Orchelimum glaberrimum* (Burmeister, 1838) (Orthoptera: Tettigoniidae), while Morgan (1901), Brues (1907), Cole (1931), Priesner (1951), Muesebeck (1977) and Kononova and Kozlov (2008) too reared them from orthopteran eggs.

With an elongate and robust habitus, *Macroteleia* is close to *Habroteleia* Kieffer and *Triteleia* Kieffer, though the absence of post marginal vein easily separates *Habroteleia*. *Macroteleia* can be differentiated from *Triteleia* by their laterally compressed sixth tergite in females; the same is dorsoventrally flattened and triangular in *Triteleia* females. In *Macroteleia* males, the apical tergite is apically emarginate or with a terminal single spine, while postero-lateral corners of male apical tergite is bispinose in *Triteleia* (Masner, 1976; Chen *et al.*, 2013).

The genus is represented by 133 valid species globally (Hymenoptera Online, 2020), of which only 8 species are reported from India (Mani and Sharma, 1982; Rajmohana, 2006). In this paper two new species *M. kairalii* sp. n. and *M. shyaama* sp. n. are described. A key to Indian species of

Macroteleia Westwood, based on females is also provided.

Materials and Methods

The present study is based on specimens collected through Malaise traps, Yellow pan traps, and Sweep net. Specimens were studied and imaged under Leica M 205A stereomicroscope, with Leica DFC 500 camera. Images were processed using extended focus montage LAS software. The holotypes and other material examined are deposited at Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, Kerala (ZSI, WGRC). Terminology followed is based on Miko *et al.*, 2007.

Abbreviations

A1-A12- Antennal segments; HL- Head length; HW- Head width; EH- Eye height; IOS- Inter orbital space; L- Length; *m*- Marginal vein; MW- Mesosoma width; ML- Mesosoma length; OOL- Ocello-ocular length; OD- Ocellar diameter of median ocellus; *pm*- Post marginal vein; POL- Posterior ocellar length; LOL- Lateral ocellar length; *stg*- Stigmal vein; T1-T2- Tergites of metasoma; S2-S6- Sternites of metasoma; W- Width.

Results

Key to the species of genus *Macroteleia* Westwood from India based on females

1. Propodeum divided into two separate triangular lobes.....2

- Propodeum continuous medially, not divided into two separate lobes.....4
- 2. Metascutellum triangular, strongly produced medially.....*M. lamba*
Saraswat and Sharma
- Metascutellum tongue- like.....3
- 3. Body black; gena coarsely punctate rugose; netrion punctate or rugulose punctate; metapleuron longitudinally striate dorsally, densely punctate ventrally..... *M. crawfordi* **Kieffer**
- Body yellowish brown to brown; gena densely punctate; netrion rugulose; metapleuron punctate.....*M. chandelii*
Mani and Sharma
- 4. T5 distinctly wider than long5
- T5 distinctly longer than wide.....6
- 5. Metascutellum tongue- like, not extending into space between propodeal lobes (not as broad as *M. crawfordi*); metasoma black.....*M. shyaama* **sp. n.**
- Metascutellum transverse, posterior margin slightly pointed medially; base of T1, T5 and T6 brown to black, rest of metasoma yellow or orange.....*M. indica*
Saraswat and Sharma
- 6. Mesosoma pale brown or yellowish orange.....7
- Mesosoma entirely black.....8
- 7. Head black; metascutellum transverse, posterior margin pointed medially; T1 black, T2 mixed brown and black.....
.....*M. dolichopa* **Sharma**
- Head brown; metascutellum transverse, posterior margin toothed or pointed with medial tooth very long and broad; T1 and T2 pale brown.....*M. kairalii* **sp. n.**
- 8. Metasoma mixed brown and black; medial frons punctate rugulose ventrally, irregularly smooth dorsally; A1 and A2 yellowish brown, A3- A6 pale brown, rest of antenna black.....*M. striativentris*
Crawford
- Metasoma black; medial frons obliquely strigose ventrally and irregularly smooth dorsally; A1- A6 yellowish brown, rest of antenna black.....*M. livingstoni*
Saraswat

***Macroteleia kairalii* Abhilash and
Rajmohana sp. n.**
(Figs: 1-8)

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Description: Holotype Female. Length= 6.3mm.

Colour: Head and mesosoma yellow to orange or pale brown; metasoma yellow to orange or pale brown except 3/4th of T6 and rest of segments dark brown to black; mandible yellow or orange with teeth brown or black; legs yellow to pale brown throughout; A1 yellow to pale brown, A2-A6 pale or dark brown, rest of antenna dark brown to black; wings hyaline.

Head: In dorsal view transverse, 1.63x as wide as long, slightly wider than mesosoma; central keel absent; minimal distance of IOS in front of median ocellus less than EH (29: 43) in front view; frons with setigerous punctae, medially smooth and impunctate; frons below median ocellus and also vertex with dense non contiguous setigerous punctae; lower frons with rugulae converging towards antennal toruli. OOL very short, 0.13x OD; POL 1.25x LOL; ocellar triangle smooth with scattered punctures; gena with setigerous punctae; occipital carina incomplete medially; A3 0.91x as long as A2.

Mesosoma: In dorsal view 1.52x as long as wide, hairy; netrion hairy, finely punctate; middle lobe of mesoscutum evenly punctate, punctae larger posteriorly than in front; lateral lobes of mesoscutum smooth with a row of punctae; notauli narrow, foveate; mesoscutellum finely punctate throughout, carinate and with foveolate border posteriorly; metascutellum transverse, carinate and foveolate; metascutellum apically toothed, with a pair of small submedial projections (Fig.7); propodeum continuous medially (Fig.7) not divided into two separate lobes, posterior margin notched medially, each side with irregular longitudinal carinae; medially covered by dense, decumbent, hairs; both cervical and dorsal pronotal area with dense setigerous punctae; lateral pronotal area smooth anteriorly and posteriorly punctate rugulose; upper mesepisternum with a row of robust longitudinal carinae below subalar pit; lower mesepisternum longitudinally punctate rugulose and setose; mesopleural depression smooth; metapleuron longitudinally striate at its anterior and posterior, but medially with punctate to punctate rugose sculptures, sparsely hairy; hind femur swollen medially; spines absent on outer surface of hind tibia; forewing L: W= (350: 90); forewing apex extending as far as posterior margin of T4 to

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middle of T5; *m* 0.52x length of *pm*; *pm* 3.6x longer than *stg*; *pm*: *stg*: *m* = 54: 15: 28.

Metasoma: In dorsal view, 2.79x longer than head and mesosoma combined, setose; posterior margin of transverse sulcus on T2 slightly convex; sublateral tergal carinae distinct on T1- T4; T1 longitudinally striate medially, with scattered punctures in interstices anteriorly, rugulose laterally; T2- T4 longitudinally striate with punctures scattered in interstices medially and punctate rugulose laterally; T5 densely longitudinally striate throughout with delicate punctures in interstices; T6 finely punctate dorsally, densely longitudinally striate laterally with scattered punctures in interstices; length of T3 0.91x length of T6; T5 distinctly longer than wide (1.5x); relative L: W proportion of metasomal tergites T1- T6 being (66: 44); (78: 54); (88: 57); (82: 55) (60: 40); (97: 22); S2- S4 longitudinally striate, with punctures in interstices; S5- S6 densely longitudinally striate, with fine punctures in interstices; distinct longitudinal median carina present on S2- S5.

Male: Unknown

Host: Unknown

Diagnosis: *M. kairalii* sp. n. is similar to *M. indica* Saraswat and Sharma, *M. flava* Chen, Johnson, Masner, Xu, *M. rufa* Széleányi and *M. chandelii* Sharma in body shape, colour and size. In *M. kairalii* sp. n., T3 is not as long as T6 (Length of T3 1.11–1.39x length of T6 in *M. indica*) and T5 distinctly longer than wide (in *M. indica* T5 distinctly wider than long).

In *M. kairalii* sp. n., sublateral tergal carinae distinct on T1- T4 (in *M. flava* sublateral tergal carinae distinct on T1- T3) and metapleuron not fully striate, but medially punctate rugulose (in *M. flava*, metapleuron longitudinally striate throughout) and fore wing apex extending as far as posterior margin of T4 to middle of T5 (In *M. flava* fore wing apex not reaching T5).

Metascutellum is distinctly transverse in *M. kairalii* sp. n. (triangular in *M. rufa*, tongue-like in *M. chandelii*), and propodeum is continuous medially, not divided into two separated lobes (divided into two subtriangular lobes in *M. rufa* and *M. chandelii*).

In *M. dolichopa*, though propodeum is continuous medially, it is a much larger species, with head black and metapleuron

longitudinally striate anteriorly and punctate rugulose ventrally.

Etymology: The species name is derived from Malayalam word 'kairalii' = belonging to Kerala, the South Indian state from where the species was collected.

Material examined: Holotype ♀, INDIA, Kerala, Tholpetty (11.86957E and 76.07291N), Wayanad District, 10.x.2013, Coll. Abhilash Peter, (ZSI/WGRS/IR.INV. 5793).

Macroteleia shyaama Abhilash and Rajmohana sp. n.

(Figs: 9-16)

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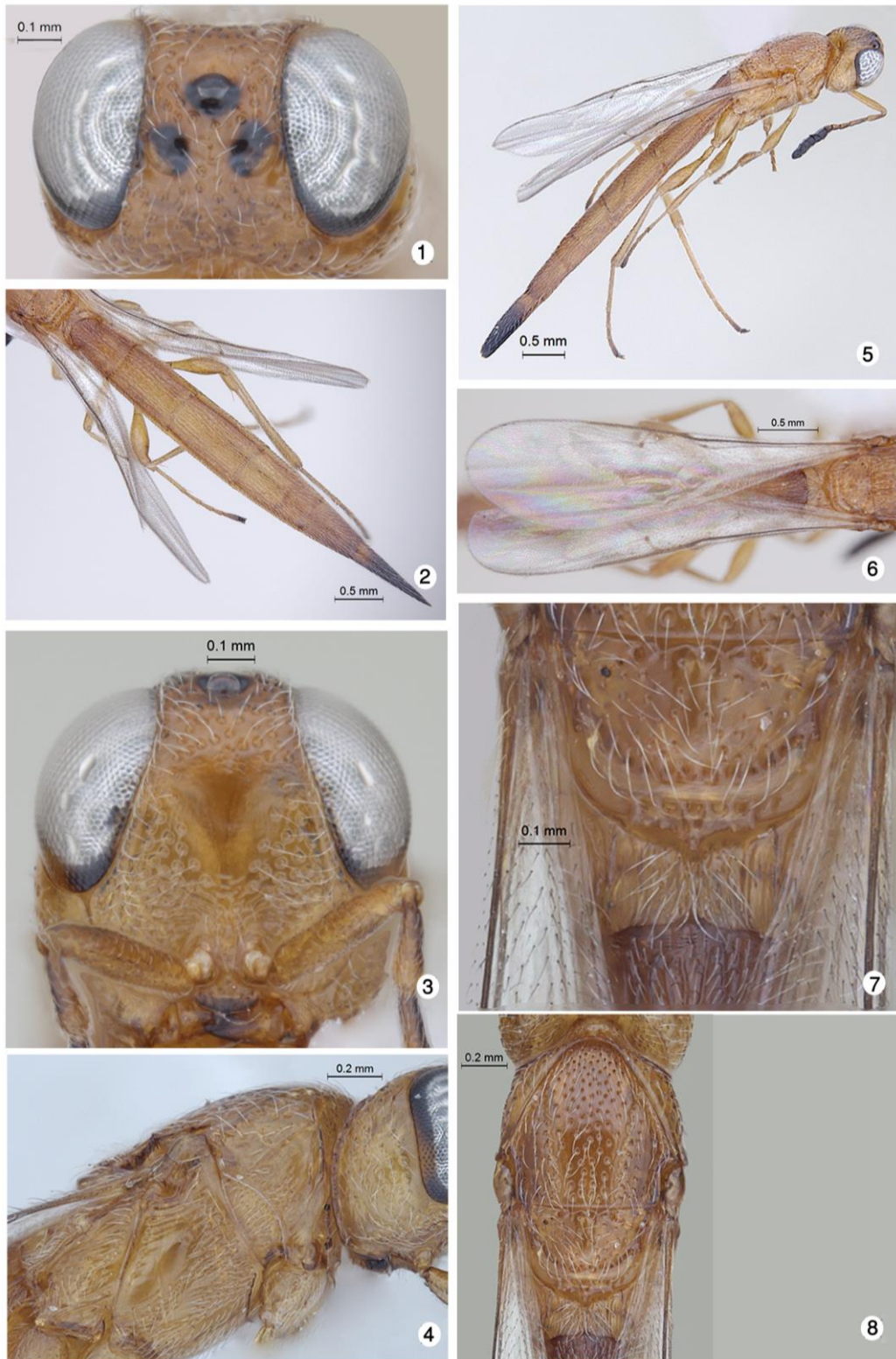
Description: Holotype Female. Length= 4.08mm.

Colour: Head and mesosoma orange yellow, except as follows: head dorsally, medial lobe of mesoscutum and posterior margin of propodeum dark brown to black; metasoma black; mandible yellow or orange with teeth brown or black; legs yellow throughout; A1 yellow, A2- A6 pale or dark brown, rest of antenna dark brown to black; wings hyaline.

Head: In dorsal view transverse, 0.62x as wide as long, slightly wider than mesosoma; central keel weakly developed; IOS less than EH (31: 43) in front view; medial frons obliquely strigose ventrally, irregularly smooth dorsally; ventrolateral frons punctate rugose; frons below median ocellus punctate, not contiguous; ocellar triangle and gena punctate; OOL short, 0.14x diameter of lateral ocellus; POL 1.45x LOL; occipital carina discontinuous medially; A2 and A3 almost subequal.

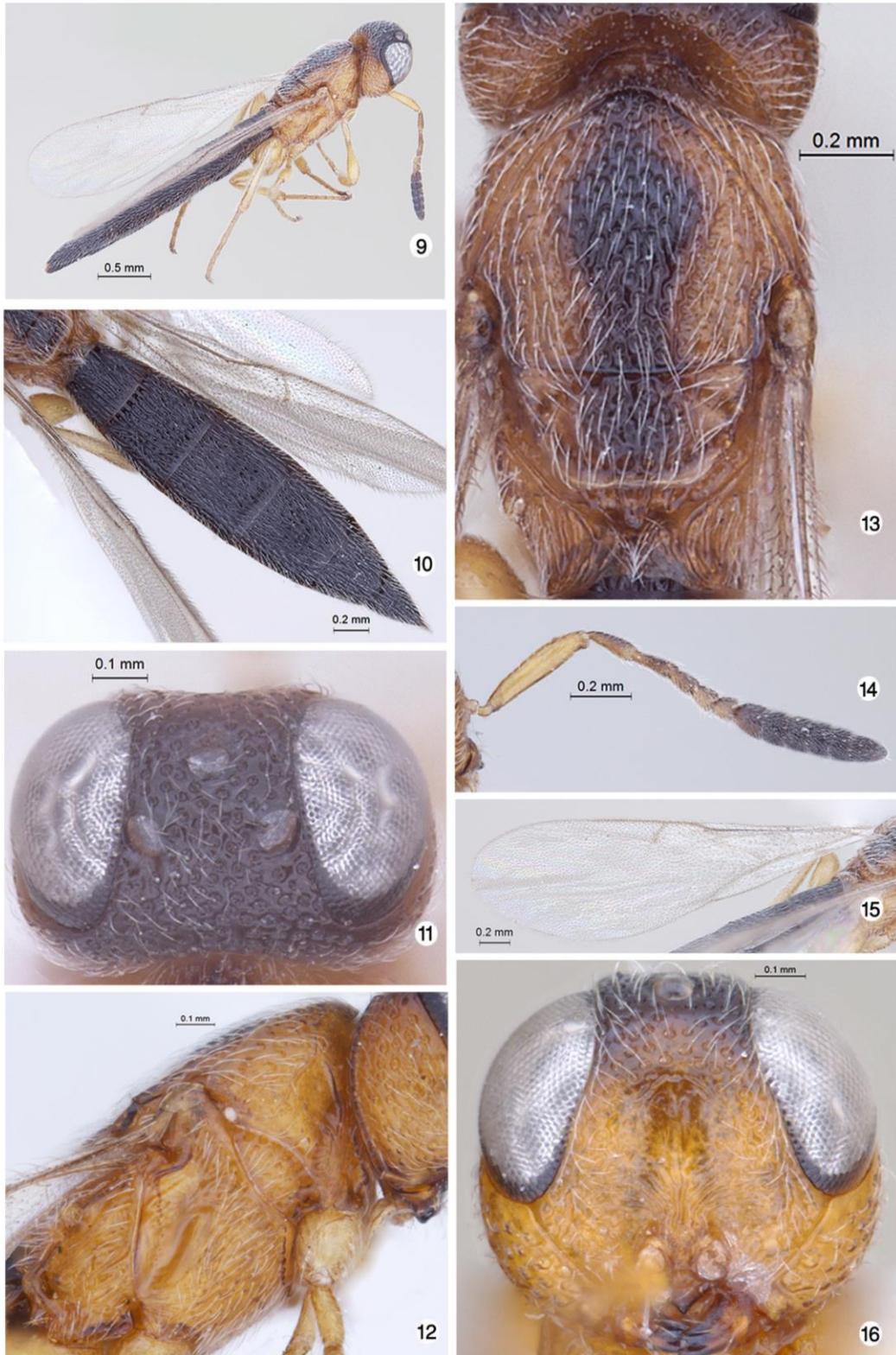
Mesosoma: In dorsal view 1.35x as long as wide, hairy; middle lobe of mesoscutum densely punctate anteriorly, punctate rugose to punctate reticulate posteriorly; lateral lobes of mesoscutum coarsely punctate throughout; notauli distinctly foveolate, foveolae contiguous; mesoscutellum punctate throughout, carinate and foveolate posteriorly; metascutellum tongue-like (not broad as in *M. crawfordi*), not extending into space between propodeal lobes, carinate and foveolate; propodeum continuous, medially not divided

PLATE 1



Figures 1-8: *Macroteleia kairalii* sp. n. Holotype (Female): 1. Head- dorsal; 2. Metasoma; 3. Head- front view; 4. Mesopleura; 5. Body profile; 6. Forewing venation; 7. Metascutellar plate; 8. Mesosoma.

PLATE 2



Figures 9-16: *Macroteleia shyaama* sp. n. Holotype (Female): **9.** Body profile; **10.** Metasoma; **11.** Head- dorsal; **12.** Mesopleura; **13.** Mesosoma; **14.** Antenna; **15.** Forewing venation; **16.** Head- front view.

into two separate subtriangular lobes, posterior margin narrowly notched medially, each side with irregular longitudinal carinae, covered medially by dense, decumbent, hairs; cervical and dorsal pronotal area densely punctate; lateral pronotal area smooth, anteriorly punctate and rugulose posteriorly; netrion hairy, punctate rugulose; upper mesepisternum with a row of weak longitudinal carinae below subalar pit; lower mesepisternum punctate rugulose; mesopleural depression smooth; metapleuron longitudinally striate throughout, not densely hairy; hind femur swollen; spines absent on outer surface of hind tibia; forewing L:W= (265: 79); forewing apex extending from as far as posterior margin of T5 to middle of T6; m 0.46x length of pm ; pm 3.29x longer than stg ; $pm: stg: m = 46: 14: 21$.

Metasoma: In dorsal view, 1.8x longer than head and mesosoma combined, hairy; posterior margin of transverse sulcus on T2 convex; sublateral tergal carinae distinct on T1- T3; T1 longitudinally striate medially, with scattered punctures in interstices anteriorly, rugulose laterally; T2- T4 densely longitudinally striate with punctures scattered in interstices medially and punctate rugulose laterally; T5 densely finely longitudinally striate throughout with delicate punctures in interstices; T6 finely punctate throughout; length of T3 1.42x length of T6; T5 distinctly wider than long (1.24x); relative L: W proportion of metasomal tergites T1 to T6 being (39: 44); (46: 56); (51: 60); (47: 57) (34: 42); (36: 21); S2- S4 longitudinally striate, with punctures in interstices; S5- S6 longitudinally striate, with fine punctures in interstices.

Male: Unknown.

Host: Unknown.

Etymology: The species name is derived from the Sanskrit word 'shyaama' = 'black', due to its black coloured metasoma, contrasting with the orange mesosoma.

Material examined: Holotype ♀, INDIA: Kerala, Cheriyanam (9.5197E; 77.2465N), Periyar Tiger Reserve, Idukki district, 05.iv.2013, Coll. Abhilash Peter, (ZSI/WGRS/IR.INV.5792); Paratype: 1 ♀, INDIA, Kerala, Perunthenaruvi, 9.414855E: 76.875401N, Ranni, Pathanamthitta district, 22.i.2014, Coll. Abhilash Peter, (ZSI/WGRS/IR.INV.5791).

Diagnosis: Though close to *M. indica* Saraswat and Sharma in having a medially continuous propodeum and T5 being wider than long, *M. shyaama* sp. n. can be readily separated from *M. indica* as follows (a) metasoma black in *M. shyaama* sp. n. (in *M. indica* base of T1, T5 and T6 brown to black, rest of metasoma yellow or orange), (b) forewing apex extending from as far as posterior margin of T5 to middle of T6 in *M. shyaama* sp. n. (in *M. indica* forewing apex extending from as far as posterior margin of T4 to posterior margin of T5), (c) metascutellum medially extended tongue-like in *M. shyaama* sp. n. (in *M. indica* metascutellum posterior margin slightly pointed medially). Further while *M. indica* has its head entirely yellow or orange, head in *M. shyaama* sp. n. is dorsally black and face, yellowish orange.

The Oriental species *M. semicircula* Chen, Johnson, Masner and Xu, can be well differentiated from *M. shyaama* sp. n. mainly by its propodeum, which is divided into two widely separated triangular lobes.

Acknowledgments

The authors are grateful to the Director, Zoological Survey of India (ZSI), Kolkata and the Officer-in-Charge, ZSI, Western Ghat Regional Centre, Kozhikode, Kerala, for providing facilities and encouragement.

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