



Record of the Genus *Litus* Haliday (Hymenoptera: Chalcidoidea: Mymaridae) from India, with description of two species

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Author Contribution: The main work of preparation of the paper, writing and description was done by the first author, with considerable inputs, including checking of the final draft of the manuscript done by the other two authors.

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Abstract: The mymarid genus *Litus* Haliday is recorded from India for the first time, and two new species, *L. huberi* Rehmat & Anis, sp. nov., and *L. triapitsyni* Rehmat & Hayat, sp. nov. are described from material collected from the state of Assam.

Keywords: Genus *Litus*, Hymenoptera, India, Mymaridae, new species.

Recently, three specimens of the mymarid genus *Litus* Haliday were collected from Guwahati (Assam, India). With the help of Dr. J. Huber (Ottawa, Canada) and Dr. S.V. Triapitsyn (Riverside, U.S.A.) we studied the samples.

The genus *Litus* is a new record from India. And this paper deals with the descriptions of two new species.

Genus *Litus* Haliday

Litus Haliday, 1833: 269, 345. Type species *Litus cynipseus* Haliday 1833, by designation of Gahan & Fagan, 1923: 81.

Neolitus Ogloblin, 1935: 60. Type species *Neolitus argentinus* Ogloblin, 1935, by original designation. Synonymy by Triapitsyn & Berezovskiy, 2004: 3.

Diagnosis

Female. Body robust, highly sclerotized; head and thorax strongly sculptured. Mandible unidentate or bidentate, sometimes longer than malar space. Antennal formula, 1161; funicle segments without longitudinal sensilla; clava unsegmented, usually with 4 longitudinal sensilla. Mesoscutum usually with distinct notauli; scutellum with distinct anterior and posterior parts, the latter longer than the former; mesopostphragma projecting into gaster and usually with apex rounded. Fore and hind wings long and narrow, with very long marginal fringe; marginal vein of fore wing long. Legs with coxae usually strongly reticulate; tarsi 5-segmented. Petiole broader than long. Gaster with first tergite long; ovipositor length variable, either short or long, and hidden or slightly to strongly exerted at apex.

Hosts

Gregarious egg parasitoids of large Staphylinidae (Coleoptera) (Triapitsyn & Berezovskiy 2004).

Species and distribution

The genus *Litus* contains 12 extant species including the two described here. It is nearly cosmopolitan, known from all the zoogeographical regions, except Australia and New Zealand. The Oriental Region species we know till now are from Thailand (*L. sutil* Triapitsyn & Berezovskiy), Taiwan (China) (*L. camptopterus* Novicky), and Nepal (*L. usach* Triapitsyn & Berezovskiy).

The species *L. enocki* Howard (1896) from Sri Lanka has been transferred to *Camptoptera* by Triapitsyn & Berezovskiy (2004).

1. *Litus huberi* Rehmat & Anis sp.nov. (Images 1-6, Fig. 1)

Material examined

Holotype: Female, 28.x.2008, on slide under 3 coverslips, Kontola, Guwahati, Assam, India, coll. F.R. Khan. Deposited in The National Pusa Collection, Division of



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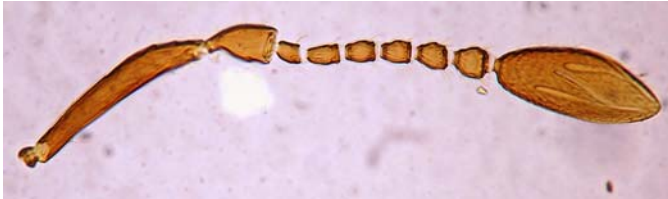


Image 1. *Litus huberi* Rehmat & Anis, sp. nov., female: Antenna.



Image 2. *Litus huberi* Rehmat & Anis, sp. nov., female: Fore wing.



Figure 1. *Litus huberi* Rehmat & Anis, sp. nov., female: Head, dorso-lateral view.

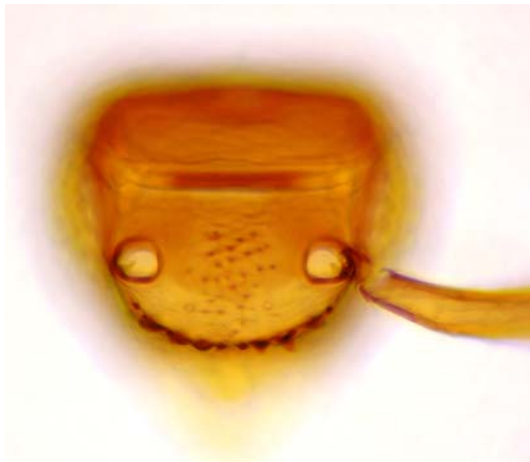


Image 3. *Litus huberi* Rehmat & Anis, sp. nov., female: Head showing tubercles on frons and the line of denticles.

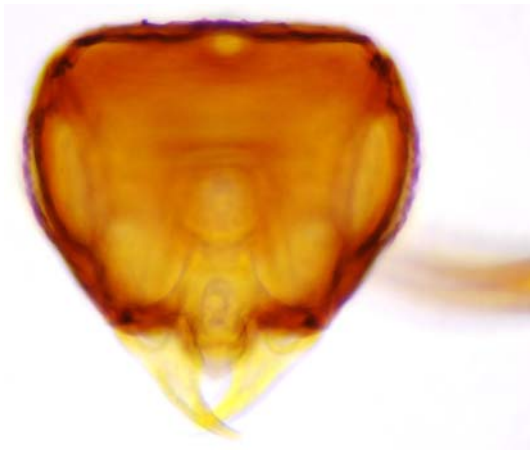


Image 4. *Litus huberi* Rehmat & Anis, sp. nov., female: Head frontal view, showing mandibles.



Image 5. *Litus huberi* Rehmat & Anis, sp. nov., female: Scutellum and propodeum showing sculpture, dorsal view.



Image 6. *Litus huberi* Rehmat & Anis, sp. nov., female: Thorax and gaster, dorsal view.

Entomology, Indian Agricultural Research Institute (NPCI), Reg.No. 13/6/70/3.

Paratype: 1 Female, 28.x.2008, on slide under 3 coverslips, Borkusi, Guwahati, Assam, India, coll. F.R. Khan. Deposited in Insect Collections, Department of Zoology, Aligarh Muslim University (ZDAMU), Reg.No. HYM/CH. 577.

Etymology

The species is named after Dr. J. Huber, Canadian Forest Service, Ottawa, Canada.

DESCRIPTION

Female: Length, 0.41mm (Measured from card-mounted holotype before mounting it on slide). Body except distal three tergites of gaster which are brownish-yellow, dark brown to black, shiny; ovipositor sheaths dark brown. Mandibles pale yellow. Antennae dark brown. Fore wing lightly infuscate, hyaline in apical third; hind wing sub-hyaline. Legs with coxae black; femora and tibiae brown; tarsi brownish.

Head: Frontovertex broad, about two-thirds of head width (34:53.5); frons with a slightly curved line of prominent denticles (Image 3); clypeus with a median apically pointed lobe (Fig. 1); antennal toruli removed from transverse trabecula by a distance slightly greater than diameter of a torulus; ocellar triangle with apical angle strongly obtuse; posterior ocelli nearly touching supraorbital trabecula; frons with several minute tubercles. Vertex with wide-meshed reticulations; temples strongly reticulate. Mandible unidentate, long, longer than malar space (Image 4; in Figure 1 mandibles appear shorter as the figure was drawn in dorso-lateral view). Antenna as in Image 1; scape, in lateral view as in *tripitsyni*, Rehmat & Hayat sp.nov., but appears basally straight as it is oriented ventrally; first, fifth and sixth funicle segments (F1, F5, F6) quadratic, F2-4 slightly longer than broad, F2 longest; clava un-segmented, about 2.3x as long as broad, slightly shorter than preceding 5 funicle segments combined, and with 4 longitudinal sensilla.

Thorax: Compact, strongly sclerotized (characteristic of the genus); pronotum not visible in dorsal view of thorax, strongly reticulate, the cells laterally elongate and medially convergent; mesoscutum short, not more than half the length of scutellum,

with raised reticulate sculpture, and with 2+2 setae, mesoscutum without notaular lines; posterior scutellum with prominent raised reticulate sculpture (Image 5) compared to sculpture on anterior scutellum; propodeum posterior half behind transverse ridge narrowed and with prominent longitudinal ridges (Image 5). Fore wing disc (=blade) narrow, apically pointed (Image 2); and about 17.5x as long as broad (width measured at broadest point), if width of the blade is measured, the fore wing nearly 22x as long as broad; disc almost bare, except for 2-3 setae just distal of venation, and a row of 5 setae along posterior margin in middle of disc; venation characteristic of *Litus* species. Hind wing 24.5x as long as broad, similar to that in *tripitsyni* Rehmat & Hayat, sp.nov. (as in Image 9), disc with a line of setae. Legs with coxae strongly sclerotized.

Gaster: Gaster longer than thorax (79:63); first tergite (TI) long, occupying nearly three-fourths of gaster length; other tergites appear strongly transverse (retracted within gaster); last tergite (TVII) apically conical; ovipositor short, and in slide mounted holotype, exerted to 0.17x of gaster length (Image 6). Relative measurements (holotype): ovipositor length, 73 [Lengths: mid tibia, 45; mid tarsus, 35; hind tibia, 56; hind tarsus, 55].

Male: Unknown.

Host: Unknown.

Comments: *Litus huberi* sp. nov. appears to be very close to *L. sutil* Triapitsyn & Berezovskiy (2004) in having narrow fore wing blade, but differs from *sutil* in having funicle segments shorter, quadrate (F1,5,6) to only slightly longer than broad (F2,3,4), clava about 2.3x as long as broad; fore wing disc straight; gaster 1.25x as long as thorax; and ovipositor occupying about three-fourths length of gaster, and clearly longer than both mid and hind tibiae, 1.62x as long as mid



Image 7. *Litus tripitsyni* Rehmat & Hayat, sp. nov., female: Antenna.

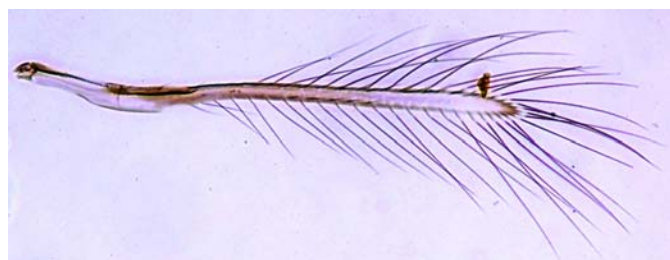


Image 8. *Litus tripitsyni* Rehmat & Hayat, sp. nov., female: Fore wing.



Image 9. *Litus triapitsyni* Rehmat & Hayat, sp. nov., female: Hind wing.

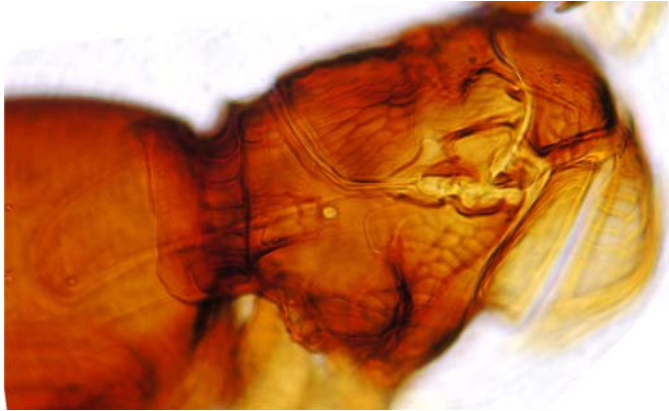


Image 10. *Litus triapitsyni* Rehmat & Hayat, sp. nov., female: Thorax and part of T1, dorso-lateral view.

tibia and 1.30x as long as hind tibia; face with a row denticles. (In *sutil*: funicle segments all longer than broad, each not less than 2x as long as broad; clava about 3.5x as long as broad; fore wing disc apically curved; gaster stated as being a little shorter than mesosoma, mesosoma: metasoma, 157: 145; ovipositor short, occupying about one-third length of gaster, and clearly shorter than mid and hind tibiae, 0.50x of mid tibia and 0.41x of hind tibia; probably the row of facial denticles absent in *sutil*).

2. *Litus triapitsyni* Rehmat & Hayat, sp. nov.
(Images 7-11, Fig. 2)

Material examined

Holotype: Female, 29.x.2008, on slide under 3 coverslips, Koylajol, Guwahati, Assam, India, coll. F.R. Khan. Deposited in NPCI, Reg.No. 13/6/70/4.

Etymology

This species is named after Dr. S.V. Triapitsyn, Department of Entomology, University of California, Riverside, U.S.

DESCRIPTION

Female: Length, 0.44mm, exserted ovipositor, 0.074mm. (Measured from card-mounted holotype before mounting it on a slide).

This species is very similar to *L. huberi* Rehmat & Anis, sp. nov. in body colour, various dimension of body parts, and sculpture, but differs only in the following characters: Anterior margin of frons biconvex with a row of large denticles; funicle segments (Image 7) all longer than broad, F1 about 1.5x, F2

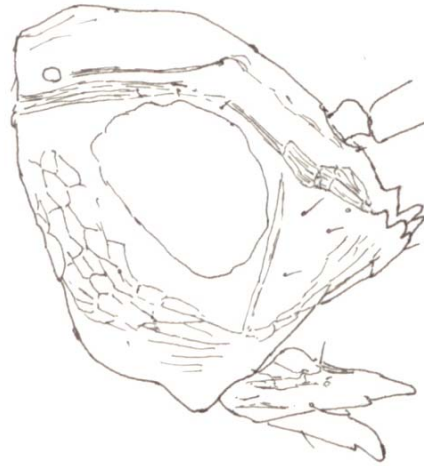


Figure 2. *Litus triapitsyni* Rehmat & Hayat, sp. nov., female: Head, dorso-lateral view.

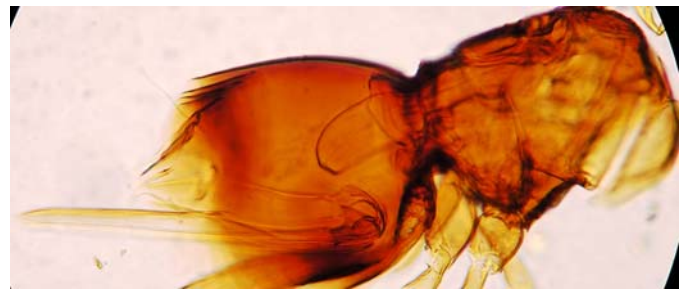


Image 11. *Litus triapitsyni* Rehmat & Hayat, sp. nov., female: Thorax and gaster, dorso-lateral view.

and F3 2x, F4 1.75x, and F5 and F6 each a little longer than broad; clava 2.3x as long as broad; ovipositor originates from near base of gaster, and strongly exserted at apex, the exserted part 0.39x of gaster length (Image 11). Structural details are illustrated in Images 7-11 & Fig. 2.

Relative measurements (holotype slide): Thorax length, 57; gaster length, 74; ovipositor length, 95; mid tibia length, 48; mid tarsus length, 40; hind tibia length, 64; hind tarsus length, 60. Fore wing length, 184; fore wing width at widest, 10; width at widest part of disc, 7.5; marginal fringe length, 70; hind wing length, 180; hind wing width, 6; marginal fringe length, 70.

Male: Unknown.

Host: Unknown.

Comments: This species is very close to *L. huberi*, Rehmat & Anis, sp. nov., but different in having the anterior margin of frons with two convex lobes provided with large denticles; ovipositor originates from near base of gaster, and strongly exserted at apex, exserted part 0.39x of gaster length; ovipositor 1.98x as long as mid tibia and 1.48x as long as hind tibia. [In *huberi*: anterior margin of frons slightly convex, with a row of large denticles; ovipositor originates from basal fourth of gaster and very slightly exserted, the exserted part about 0.17x of gaster length; ovipositor 1.65x as long as mid tibia and 1.30x as long as hind tibia].

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