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Short Communication

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On the rediscovery of *Onychomesa susainathani*, an emesine bug endemic to India (Heteroptera: Reduviidae: Emesinae)

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Abstract: *Onychomesa susainathani* Wygodzinsky, 1966, an emesine bug known so far only from its type specimen, is illustrated with additional descriptive notes herein from Maharashtra State in India. It is a rediscovery after about 60 years.

Keywords: Emesinae, Hemiptera, Maharashtra, Metapterini, thread-legged bug.

A thread-legged bug belonging to the tribe Metapterini (Hemiptera: Heteroptera: Reduviidae: Emesinae), found dead trapped in a spider web, was collected near Pune in Maharashtra, India, in November 2017. It showed the main key characters of the genus *Onychomesa* Wygodzinsky, 1966, namely, the presence of a triangular projection on apical halves of claws of mid and hind legs ventrally, the pygophore of male subsemicircular in lateral view, and rod-shaped parameres. It was subsequently identified as *Onychomesa susainathani* Wygodzinsky, 1966 based on its original description (Wygodzinsky 1966).

Onychomesa susainathani was described based on two male specimens (one holotype and one paratype) from 'Jahalpur, central India' (actually Jabalpur in Madhya Pradesh, India; this must possibly be a typographic error in the original description). This is the type species of *Onychomesa*, a genus currently including only three species; these are, along with their respective recorded countries, *O. susainathani* (India), *O. sauteri* Wygodzinsky, 1966 (Taiwan), and *O. gokani* Ishikawa, 2000 (Japan).

O. susainathani was never reported from any part of India or elsewhere since its original description. Furthermore, because the specimen examined in the course of the present study exhibits some discrepancies with the original description and illustrations, additional description of the variation and several colour illustrations are provided in the present paper.

Material and Methods

Material examined: MCZH 140, 1 ex., male, 17.xi.2017, 25km north of Pune, coll. B. Sarode.

The material is deposited in Modern College, Pune. The methods of study follow that outlined in a recent paper by Sarode et al. (2018b).

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Taxonomy

Reduviidae: Emesinae: Metapterini

Genus *Onychomesa* Wygodzinsky, 1966

Onychomesa Wygodzinsky, 1966: 530. Type species by original designation: *Onychomesa susainathani* Wygodzinsky, 1966.

Onychomesa: Hsiao & Ren (1981: 393), Maldonado Capriles (1990: 135), Putshkov & Putshkov (1996: 163), Ishikawa (2000: 375), Rédei & Tsai (2010: 32).

***Onychomesa susainathani* Wygodzinsky, 1966**

Onychomesa susainathani Wygodzinsky, 1966: 533. Holotype: male, India, Jahalpur (= Jabalpur); one male paratype; deposited in the American Museum of Natural History, New York, USA.

Onychomesa susainathani: Maldonado Capriles (1990: 135), Ishikawa (2000: 378), Ambrose (2006: 2397).

Additional description: Macropterous male: total length 13.8mm.

Colour, integument, and vestiture: General colour brown. Head and thorax dorsally with numerous, pale, rounded scale-like setae that appear like small granules. Head with an elongate triangular pale patch of scale-like setae in front of transverse sulcus and a similar patch posteriad of sulcus, latter patch with pale line of scales on either side laterally. Antennal segments brown, apical part of segment I almost black but extreme tip pale. Prothorax dorsally with two longitudinal lines of scale-like setae throughout its length, these lines widely separated in anterior half but converge near middle and again diverge in posterior half. Mesonotum dark brown with two longitudinal lines of scale-like pale setae as well as a few scattered scale-like setae. Forewings pale brown with brown veins and brownish spots. Abdomen dorsally pale brown under wings, exposed portions behind forewing darker, almost blackish. Overall appearance in lateral view also brown to dark brown, with pale brownish spots or annuli on all legs; connexivum of each segment also with pale patches visible in lateral view. Head very pale brown ventrally, with scale-like setae; first and second visible segments of labium pale brown, especially laterally, third visible segment dark brown. Pro-, meso-, and metasternum dark brown; prosternum with scale-like setae, appearing finely rugulose; metasterna with two lateral pale lines of patches or blotches in anterior half; metasternum almost blackish, especially in posterior fourth; abdominal sternites brown with pale mottling up to fifth sternite but remaining part blackish with very few pale setae; spiracles blackish. Connexival pale patches also evident in ventral view; some pale mottling seen along prominent median keel as well. Posterior margin of third and fourth sternite appears as a thin pale line. Forelegs mostly brown; fore coxae pale brown with a small pale spot near apex, fore femur brown with oblique pale lines on inner and outer surfaces, fore tibia with one small basal and one large median pale annulation, fore tarsus with broad basal pale area. Mid coxae pale brown; hind coxae brown with incomplete longitudinal lines; mid and hind femora dark brown, with five pale spots or incomplete annulations; mid and hind tibia similar but with three pale spots in basal half; mid and hind tarsi pale (Image 1A–E).

Structure: Head more or less flat above and below, nearly rectangular in lateral view, anteocular portion slightly longer than postocular (Image 1F,G). In dorsal view, area posteriad of eye appears slightly globular, then gradually narrowed behind. Clypeus with a spine-like projection at its extreme apex immediately above base of labrum (Image 1H). Antennae long, inserted near apex of the head. Eyes of moderate size, remote from dorsal margin but reaching ventral margin of head, occupying more than half of height of head in lateral aspect; interocular transverse sulcus distinct, not surpassing the level of posterior border of eyes (Image 1I). Labium straight; first visible segment slightly longer than second and reaching anterior border of eye; apex of second visible segment just reaching level of posterior border of eye, third visible segment slightly slender, tapering, longest, reaching fore coxae (Image 1G).

Thorax moderately broad and elongate. Pronotum not covering mesonotum. Fore lobe more or less cylindrical, slightly broad near base and apex but narrow and parallel sided in between; hind lobe of pronotum very small, collar-like, well separated from fore lobe. In lateral view, mesothorax less high at apex than beyond middle where it is slightly less than twice in height. Mesonotum slightly convex in median part and depressed at sides forming shallow longitudinal grooves on either side (Image 2A–C,E); mesosternum flat over most part except near mesocoxae where it is hollowed to accommodate coxae. Metasternum shorter than mesosternum and slightly tumescent, with fine longitudinal median carina (Image 2F). Scutellum narrow, triangular with a few setae. Fore wings reaching fifth abdominal tergite, well-developed, showing usual venation (Image 3C). Hind wings colourless, translucent, only slightly shorter than fore wings.

Fore legs long and slender; femora parallel-sided, spined portion slightly longer than half of length of segment, with two series of spiniform processes:

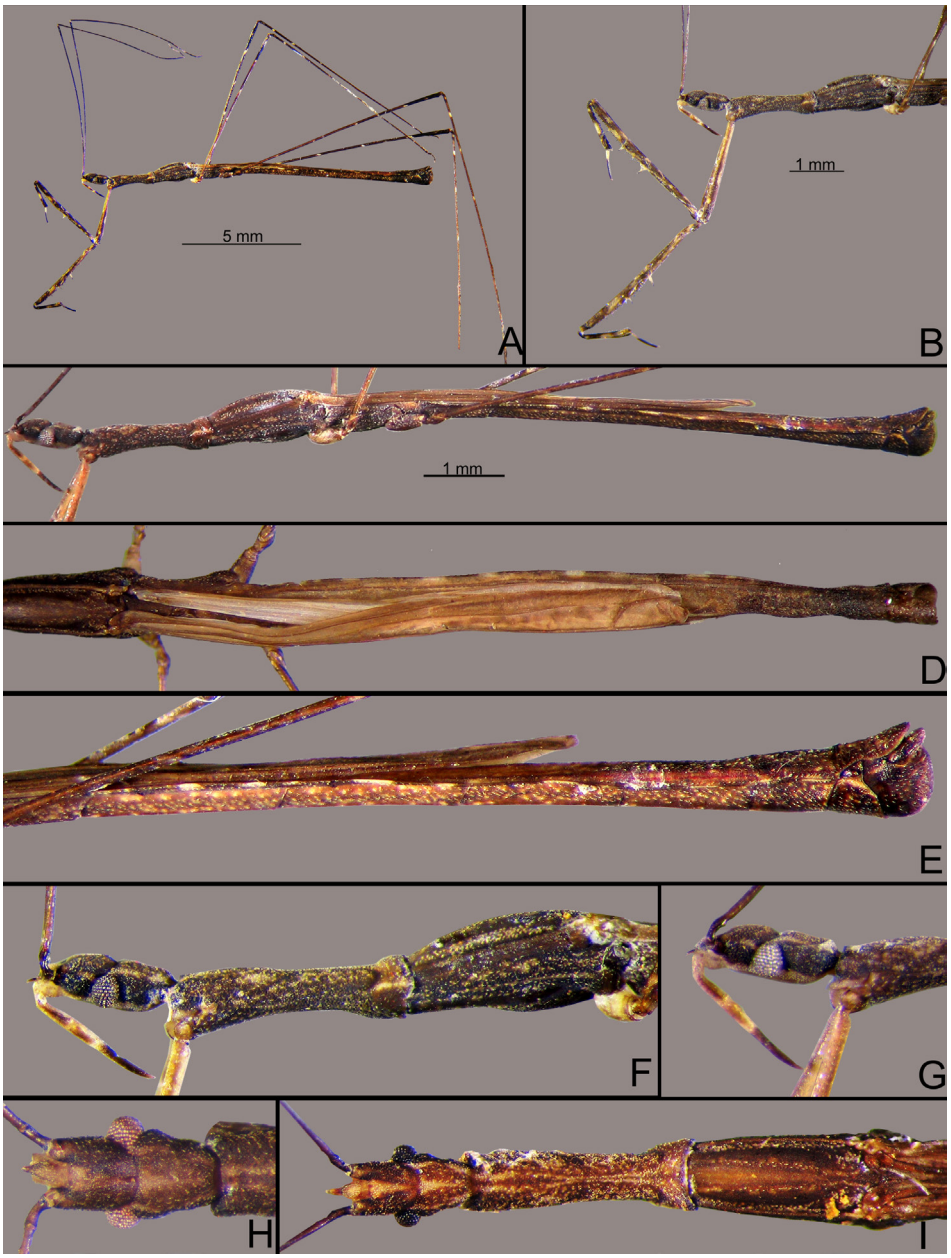

Image 1. *Onychomesa susainathani*. A - full lateral view; B - lateral view of anterior half; C - close-up of body in lateral view; D - dorsal view showing wings; E - lateral view of abdominal segments; F - head and prothorax in lateral view; G - lateral view of head; H - dorsal view of head; I - dorsal view of head and prothorax. © Hemant V. Ghate

posteroventral series with one long, three medium-sized, and about 35 short processes; apical portion of femur with very short teeth; anteroventral series with some medium-sized and more than 20 small spiniform processes (Image 2G,I). Fore tibia short, broad at apex, about one-third of length of femur, its ventral surface with one row of about 25 peg-like setae/denticles (Image 2I,J). Fore tarsus unsegmented (Image 2I), with one row of obliquely arranged spiniform setae (Image 3A). Claws of forelegs unequal in size. Mid and hind legs slender, hind femora slightly surpassing apex of abdomen (Image 2H), both femur and tibia of these legs with regularly spaced, modified setae with a round button-like base; tarsi of both these legs slender, with long setae on ventral surface. Claws of mid and hind legs moderately curved, ventrally with prominent triangular tooth near middle (Image 3A,B).

Abdomen slender, parallel-sided, with prominent keel on segments two to seven. Eighth tergite narrow, evenly rounded at posterior margin, tongue-like, covering

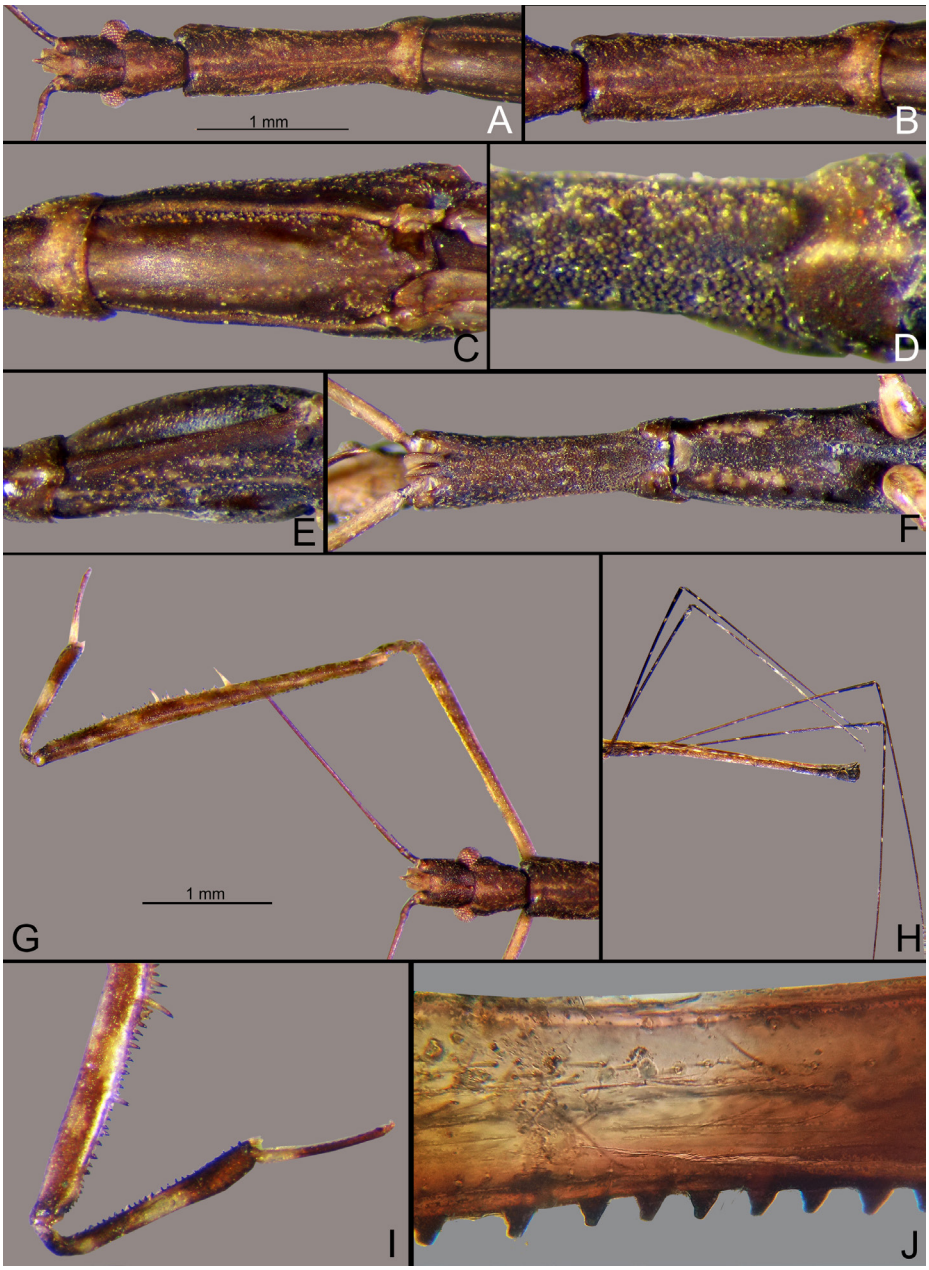

Image 2. *Onychomesa susainathani*. A - close-up of head and prothorax in dorsal view; B - close-up of prothorax in dorsal view; C - close-up of mesothorax in dorsal view; D - ventrolateral view of prothorax showing scale-like setae; E - close-up of mesothorax in lateral view; F - pro- and mesosternum; G - entire fore leg; H - hind legs and abdomen in lateral view; I - foreleg details; J - tibial peg-like setae. © Hemant V. Ghate.

pygophore; eighth sternite rounded on posterior margin (not incised in middle). Pygophore in straight line with rest of abdomen, not elevated, slightly compressed. Visible part of pygophore in situ subsemicircular in lateral view, with short posterosuperior projection; parameres visible in lateral view but obscured in dorsal view due to last tergite. Posterior outline of pygophore in situ broadly rounded (Image 3D), pygophore detached from body oval in ventral (Image 3E) and dorsal views (Image 3F). In dorsal view, anterior part appears slightly broad, anterior (basal) opening is oval; robust parameres with strong black setae on inner face are clearly visible; basal dorsal bridge is narrow. Pygophore much more sclerotized laterally and ventrally than in other surfaces. Phallus symmetrical. Basal plates short and robust, phallosoma short, subcylindrical, apically wider, partly sclerotized laterally and ventrally; endosoma short (not everted here), membranous (Image 3H). Parameres moderately robust, short and partially setose, with many strong conical spines on inner surface (Image 3I,J).

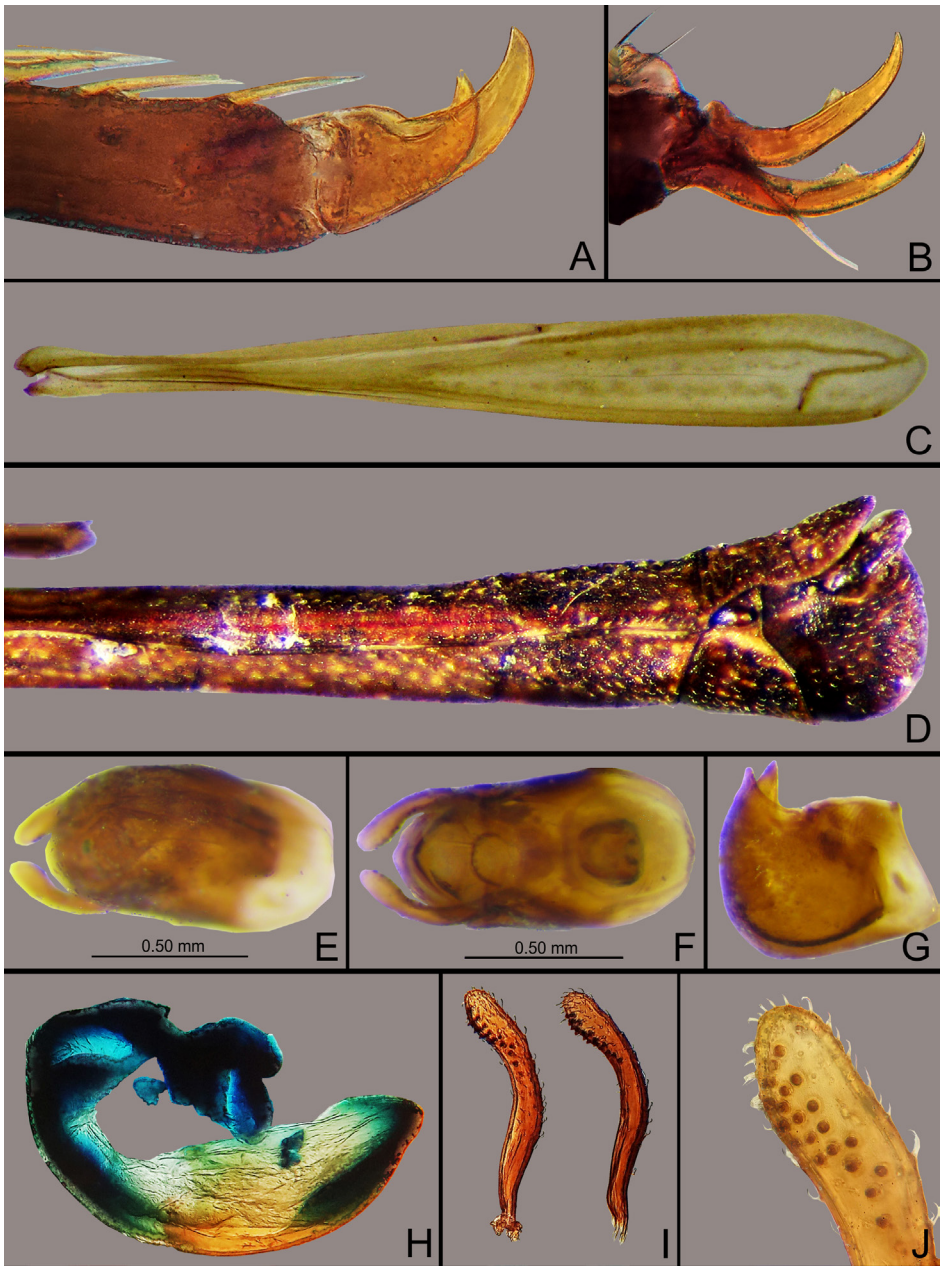

Image 3. *Onychomesa susainathani*. A - fore tarsus part and claw; B - fore leg claw; C - fore wing; D - abdominal segments in lateral view; E–G - pygophore in ventral, dorsal, and lateral views, respectively; H - phallus in lateral view; I - parameres in outer and inner view; J – close-up of paramere tip. © Hemant V. Ghate.

Measurements (in mm): Total length of head (including neck and spine of clypeus) 1.15; eye diameter 0.25; maximum width of head at eye 0.62; eye diameter seen laterally 0.22; anteocular 0.5; postocular 0.35; antenna: I segment 6.2, II segment 5.5, rest mutilated; visible segments of labium: I segment 0.31, II segment 0.25, III segment 0.5; thorax total length 4.65; maximum width of pronotum 0.55; pronotum median length 1.75 (hind lobe 0.17); mesonotum 1.45; prosternum 1.75; mesosternum 1.5; metasternum 0.87; fore wing 6.8; legs: fore leg (lengths): coxa 2.37, femur 3.37, tibia 1.12, tarsus with claw 0.67; mid leg (lengths): coxa 0.52, femur 6, tibia 8, tarsus with claw 0.5; hind leg (lengths): coxa 0.55, femur 8.9, tibia 12; abdomen 8.0; maximum width of abdomen 0.75; pygophore length 0.75; maximum width of pygophore 0.5; paramere length 0.45.

Remarks

The male examined in the present study exhibits all important diagnostic characters of *Onychomesa*

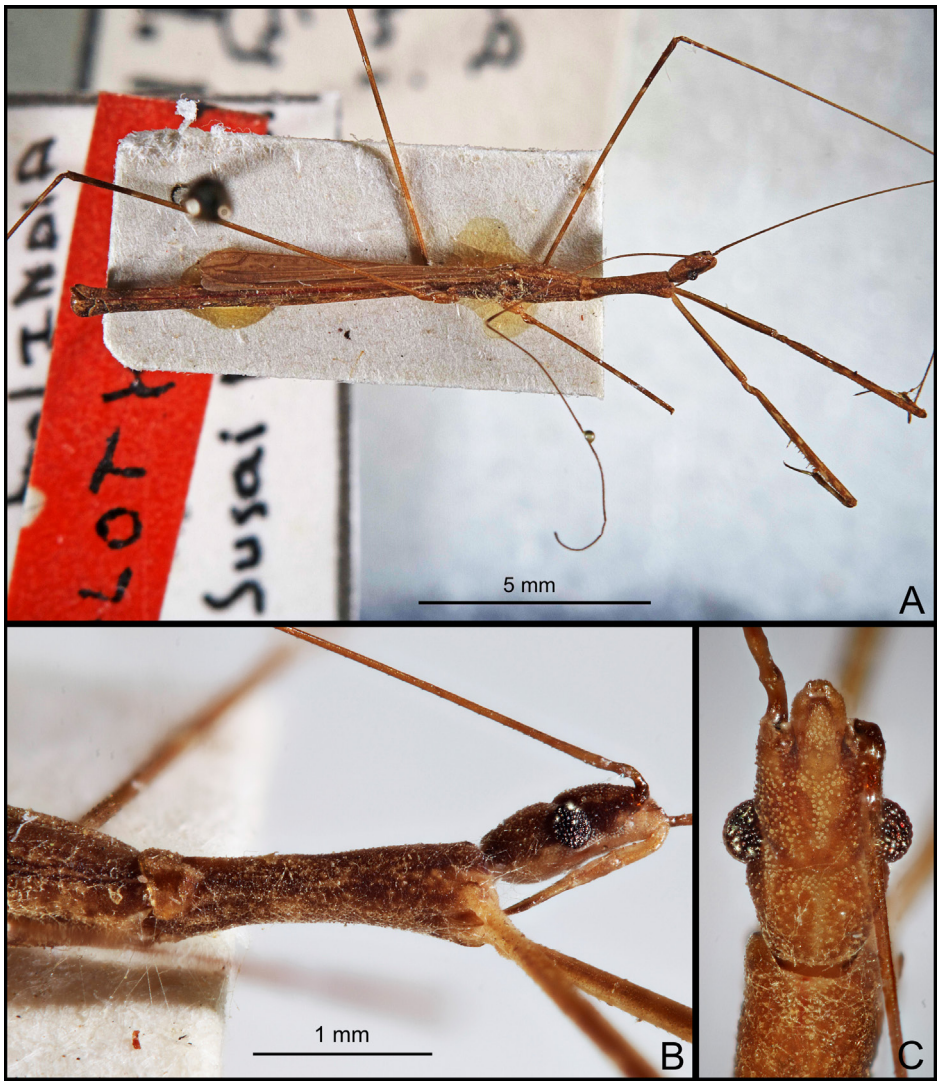

Image 4. Type images of *Onychomesa susainathani* Wygodzinsky. A - dorsolateral habitus; B - lateral aspect of head and prothorax; C - dorsal view of head. © American Museum of Natural History.

provided by Wygodzinsky (1966). The specimen matches well with the original description and illustrations as well as with a series of images of the holotype of *O. susainathani* (courtesy of American Museum of Natural History, USA). The male genitalia also does not seem to differ from that of *O. susainathani*. Therefore, the specimen is identified as such. Images of the type are also presented here (Image 4).

The specimen from Pune, however, differs from the holotype in the following three characters:

(1) In *Onychomesa*, the "mid and hind legs [are] slender, but [femora] not surpassing apex of abdomen" (Wygodzinsky 1966). In the specimen from Pune, the hind femora do pass the apex of the abdomen. As far as it can be judged from the available images, however, the hind femora slightly pass the apex of the abdomen also in the holotype of *O. susainathani*; therefore, the statement of Wygodzinsky (1966) appears to be erroneous. The hind femora of our specimen, nevertheless, seem to be somewhat longer than those of the holotype.

(2) The eyes of the specimen from Pune are considerably larger than those of the holotype of *O. susainathani* — in the latter, they do not reach dorsal and ventral outlines of the head in lateral aspect, whilst in the specimen from Pune, they reach the ventral outline. Such variability in the size of the eye is unusual among specimens of the same sex and same wing morph.

(3) The lack of projections on the clypeus (and labrum) was given as a diagnostic character for *Onychomesa* (Wygodzinsky 1966: 530). A conspicuous, anteriorly-directed projection, however, is found in the specimen from Pune. In many metapterine genera, the

clypeus can be provided with a distinct spine, or it might be salient but without a distinct spine; in other cases it is unarmed. Although this character was frequently used for distinguishing genera in the identification key to the genera of Metapterini by Wygodzinsky (1966: 432–436), the same author (Wygodzinsky 1966: 12) noted that "[t]hese characters generally are of not more than specific value". It may be that the development of the process on the clypeus is probably subject to intraspecific variability as well.

In conclusion, in spite of some differences from the holotype, we identify the specimen from Pune as *Onychomesa susainathani*. The occurrence of this species in Pune is not surprising as several species of Emesinae are widely distributed. Although the species was only described in 1966, the type material of *O. susainathani* was collected in 1957. Our record, therefore, represents a rediscovery of this species after over 60 years.

We are trying to locate and illustrate Emesinae. The total number of different species that we have studied during the period 2016–2018 exceeds 15. These species include many first reports for India, some new species, and some additional descriptions of known species. We published some of these findings earlier (Kulkarni & Ghate 2016a,b; Pansare et al. 2018; Ghate & Mathew 2018; Sarode et al. 2018a,b); a few more publications dealing with other poorly known emesine bugs are in preparation.

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