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Description of a New Species of *Ericydnus* (Haliday, 1832) (Hymenoptera: Encyrtidae: Tetracneminae) from India

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ABSTRACT

A new species, *Ericydnus sheopurensis* Kaneria & Singh sp. nov. of Encyrtidae (Hymenoptera: Chalcidoidea) is described from Madhya Pradesh, India. Female of the described species is illustrated. All type materials are deposited to National Forest Insect Collection at the Forest Protection Division, Forest Research Institute, Dehradun, India.

Key words: Madhya Pradesh, *Ericydnus sheopurensis*, *Cordia myxa* L., new species.

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INTRODUCTION

The genus *Ericydnus* was erected by Haliday, in Curtis 1832 (Walker, 1837; Graham, 1991) with types species *Ericydnus paludatus*, which is erroneously accredited to Walker (Gahan & Fagan 1923; Kerrich, 1966; 1967). This genus belongs to the tribe Ericydnini (Hoffer, 1955), which is closely related to the tribe Anagyrini (Noyes, 2000). At present, a total of 33 species are known worldwide, mainly (32 species) from Palearctic (Noyes, 2018). Only one species *Ericydnus lamasi* (Domenichini, 1951) is described from Neotropical region. The following species are described from Palearctic regions:*E. longicornis* (Dalman, 1820), *E. ventralis* (Dalman, 1820), *E. strigosus* (Nees, 1834), *E. sipylus* (Walker, 1837), *E. baleus* (Walker, 1838), *E. apterogenes* Mayr, 1876, *E. metriocerus* Masi, 1921, *E. robustior* Mercet, 1921, *E. aeneus* Nikolskaya, 1952, *E. caudatus* Erdös, 1957, *E. heliococci* Trjapitzin & Herthevtzian, 1972, *E. danatensis* Myartseva, 1980, *E. karakalensis* Myartseva, 1980, *E. niger* Myartseva, 1980, *E. tamaricicola* Myartseva, 1980, *E. turkmenicus* Myartseva, 1980, *E. bischoffi* Trjapitzin, 1982, *E. elizabethae* Trjapitzin, 1982, *E. theron* Trjapitzin, 1982, *E. beybienkoae* Sharkov, 1983, *E. dzhanokmenae* Sharkov, 1986, *E. peliococci* Myartseva & Kharchenko, 1988, *E. samadae* Myartseva & Kharchenko, 1988, *E. pilosulus* Graham, 1991, *E. scutellus* Xu, 2000, *E. luka* Japoshvili, 2007, *E. nino* Japoshvil, 2007, *E. novosibiricus* Sugonjaev & Gavrilyuk, 2012, *E. gigas* Liu, Wang & Li, 2013, *E. huangi* Liu, Wang & Li, 2013, *E. infuscatus* Liu, Wang & Li, 2013, *E. liaoi* Liu, Wang & Li, 2013. *Ericydnus sheopurensis* Kaneria & Singh, sp. nov. is the first described species from Oriental region.

A revisionary work has done on Chinese species by Liu et al, 2013. Major hosts of *Ericydnus* belong to Pseudococcidae (Hemiptera). In the present study, a new species described collected from leaves of *Cordia myxa* Linnaeus which is broad-leaved deciduous tree distributed rom dry deciduous to moist deciduous forest. It is commonly known as Indian cherry and has numerous medicinal properties used in dysentery, cholera, headache etc.

MATERIAL AND METHODS

Leaves of *Cordia myxa* L. and an indet. plant infested with pseudococcids were collected during April 2016 and November 2017 from Sheopur and Gwalior, respectively in state of Madhya Pradesh. They were reared in plastic containers mouthed with fine muslin cloth. Emerged parasitoids were collected with the help of aspirator. These specimens were killed using ethyl acetate fumes and transferred in the 80% ethanol. The specimens were cleaned and dried using HMDS (Hexamethyldisilazane) technique (Brown, 1993). Dried specimens were photographed using Automontage System with Micropublisher Q-Imaging 5.0 RTV camera mounted on Olympus SZX-16 stereozoom microscope. Slide mounted parts were photographed using Nikon Digital Sight DS-Fi1 with NIS-Br software (Nikon) mounted on Nikon Optiphot compound microscope. Morphometric measurements were taken from paratype while, body colour and sculpture was noted from holotype. The morphological terminology

interpretations used follow Noyes & Hayat, 1984 and Singh & Agarwal, 1993. not found in the references

The abbreviations are used in the text as following:

POL = Minimum distance between posterior ocelli, OCL = Minimum distance between a posterior ocellus and the occipital margin, OOL = Minimum distance between a posterior ocellus and the corresponding eye margin, ITD = Distance between the toruli.

TMD = Distance between torulus and mouth margin, TED = Shortest distance between torulus and eye margin, F1, F2, etc. = Funicle segments 1, 2, etc.

Measurements of whole body length are in mm (milimetre) and other body parts described are in µm.

RESULTS

Genus *Ericydnus* Haliday

Ericydnus Haliday, in Curtis, 1832. Type species *Ericydnus paludatus* Haliday [recte walker, 1837], by designation of Westwood, 1840.

Grandoriella Domenichini, 1951. Type species *Grandoriella lamasi* Domenichini, by monotypy and original designation. Synonymy by Noyes, 1980.

Ericydnus sheopurensis Kaneria & Singh, 2020 sp. nov.

Description

Material examined: Holotype: 1♀ (on card), INDIA: Madhya Pradesh, Sheopur, 24.04.2016, Manendra Kaneria. Paratype: 1♀ (on slide under 8 cover slips, thorax missing), data same as for holotype and 3♀♀ (on card), INDIA: Madhya Pradesh, Gwalior, 16.10.2017, Manish Kaneria.

Female: Body length, 0.72-0.75 mm.

Body (Fig. 1a) dark brown to black; head completely black, frontovertex with sparsely arranged silvery white setae and with irregular polygonal raised reticulate sculpture, wider towards the scrobal margin and narrower around the ocellar triangle; para scrobal area with elongated reticulate and interantennal prominence with faint rugose sculpture frontovertex; scrobal and interantennal prominence area with light violet reflection. Gena and malar space smooth. Eyes chocolate brown with conspicuous white setae, inner margin lined with 20-25 white setae. Antenna light brown (Fig. 3b), scape with two white spots, one at ventral basal half and second at distal fourth; distal half of pedicel white; F1-F6 gradually becoming lighter; clava brown. Mandible (Fig. 1c) pale brown; maxillary and labial palpi testaceous.

Mesosoma dorsally black, laterally and ventrally dark brown, tegulae off white; metasoma dark brown dorsally, lighter laterally and ventrally. Pronotum shiny with irregular reticulate sculpture, 15-18 silvery white setae arranged in two rows transversely. Mesoscutum with fine reticulate sculpture, with light greenish reflection, 44-48 pale white setae arranged in five rows transversely.

Axillae with fine reticulation. Scutellum with elongate reticulate sculpture, 14-18 black setae sparsely arranged. Fore and hind wings hyaline.

Fore leg (Fig. 4c) whitish with tarsal segments light brown; middle leg light brown with brown coxa; hind leg with coxa and basal two-thirds of femur brown, rest light brown. Metasoma brown with violet reflection.

Head in dorsal view (Fig. 2a), 0.52x as long as wide (160:306); 2.8x as wide as frontovertex at the level of anterior ocellus (306:110); ocelli arranged in right angle triangle; eyes touching occipital margin; 1.7x as long as wide (143: 86). Frontovertex 0.96s as long as wide (110:115); POL 2.9x, OCL 0.84, and OOL 0.79x as long as diameter of middle ocellus (55:16:15:19). In frontal view (Fig. 1b), head 0.96x as long as wide (294:306); scrobe deep, inverted U-shaped and meeting dorsally; eye 2.2x as long as wide (203:93); toruli touching the line joining lower eye margin, 1.4x as high as wide (33:24); ITD 1.5x, TMD 0.82x, TED 1.4x length of a torulus (48:27:45:33); Mandible (Fig. 1c) bidentate and acute; maxillary palpi 4 segmented and labial palpi 3-segmented.

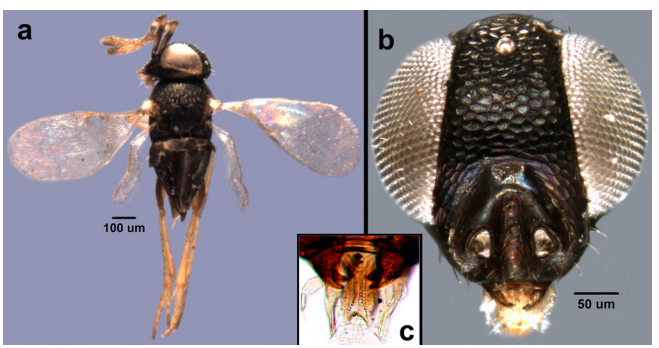


Fig. 1. *Ericydnus sheopurensis* sp. nov. ♀; a. Body in dorsal view, b. Head in frontal view, c. Mandible.

In lateral view (Fig. 2b), head 1.32x as high as wide (285:215); eye 1.32x as high as wide (197:149); gena 0.23x as wide as eye width (34:149); malar space 0.24x as long as head height (70:290).

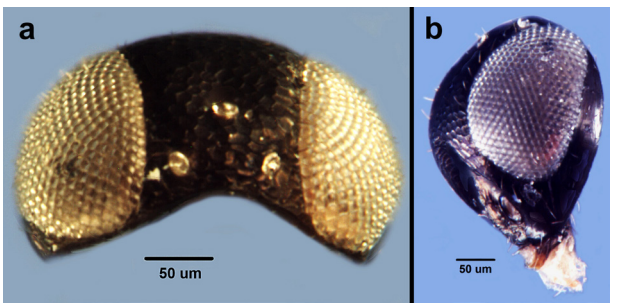
Antenna (Fig. 3b) with scape cylindrical, 6.1x as long as wide (176:29); pedicel conical, 2.33x as long as wide (70:30); all funicle segments distinctly longer than wide; F1-F5 narrower than and F6 as wide as pedicel, F1 1.8x (36:20), F2 1.8x (36:20), F3 1.6x (38:23), F4 1.7x (39:23) F5 1.6x (41:25) and F6 1.4x (45:32) as long as wide; clava three-segmented with parallel sutures, slightly pointed and tapering towards apex; 3.1x as long as wide (136:44).

Mesosoma (Fig. 3a) 0.92x as long as wide (238:259); pronotum 11.3x as wide as long (259:23); mesoscutum 2.4x as wide as long (275:116); scutellum 0.95x as long as broad (143:151); propodeum narrow, 24x as wide as long (265:11). Forewing (Fig. 4a, b), extending beyond apex of gaster; 2.7x as long as wide (810:295); linea calva interrupted with 3-4 rows of setae; marginal vein 4x as long as stigmal vein (346:86); postmarginal vein 0.44x as long as marginal vein (154:346). Middle leg (Fig. 4c), with tibial spur as long as basitarsus (92:92).

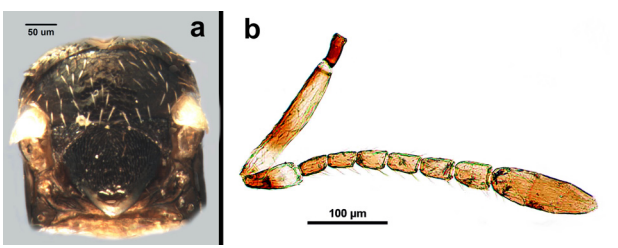
Metasoma (Fig. 1a), pointed at apex; 1.34x as long as wide (340:253); hypopygium reaches apex of gaster; ovipositor (Fig. 5k.) 0.58x as long as midtibia (227:389).

Host: Pseudococcid on *Cordia myxa* L. (Boraginaceae) and an indet. plant.

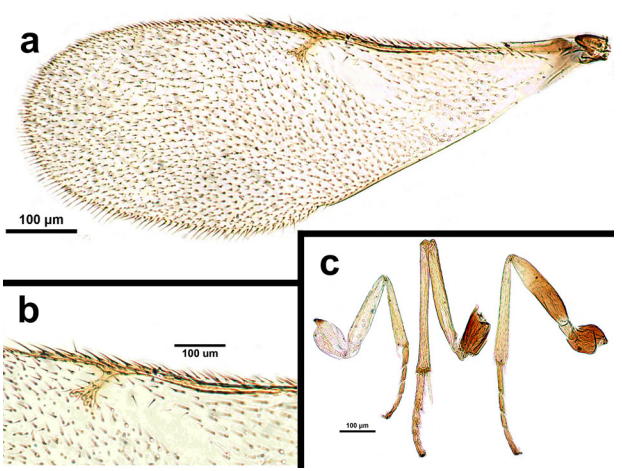
Etymology: The species name is derived from that of its type locality Sheopur (Madhya Pradesh).



Figs. 2. *Ericydnus sheopurensis* sp. nov. ♀; a. Head in dorsal view, b. Head in lateral view.



Figs. 3. *Ericydnus sheopurensis* sp. nov. ♀; a. Mesosoma, b. Antenna.



Figs. 4. *Ericydnus sheopurensis* sp. nov. ♀; a. Fore wing, b. Fore wing venation,c. Fore leg, mid leg, hind leg.

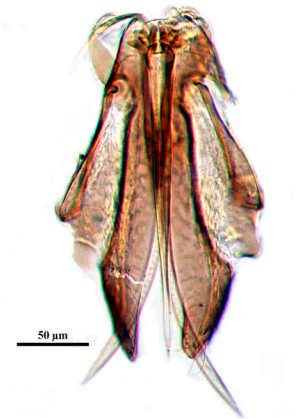


Fig. 5. *Ericydnus sheopurensis* sp. nov. ♀; Ovipositor.

Diagnosis

Body black to brown; varying from elongate to robust; occipital margin acute to sharpe; eye narrower than frontovertex width; toruli separated from mouth by less than their own length; scape subcylindrical or cylindrical funicle six segmented; clava entire or three segmented; mandible sharp and bidentate; tegulae dark brown to off white; fore wing normally developed and hyaline or infuscate; postmarginal vein more than one and one-half times as long as stigmal vein; marginal vein longer than stigmal and marginal vein not broader than long; coaxe varying from yellowish brown to dark brown; hypopygium reaching apex of gaster or extending past.

DISCUSSION

In the keys by Kerrich, 1967 and Liu et al, 2013 *E. sheopurensis* sp. nov. runs to *ventralis* (Dalman). But *sheopurensis* is distinctly different from it by the following characters (characters given in brackets are for *E. ventralis*): tegulae off white (tegulae black); fore coxae dull white (fore coxae black); antenna pale brown (dark brown); head 2.5x as wide as frontovertex (2.1x), ocelli forming acute angle (about 90^0); OOL 0.79x (0.33x) and OCL 0.84x (2.3x) posterior ocellus diameter; eyes reaching occipital margin (not reaching); antenna with scape cylindrical (slightly expanded and flattened) 1.3x as long as clava (1.6x), all funicular segments shorter than pedicel (only F6 shorter), scutellum slightly convex from side to side, 0.95x as long as broad (almost flat, 1.2x as long as broad); forewing with linea calva obliterated (not obliterated); gaster dark brown with violet shine (black with bluish green reflection).

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