

## SEVEN NEW SPECIES OF INDIAN BETHYLIDAE (HYMENOPTERA).

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Recently the Bureau of Entomology of the United States Department of Agriculture received for identification a small number of Indian Bethylidae from Dr. T. V. Ramakrishna Ayyar, Government Entomologist at Coimbatore, India. Several undescribed species were included, and since Dr. Ayyar has requested names for use in economic studies, descriptions of the new species have been prepared and are given below. The types are deposited in the United States National Museum, while the paratypes, where available are in the Indian Museum, Calcutta.

The drawings of the two text-figures were prepared by Miss Eleanor A. Carlin of the Bureau of Entomology, United States Department of Agriculture.

### ***Pristobethylus indicus*, sp. nov.**

(Fig. 1).

Apparently very similar to *serricollis* (Westwood), an African species, but differing in having only the anterior half of the pronotal margin scalloped, and in the more nearly hyaline wings. From *semiserratus* Kieffer, another African species, which the new species resembles in the character of the pronotal margin, it may be distinguished by the head being broadly emarginate behind, by the situation of the lateral ocelli at the posterior margin of the head, by the shorter mandibles, and by the shorter mesoscutum.

*Female*.—Length 5.5 mm. Head flattened, at least as broad as long, the posterior margin broadly excavated, the posterior lateral angles with three blunt closely-placed teeth; malar space wanting; distance from eye to posterior margin of head more than half the eye length; mandible about as long as eye, the outer margin weakly scalloped; clypeus very small and partly concealed by the bases of antennae; dorsal surface of head very delicately and minutely reticulate, with a few large punctures and long, erect, scattered hairs anteriorly; ventral surface also with long erect hairs; ocellocular line at least one and one half times as long as postocellar line; occiput with abundant long hairs; antennae 13-segmented, a little longer than head; scape large, flattened, with conspicuous spines on its dorsal surface, especially along the margin; pedicel longer than broad, at least as long as second segment of flagellum, a little emarginate above; first segment of flagellum the shortest, not as long as broad; the following subequal, about as long as broad, except the apical segment, which is a little longer than broad.

Thorax strongly depressed, in the region of tegulae about as broad as head, with numerous long erect hairs on the pleura and sternum; pronotum very large, at least as long as broad, its anterior margin, and

the lateral margins half way to the tegulae, conspicuously elevated and scalloped, its dorsal surface minutely reticulate like the head, with

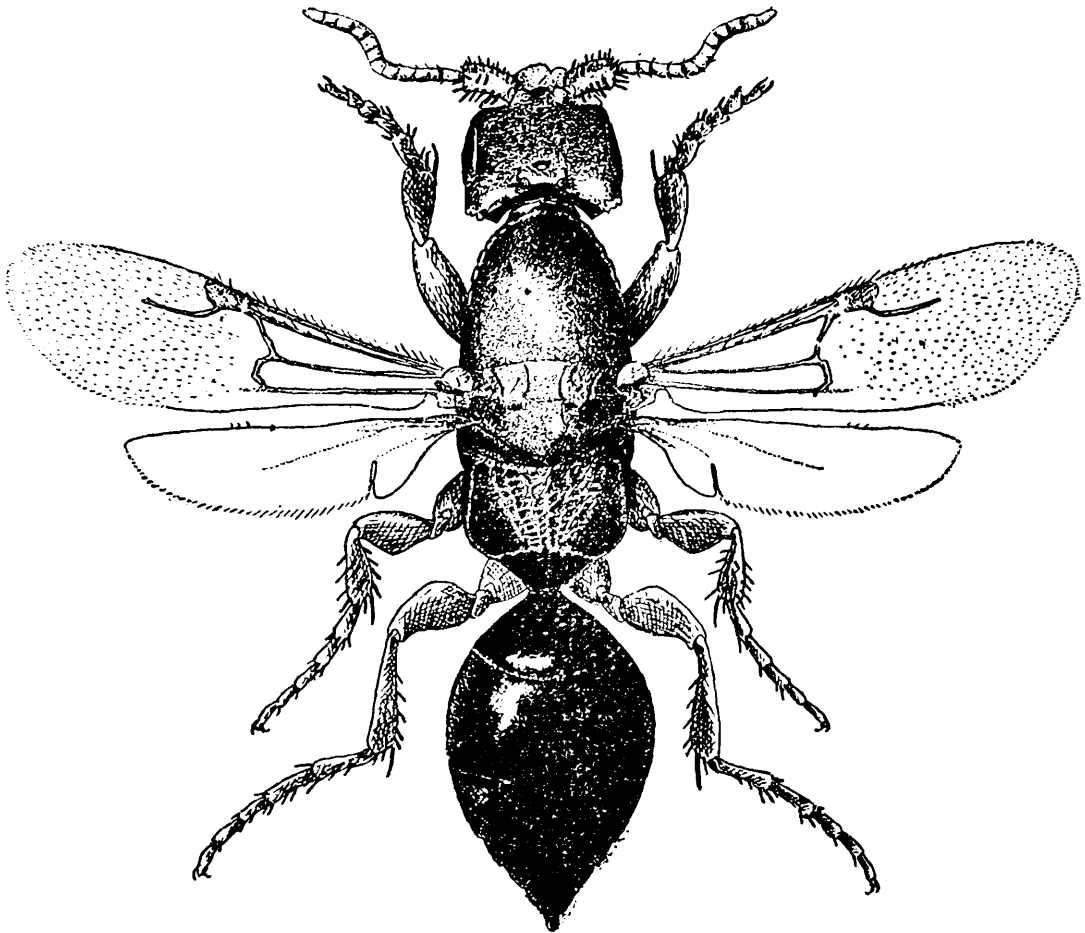


FIG. 1. Female of *Pristobethylus indicus*, sp. nov.

six or eight large scattered punctures on anterior half; mesoscutum not more than one-third as long as pronotum, also minutely reticulate, and with four shallow longitudinal furrows, the median pair posteriorly broadening and deepening into elongate foveae which attain posterior margin of mesoscutum; scutellum gently convex, sculptured like pronotum, and with two widely separated circular foveae at base; dorsal face of propodeum carinately margined on sides and behind, with three longitudinal carinae medially, the median one complete, the other two not quite attaining posterior margin, the area between them crossed by numerous transverse ridges which are intersected by an irregular raised longitudinal line about midway between the median carina and each of the lateral carinae; area between lateral carinae and lateral margins of propodeum very delicately transversely aciculate; posterior face of propodeum abruptly declivous, with a complete median carina, surface very delicately obliquely lineolated; metapleurum closely longitudinally aciculate; anterior coxae at least as large as posterior pair, convex beneath; middle and posterior coxae ventrally flattened; all femora short, with long, erect, scattered hairs, anterior pair longest, middle pair shortest, only about two-thirds as broad as long; middle tibia thickly covered with strong spines on outer side; posterior tibia with a few similar spines toward apex; anterior tarsus rather short,

segments broadening apically and two or three basal segments armed with well developed spines beneath; middle and posterior tarsi slender, with several long spines at the apex of each segment; anterior wing with a very short fringe on outer margin; basal half of wing almost entirely glabrous, apical half closely hairy; median and submedian cells closed; stigma slightly longer than broad; radius strongly curved near base, a little longer than basal vein.

Abdomen shorter than thorax, at its widest point slightly broader than thorax, surface mostly minutely reticulate or lineolate; second tergite larger than any of the following.

Black; mandibles, palpi, clypeus, and antennae ferruginous; tegulae brownish yellow; wings subhyaline; legs brownish red; coxae more or less piceous to blackish; the apical two or three abdominal segments reddish.

*Type-locality*.—Chaughat, Malabar; India.

*Type*.—U. S. N. M. No. 50137; *Paratype* No.  $\frac{870}{H_3}$  in the collection of the Zoological Survey of India (Indian Museum), Calcutta.

Described from two females collected May 29 and May 31, 1931, respectively, the latter the type.

### ***Perisierola nephantidis*, sp. nov.**

This species resembles *emigrata* Rohwer but differs in the relatively shorter and broader first discoidal cell, in having the dorsal face of propodeum weakly margined posteriorly toward the sides, in the coarser sculpture of the propodeum and metapleurum, the relatively broader head, and the somewhat paler legs.

*Female*.—Length about 3 mm. Head not distinctly longer than broad, its dorsal surface finely coriaceous with numerous small but distinct, well-separated punctures; clypeus with a prominent median longitudinal carina which extends caudad to a point about one-third the distance from antennae to median ocellus; eyes broad, narrowed posteriorly, hardly one and one half times as long as broad and shorter than distance between them; ocellular line at least one and one half times as long as postocellar line; distance from eye to posterior margin of head about half the eye length; antennae about as long as head, scape nearly twice as long as broad, somewhat flattened; remainder of antenna much more slender than scape; pedicel about as long as broad, subequal to basal segments of flagellum; none of flagellar segments except the last distinctly longer than broad.

Thorax slightly narrower than head; pronotum at least one and one half times as long as mesoscutum, finely coriaceous and with some scattered very weak punctures; mesoscutum more than twice as broad as long, with distinct, though delicate, lateral longitudinal grooves, and sculptured like pronotum except that the punctures are as distinct as those of the head; disc of scutellum rather flat, broader at base than long, separated from mesoscutum by a fine grooved line, its surface very delicately reticulate with a few scattered distinct punctures and a small oblique fovea on each side at the base; dorsal face of propodeum uniformly very closely punctate and opaque except for a narrow smooth

and polished strip down the middle; the delicate apical transverse carina broadly obliterated medially; posterior face of propodeum strongly declivous, flat, shallowly reticulate; mesopleurum delicately minutely reticulate; metapleurum very finely, longitudinally wrinkled and opaque; stigma longer than broad, broadening toward apex, much larger than prostigma; basal vein broken distinctly above middle.

Abdomen about as long as thorax and at least as broad, narrowed rather abruptly at base and gradually toward apex, entirely smooth and shining.

Black; mandibles black; antennae entirely brownish yellow; wings hyaline; stigma and prostigma brown; veins yellowish; anterior coxae and femora piceous, the latter paler at apices, middle and posterior coxae more or less piceous, their femora pale brown; all tibiae and tarsi brownish yellow.

*Male*.—Essentially like the female, except that the mandibles are yellow.

*Type locality*.—Coimbatore, India.

*Type*.—U. S. N. M. No. 50138, *Paratype* No.  $\frac{871}{H3}$  in the collection of the Zoological Survey of India (Indian Museum), Calcutta.

*Host*.—The Xyloryctid moth *Nephantis serinopa*.

Described from ten females and one male. The allotype and three paratypes are from the type locality; three paratypes are from Salem; one is from Dharmapuri; one from Tirupatur, and one from Calicut.

Apparently this is the species the life history and habits of which have been discussed by Ramachandra Rao and Cherian<sup>1</sup> under the name *Parasierola* sp.

### ***Perasierola mellipes*, sp. nov.**

This species also closely resembles *emigrata* Rohwer but may be distinguished readily by its entirely yellow legs and mandibles, elongate eyes, and the presence of a well-developed transverse carina defining posterior margin of dorsal face of propodeum.

*Female*.—Length 2.2 mm. Head hardly longer than broad; clypeus somewhat compressed and produced anteriorly, its median keel extending back a short distance beyond antennae; surface of head finely coriaceous, with scattered distinct punctures; eyes twice as long as broad, about as long as distance between them and narrowing somewhat anteriorly; posterior margin of head carinate; distance from eyes to posterior margin of head less than half the eye length; antennae as long as head; scape slightly compressed, hardly twice as long as broad and only a little broader than flagellum; pedicel subequal to basal flagellar segments and about as long as broad.

Thorax hardly narrower than head; pronotum and mesonotum delicately coriaceous; mesoscutum on posterior half and scutellum with a few scattered punctures; lateral grooves of mesoscutum distinct; scutellum not broader at base than long; dorsal face of propodeum very finely closely punctate except for a slightly elevated polished strip down the middle; posterior face of propodeum strongly declivous,

<sup>1</sup> *Year Book, Madras Dept. Agric.*, pp. 11-22 (1927).

reticulate; mesopleurum indistinctly reticulate, shining; metapleurum closely very shallowly punctate; stigma longer than broad, broadening toward apex, much larger than prostigma; basal vein broken at about middle; median and submedian cells glabrous toward apex; radius not much more than twice as long as stigma, very slightly curved; posterior femur two and one half times as long as broad.

Abdomen about as long as thorax, narrowing strongly from middle to apex, smooth and shining except for a little faint reticulation at bases of second, third, and fourth tergites.

Black; mandibles, antennae, and all legs entirely, honey yellow; wings hyaline; stigma and prostigma brown.

*Type locality*.—Coimbatore, India.

*Type*.—U. S. N. M. No. 50139, *Paratype* No.  $\frac{872}{H3}$  in the collection of the Zoological Survey of India (Indian Museum), Calcutta.

Two female specimens bred from an unknown host on 'margosa' March 15, 1932.

#### Key to the Indo-Australian species of *Perisierola*.

1. Wings distinctly infumated; pterostigma not longer and hardly broader than prostigma; radius sharply angled near apex; propodeum delicately reticulate medially . . . . . 1. *angulata* Muesebeck.
- Wings hyaline; pterostigma much longer and broader than prostigma; radius not sharply angled; propodeum polished medially . . . . . 2.
2. Dorsal face of propodeum margined at apex by a distinct complete transverse carina, and elevated keel-like down the middle; eyes twice as long as their greatest breadth; mandibles, and the legs entirely, yellow; basal vein broken at about the middle . . . . . 2. *mellipes*, sp. nov.
- Dorsal face of propodeum not margined at apex or the carina only weakly developed toward the sides, and the median longitudinal line not elevated keel-like; eyes definitely less than twice as long as broad; mandibles usually black, sometimes yellow in male; legs usually more or less piceous or blackish . . . . . 3.
3. Basal vein broken at or above upper third; first discoidal cell twice as long as broad; median polished area of propodeum extending upon the posterior face; metapleurum delicately reticulate and shining; all femora completely blackish; mandibles black in both sexes . . . . . 3. *emigrata* Rohwer.
- Basal vein broken definitely below upper third; first discoidal cell not twice as long as broad; median polished area of propodeum not extending upon posterior face; apices of anterior femora and the middle and posterior femora yellowish brown; mandibles yellow in male . . . . . 4. *nephantidis*, sp. nov.

#### *Parasierola quadrifoveata*, sp. nov.

(Fig. 2).

Apparently distinguishable from all described species of this genus by the presence of four foveae at base of scutellum and by the unusually small discoidal cell.

*Female*.—Length 4.5 mm. Head large, as broad as long, dorsal surface strongly coriaceous and opaque, with numerous shallow, well-

separated, umbilicate punctures; clypeus triangularly produced both anteriorly and posteriorly, a little compressed and with a prominent median longitudinal carina which extends caudad nearly to a point opposite the middle of the eyes; eyes much shorter than the distance between them and hardly twice as long as the distance from eyes to posterior margin of head; lateral ocelli removed by about the diameter of one of them from posterior margin of head; postocellar line only slightly longer than diameter of an ocellus and about one-third the ocellocular line; antennae slightly longer than head; scape cylindrical, weakly curved, more than twice as long as thick; pedicel a little less than half as long as scape, much longer than thick and about as long as first segment of flagellum; basal four flagellar segments slightly longer than the others, but all segments distinctly longer than thick.

Thorax much narrower than head; pronotum a little longer than mesoscutum, finely coriaceous and opaque with scattered long erect hairs; mesoscutum twice as broad as long, sculptured like pronotum and with lateral longitudinal grooved lines; the transverse impression

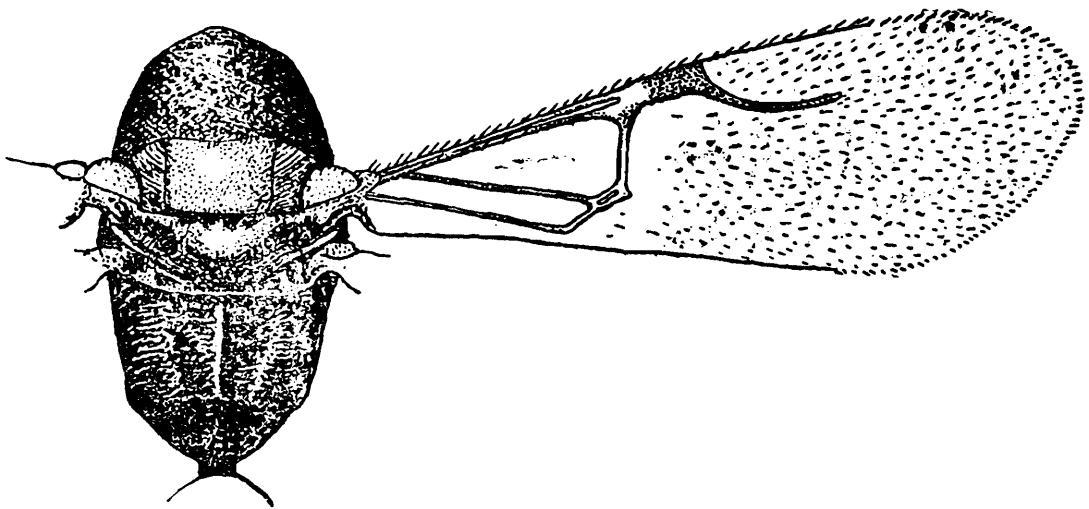


FIG. 2. Thorax of *Parasierola quadrifoveata*, sp. nov.

across base of scutellum divided into four well-marked foveae; disc of scutellum a little more finely coriaceous than mesoscutum; dorsal face of propodeum more than half as long as broad, with a very prominent, complete, median longitudinal carina, and on each side, midway between this carina and the lateral margin, a very weak longitudinal raised line curving slightly inward toward apex and merely representing the outer margin of a shallowly impressed and weakly rugose area; surface between this area and lateral margin finely transversely striate or lineolate; posterior face of propodeum separated from dorsal face by a complete well-developed carina, and very delicately reticulate; stigma much longer than broad, truncate at apex; prostigma very small; radius gently curved, a little more than twice as long as stigma, its apex a little farther from apex of wing than from stigma; basal vein broken at about its lower third; first discoidal cell minute; median and submedian cells very sparsely hairy; posterior metatarsus as long as tarsal segments 2 to 5 combined.

Abdomen slightly longer than thorax, entirely smooth and polished. Black ; mandibles, antennae, and all legs including coxae testaceous; wings hyaline ; stigma brown.

*Type locality*.—Bellary, Madras, India.

*Type*.—U. S. N. M. No. 50140.

Described from a single specimen reared August 28, 1928, from a cocoon taken on betel leaf.

### ***Pristocera areolata*, sp. nov.**

In Kieffer's key<sup>1</sup> to the species of *Pristocera* this species runs to *gaullei* Kieffer. It is readily distinguished from that species, however, by its quadridentate mandibles, by having the first flagellar segment nearly four times as long as the pedicel, and by the smoother pronotum and propodeum.

*Male*.—Length 6 mm. Head slightly longer than broad, its dorsal surface convex, shining, with abundant erect hairs, strongly punctate, the punctures well separated, the interstices polished ; eyes bare ; level of upper eye margins about on a line with anterior margin of a median ocellus ; ocelli separated from each other by only slightly more than the diameter of one of them ; lateral ocelli about three times the length of ocellular line from occipital carina ; mandibles very strongly broadened apically, quadridentate, all the teeth large, the outer tooth the largest ; apices of teeth in an oblique line ; anterior margin of clypeus truncate ; antennae about twice as long as head, slender, tapering to the apex ; scape cylindrical, rather strongly curved, about three times as long as thick ; pedicel a little broader than long ; flagellar segments elongate, the first nearly as long as scape, the basal four almost as thick as the scape, the following becoming rapidly more slender.

Thorax at tegulae about as wide as head ; pronotum with a low transverse ridge separating the broad smooth apical third from the anterior part which is weakly transversely roughened ; mesoscutum nearly as long as pronotum, smooth, with only a few weak punctures, and with four complete distinctly impressed grooves, the middle pair a little farther from each other than from the lateral grooves ; a transverse furrow at base of scutellum ; scutellum flat, polished, with a few punctures at sides ; dorsal face of propodeum as long as broad at apex, weakly carinately margined at sides and apex, and with a complete median longitudinal carina and a more or less irregular, weaker, oblique carina from near each basal lateral angle toward apex of median carina ; a few transverse rugae between median and oblique lateral carinae, and four irregular polished areas at base ; posterior face of propodeum convex, nearly smooth on the middle, rugose punctate laterally ; side of pronotum smooth and polished ; mesopleurum punctate, the punctures large, the interstices polished ; a narrow distinct longitudinal groove above middle of mesopleurum ; metapleurum finely longitudinally aciculate ; stigma three times as long as broad, its lower margin gently curved ; radius arising from very slightly behind middle of stigma, more than twice as long as stigma, postmarginal vein a little more than

<sup>1</sup> *Das Tierreich*, Lief. 41, p. 454 (1914).

half as long as stigma, first brachial cell very poorly defined; legs slender; tarsal claws with two teeth within.

Abdomen a little shorter than thorax, depressed, smooth and polished, the second and third tergites subequal; the first and second tergites practically glabrous, the third sparsely hairy, the following thickly so.

Black; mandibles reddish, black at base and the teeth blackish; antennae ferruginous; tegulae brownish yellow; wings hyaline; stigma and veins brown, all coxae blackish; femora more or less piceous; tibiae and tarsi yellowish brown.

*Type locality*.—Coimbatore, India.

*Type*.—U. S. N. M. No. 50141.

A single specimen collected November 18, 1926.

### **Epyris politiceps, sp. nov.**

In Kieffer's key<sup>1</sup> this species runs best to *pilosipes* Kieffer, but disagrees with the description of that species especially in having the head and pronotum very minutely punctate, the apex of the mandible oblique with the lower margin produced into an acute tooth, and the mesonotum not half as long as pronotum.

*Male*.—Length 5 mm. Head about as broad as long, nearly round as seen from above, dorsal surface smooth and polished but with numerous minute setiferous punctures, the hairs long, abundant, and suberect; underside of head polished, clypeus very short, its anterior margin a little produced medially; the median keel of clypeus not extending back upon frons; eyes not twice as long as broad, shorter than the distance between them; frons with a fine impressed median line anteriorly; distance from eyes to posterior margin of head more than half the eye length; ocelli large; distance between the median ocellus and one of the lateral ocelli about equal to the diameter of an ocellus; postocellar line less than twice the diameter of an ocellus; ocellocular line twice as long as postocellar line; lateral ocelli removed by one and one half times the diameter of one of them from the carinate posterior margin of the head; antennae twice as long as head; scape hardly thicker than flagellum, about twice as long as thick, pedicel a little broader than long; first segment of flagellum barely longer than pedicel, not as long as broad, second and following flagellar segments more than twice as long as the first, subequal.

Thorax in the region of the tegulae about as broad as head, fully twice as long as broad, pronotum delicately coriaceous, with rather abundant long hairs like the head; mesoscutum not distinctly half as long as pronotum, similarly sculptured, the lateral grooves sharply impressed and extending nearly to the extreme base; disc of scutellum at least as long as mesoscutum, similarly sculptured and provided with a large and deep fovea on each side at base; these foveae separated by less than twice the diameter of one of them; propodeum with dorsal face carinately margined on the sides and behind, the middle third provided with five complete longitudinal carinae which converge slightly caudad, the narrow strips between them traversed by numerous low

<sup>1</sup> *Das Tierreich*, Lief. 41, p. 309, (1914).



transverse rugae; the area between lateral margin of propodeum and the most latera of the five carinae closely aciculate; posterior face of propodeum closely transversely aciculate and with a complete median longitudinal carina; mesopleurum finely coriaceous; metapleurum longitudinally aciculate; stigma more than twice as long as broad, radius originating from beyond the middle of stigma, not evenly curved; postmarginal vein distinct, nearly one-third as long as stigma; femora stout, the anterior pair slightly larger than posterior pair, the middle pair very small; tarsal claws cleft; middle tibia with a few scattered spines on its outer side.

Abdomen shorter than thorax, acute as apex; first and second tergites completely polished and nearly glabrous, the following with abundant suberect hairs.

Black; mandibles, antennae, palpi, and tegulae pale ferruginous; wings subhyaline; stigma and veins brown; legs piceous; tarsi paler; fourth abdominal segment on the sides, and the following entirely, red.

*Type locality*.—Mysore, India, 1,100 ft. elevation.

*Type*.—U. S. N. M. No. 50142.

Described from a single male specimen collected April 28, 1918.

#### ***Epyris coriaceus* sp. nov.**

This species runs to *caffrarius* Kieffer in Kieffer's key, but may be distinguished by its coriaceous, opaque, and more uniformly punctate pronotum, by only three of the five longitudinal carinae of propodeum being complete, and by the ferruginous antennae.

*Female*.—Length 5 mm. Head slightly longer than broad, delicately coriaceous with numerous, but well-separated, distinct punctures; mandibles broadening slightly to the apex, where they are bluntly bidentate, the teeth about equal; eyes less than one and one half times as long as broad and only about a fourth longer than the distance from eyes to posterior margin of head; ocelli small, in an equilateral triangle; postocellar line less than twice the diameter of an ocellus and little more than one-third as long as ocellular line; scape more than twice as long as broad, somewhat flattened, much broader than flagellum, at least as long as pedicel and the basal two flagellar segments combined; pedicel and first flagellar segment subequal, hardly as long as broad and somewhat shorter and narrower than any of the following segments.

Thorax narrower than head; pronotum sculptured like head except that punctation is more widely spaced medially; mesoscutum not more than half as long as pronotum, with four longitudinal furrows; the lateral pair extending from the posterior margin not quite to the base; the median pair complete, slightly sinuate, very delicate cephalad but broadening into elongate foveae before posterior margin; disc of scutellum finely coriaceous, with two circular foveae at base separated by more than twice the diameter of one of them; dorsal face of propodeum sharply margined on the sides and behind, transversely aciculate and on the middle third with five longitudinal carinae which are slightly convergent caudad, the median and the two outside carinae complete and much more strongly developed than the other two; posterior face of propodeum transversely aciculate, coarsely so toward

apex and with a complete longitudinal carina; mesopleurum finely coriaceous, with a few scattered punctures; metapleurum closely longitudinally aciculate; stigma about twice as long as broad, emitting the radius from slightly beyond the middle; postmarginal vein not distinct; radius gently curved, about three-fourths complete; second to fourth segments of anterior tarsi cordate, the first to fourth with apical spines; middle tibiae with some distinct spines on the outer side; tarsal claws cleft, the inner tooth small.

Abdomen slightly shorter than the thorax, acuminate; two basal tergites glabrous and entirely polished; the following sparsely hairy; the third, fourth, and fifth each with a few minute punctures toward the base.

Black; mandibles and antennae pale ferruginous; wings a little clouded; tibiae and tarsi mostly dark brown; third abdominal segment on the sides, and the following entirely, red.

*Type locality.*—Coimbatore, India.

*Type.*—U. S. N. M. No. 50143.

Described from a single female taken on castor oil plant, May 14, 1932.