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On *Epuraea* Erichson of Assam, India (Coleoptera: Nitidulidae: Epuraeinae)

J. Dasgupta, T. K. Pal* and V. D. Hegde

Zoological Survey of India, 'M' Block, New Alipore, Kolkata-700053, INDIA.

(Email: tkpal51@rediffmail.com)

Abstract

Four species of *Epuraea* Erichson [viz. *Epuraea* (*Haptoncurina*) *motschulskyi* (Reitter, 1873), *Epuraea* (*Haptoncus*) *luteola* Erichson, 1843, *Epuraea* (*Haptoncus*) *ocularis* Fairmaire, 1849 and *Epuraea (Micruria) viraktamathi* sp. n.] have been worked out of a collection from Assam, India. Of these, *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873) and *Epuraea (Haptoncus) luteola* Erichson, 1843 are first time recorded from this Indian state. These make the number of *Epuraea* species from Assam to 8. The genus *Epuraea* and the studied species are (re)described. A key to the subgenera and species of *Epuraea* from Assam is appended.

Keywords: *Coleoptera, Nitidulidae, Epuraea, Assam, new species.*

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Introduction

Assam with an area of 78,438 sq. km. (89° 42′ E to 96° E and 24° 8′ N to 28° 2′ N) is located in biodiversity rich area of North-East India. The physiographic feature of the state is varied with about 15,68,760 hectares of the area under hilly topography, 2,35,798 hectares of land under forest cover while 3,98,860 hectares of land is under cultivation. Sharing international border with Bangladesh in the west, Bhutan in the north and national borders with Tripura to the south, Mizoram and Manipur to the south-east, Nagaland to the east, Arunachal Pradesh to the north, Meghalaya to the south-west and West Bengal to the west, Assam is divided into 23 districts with widespread tea plantation farms. The Brahmaputra valley in the north, the Barak valley in the south and the Karbi plateau and Cachar hills that borders the two regions constitutes the prime geographical characteristics of the state. The state has fertile alluvium soil fed with high precipitation and a network of water channels throughout the region. All these contributed to a rich vegetation and forest types of different kind. As a result, the quantitative and qualitative richness of beetles in this state is noteworthy. The sap beetle fauna seemed to be considerably rich and it necessitated a field work for exploration of beetles from different habitats and their taxonomic analysis. About 34 species of *Epuraea* were recorded from India, 12 species from North-east India and 5 species from the state of Assam. The genus consists of 17 subgenera of which 5 subgenera [*viz*., *Epuraea (Haptoncurina), Epuraea (Haptoncus), Epuraea (Epuraea), Epuraea (Micruria) and Epuraea (Epuraeanella)*] are recorded from India and 4 subgenera [*viz*., *Epuaraea (Haptoncus), Epuraea (Epuraea), Epuraea (Micruria)* and *Epuraea (Epuraeanella)*] are recorded from North-east India.

Several materials of *Epuraea* from the northeastern state of Assam formed the basis of this study. The *Epuraea* is a relatively large genus and hitherto recorded from few northeastern states of India with only 5 species recorded from Assam namely, *Epuraea (Haptoncus) fallax* (Grouvelle, 1897), *Epuraea (Haptoncus) ocularis* Fairmaire, 1849, *Epuraea (Micruria) convexa* Grouvelle, 1908, *Epuraea (Micruria) insolita* Grouvelle, 1908 and *Epuraea (Epuraeanella) fossicollis* Grouvelle, 1908.

Historical account

Kirejtshuk (1986) erected the tribe 'Epuraeini' with the type genus *Epuraea* Erichson, 1843 on the basis of structure of male genitalia, distally projected anal sclerite and less strongly excised hypopygidium in male. Kirejtshuk (1994) elevated Epuraeini to the subfamily level. Kirejtshuk (1998) while dealing with Epuraeinae of Indochina erected another tribe, 'Taenioncini' with the genera '*Taenioncus* Kirejtshuk, 1984', '*Raspinotus* Kirejtshuk, 1990', '*Taeniolinus* Kirejtshuk, 1998' and '*Carpocryraea* Kirejtshuk, 1998' under it. The tribe posseses the following combination of characters: elytra exposing 2-3 abdominal tergites; subparallel dorsal body, shape convex; sides of pronotum and elytra marginally explanate or entirely unexplanate and short and reduced pubescence. Kirejtshuk (*op. cit*.) included remaining four genera namely, '*Grouvellia* Kirejtshuk, 1984', '*Epuraea* Erichson, 1843', '*Propetes* Reitter, 1875' and '*Tetrisus* Murray, 1864' under the tribe 'Epuraeini'. Jelínek and Audisio (2007) in the Palaearctic Catalogue included six genera namely, '*Amystrops* Grouvelle, 1906', '*Carpocryraea* Kirejtshuk, 1998', '*Epuraea* Erichson, 1843', '*Grouvellia* Kirejtshuk, 1984', '*Tetrisus* Murray, 1864' and '*Taeniolinus* Kirejtshuk, 1998' under the subfamily Epuraeinae without considering any tribe under it.

Kirejtshuk (2008) continued to consider two tribes under Epuraeinae [Epuraeini and Taenioncini] and included fourteen genera under 'Epuraeini': '*Crepuraea* Kirejtshuk, 1990', '*Epanuraea* Scudder, 1892', '*Epuraea* Erichson, 1843', '*Grouvellia* Kirejtshuk, 1984', '*Mystronoma* Kirejtshuk, 1990', '*Amedanyraea* Kirejtshuk and Pakaluk, 1996', '*Amystrops* Grouvelle, 1906', '*Parepuraea* Jelínek, 1977', '*Ceratomedia* Kirejtshuk, 1990', '*Trimenus* Murray, 1864', '*Ecnomaeus* Erichson, 1843', '*Platychorina* Grouvelle, 1905', '*Baloghmena* Kirejtshuk, 1987' and '*Stauromenus* Kirejtshuk and Kvamme, 2001'. He (*op. cit*) included six genera under the tribe 'Taenioncini': '*Taenioncus* Kirejtshuk, 1984', '*Raspinotus* Kirejtshuk, 1990', '*Taeniolinus* Kirejtshuk, 1998', '*Carpocryraea* Kirejtshuk, 1998', '*Csiromenus* Kirejtshuk and Kvamme, 2001 and '*Eutaenioncus* Kirejtshuk and Kvamme, 2001'. Representatives of Epuraeinae are mycetophagous or anthophagous often associated with arboricolous fungi (Kirejtshuk, 1998).

Erichson (1843) erected the genus *Epuraea* and included thirty species under it with the type species *Nitidula decemguttata* Fabricius, 1792 [Deutschland, Preussen] non *Nitidula decemguttata* Olivier, 1790 (designation by Parsons, 1943: 185). The constitution and subgeneric divisions of *Epuraea* passed through several changes. Redtenbacher (1845, 1849, 1858 & 1874) characterized and keyed out *Epuraea* from other nitidulid genera. Erichson (1845) added several more species under it. Lacoirdaire (1854) and Jacquelin du Val (1858) redescribed the genus *Epuraea*. Thomson (1859) placed *Epuraea* under the 'Tribus Nitidulina'. Leconte (1861) placed *Epuraea* under Tribe 'Nitidulini'. Thomson (1862) keyed out few species of *Epuraea* from Scandinavia. Reitter (1872) added few species under the genus *Epuraea*. Reitter (1873) dealt with both European and Non-European species of *Epuraea*, described and synonymized several species of *Epuraea*. Reitter (1875a) re-characterized the genus *Epuraea*. Horn (1879) divided *Epuraea* into three species groups on the basis of distance between hind coxae, and the shape of middle and hind tibiae. Broun (1880) described a species of *Epuraea* from New Zealand. Reitter (1884) dealt with the species of *Epuraea* from Japan. Fowler (1884) and Reitter (1894) re-characterized few species of *Epuraea*. Fowler (1889) keyed out and re-described several species of *Epuraea* from the British Islands. Sharp (1890) while dealing with the fauna of Central America, described a few more species under *Epuraea*. Everts (1898) placed *Epuraea* under subfamily 'Nitidulinae' and tribe 'Nitidulini', and provided a key to the species of *Epuraea* of Netherlands and adjacent areas. Ganglbauer (1899) divided *Epuraea* into four subgenera namely, '*Micrurula* Reitter', '*Omosiphora* Reitter', '*Dadopora* C.G. Thomson' and '*Epuraea* s. str.'. Grouvelle (1908) divided *Epuraea* into two subgenera namely, '*Epuraea* s. str.' and '*Micrurula* Reitter, 1884'. Blatchley (1910) divided the *Epuraea* into two species groups A and B based on the

shape of male tibiae. Reitter (1911) while dividing the *Epuraea* into subgenera followed the classification of Ganglbauer (1899). Grouvelle (1913a) in the Coleopt. Cat. included four subgenera of *Epuraea* namely, '*Epuraea* s. str.', '*Dadopora* C.G. Thomson, 1859', '*Epuraeanella* Crotch, 1874' and '*Micrurula* Reitter, 1884'. Reitter (1919) divided the *Epuraea* into three subgenera namely, '*Epuraenella* Crotch', '*Epuraea* s. str.' and '*Micruria* Reitter'. Sjöberg (1939) described several species of *Epuraea* from Palaeractic region and provided a key to the species of *Epuraea*. Parsons (1943) while dealing with the Nearctic Nitidulidae provided a key to the species of *Epuraea* of Nearctic Region. Apparently, he (*op. cit*.) recognized characters of the subgenera '*Dadopora* Thomson, 1859', '*Epuraeanella* Crotch, 1874' and *Micrurula* Reitter, 1884' in his generic description but he didn't divide *Epuraea* into different subgenera and dealt the nearctic species in no nominate subgenera under *Epuraea*. Hansen (1950) divided *Epuraea* into eight groups and keyed out 35 species under the genus. Böving and Rozen (1962) dealt with the mature larvae of *Epuraea*. Jelínek (1977) while dealing with *Epuraea* of Africa, re-described the genus and added few species under it. Jelínek (1978) while dealing with Nitidulidae of Bhutan described seven species under *Epuraea*. Pototzkaya (1978) and Hayashi (1978) characterized the larvae of few *Epuraea* species. Kirejtshuk and Pakaluk (1996) erected the subgenus '*Horniraea'* and '*Amedanyraea'* under *Epuraea* and recognized six other subgenera namely, '*Haptoncus* Murray, 1864*'*, '*Haptoncurina* Jelínek, 1977'*, 'Marinexa* Kirejtshuk, 1989*', 'Epuraea* s. str.*', 'Epuraeanella* Crotch, 1874' and '*Orthopeplus* Horn, 1879' under the genus *Epuraea*. Kirejtshuk (1998) divided the genus into seven subgenera from Indo-Malayan region namely, '*Ceroncura* Kirejtshuk, 1994', '*Epuraea* Erichson, 1843', '*Epuraeanella* Crotch, 1874', '*Ommoraea* Kirejtshuk, 1998', '*Haptoncurina* Jelínek, 1977', '*Haptoncus* Murray, 1864' and '*Micruria* Reitter, 1874'. Kirejtshuk (2005) while dealing with the nitidulid fauna of Taiwan, described two species under *Epuraea*. Kurochkin and Kirejtshuk (2006) dealt with the synonymy, variability and bionomy of two species of *Epuraea* and considered them conspecific. Jelínek and Audisio (2007) in Palaearctic Catalogue included seven subgenera under *Epuraea* namely, '*Aphenolia* Reitter, 1884', '*Epuraea* Erichson, 1843', '*Epuraeanella* Crotch, 1874', '*Haptoncurina* Jelínek, 1977', '*Haptoncus* Murray, 1864', '*Micruria* Reitter, 1874' and '*Polinexa* Kirejtshuk, 1989'. Kirejtshuk (2008) included 17 subgenera under *Epuraea* namely, '*Epuraea* Erichson, 1843', '*Ceroncura* Kirejtshuk, 1994', '*Dadopora* Thomson, 1859', '*Strophoraea* Kirejtshuk and Kvamme, 2001', '*Epuraeanella* Crotch, 1874', '*Ommoraea* Kirejtshuk, 1998', '*Micruria* Reitter, 1874', '*Aphenolia* Reitter, 1884', '*Africaraea* Kirejtshuk, 1989', '*Apria* Grouvelle, 1919', '*Haptoncus* Murray, 1864', '*Haptoncurina* Jelínek, 1977', '*Blackburnaea* Kirejtshuk and Kvamme, 2001', '*Marinexa* Kirejtshuk, 1989', '*Polinexa* Kirejtshuk, 1989', '*Horniraea* Kirejtshuk and Pakaluk, 1996' and '*Orthopeplus* Horn, 1879'. Avgin *et al*. (2012) described a species of *Epuraea* from Turkey. Hisamatsu and Kirejtshuk (2013) added a new species of *Epuraea* from the Palaearctic region.

Material and Methods

The present work is based mainly on the collection of the authors (JD in 2014) and some specimens by the courtesy of Dr. C.A. Viraktamath. A field trip was conducted in Assam from 22.02.2014 to 05.03.2014 and sap beetles were collected from different habitats. Some specimens (by unknown collector) were obtained for study. Specimens were collected from flowers and rotten fruits/vegetables with a soft brush and preserved in 70% alcohol. The specimens were mounted on rectangular hard paper board and pinned with proper locality and habitat data. For detailed morphological study, slides were prepared of the dissected parts. Mounted dry specimen of *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873) was relaxed first by putting in water for about an hour. The relaxed specimen was placed on glass slide with a drop of water and the hind wings and elytra were dissected out under a dissecting microscope. The wingless body was then placed in 10% KOH solution, after minor incision between pro- and mesothorax and metathorax and abdomen, for about 24 hours. The specimen

was then washed in distilled water and mild acetic acid solution for 10 minutes respectively. The washed specimen was passed on to absolute alcohol through 30%, 50%, 70%, 90% grades of alcohol for 10 minutes in each grade. The detached elytra and wings were similarly dehydrated as above. All the parts were kept in absolute alcohol for about 10-15 minutes for complete dehydration and then transferred to clove oil. The body parts of the specimen were then placed on a clear glass slide with a drop of clove oil and finally dissected under a WILD M5A stereoscopic binocular microscope. The dissected parts were mounted in Canada balsam by cover slips. For studying male genitalia of the other specimens, their abdomens were separated from the body. The wet/water soaked abdomens were placed in 10% KOH solution for about 24 hours and then passed on to clove oil in above manner. Each of the male genitalia was dissected out with two fine dissecting needles under the stereomicroscope and placed in a drop of Canada balsam on a piece of cover glass. The cover glass was glued on a piece of ivory paper and pinned with the respective specimen with required data for types and other specimens. External features and other structures were studied using Leica ® M205A stereoscopic microscope with magnification 7.81× to 160.1× and images were recorded, when necessary. Illustrations were made with the aid of Camera lucida; detailed features of various body parts were sketched by using the digitized images, and examination under an OLYMPUS compound microscope.

Results

Altogether 4 species are recognized under three subgenera [*Epuraea (Micruria), Epuraea (Haptoncus),* and *Epuraea (Haptoncurina)*]. These species [*viz. Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873), *Epuraea (Haptoncus) luteola* Erichson, 1843, *Epuraea (Haptoncus) ocularis* Fairmaire, 1849 and *Epuraea (Micruria) viraktamathi* **sp. n**.] and supra-specific taxa are characterized of which one, i.e., *Epuraea (Micruria) viraktamathi* **sp. n.** is new to science and two species, *viz*, *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873) and *Epuraea (Haptoncus) luteola* Erichson, 1843 are newly recorded from the state of Assam. These are not re-described for want of material in hand, but are included in the key to the species from Assam state. The material of the present study has been found from different habitats like flowers, decaying fruits and vegetables.

Systematic Account
Family NITIDULIDAE Latreille, 1802
Subfamily EPURAEINAE Kirejtshuk, 1986
Tribe EPURAEINI Kirejtshuk, 1986
Genus *Epuraea* Erichson, 1843

Epuraea Erichson, 1843: 267. Type species: *Nitidula decemguttata* Fabricius, 1792, nec. *Nitidula decemguttata* Olivier, 1790 (designation by Parsons, 1943: 185); Sturm, 1844: 44; Erichson, 1845: 139, 140; Redtenbacher, 1845: 74; Redtenbacher, 1849: 20, 163; Redtenbacher, 1858: LXXIX, 325; Lacordaire, 1854: 301, 302; Jacquelin du Val, 1858: 141, 158; Thomson, 1859: 68; Leconte, 1861: 83; Thomson, 1862: 168; Thomson, 1867: 378; Seidlitz, 1872: 31; Reitter, 1872: 1–36; Reitter, 1873: 10, 17; Redtenbacher, 1874: LXXXVI, 357; Reitter, 1875a: 5; Reitter, 1875b: 57, 63; Horn, 1879: 287, 288; Broun, 1880: 168; Everts, 1881: 12, 19; LeConte and Horn, 1883: 150; Fowler, 1884: 92; Reitter, 1884: 259, 260; Marseul, 1885: 20, 46; Seidlitz, 1888a: 92, 210; Seidlitz, 1888b: 225; Fowler, 1889: 225; Sharp, 1890: 306; Everts, 1898: 469, 474; Ganglebauer, 1899: 464, 470; Lameere, 1900: 345, 346; Grouvelle, 1908: 340, 346; Blatchley, 1910: 636; Reitter, 1911: 26, 29; Grouvelle, 1913: 107; Reitter, 1919: 60; Sjöberg, 1939: 108; Parsons, 1943: 185; Méquignon, 1954: 30; Hansen, 1950: 50; Böving and Rozen, 1962: 292 (larvae); Spornraft, 1967: 51; Jelínek, 1977: 350; Jelínek, 1978: 179–199; Pototzkaya, 1978: 570 (larvae); Hayashi, 1978: 12–15, 33–34 (larvae); Audisio, 1980: 126; Kirejtshuk, 1989: 64–77; Kirejtshuk, 1992: 120; Audisio, 1993: 280; Kirejtshuk and Pakaluk, 1996: 139; Kirejtshuk, 1998: 57–59; Jelínek and Audisio, 2007: 459–465; Kirejtshuk, 2008: 109.

Description

General appearance (Pl. I. Fig.1–7; Pl. II. Fig. 8–15): Broadly elongate, moderately convex dorsally and sub-depressed ventrally, moderately shiny, punctate-pubescent, color testaceous to black, antenna with loosely arranged three-segmented club [except *Epuraea (Ceroncura)* with eight-segmented antennal club], pronotal and elytral sides usually bordered and feebly explanate; at least one abdominal segment exposed, shape of mid-tibiae and length of fore-tarsi bear characters of sexual dimorphism.

Head (Pl. II. Fig. 1) transverse, markedly narrower than prothorax, mandibles partly exposed, no fronto-clypeal suture; eyes moderately large and somewhat projecting, finely facetted, tempora variable, ranging from short platform-like to extending beyond outer edge of eyes; distinct neck constriction. Tentorium with two long tentorial arms and a transverse corpotentorium in posterior third. Antenna slightly longer than head; antennal insertions partially hidden under projections of frons, scape broadly elongate, antennomere 2 broader than antennomere 3; antennomeres 4 to 8 subequal, about as broad as long or slightly elongate; club 3-segmented, moderately broad. Ventrally antennal grooves narrow and converge posteriorly. Mandible (Pl. II. Fig. 8.) about as broad as long, with a large bifid apical tooth on inner margin, tip of mandibles often pointed, mola well-developed, no distinct mandibular cavity. Maxilla (Pl. II Fig. 9) devoid of galea; lacinia broadly elongate, apex rounded, apex and inner margin densely hairy; palpi with palpomere 1 short, palpomeres 2 and 3 subequal and elongate; palpomere 4 (apical segment) longer than preceding segment and fusiform, sparsely setose. Labium (Pl. II. Fig. 10) with mentum distinctly transverse and deeply emarginate anteriorly; ligula about as broad as long, palpi with palpomere 1 short, palpomere 2 longer and transverse, palpomere 3 longest, fusiform. Labrum (Pl. II. Fig.11) transverse, apically bilobed.

Prothorax (Pl. I Fig. 2) transverse, about as broad as elytra; apical margin emarginate; anterior and posterior angles devoid of any spine; side margins often bordered, smooth and arcuate; pronotal disc feebly convex; prosternal process rather narrow between coxae, broader and bulbous towards apex; front coxae internally contiguous; coxal cavities distinctly transverse, externally and internally closed, trochantins exposed; notosternal sutures divergent anteriorly and extending to border of foramen.

Meso-metathorax (Pl. I. Fig. 3): Mesoventral process narrower than prosternal process but mesocoxae slightly more widely separated than front coxae, coxal cavities open outwardly, mesoventral fitting between mesocoxae almost in a straight line. Metaventrite about as broad as long, dicrimen extending to about three-fourths of length of metaventrite from base, hind coxae more widely separated than mesocoxae (external separation); mesocoxae not bordered by coxal lines. Metendosternite (Pl. II Fig. 12) well-developed, with a broad basal stalk bifurcated into two lateral arms, anterior tendons moderately widely separated.

Elytra* and *Wings*:* Elytra (Pl. I. Fig. 4) short, truncate apically, punctation indistinct, small and not in linear rows; pubescence short; epipleura moderately developed and not extending up to apex; tergite 5 fully and 4 partially exposed. Wing (Pl. I. Fig. 6) simple and venation reduced, with moderately long radial vein, cubitus vein branched, two anal veins; without subcubital fleck or radial cell.

Legs (Pl. I. Fig. 7) moderately long and broad, trochanters short and simple, femora swollen towards middle; tibiae slightly broadened at apex with distinct apical spurs; tarsal formula 5-5-5 in both sexes, tarsomeres 1 to 3 lobed and dilated apically, tarsomere 4 shortest, tarsomeres 1 to 3 ventrally more setose, claws simple.

Abdomen (Pl. I. Fig. 5) about as long as broad or slightly longer, with distinct pygidium, intercoxal process of first ventrite moderately broad and its apical margin slightly angulate; ventrites 2–4 short and subequal, ventrite 5 longer than other ventrites. An additional anal sclerite(tergite VIII) present in males at the end of 5th ventrite.

Genitalia*:* Aedeagus (Pl. II. Fig. 13, 14) with membranous median lobe considerably variable in shape, ranging from elongate to spindle-shaped, sometimes bent near base, sides arcuate or straight; a single median strut running along ventral face; tegmen forming semicircular envelop, the cap-piece formed of two elongated lateral lobes (parameres) with a deep median

excision and turned down along lateral edges, basal corners meeting together on the ventral side of median lobe. Spiculum gastrale and anal sclerite (as in Pl. VI. Fig. 42). Ovipositor (Pl. II. Fig. 15) with well-developed paraprocts, valvifers, coxites and slender styli attached preapically to the coxites.

Sexual Dimorphism*:* 8th tergite in male transformed into anal sclerite. Structure of leg, especially the shape of tibiae and tarsi often bears characters of sexual dimorphism.

Habitat*:* Most species feed usually on decaying plant tissues, fruits and vegetables, fungi, fermenting sap and pollen in flower.

Distribution: The representatives of this subfamily are primarily distributed in the Eastern Hemisphere with major diversity in Palaearctic and Indo-Malayan regions (Kirejtshuk, 1998) and very few representatives from South America.

Note: The characteristic feature of *Epuraea* shows its resemblances with *Carpophilus* Stephens of Carpophilinae. Or otherwise these subfamilies Carpophilinae and Epuraeinae are close lineages.

KEY TO THE SUBGENERA AND SPECIES OF *EPURAEA* ERICHSON OF ASSAM

1. Eyes composed of rather large facets with diameter about as large as thickness of tarsomere 5 at base; male anal sclerite strongly convex dorsally……..2
- Eyes composed of moderately small facets with diameter much less than thickness of tarsomere 5 at base; male anal sclerite never strongly convex dorsally....…….…….5
2. Head with large eyes and temples not extending behind them; body, slender and less oval. Body color yellow testaceous, facies elongate; male genitalia with elongate tubular median lobe with subparallel sides and a single median strut; tegmen with paired parameres forming a tubular shape, with a horn-like tegminal strut from basal extremity of each paramere….…….……***Epuraea* (*Haptoncurina*) *motschulskyi* (Reitter, 1873)**
- Head with smaller eyes and temples more or less wedged in their back side, not infrequently extended beyond outer edge of eyes; body usually more robust and conspicuously oval……..….***Epuraea* (*Haptoncus*) Murray, 1864**……..3
3. Body uniformly colored……..……..4
- Body testaceous with distinct dark spots on elytra and sometimes on pronotum. Male hind tibiae devoid of distinct curvature and dilation in the middle; male genitalia bearing elongate pear-shaped median lobe with arcuate sides, a single median strut; tegmen with paired broadly elongate parameres with broader basal half, apices bent and converge like closing ends of a gripping clip, with two horn-like tegminal struts from extremities of anterior margin of the ventral face of each paramere; lateral lobes in lateral view considerably bent, narrowed towards apices behind basal third, apices bluntly acute, studded with moderately long setae on inner borders of apical third…….. ***Epuraea* (*Haptoncus*) *ocularis* Fairmaire, 1849**
4. Anterior margin of pronotum shallowly emarginate; temples never extended beyond outer edge of eyes; male hind tibiae without any distinct curvature; male genitalia with somewhat elongate tubular median lobe with subparallel sides, tegmen with paired cylindrical parameres.....***Epuraea* (*Haptoncus*) *fallax* (Grouvelle, 1897)**
- Anterior margin of pronotum with trapezium-like emargination; temples often extended beyond outer edge of eyes; male hind tibiae distinctly curved and somewhat dilated in middle; male genitalia with elongate triangular-shaped median lobe broader at base and narrower towards apex, with a median longitudinal furrow extending from base to apex and a single median strut; tegmen with paired parameres forming a C-shaped cup, tegminal struts not distinct…….....***Epuraea* (*Haptoncus*) *luteola* Erichson, 1843**
5. Tarsal claws with a more or less raised tooth at base; dorsum largely dull and rather conspicuously microreticulated (except for

consobrina-group with comparatively weak tooth and specific type of secondary sexual dimorphism in structure of legs); ventral side of epicranium devoid of deep and sharply outlined antennal grooves and postocular fossae of simple configuration; hind coxae not widely separated from each other.....***Epuraea (Micruria)* Reitter, 1875**……...6

- Tarsal claws simple or slightly bulging at base; dorsum often shiny and variable in sculpture; ventral side of epicranium with very deep and sharply outlined antennal grooves, strongly approaching towards each other, with postocular fossae of complex configuration (Pl. VII. Fig. 53); hind coxae widely separated. Pronotum with distinctly rounded sides, narrower to both apex and base; elytral sides with arcuate and moderately explanate, apices transversely truncate….....…….***Epuraea* (*Epuraeanella*) *fossicollis* Grouvelle, 1908**

6. Pronotum with convex or straight basal margin and posterior corners more or less rounded or subrectangular, never projecting posteriorly. Tarsal claws long with a strong and sharp tooth at base; male genitalia with tegmen elongate-oval shaped tapering towards apex, median lobe parallel-sided and gradually converging near apex ……..***Epuraea* (*Micruria*) *insolita* Grouvelle, 1908**

- Pronotum with bisinuate basal margin and its posterior corners projecting posteriorly…….7

7. Elytra more than twice as long as pronotum; tarsal claws with weak tooth at base. Fore tibiae with one or two weak subapical teeth.....***Epuraea* (*Micruria*) *convexa* Grouvelle, 1908**

- Elytra about twice as long as pronotum; tarsal claws with strong tooth at base (Pl. VII. Fig. 51). Body oval, convex, chestnut brown in colour; mid-tibiae in males show distinct curvature on the interior sides (see Pl. VII. Fig. 50); elongate pear-shaped median lobe of male genitalia with arcuate sides and a single median strut that bifurcates at apex; tegmen with paired C-shaped parameres having broader basal half and a horn-shaped structure directed anterad, apices bent and converge with a single long preapical setae (see Pl. VI. Fig. 37-39)…….....***Epuraea* (*Micruria*) *viraktamathi* sp. n.**

1. *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873)

Epuraea angustula Motschulsky, 1863: 439.
Epuraea opaca Motschulsky, 1863: 440
Epuraea motschulskii Reitter, 1873: 29; Sjöberg, 1939: 109.
Haptoncus insularis Grouvelle, 1906a: 319; Grouvelle, 1913: 96; Gillogly, 1962: 175.
Haptoncus motschulskyi: Grouvelle, 1908:344; Grouvelle, 1913: 97; Grouvelle, 1914: 41; Gillogly, 1982: 288.
Epuraea weisei Grouvelle, 1909: 132.
Haptoncus dispersus: Gillogly, 1969: 248.
Haptoncurina motschulskyi: Jelinek, 1977: 381; Hisamatsu, 1985: 180.
Haptoncurina motschulskyi: Audisio, 1982: 107.
Epuraea motschulskyi: Jelinek, 1978: 172.
Haptoncus rhombotelus Gillogly, 1982: 286.
Epuraea (Haptoncurina) motschulskyi: Kirejtshuk, 1987: 65; Kirejtshuk, 1992: 121; Jelinek, 1992: 411; Kirejtshuk and Pakaluk, 1996: 339.
Epuraea (Haptoncurina) motschulskyii: Kirejtshuk, 1996: 24.

Facies (Pl. III. Fig. 16,17) broadly elongate, subdepressed, moderately shiny, color testaceous-yellow, finely punctate dorsum; cuticle with sparse, thin, moderately long, golden, decumbent pubescence.

Head transverse, about 1.3x as broad as long, frons feebly depressed; punctures on vertex minute, round and shallow; eyes large and moderately projected, outer margin rounded, coarsely facetted, about 0.5x as long as head, temple short and slightly extended beneath the eye; punctation on frons round, indistinct, separated by about 1–2 diameters of punctures; pubescence on frons moderately long, thick, decumbent, directed inward. Antenna about 1.2x as long as head; antennal club about 1.5x as long as broad, club segments somewhat loosely attached, about 0.3x as long as antenna. ***Prothorax*** transverse (l.0: 1.7), somewhat quadrate, anterior margin slightly emarginate; sides uniformly arcuate, posterior margin bisinuate and broadly round medially, anterior and posterior angles obtusely rounded.

Pronotum slightly convex, surface distinctly punctate, punctures round, rather sparse, separated on top of pronotal disc by 1–2 diameters, pubescence on disc moderately long, decumbent, uniformly arranged.

Scutellum transverse, about 1.6x as broad as long, triangular and pointed apically, with blackish border; punctures smaller than those on pronotum, separated by about 0.75–1 diameter, pubescence short and fine.

Elytra about 1.1x as long as broad, anterior margin closely fit with posterior margin of prothorax, humeral angles obtuse, sides subparallel, borders slightly explanate, apices separately rounded; punctures slightly coarser than those on pronotum, sparsely arranged, separated by 1–2 diameters; pubescence moderately dense and long, decumbent, posteriorly directed. Exposed tergites of abdomen about 1.2x as broad as long, abdomen in male bear additional sclerite which is both dorsally and ventrally visible, punctures small, round, separated by about 2-3 diameters; pubescence rather short, uniformly arranged, closely appressed to the surface of the abdomen, posteriorly directed.

Legs moderately long and slender.

Ventral side uniformly testaceous-yellow; gular region of head with posteriorly converging antennal grooves. Prosternal projection narrow between the procoxae with a depressed, broad, bulbous apex; mesoventrite transverse, darker than the rest of the ventrites, glabrous; metaventrite punctate-pubescent.

Aedeagus (Pl. II. Fig. 13, 14; Pl. III. Fig. 18, 19): Elongate tubular median lobe with subparallel sides and a single median strut; tegmen with paired parameres forming a tubular shape, with a horn-like tegminal strut from basal extremity of each paramere.

Measurements (in mm.): Total length 2.24–2.30, width of head across eyes 0.37–0.38, length of antenna 0.46–0.47, length and width of prothorax 0.46–0.48 and 0.79–0.85, length and width of elytra together 1.03–1.08 and 0.88–0.91.

Material examined: 6 exs., 4♂, 2♀, INDIA: Assam, Cachar Distt., Bhagabazar [25.566855° N, 91.892372° E], 27.ii.2014, J. Dasgupta, *ex*. Bottlegourd flower (*Lagenaria siceraria* (Molina) Standl.); 10 exs., 4♂, 6♀, Assam, Dibrugarh, Marwari patty, Hanuman Temple [27.48479° N, 94.90192° E], 22.ii.2014, J. Dasgupta, *ex*. Kalmi flower (*Ipomoea* sp.).

Distribution: INDIA: Assam (New Record), Uttar Pradesh, West Bengal (Darjeeling), Uttarakhand (Kumaon); NEPAL; BHUTAN; THAILAND; VIETNAM; SRI LANKA; CHINA; MALAYSIA; PHILIPPINES; INDONESIA; PAPUA NEW GUINEA; AFGHANISTAN; TAIWAN; KOREA; JAPAN; AUSTRALIA; MICRONESIA; CAROLINE ISLANDS; MADAGASCAR; SEYCHELLES; SOUTH AFRICA; ANGOLA; NAMIBIA; ZAMBIA; SENEGAL; GAMBIA; MALI; GUINEA; SIERRA LEONE; LIBERIA; TOGO; NIGERIA; GABON; CAMEROON; ZAIRE; SUDAN; ETHIOPIA; KENYA; UGANDA; RWANDA; BURUNDI; TANZANIA.

2. *Epuraea (Haptoncus) luteola* Erichson, 1843

Epuraea luteola Erichson, 1843: 272; Chevrolat, 1863: 602; Reitter, 1873: 29; Horn, 1879: 301; Olliff, 1885:70; Audisio, 1993: 316.

Nitidula intendens Walker, 1858: 206; Olliff, 1885: 70.

Nitidula submaculata Walker, 1859: 52, Olliff, 1885:70.

Haptoncus pubescens Murray, 1864: 403; Olliff, 1885:70; Grouvelle, 1913:97; Kirejtshuk, 1992: 122.

Haptoncus testaceus Murray, 1864: 403; Grouvelle, 1913: 98; Kirejtshuk, 1992: 122.

Epuraea vulpecula Redtenbacher, 1867: 34; Reitter, 1873: 29.

Haptoncus pauperculus Reitter, 1873: 179; Grouvelle, 1913: 97.

Epuraea texana Crotch, 1874: 76; Horn, 1879: 334; Parsons, 1943: 184.

Haptoncus texanus Grouvelle, 1913: 97.

Haptoncura luteola: Reitter, 1875: 62.

Haptoncus subquadratus: Fauvel, 1903: 301; Grouvelle, 1906b: 75; Grouvelle, 1913: 97.

Haptoncus vulpecula: Grouvelle, 1913: 98

Haptoncura subquadrata Reitter, 1877: 22; Blackburn, 1891: 105.

Haptoncura albertisi Reitter, 1880a: 455; Kirejtshuk, 1992: 122.

Epuraea intendens: Olliff, 1885: 70.
Epuraea submaculata: Olliff, 1885: 70; Grouvelle, 1908: 352; Grouvelle, 1913: 124.
Haptoncus luteolus: Sharp, 1890: 305; Grouvelle, 1905: 242; Grouvelle, 1906c: 75; Grouvelle, 1908: 346; Grouvelle, 1913: 96; Grouvelle, 1914: 38; Parsons, 1943: 176; Nakane, 1959: 56; Gillogly, 1962: 176; Gillogly, 1969: 248; Kehat *et al.*, 1976: 93; Hayashi, 1978: 15, 33; Gillogly, 1982: 287; Endrödy-Younga, 1982: 268; Audisio, 1982: 107; Hisamatsu, 1985: 180.
Haptoncus floreolus Sharp, 1890: 305; Grouvelle, 1913: 96.
Haptoncus ochraceus: Grouvelle, 1912: 388; Grouvelle, 1913: 97.
Haptoncus albertisi: Grouvelle, 1913: 96.
Haptoncus intendens: Grouvelle, 1913: 96.
Epuraea (Haptoncus) luteola: Kirejtshuk, 1992: 122; Kirejtshuk, 1996: 23.

Facies (Pl. V. Fig. 27, 28) oblong-ovate, subdepressed, somewhat shiny, color yellowish-brown; finely punctate dorsum, cuticle with moderately dense, decumbent pubescence.
Head transverse, about 1.2x as broad as long, frons slightly depressed; punctures on vertex fine, round, separated by about 1-2 diameters of puncture; pubescence moderately long and dense; eyes moderately large, finely facetted, about 0.5x as long as head, temple short, extending beneath eye about three-fourth of ocular width, tip pointed. Antenna about 1.5x as long as head; antennal club slightly darker than remaining segments, about 0.3x as long as antenna, about 1.4x as long as broad, scape broadly elongate.
Prothorax transverse (l.0: 1.7), narrower anterad, anterior margin emarginated; sides arcuate, posterior margin slightly tri-sinuate, anterior angles obtusely rounded, posterior angles nearly right angled. Pronotum slightly convex, surface distinctly punctate, punctures round, slightly coarser than those on vertex, about 1-2 diameters apart, surface with microreticulations; pubescence moderately long, dense, decumbent, posteriorly directed.
Scutellum transverse, about 1.3x as broad as long, triangular with pointed apex; punctures as large as those on pronotum, separated by about 0.5–1 diameters; pubescence short and fine.
Elytra about as long as broad, with microreticulations, anterior margin closely fit with posterior margin of prothorax and slightly narrower than prothoracic base, humeral angles almost right angled, sides arcuate, borders slightly explanate, apices separately rounded; punctures confused, round, separated by 1–3 diameters; pubescence moderately dense, long, decumbent, directed posterad. Exposed tergites of abdomen about 1.3x as broad as long, abdomen in male bears an additional sclerite which is both dorsally and ventrally visible, punctures small, round, separated by about 1-2 diameters; pubescence rather short, uniformly arranged, closely appressed to the surface of the abdomen, posteriorly directed.
Legs moderately long and slender; hind tibiae in males slender at the basal one-third with sudden expansion at the apical two-third of the tibiae.
Ventral side uniformly dark brown; gular region of head with posteriorly converging antennal grooves. Prosternal projection narrow between the procoxae with a depressed, broad, bulbous apex; mesoventrite transverse, glabrous; metaventrite punctate-pubescent.
Aedeagus (Pl. V. Fig. 29-34): Elongate, somewhat lance-shaped median lobe broadest medially, with a longitudinal furrow extending from apex towards middle. Single long median strut. Tegmen with broadly elongate, paired parameres, slightly bent and converge apically. No distinct tegminal strut from extremities of anterior margin.

Measurements (in mm.): Total length 2.42–2.78, width of head across eyes 0.44–0.45, length of antenna 0.53–0.58, length and width of prothorax 0.64–0.66 and 1.11–1.14, length and width of elytra together 1.13–1.15 and 1.06–1.14.

Material examined: 4 exs., 2♂, 2♀, INDIA: Assam, Cachar Distt., Bhagabazar [25.566855° N, 91.892372° E], 27.ii.2014, J. Dasgupta, *ex*. Rotten vegetables. 2 exs., 1♂, 1♀, Assam, Dibrugarh, Marwari patty, Hanuman Temple [27.48479° N, 94.90192° E], 22.ii.2014, J. Dasgupta, *ex*. Rotten fruit.

PLATE- I

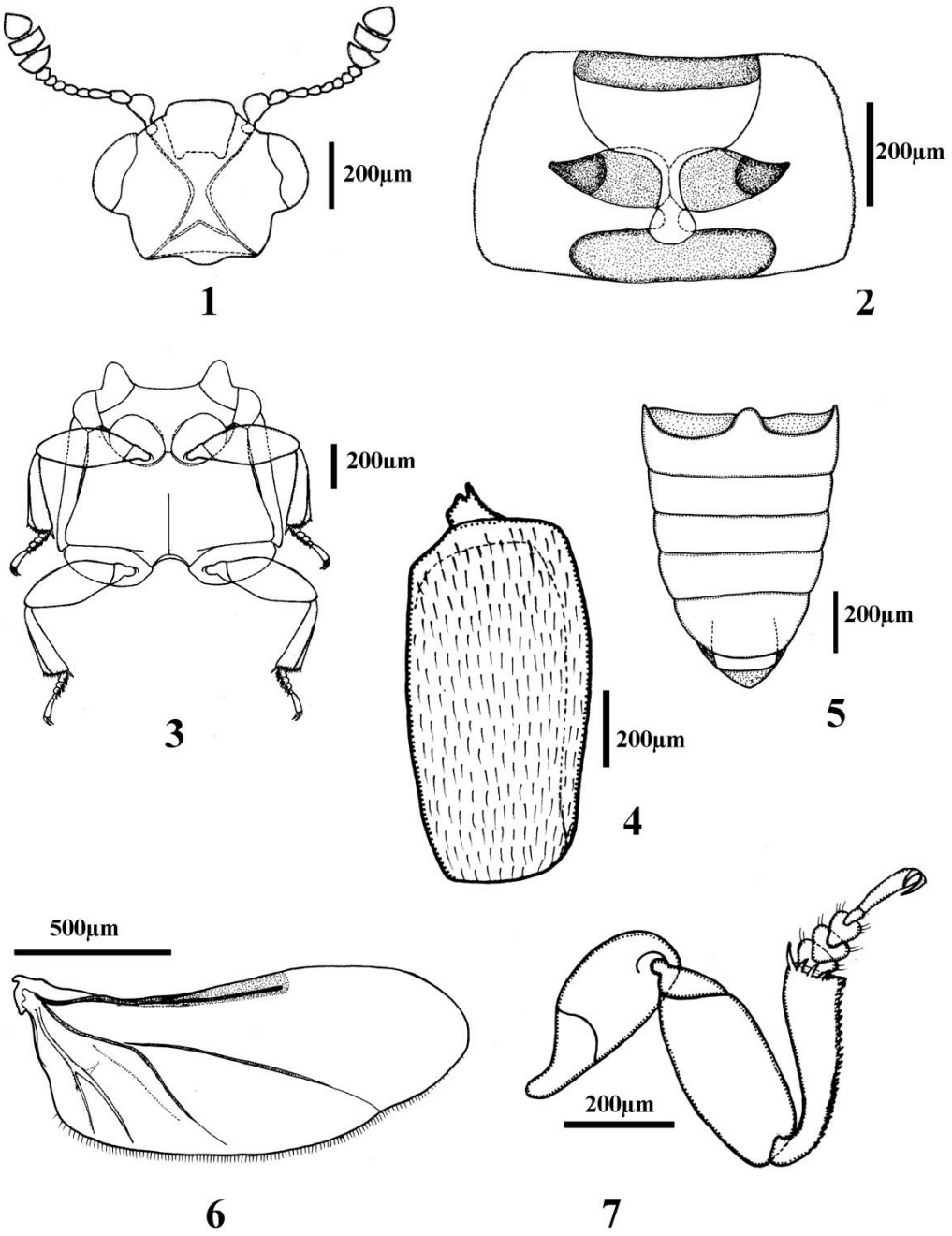

PLATE I. Figs. 1–7. *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873): 1, Head, Dorsal view; 2, Prothorax, Ventral view; 3, Meso-metathorax, Ventral view; 4, Right elytron, Dorsal view; 5, Abdomen, Ventral view; 6, Wing; 7, Front leg.

PLATE- II

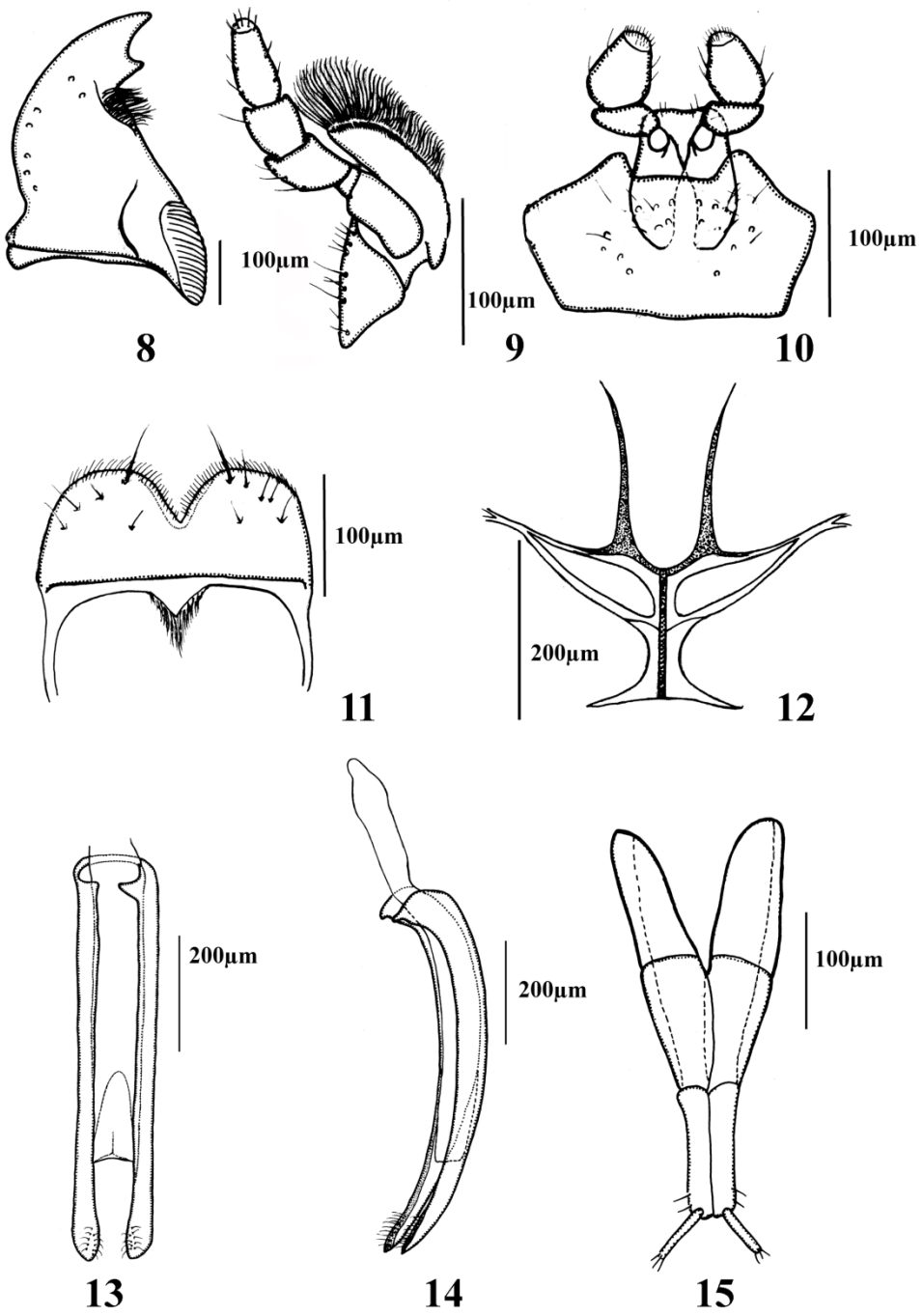

PLATE II. Figs. 8–15. *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873): 8, Mandible, Dorsal view; 9, Maxilla, Ventral View; 10, Labium, Ventral view; 11, Labrum, Dorsal view; 12, Metendosternite; 13, Male genitalia, Ventral view; 14, Male genitalia, Lateral view; 15, Ovipositor.

PLATE-III

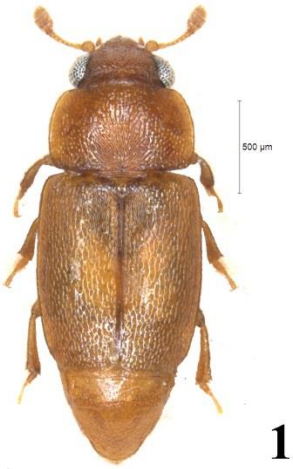

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PLATE III. Figs. 16–19. *Epuraea (Haptoncurina) motschulskyi* (Reitter, 1873) (Photographs)*:* 16, Dorsal figure; 17, Ventral figure; 18, Tegmen of male genitalia; 19, Median lobe of male genitalia.

PLATE- IV

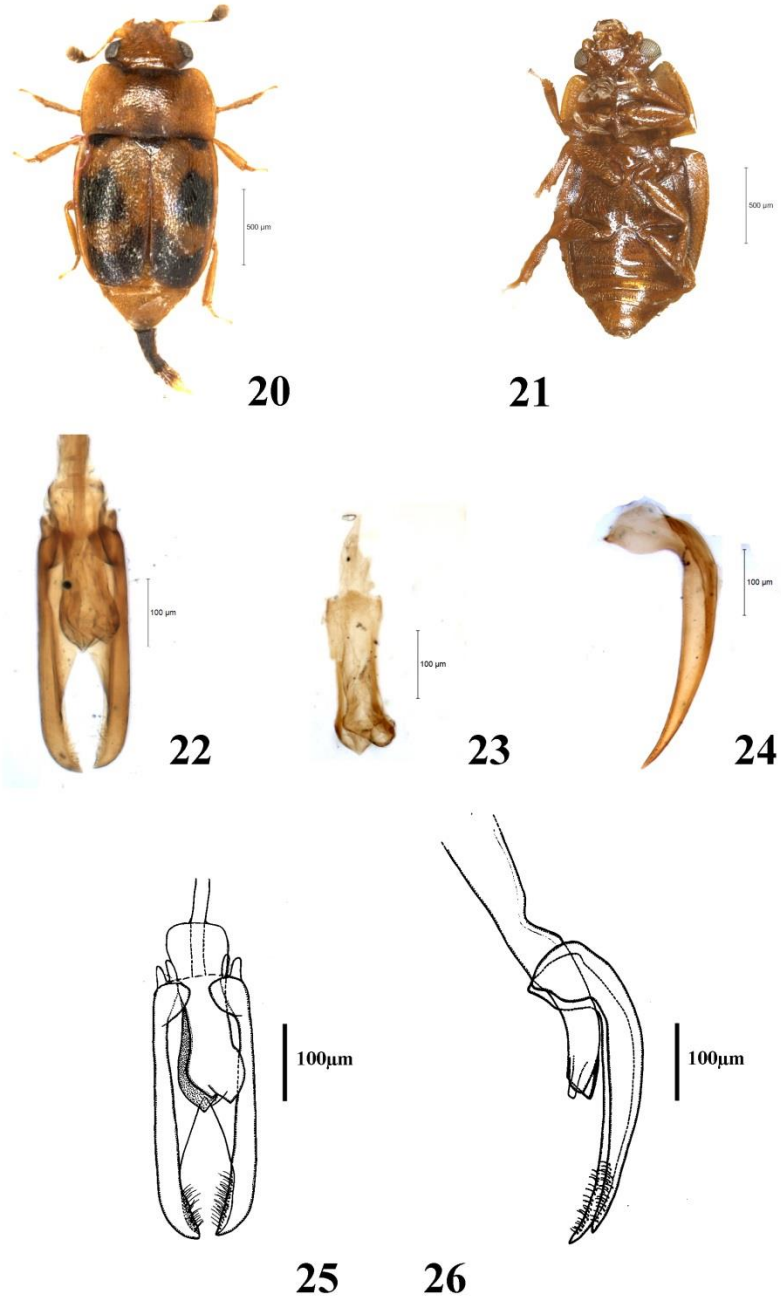

PLATE IV. Figs. 20–26. *Epuraea (Haptoncus) ocularis* Fairmaire, 1849: 20, Dorsal figure (Photo); 21, Ventral figure (Photo); 22, Male genitalia, Ventral view (Photo); 23, Median lobe, Ventral view (Photo); 24, Tegmen, Lateral view (Photo); 25, Male genitalia, Ventral view (Line drawing); 26, Male genitalia, Lateral view (Line drawing).

PLATE- V

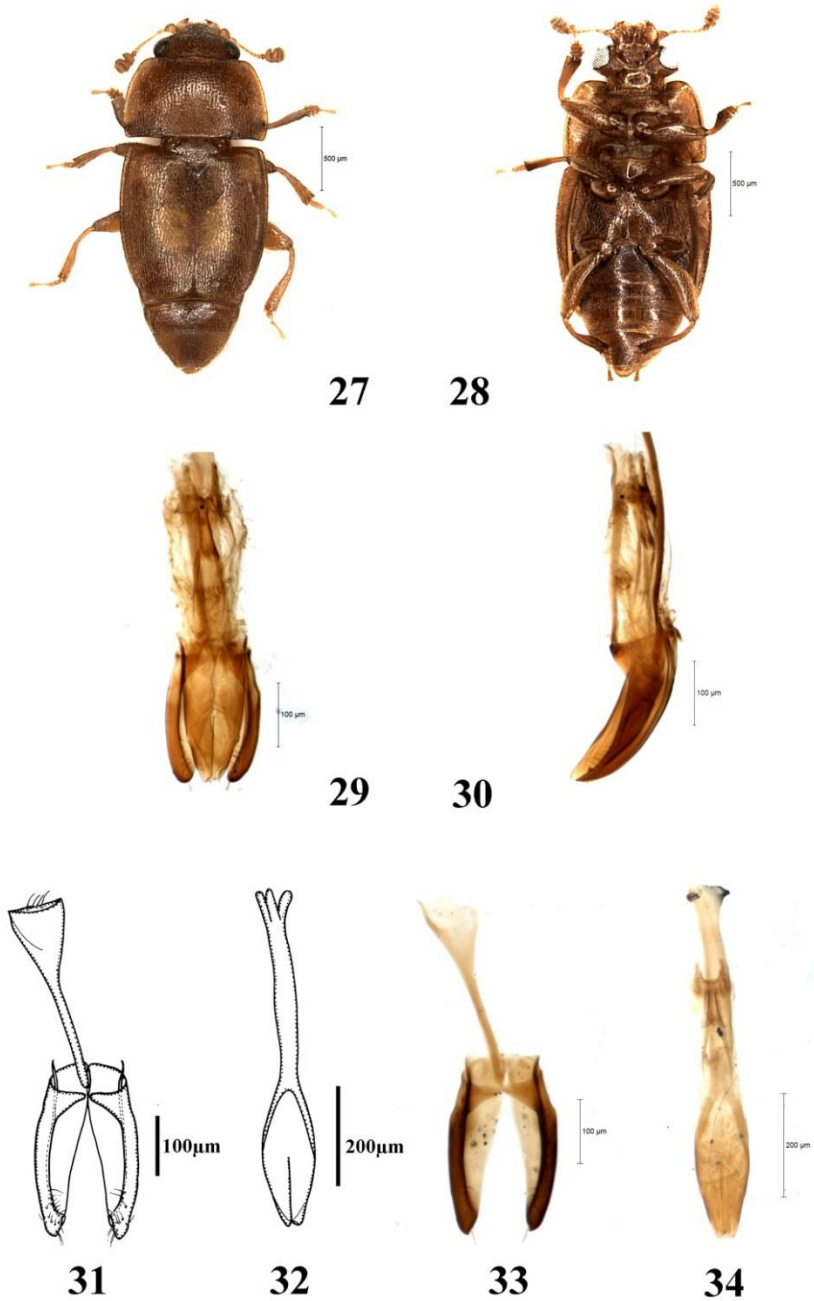

PLATE V. Figs. 27–34. *Epuraea (Haptoncus) luteola* Erichson, 1843: 27, Dorsal figure (Photo); 28, Ventral figure (Photo); 29, Male genitalia, Ventral view (Photo); 30, Male genitalia, Lateral view (Photo); 31, Tegmen, Ventral view (Line drawing); 32, Median lobe, Ventral view (Line drawing); 33, Tegmen, Ventral view (Photo); 34, Median lobe, Ventral view (Photo).

Distribution: INDIA: Assam (New record), Rajasthan, Uttar Pradesh, West Bengal, Tamil Nadu, Maharashtra, Orissa, Karnataka, Kerala; PAKISTAN; NEPAL; THAILAND; VIETNAM; MALAYSIA; PHILIPPINES; LAOS; SRI LANKA; SINGAPORE; INDONESIA; CELEBES; NEW GUINEA; AFRO-TROPICAL REGION; CAPEAN REGION; MADAGASCAREAN REGION; NOVAZEALANDIAN REGIONS; ITALY; ISRAEL; AFGHANISTAN; CHINA; KOREA; JAPAN; USA; AUSTRALIA; BRAZIL; CUBA; DOMINICAN REPUBLIC; POLYNESIA.

3. *Epuraea (Haptoncus) ocularis* Fairmaire, 1849

Epuraea ocularis Fairmaire, 1849: 363; Reitter, 1873: 27; Reitter, 1880b: 508; Kraatz, 1895: 148.

Epuraea bisignata Boheman, 1851: 565.

Nitidula significans Walker, 1858: 206; Olliff, 1885: 70.

Haptoncus tetragonus Murray, 1864: 401; Sharp, 1878: 139; Olliff, 1885: 70; Sharp, 1908: 508; Reitter, 1880b: 508; Reitter, 1884: 259; Grouvelle, 1903: 113; Grouvelle, 1913: 97.

Epuraea decorata Reitter, 1873: 28, 41.

Epuraea thiemei Reitter, 1873: 28, 41; Reitter, 1884: 260.

Haptoncura ocularis: Reitter, 1875a: 62; Blackburn, 1902: 306; Blackburn, 1903: 116.

Haptoncura thiemei: Reitter, 1884: 260.

Haptoncus significans: Olliff, 1885: 70; Grouvelle, 1913: 97.

Epuraea bifasciata Kraatz, 1895: 148.

Haptoncus ocularis: Fauvel, 1903: 301; Grouvelle, 1908: 343, 345; Nakane, 1959: 56; Hisamatsu, 1960: 2; Gillogly, 1962: 176; Jelínek, 1977: 394; Hayashi, 1978: 15, 33; Gillogly, 1982: 287; Endrödy-Younga, 1982: 269; Hisamatsu, 1985: 180.

Haptoncus decorates: Fauvel, 1903: 301; Grouvelle, 1906c: 75; Grouvelle, 1913a: 97; Grouvelle, 1913b: 106.

Haptoncus bifasciatus: Grouvelle, 1912 : 395.

Epuraea bohemani Plaviltshtschikov, 1924: 232.

Haptoncus barbulus Gillogly, 1962: 172; Gillogly, 1969: 247; Gillogly, 1982: 287.

Epuraea (Haptoncus) ocularis: Kirejtshuk, 1992: 122; Kirejtshuk, 1996: 24.

Facies (Pl. IV. Fig. 20, 21) elongate-ovoid, subdepressed, rather shiny, head and prothorax yellowish, yellowish elytra with characteristic blackish patches; cuticle with golden yellow, short, decumbent pubescence.

Head transverse, about 1.4x as broad as long, frons slightly depressed; punctures on vertex minute, round, separated by about 0.75-2 diameters of puncture; eyes large, moderately projected, moderately coarsely facetted; rounded outer margin, about 0.4x as long as head, temple extended beneath posterior margin of the eye. Antenna about 1.9x as long as head; antennal club about 1.4x as long as broad, segments somewhat closely attached, about 0.26x as long as antenna.

Prothorax transverse (l.0: 1.8), slightly broader posteriorly, anterior margin deeply emarginate; sides arcuate, weakly rounded posterior margin with feeble sinuation on either side of middle, anterior angles broadly pointed, posterior angles prominent, nearly right angled. Pronotum moderately convex, surface punctate, punctures round, somewhat densely arranged, about 0.5-1 diameters apart, surface alutaceous; pubescence golden yellow, moderately long and thick, decumbent, posteriorly directed.

Scutellum transverse, about 0.7x as broad as long, dark, triangular with pointed apex; punctures separated by about 0.5–1 diameters; pubescence short and fine.

Elytra about as long as broad, with microreticulations, feebly elongate, base closely fit with posterior margin of prothorax and about as broad as prothoracic base, with two small dark basal patches close to humeral angles, two elongate-oval sublateral dark patches near middle and two semicircular transverse dark apical patches; humeral angles prominent, almost right angled, sides uniformly arcuate and borders slightly explanate, apices separately rounded; punctures slightly coarser than those on pronotum, elongate-oval, somewhat shallow, separated by 0.75–1 diameter; pubescence moderately dense, long and thick, decumbent, directed posterad. Exposed tergites of abdomen about 1.2x as broad as long, abdomen in male bear additional sclerite which is both dorsally

and ventrally visible, punctures small, round, separated by about 3-4 diameters; pubescence rather short, uniformly arranged, closely appressed to the surface of abdomen, posteriorly directed.

Legs moderately long and slender.

Ventral side uniformly testaceous yellow; gular region of head with posteriorly converging antennal grooves. Prosternal projection narrow between the procoxae with a depressed, broad, bulbous apex; mesoventrite transverse, glabrous; metaventrite punctuate-pubescent.

Aedeagus (Pl. IV. Fig. 22-26): Elongate pear-shaped median lobe with arcuate sides, a single long median strut; tegmen with broadly elongate paired parameres, broader basal half, apices bent and converge like closing ends of a gripping clip, with two horn-like tegminal struts from extremities of anterior margin of the ventral face of each paramere; parameres in lateral view considerably bent, narrowed towards apices behind basal third, apices moderately pointed, and studded with moderately long setae on inner borders of apical third.

Measurements (in mm.): Total length 2.01–2.16, width of head across eyes 0.40–0.42, length of antenna 0.52–0.59, length and width of prothorax 0.50–0.53 and 0.92–0.98, length and width of elytra together 1.01–1.07 and 0.98–1.08.

Material examined: 4 exs., 2♂, 2♀, INDIA: Assam, Cachar Distt., Bhagabazar [25.566855° N, 91.892372° E], 27.ii.2014, J. Dasgupta, *ex*. Rotten vegetables; 2 exs., ♂, Assam, Dibrugarh, Marwari patty, Hanuman Temple [27.48479° N, 94.90192° E], 22.ii.2014, J. Dasgupta, *ex*. Rotten fruit; 9 exs., 4♂, 5♀, Assam, Assam University, Silchar [24.68674° N, 92.75306° E], 27.ii.2014, J. Dasgupta, *ex*. Rotten fruit.

Distribution: INDIA: Rajasthan, Uttar Pradesh, West Bengal, Sikkim, Assam, Kerala, Tamil Nadu; NEPAL; MYANMAR; THAILAND; LAOS; VIETNAM; SRI LANKA; MALAYSIA; INDONESIA; PAPUA NEW GUINEA; AFRICAN PART OF MEDITERRANEAN PROVINCE; JAPAN; KOREA; CHINA; TAIWAN; TOGO; CAMEROON; TANZANIA; UGANDA; ZAIRE; ANGOLA; NAMIBIA; MALAWI; SOUTH AFRICA; MADAGASCAR; RÉUNION; SEYCHELLES; MICRONESIA; AUSTRALIA; NEW CALEDONIA; USA (introduction from Taiwan or Japan).

4. *Epuraea (Micruria) viraktamathi* Dasgupta, Pal and Hegde sp. n. (Fig. 35–42, 50)

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Facies (Pl. VI. Fig. 35, 36) oblong-ovate, somewhat convex, moderately shiny, uniformly dark brown; cuticle with golden yellow, short, decumbent pubescence.

Head transverse, about 1.4x as broad as long, frons slightly depressed; punctures on vertex minute, round, separated by about 1–2 diameters of puncture; eyes moderately large, finely facetted, about 0.4x as long as head, temple short and sloped behind; pubescence near eyes short, sparse and decumbent. Antenna about 1.5x as long as head; antennal club about 1.1x as long as broad, segments somewhat closely attached, about 0.28x as long as antenna.

Prothorax transverse, (l.0: 1.8), wider posteriorly, anterior margin deeply emarginate; sides feebly arcuate, posterior margin bisinuate on either side of middle, anterior angles obtusely rounded, posterior angles acute and somewhat pointed. Pronotum moderately convex, borders slightly explanate, surface distinctly punctate, small punctures coarsely arranged, about 1–2 diameters apart, surface with microreticulations; pubescence moderately long and thick, decumbent, posteriorly directed.

Scutellum transverse, about 1.5x as broad as long, triangular with slightly curved sides and pointed apex; punctures slightly finer than those on elytra, separated by about 1–2 diameters; pubescence short and fine.

Elytra about as broad as long, anterior margin closely fit with posterior margin of prothorax, humeral angles rounded and feebly obtuse, sides uniformly arcuate, borders slightly explanate, apices separately rounded; punctures round, slightly coarser than those on pronotum, separated by 1–2 diameters; pubescence moderately dense, long, decumbent, directed

PLATE- VI

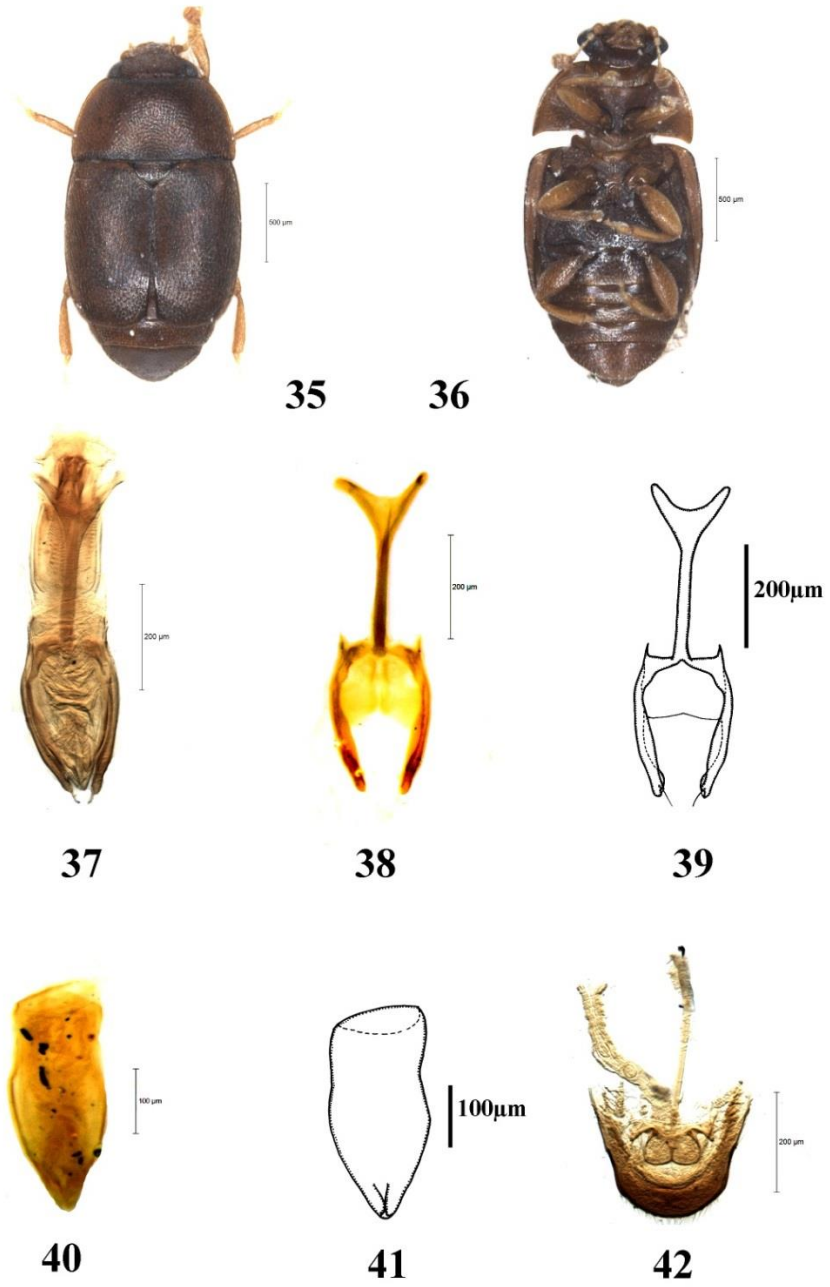

PLATE- VI. Figs. 35–42. *Epuraea viraktamathi* sp. n.: 35, Dorsal figure (Photo); 36, Ventral figure (Photo); 37, Male genitalia, Ventral view (Photo); 38, Tegmen, Ventral view (Photo); 39, Tegmen, Ventral view (Line drawing); 40, Median lobe, Ventral view (Photo); 41, Median lobe, Ventral view (Line drawing); 42, Anal sclerite and spiculum gastrale (Photo).

PLATE- VII

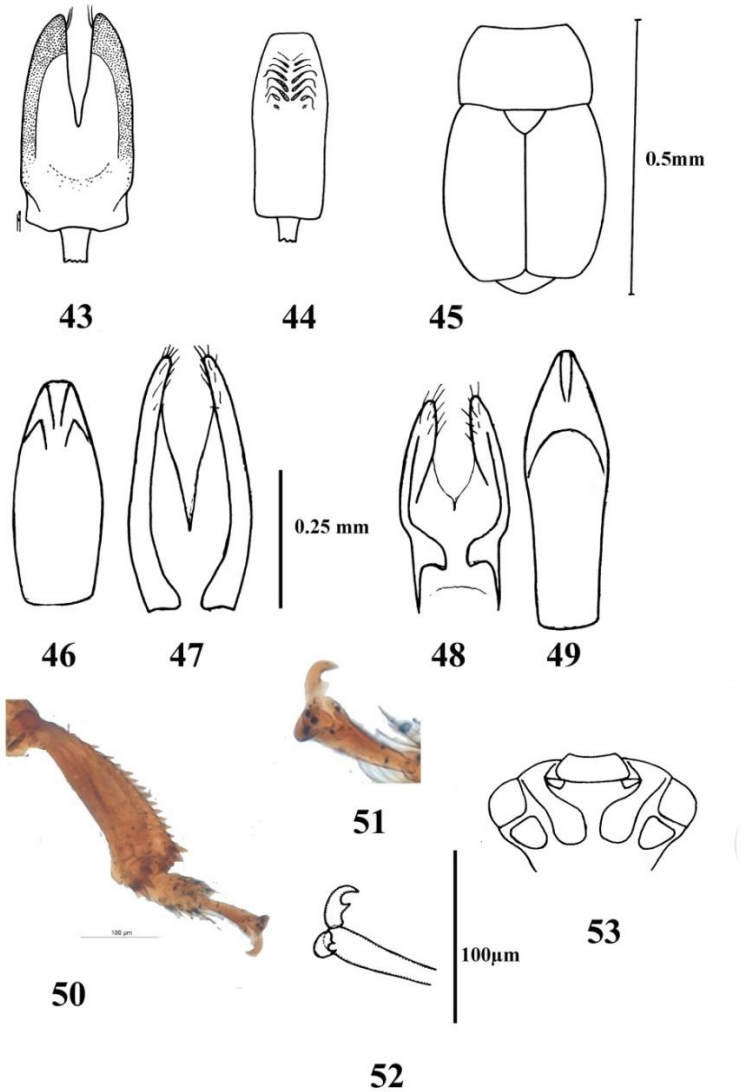

PLATE- VII. Figs. 43–45. *Epuraea (Micrurula) descarpententriesi* Jelínek (= *E. (Micruria) subtilis* sensu Kirejtshuk, 1998) [derived from Jelínek, 1978]: 43, Tegmen; 44, Median lobe; 45, Body type. Figs. 46–49. *Epuraea (Micruria) subtilis* Grouvelle (derived from Kirejtshuk, 1998): 46, Tegmen, specimen from North Vietnam; 47, Median lobe, specimen from North Vietnam; 48, Tegmen, specimen from Malaysia, Malacca; 49, Median lobe, specimen from Malaysia. Malacca. Figs. 50–52. *Epuraea (Micruria) viraktamathi* sp. n.: 50, Mid-tarsi in male (Photo); 51, Toothed claw in midleg (Photo); 52, Toothed claw (line drawing). Fig. 53. *Epuraea (Epuraeanella) hammondi* Kirejtshuk, 1992 (derived from Kirejtshuk, 1998): Ventral surface of head with a contour of antennal grooves and postocular fossae.

posterad. Exposed tergites of abdomen about 1.6x as broad as long, abdomen in male with additional sclerite, visible both dorsally and ventrally, punctures small, round, about 0.5x as coarse as those on elytra, separated by about 1–3 diameters; pubescence very short, uniformly arranged, closely appressed to surface of abdomen, posteriorly directed.

Legs with mid tibiae distinctly curved near apex in male (Pl. VII. Fig. 50).

Ventral side uniformly reddish brown; gular region of head with posteriorly converging antennal grooves. Prosternal projection narrow between procoxae, with a depressed, broad, bulbous apex; mesoventrite transverse with a median longitudinal carina; metaventrite densely punctuate and moderately pubescent.

Aedeagus (Pl. VI. Fig. 37-41): Elongate pear-shaped median lobe with arcuate sides and a single median strut that bifurcates at the apex; tegmen with paired C-shaped parameres with broader basal half, apices bent and converge like a sac.

Measurements (in mm.): Total length 2.12–2.21, width of head across eyes 0.37–0.39, length of antenna 0.43–0.45, length and width of prothorax 0.52–0.57 and 0.97–1.07, length and width of elytra together 1.03–1.05 and 1.09–1.14.

Material examined: Holotype ♂, INDIA: Assam, Jorhat, Toklai Tea Research Station, 27.i.2014, Collector (?), *ex*. Tea flower (*Camellia sinensis* var. *assamica* (L.) Kuntze); Paratype 3 ♀, same data as holotype.

Distribution: INDIA: Assam.

Etymology: The species is named in honor of renowned entomologist, Prof. C. A. Viraktamath, for his support to one of the authors (JD) in this study. The material of the species was received from Prof. Viraktamath.

Comparative note: This species shows some resemblance with *Epuraea (Micruria) subtilis* Grouvelle, 1894 based on the drawing of the male genitalia (Pl. VII. Fig. 46-49), elytra being twice as long as wide, posterior margin of pronotum bi-sinuate with hind corners projecting posteriorly and its record from Assam (see Kirejtshuk, 1998) but can be differentiated by the presence of distinct curvature in the mid-tibiae in males in form of secondary sexual dimorphism (*vs.* absence of any distinct curvature in mid-tibiae in males of *Epuraea (M.) subtilis*). Moreover, there is some ambiguity regarding the synonymization of *Epuraea (Micruria) subtilis* Grouvelle, 1894 with *Epuraea (Micrurula) descarpententriesi* Jelínek, 1978 as the drawing of the male genitalia by Jelínek (1978) (Pl. VII. Fig. 43, 44) hardly coincides with that of Kirejtshuk (1998). The species also bear certain resemblances with *Epuraea (Micruria) consanguinea* Grouvelle, 1914 in the shape of the body, shape of the tegmen of male genitalia (see Kirejtshuk, 1998), body color ranging from brownish-reddish to chestnut-brown, elytral length about 1 mm., but can be differentiated by its distribution in Assam, posterior margin of pronotum emarginated and posterior corners pointed, elytra about as broad as long combined, median lobe elongate pear-shaped and tegmen with horn-like process [*vs.* distrubtion restricted to Taiwan, posterior margin of pronotum without emargination, elytra longer than combined width, median lobe of male genitalia cylindrical with sudden convergence towards apex with apical tip truncate, tegmen devoid of horn-like processes in *Epuraea (Micruria) consanguinea*].

Discussion

It appears to us that Assam and Northeastern states bear a considerably rich fauna of sap beetles but yet not sufficiently worked out. More intensive surveys in different bioclimatic zones of Assam are necessary to explore more forms which are not known yet. The redescriptions of the already known species could be taken up with more material available for study. Redescription of the genus *Epuraea* Erichson on the basis of reevaluated characters points out its close affinity with *Carpophilus* Stephens of Carpophilinae. The character states of different subgenera need to be taken up so as to find out inter-relationships among them. The presence of *Epuraea* (*Micruria*) *viraktamathi* **sp. n.** in flower of tea plants only makes an interesting note. Its significance for the tea cultivation may be a point of enquiry in further study.

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