Epilachnini (Coleoptera: Coccinellidae)—A Revision of the World Genera

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Subject editor: Ted MacRae

Received 13 June 2016; Accepted 3 August 2016

Abstract

Based on the recent revised generic classification of the tribe Epilachnini (Szawaryn et al. 2015), all 27 genera are re-described, diagnosed, illustrated, and included in an identification key. The following nomenclatural changes are made: Epilachna (Hypsia) Mulsant 1850, Epilachna (Cleta) Mulsant 1850, Solanophila Weise 1898, Epilachna (Aparodentata) Wang and Cao 1993, and Epilachna (Uniparodentata) Wang and Cao 1993 are re-moved from synonymy of Epilachna Chevolat 1837. The subgenus Cleta of Epilachna is raised to the genus level, as Cleta Mulsant 1850 stat. nov.; the subgenus Uniparodentata of Epilachna is raised to the genus level, as Uniparodentata Wang and Cao 1993 stat. nov. Chaezauiiana Tomaszewska and Szawaryn 2015 (type species, Epilachna sahlbergi Mulsant 1850), and Epilachna (Hypsia) Mulsant 1850 (type species, Epilachna nigrolimbata Thomson 1878) is synonymized here under the name Cleta Mulsant 1850 (type species, Epilachna eckloni Mulsant 1850)—new synonym; Fuerschia Tomaszewska and Szawaryn 2015 (type species, Coccinella canina Fabricius 1781) is synonymized with Solanophila Weise 1898 (type species, Epilachna gibbosa Crotch 1874)—new synonym; Ryszardia Tomaszewska and Szawaryn 2015 (type species, Epilachna decipiens Crotch 1874) and Epilachna (Aparodentata) Wang and Cao, 1993 (type species, Epilachna yongshanensis Cao and Xiao 1984) are synonymized under the name Uniparodentata Wang and Cao 1993 (type species, Epilachna paramagna Pang and Mao 1979)—new synonym. Henosepalichna (Elateria) Fürsch 1964 (type species: Coccinella elaterii Rossi 1794) is removed from synonymy of Henosepalichna Li 1961 (type species, Coccinella sparsa Herbst 1786 (=Coccinella viintiopunctata Fabricius 1775)) and is synonymized here with Chnootribra Chevolat 1837 (type species: Coccinella similis Thunberg 1781)—new synonym. Coccinella flavofasciata Laporte 1840, Epilachna aequatorialis Gordon 175, E. bizonata Crotch 1874, E. convergens Crotch 1874, E. cruciata Mulsant 1850, E. dubia Crotch 1874, E. monovittata Gordon 175, E. orthostriata Gordon 175, E. paracuta Gordon 175, E. matica Mulsant 1850, E. satipennis Gordon 175, and E. univittata Crotch 1874 are transferred to Toxotoma Weise 1900 (comb. nov.); Afissa chapi Dieke 1947, A. complicata Dieke 1947, A. convexa Dieke 1947, A. magna Dieke 1947, A. militaris Dieke 1947, A. quadricollis Dieke 1947, A. subacuta Dieke 1947, A. szheuhana Dieke 1947, Epilachna boymi Jadwiszczak and Węgryniozwicz 2003, E. crepida Pang and Ślipiński 2012, E. decipiens Crotch 1874, C. dottoae Bielawski 1979, E. hamulifera Pang and Ślipiński 2012, E. malleformae Peng, Pang and Ren 2002, E. siphodonticulata Hoang 1983, E. angusta Li 1961, E. biflbra Li 1961, E. chingjing Yu and Wang 1999, E. circumdata Hoang 1978, E. circumbaculata Pang and Mao 1977, E. clematicola Cao and Xiao 1984, E. exornata Bielawski 1965, E. folifera Pang and Mao 1979, E. fugongensis Cao and Xiao 1984, E. gliscofollata Pang and Mao 1979, E. gressiti Li 1961, E. lata Li 1961, E. madanensis Zeng 2002, E. media Li 1961, E. mobiliteriae Li 1961, E. yongshanensis Cao and Xiao 1984, Solanophila acuta Weise 1900, and S. saginata Weise 1902 are transferred to Uniparodentata Wang and Cao 1993 (comb. nov.); Coccinella canina Fabricius 1781, Epilachna dregei Mulsant 1850, E. inifimata Mulsant 1850, E. murrayi Crotch 1874 and E. paykullii Mulsant 1850 are transferred to Solanophila Weise 1998 (comb. nov.); Afissula antennata Bielawski 1967, A. rana Kapur 1958, A. uniformis Pang and Mao 1979, Epilachna ampliata Pang and Mao 1979, E. flavimarginalis Hoang 1978, E. max Pang and Ślipiński 2012, E. parvula Crotch, E. plicata Weise 1889, and E. sanscrita Crotch 1874 are transferred to Afissa Dieke 1947 (comb. nov.); Epilachna papuensis Crotch 1874 and Subafissula brittoni Bielawski 1963 are transferred to Henosepalichna Li 1961 (comb. nov.); Epilachna admirabilis Crotch 1874, E. alternans Mulsant 1850, E. glochinosa Pang and Mao 1979, E. hopeiana Miyatake 1985, E. insignis Gorham 1892, E. macularis Mulsant 1850, E. parainsignis Pang and Mao 1979, and Solanophila maxima Weise 1898 are transferred to
Ladybird beetles or family Coccinellidae contains about 6,000 species placed in 360 genera. It is generally accepted as a monophyletic group and has been traditionally classified in the superfamily Cucujoida (Coleoptera, Polyphaga) and placed in the Cerylonid Series (CS), a derived clyde formed by Cerylonidae and eight other families of cucujoïd beetles (Crowson 1955, Robertson et al. 2008, Lord et al. 2010, Bocak et al. 2014). However, the most recent molecular research by Robertson et al. (2015) revealed the Cerylonid Series as the sister group to the remaining Cucujoïformia, not allied with any of the existing Cucujiformia superfamilies including the remaining Cucujoïdea. For these families, Robertson et al. (2015) established a new superfamily Coccinelloidea. Previous studies (Tomaszewska 2000, 2005; Hunt et al. 2007, Robertson et al. 2008, Bocak et al. 2014) indicated Corlyphodidae, Alexiidae or Endomychiidae as sister groups to Coccinellidae. The study of Robertson et al. (2015) revealed sister relationships of Eupsilobiidae (former Eupsilobiinae within Endomychiidae) and Coccinellidae. All of these families are strictly fungivorous, suggesting the origin of a predatory behavior in the ancestor of Coccinellidae as a critical innovation and the key to their evolutionary success.

Coccinellidae exhibits in fact a broad trophic diversity that ranges from specialized predation on aphids, whiteflies, and other invertebrates, to fungivory, pollenophagy, and to strict herbivory. Chapuis (1876) used food preferences as a base for his classification of ladybirds and divided Coccinellidae into two groups: aphidophagous and phytophagous.

Phylogeny and the Recent Classification of the Family Coccinellidae
Most of the standard classifications of Coccinellidae (Gordon 1975, Kovár 1996, Vandenberg 2002) have recognized six or seven subfamilies (Coccinellinae, Coccidulinae, Scymninae, Chilocorinae, Epilachninae, Sticholotidinae, and, sometimes, Orthalicini) and numerous tribes within each subfamily. The foundation of this system was developed by Sasaji (1968, 1971) through a detailed comparative morphological research on adults and larvae. His classification was very innovative at his time, however, it was geographically limited, based on very small number of taxa from the Palearctic Region, mostly Japan. Other authors (H. Fürsch, R. Pope, A.P. Kapur, R. Gordon, D. Hoang, and I. Kovár) followed and modified Sasaji’s system to suit faunas of their regional interests.

Kovár (1996) presented a major modification of the Sasaji’s classification on a global scale, incorporating new research and many novel ideas about potential relationships between subfamilies and tribes. He recognized seven subfamilies and 38 tribes, showing phytophagous Epilachninae as a sister group to Coccinellinae derived from the same branch with Orthalicini at the base of Coccinellidae phylogeny.

The subfamily classification proposed by Sasaji (1968) and Kovár (1996) was found to be largely artificial and phylogenetically unacceptable by Ślipiński (2007) who demonstrated that subfamilies Chilocorinae, Sticholotidinae, Scymninae, and Coccidulinae were polyphyletic assemblages and he argued the basal split of Coccinellidae into two clades (subfamilies) Microweiseinae and Coccinellinae with all the remaining coccinellid groups.

Four subsequent papers on molecular phylogeny of the family Coccinellidae (Giorgi et al. 2009, Aruggoda et al. 2010, Magro et al. 2010, Seago et al. 2011) confirmed monophyly of the family and supported the basal split advocated by Ślipiński (2007).

The publication by Nedvěd and Kovár (2012) contains somewhat “modernized” classification of Kovár (1996) in part incorporating elements of recently published molecular and morphological research. They proposed nine subfamilies (adding Exoplectrinae and Microweiseinae) and 42 tribes but without further discussion.

The research of Robertson et al. (2015) supports a division of Coccinellidae in two subfamilies.

Taxonomy and Classification of Epilachnini
Based on morphology (Ślipiński 2007) and initial molecular analyses by Giorgi et al. (2009), Ślipiński and Tomaszewska (2010) and Seago et al. (2011) reduced taxonomic rank of the subfamily Epilachninae to a tribal level within broadly defined Coccinellinae.

The classification of Epilachnini began with the first system of the family Coccinellidae proposed by Mulsant (1846), which he named “Securipalpes”. In his world monograph (Mulsant 1850), he established system for all genera of Coccinellidae. Mulsant placed Epilachnini (Epilachnii) in Trichosomoides, one of two his major divisions of the family. Prior to Mulsant’s monograph only scattered species descriptions had appeared. Mulsant treated all known species to date as Epilachna Chevrolat in Dejean 1837, however he gave descriptions of all species and grouped them, establishing the subgenera Cleta, Dira, Hypsa, and Mada.
Subsequently from the middle of the 19th to the middle of the 20th century, E. Mulsant, G.R. Crotch, J. Weise, L. Mader, A. Sicard, and R. Korschensky described many new species of this group based mainly on the size, color, and shape, and distribution of contrasting maculae on the elytra. These authors established about 10 small genera, leaving most of Epilachninae species in the genus Epilachna. More recently, attempts to review this group were made by Dieke (1947), Bielawski (1963), Gordon (1975), and Fürsch (1991). However, they worked only on regional faunas: Asia and Australia, eastern Asia, both Americas and Africa, respectively and achieved rather limited results. To improve clarity of systematics of this group, Li in Li and Cook (1961) established Asian-African genus Henosepilachna, as distinctly separated from Epilachna. Some authors have however questioned a validity of this genus and have synonymized Henosepilachna with Epilachna (Richards 1983, Śliński 2007).

In fact, history of nomenclature of Epilachnini is very complicated. Szawaryn (2011) summarized confusion in interpretation of the type species of the type genus of the subfamily, Epilachna lasting more than a century, which resulted in establishing several new genera and then synonymy of most of them. Szawaryn (2011) examined type series of E. borealis and supported the interpretation of Epilachna by Li and Cook (1961) recognizing Henosepilachna as a valid genus of Epilachnini. It became clear, however, that the taxonomic and phylogenetic studies on a global scale were needed to determine if both genera were monophyletic.

Historically, Epilachninae as subfamily was divided in four tribes: Epilachnini, Cynegtenini, Epivetini, and Eremochilini (Gordon and Vandenberg 1987, Jadwiszczak and Węgrzynowicz 2003). Epivetini Pang and Mao included monotypic Epiverta Dieke and Eremochilini Gordon and Vandenberg contained Eremochilus Weise with three species. The tribe Cynegtenini Thomson (≡Madaini Gordon) included ten genera, containing from 2 to 45 species, while the tribe Epilachnini included remaining 11 genera with most species diversity of the subfamily.

Epilachnini with over 1000 species, contains nearly 20% of species of Coccinellidae divided until recently in 25 genera (Jadwiszczak and Węgrzynowicz 2003, Szawaryn and Tomaszewska 2013). Most of the genera consisted of few species only; three of them were monotypic (Epiverta Dieke, Macrolasia Weise, Pseudodira Gordon), further 20 genera included from 2 to 43 species; and the remaining species were split between Henosepilachna with 230 species and Epilachna with 580 species.

Despite of the economic importance of Epilachnini, the group was poorly understood taxonomically and contained until recently many generic taxa of questionable taxonomic status. Most modern classification of the subfamily was based on taxa occurring in the temperate zones of the world, which had a very limited use to much more diverse but hardly known fauna of this subfamily in the tropical and subtropical zones.

Szawaryn et al. (2015) in their molecular and morphology based research made the first attempt to test monophyly of currently recognized genera of phytophagous ladybird beetles. They (Szawaryn et al. 2015) reconstructed phylogeny of Epilachnini confirming its monophyly and proposed a modern classification of this tribe. Only 14 of the 25 included genera were recovered in their research as monophyletic. Afidента Dieke, Afidentula Kapur, Afissula Kapur, Chnootriba Chevolat, Epilachna Chevolat, Henosepilachna Li, Lalokia Szawaryn and Tomaszewska 2013, Mada Mulsant, Papuaepilachna Szawaryn and Tomaszewska 2013, Subafissula Bielawski and Toxicotoma Weise, were shown to be poly- or paraphyletic and were redefined. Two largest genera of the tribe, Epilachna and Henosepilachna split into multiple mophenotypic clades and they were described as new genera: Chazeauiana Tomaszewska and Szawaryn in Szawaryn et al. 2015, (with Epilachna sabilbergi Mulsant 1850 as the type species); Diekeana Tomaszewska and Szawaryn in Szawaryn et al. 2015, (with Epilachna alternans Mulsant 1850 as the type species); Fuerschia Tomaszewska and Szawaryn in Szawaryn et al. 2015, (with Coccinella canina Fabricius 1781 as the type species) and Ryszardia Tomaszewska and Szawaryn in Szawaryn et al. 2015, (with Epilachna decipiens Crotch 1874 as the type species). Moreover, Afissula Kapur 1958 was synonymized with Afissula Dieke 1947, Subafissula Bielawski 1963 was synonymized with Henosepilachna Li in Li and Cook 1961, and Lalokia Szawaryn and Tomaszewska (2013) was synonymized with Papuaepilachna Szawaryn and Tomaszewska (2013). As a result of that study, 27 genera of the tribe have been recognized.

As a result of a long and very complicated history of nomenclature of Epilachnini and especially of Epilachna, Szawaryn et al. (2015) have not avoided nomenclatural mistakes. Three of four monophyletic groups formed by species of former Epilachna, received unnecessarily new names: Chazeauiana, Fuerschia, and Ryszardia.

Epilachna is now restricted to the New World species, therefore all (even old and forgotten) synonyms at genus and subgenus level based on the type species distributed in Old World, have to be removed from that synonymy and considered as valid names.

Consequently, Epilachna (Hypsa) Mulsant 1850 (type species, Epilachna nigrolimbata Thomson 1875), Epilachna (Cleta) Mulsant 1850 (type species, Epilachna ecklonii Mulsant 1850), Solanophila Weise 1898 (type species, Epilachna gibbosa Crotch 1874) Epilachna (Aparodentata) Wang and Cao 1993 (type species, Epilachna yongshanensis; Cao and Xiao 1984) and Epilachna (Umparodentata) Wang and Cao 1993 (type species, Epilachna paramagna Pang and Mao 1979) have been removed from synonymy of Epilachna Chevolat 1837. Then based on thorough examination of the literature (Mader 1941; Fürsch 1963, 1985, 1987, 1991; Wang and Cao 1993) and the material, the following new synonyms are proposed here: Cleta Mulsant 1850 (=Epilachna (Hypsa) Mulsant 1850; =Chazeauiana Tomaszewska and Szawaryn 2015); Solanophila Weise 1898 (=Fuerschia Tomaszewska and Szawaryn 2015); Umparodentata Wang and Cao 1993 (=Epilachna (Aparodentata) Wang and Cao 1993; =Ryszardia Tomaszewska and Szawaryn 2015).

Characteristics of the Tribe

Epilachnini is a primarily herbivorous group, well defined based on morphological characters of all developmental stages.

In adults, the mandibles lack mola and are provided with more than two apical teeth, the mentum is trapezoidal and widest at its base. Moreover, pubescent body and herbivorous habit significantly differentiate Epilachnini from other, mainly predaceous ladybirds.

Eggs of Epilachnini species are oblong, usually yellow in color. They differ from the eggs of other Coccinellidae by having distinct microsculpture on the surface of chorion.

Larvae of Epilachnini are easily distinguishable morphologically from other Coccinellidae by having dorsal and lateral surfaces of the body covered with branched processes, head with epicranial stem, frontal arms V- or U-shaped, frontoclypeal suture sometimes present, and mandibles multidentate apically and without mola (Śliński and Tomaszewska 2010).

Biology

Both, the larvae and the adult beetles of Epilachnini, feed on the surface of host plants, feeding on leaf tissue. In contrast to other
phytophagous beetles, for instance Chrysomelidae, Epilachnini do not swallow pieces of leaf fragments, but only scrape the soft tissue, masticate it and suck the juices (Howard 1941). The larvae of Epilachnini usually feed on the underside of the leaves of host plants, whereas the adult beetles feed on the upper surface.

Traditionally, it has been considered that Epilachnini mainly feed on plants belonging to the families Solanaceae and Cucurbitaceae. However, this applies mainly to the economically important species commonly encountered on crops such as Epilachna varivestis Mulsant or Henosepilachna vigintioctopunctata (Fabricius). Although still little is known about the host plants of this group of beetles, several recent papers expand our knowledge in this field (Park and Yoon 1991, Bayene et al. 2007, Zhang and Ou 2010), listing families Poaceae, Urticaceae, Convolvulaceae, and Fabaceae, and even Aristolochiaceae or Caryophyllaceae.

The eggs are deposited in clusters of 15–50, whereas in most other ladybirds they are deposited individually. Females lay eggs on the underside of the leaves of host plants. A single female lays hundreds of eggs in several clusters (Richards and Filewood 1988, Hossain et al. 2009). Incubation of eggs lasts from 4 (Henosepilachna vigintioctopunctata) to 14 days (Epilachna varivestis) (Richards and Filewood 1988, Hossain et al. 2009). The larval development in Epilachnini takes four instars, as in all Coccinellidae. The duration of the stages depends on the temperature, humidity and the host plant (Hossain et al. 2009, Akadeh and Shishehbor 2011). Moreover, also a part of the structure of leaf surface of host plants impacts on the development of larvae. For example, the first-instar larvae of Epilachna varivestis grow fastest on soybean plants with hairy leaves, while the third instar larvae grow fastest on the smooth leaves (Gannon and Bach 1996). Depending on the species, larval development lasts from 2 to 5 weeks. After this period, the larva pupates on the lower surface of a leaf of the host plant. Pupa remains in the molt of the final instar larval stage. An adult insect emerges from the pupa after about 1 week.

From the economic point of view, Epilachnini are among the most serious crop pests within beetles, causing significant damage to the agriculture around the world, similar to other groups of phytophagous beetles, such as Colorado beetles (Chrysomelidae) and weevils (Curculionidae). For example, Henosepilachna chrysomelina (Fabricius) causes a loss in crops of plants of the family Cucurbitaceae (melon, cucumber, and pumpkin) in Central Asia and also in Southern Europe. H. vigintioctopunctata (Fabricius) is known throughout the eastern parts of Asia and Australia and is a very serious pest of plants of the family Solanaceae (potato, tobacco, tomato, and aubergine). Chnootriba similis (Thunberg) is one of the most serious pests feeding on the crops of sorghum (Poaceae), in the southern regions of Africa. In turn, growing beans and peas (Fabaceae) in both Americas are threatened by Epilachna varivestis (Mulsant).

Distribution
Species of Epilachnini are distributed mainly in tropical and subtropical regions of the world with only few representatives in temperate zones (Gordon 1975). Neotropical fauna includes about 350, African about 400 and Asian approximately 300 species. Most species occur at the intersection of tropical forest ecosystems and mountain regions such as the Andes, the Himalayas or the region of the Great Rift Valley (Gordon 1975, Fürsch 1991). Among the world islands, only Madagascar (about 90 species) and New Guinea (about 40 species) have large number of endemic species of Epilachnini.

Objectives of the Current Project
Based on the phylogenetic study resulted from Szawaryn et al. (2015), the review of the currently recognized genera of Epilachnini is presented here based on extensive study of type and nontype material.

Materials and Methods
This study is based on approximately 6,000 adult specimens of nearly 250 species of all Epilachnini genera, examined during past 4 years. Species were examined, including available types. The studied material came from the following institutions:

ANIC—Australian National Insect Collection, CSIRO, Canberra, Australia;
BPBM—Bernice P. Bishop, Museum, Honolulu, USA;
SBM—Museum of Biology, Sun Yat-Sen University, Guangzhou, China;
CUMZ—University Museum of Zoology, Cambridge, United Kingdom;
DBET—Department of Biodiversity and Evolutionary Taxonomy, Wrocław University, Wrocław, Poland;
HFC—Helmut Fürsch Collection;
HNM—Hungarian Natural History Museum, Budapest, Hungary;
IBUNA—Instituto de Biologia, Universidad Nacional Autonoma de Mexico, Mexico;
ISNB—Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium;
JEB—Juan Enrique Barriga Tuño Collection, Curicó, Chile;
MIZ—Muzeum i Instytut Zoologii PAN, Warszawa, Poland;
MLPA—Universidad Nacional de La Plata, Museo de la Plata, La Plata, Argentina;
MNHN—Muséum National d’Histoire Naturelle, Paris, France;
MRAC—Musee Royal de l’Afrique Centrale, Tervuren, Belgium;
NMH—the Natural History Museum, London, United Kingdom;
NHMO—University of Oslo, Zoological Museum, Oslo, Norway;
NMB—Museum für Naturkunde, Berlin, Germany;
OXUM—Oxford University Museum, Oxford, United Kingdom;
SDEI—Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany;
TMNH—Transvaal Museum of Natural History, Pretoria, South Africa;
USNM—United States National Museum of Natural History, Washington D.C., USA;
UUZM—Uppsala Universitet, Museum of Evolution, Uppsala, Sweden;
ZMAM—Zoological Museum of Russian Academy of Sciences, Petersburg, Russia;
ZMUM—Zoological Museum of Lomonosov University, Moscow, Russia;
ZMUC—University of Copenhagen, Zoological Museum, Copenhagen, Denmark;
ZSMC—Zoologische Sammlung des Bayerischen Staates, München, Germany;

For detailed examination of morphological characters, at least one male and one female of each species represented by several specimens were completely cleared in 10% cold potassium hydroxide, disarticulated, and placed in glycerine slides for further study. In case species was represented by few specimens only, at least male and female genitalia were dissected and studied on slides.
structural illustrations were made from slide preparations using a camera lucida attached to an Olympus disecting microscope SZH 10 (www.olympus-global.com) or to a Zeiss Apamvial microscope (smaller structures) (www.microscopy-uk.org.uk).

Habitus photographs were produced using a digital camera mounted on a Leica microscope (www.leica-microsys.com) and subsequently enhanced using Auto-Montage software (Syncroscope, www.syncroscope.com) using a digital camera and enhanced using Automontage software, and the SEM photographs were made using HITACHI S-3400N microscope (www.hitachi.com), in the Electron Microscopy Laboratory at the MIZ.

The beetle morphology follows Lawrence et al. (2011) including use of Roman numerals for the body segments; specific terminology used in Coccinellidae follows Ślipiński (2007) and Ślipiński and Tomaszewska (2010).

Re-descriptions of the genera are arranged in the text according to their appearance in the key. In taxonomy section, the “species included” listed below each generic description, mean also species examined during our study. Proper taxonomic placement of the remaining (unstudied here) species, classified hitherto in each particular genus is left for further research. The type species of each genus is marked with asterisk (*).

### Taxonomy

#### Epilachnini Mulsant 1846

Epilachniens Mulsant 1846: 190. Type genus: *Epilachna* Chevrolat in Dejean 1837.

Chnootribaires Mulsant 1850: 697. Type genus: *Chnootribia* Chevrolat in Dejean 1837.

Cynegetides C.G. Thomson 1866: 374. Type genus: *Cynegetis* Chevrolat in Dejean 1837.

Subcoccinellini Jakobson 1915: 968. Type genus: *Subcoccinella* Agassiz and Ericson 1845.

Madaini Gordon 1975: 206. Type genus: *Mada* Mulsant 1850.

Epivertini Pang and Mao 1979: 158. Type genus: *Epiverta Dieke 1947."

Eremochlini Gordon and Vandenberg 1987: 6. Type genus: *Eremochilus* Weise 1912.

**Diagnosis.** According to phylogenetic analyses (Szawaryn et al. 2015), the tribe Epilachnini is strongly supported as monophyletic group embedded in the subfamily Coccinellinae sensu Ślipiński (2007). Morphological synapomorphies of the tribe include: the inner orbits of eyes emarginate antero-medially, closer near vertex than near mouthparts (except *Megatela*), mandible with multideterminate apex and without molar part, and labial prementum oval. Other characters which also distinguish this group from the remaining Coccinellidae, are: relatively big and densely pubescent bodies often bearing contrasting patterns of red, yellow, and black spots, the eye not emarginate in anterior view, the mentum widest at or near base and the elytral surfaces with double sized punctures (except *Subcoccinella*).

**Key to the Genera of Epilachnini**

1. New World taxa .................................................................2
   - Old World taxa .............................................................10
2. Body elongate; mouthparts directed posteriorly (Fig. 2D) with maxillary lacinia plate-like and concave mesally and mentum strongly reduced; tarsi 3-3-3; tarsal claws single with quadrate tooth at base (Fig. 2B) ..............................................*Eremochilus* Weise
   - Body oval; mouthparts normally developed; tarsi 4-4-4; tarsal claws double with or without basal tooth or angulation (Figs. 11B and 23B).................................................................3
3. Tarsal claws with basal tooth (Fig. 11B) or angulation........4
   - Tarsal claws smooth or weakly swollen at base (Fig. 23B).....6
4. Head without ventral antennal grooves; epipleural foveae absent; metaventral postcoxal lines joined on metaventral process in form of straight line without additional projections .........................................................*Adira* Gordon and Almeida
   - Head with ventral antennal grooves; epipleural foveae present; metaventral postcoxal lines joined on metaventral process in form of straight line usually with additional unisetose projections (Fig. 8D) ........................................................................5
5. Abdominal postcoxal lines recurved, with additional short postcoxal line sub-parallel to the hind margin of ventrite 1 (Fig. 8E); penis guide on inner edge with additional process (Fig. 9J); ventral antennal grooves long, extending beyond hind margin of eyes; labrum very short membranous anteriorly (Fig. 7B); coloration usually dark (sometimes with brown maculae) with metallic shine ........................................................................*Damatula* Mulsant
   - Abdominal postcoxal lines recurved, without additional short postcoxal line (Fig. 12A and E); penis guide on inner edge often without additional process (Fig. 12I); ventral antennal grooves short, extending to hind margin of eyes only; labrum short, normal (Fig. 10B); coloration from yellow to dark brown without metallic shine ........................................................................*Mada* Mulsant
6. Tarsal claws with inner teeth touching one another forming cor-date pattern (Fig. 14B); tibial spurs absent; terminal labial palpomere much narrower than penultimate one (Fig. 13G) .................................
   - Tarsal claws do not form cordate pattern (Fig. 17B); at least mid and hind tibial spurs present; terminal labial palpomere about as wide as penultimate one .................................................................7
7. Tibiae of the mid and hind legs with oblique carina near apex (Figs. 17C and 20C) ........................................................8
   - Tibiae of the mid and hind legs without oblique carina near apex (Figs. 23C and 26C) ......................................................9
8. Elytral epipleuron with foveae receiving tips of femora; meta- ventral postcoxal lines joined on metaventral process in form of strongly arcuate line (Fig. 17E); abdominal postcoxal lines parallel to posterior margin of ventrite 1 or V-shaped (Fig. 18A); spermatheca absent (Fig. 18D)...........................................................................*Pseudodira* Gordon
   - Elytral epipleuron without foveae; metaventral postcoxal lines joined on metaventral process in form of straight line (Fig. 20E); abdominal postcoxal lines recurved roundly or somewhat angu- lated (Fig. 21A and E); spermatheca present (Fig. 21K) .................................................................*Lorna* Gordon
9. Mandibular incisor edge multideterminate, its surfaces most often densely tuberculate (Fig. 22C and D); metaventral postcoxal lines descending and continuing as lateral bordering of metaventrite (Fig. 23E) (rarely descending and complete); fore tibia with single spur; abdominal postcoxal lines well developed (Fig. 24A and E); North, Central and South America *Epilachna* Chevrolat
   - Mandibular incisor edge smooth, its surfaces without tubercles (Fig. 25C and D); metaventral postcoxal lines recurved or straight, rarely descending, complete (Fig. 26D); fore tibia with single spur, two spurs or without spurs; abdominal postcoxal lines sometimes reduced and hardly visible (Fig. 26E); South America .....................................................*Toxotoma* Weise
10. Eyes with inner orbits closer anteriorly (near mouthparts) than near vertex (Fig. 28A); frons with distinct depression between eyes; head with dorsal antennal grooves (Fig. 28A); antennal scape very long (about 1/3 of total length of antenna) (Fig. 28E); mid and hind femora on inner edge in median part angulate produced posteriorly (Fig. 29E); Africa.......................... Megatela Weise
– Eyes with inner orbits closer posteriorly (near vertex) than near mouthparts (Fig. 31B); frons without depression between eyes; head without dorsal antennal grooves; antennal scape shorter (less than 1/3 of total length of antenna) (Fig. 31E); mid and hind femora on inner edge simple..............................................11

11. Tarsal claws double with inner teeth touching one another forming a cordate pattern (Fig. 32B); male genitalia with penis guide asymmetrical (Fig. 33J); Africa.............. Figura Ukrainsky
– Tarsal claws do not form cordate pattern; male genitalia with penis guide symmetrical.........................................................12

12. Prothoracic hypomeron coarsely punctured (Fig. 35D)...........13
– Prothoracic hypomeron simply/finely punctate (Fig. 47D) ......15

13. Ventral antennal grooves long and deep (Fig. 34A); prosternum in front of coxae longer than coxal longitudinal diameter at the same position (Fig. 35D); coxites deeply angulate emarginate on inner edge (Fig. 36K); Africa................................. Tropha Weise
– Ventral antennal grooves, if present, short, extending at most to hind margin of eyes and rather shallow (Figs. 37A and 40A); prosternum in front of coxae usually 0.5–1.0 times as long as coxal longitudinal diameter, sometimes even less than 0.5 times as long as coxal longitudinal diameter (Figs. 38A and 41D); coxites simple on inner edge (Figs. 39K and 42K) ................................................14

14. Mid and hind coxae with tubercles on their hind/inner margins (Fig. 38C); prosternal process with distinct lateral carinae (Fig. 38A); inner edge of metanepisternum serrate (Fig. 38D); Asia............................................ Uniparodentata Wang and Cao
– Mid and hind coxae without tubercles on their hind/inner margins; prosternal process sometimes with short, weak lateral carinae (Fig. 41D); inner edge of metanepisternum smooth; Africa........................................ Solanophila Weise

15. Antenna longer than width of head (including eyes); South and South-Eastern Asia.........................................................16
– Antennal length 0.5–1.0 times head width...................................17

16. Lateral margins of elytra widely explanate (Figs. 44A and 83E); metaventral and abdominal postcoxal lines absent (Fig. 44C and E) .............................................................. Epiverta Dieke
– Lateral margins of elytra not or hardly visible from above, sometimes narrowly explanate (Figs. 47A and 83A); metaventral and abdominal postcoxal lines present (Figs. 47E and 48A) .................................................. Afissa Dieke

17. Metaventral postcoxal lines joined or very close on metaventral process, forming somewhat w-shaped line in middle (Figs. 50C and 53C) .................................................18
– Metaventral postcoxal lines joined on metaventral process in form of straight or arcuate line (Fig. 56E), or sometimes lines widely separated (Fig. 62E) ..................................................19

18. Mandibular incisor edge with distinct denticles/teeth (Fig. 49C and D); female ventricle 6 completely (or almost) divided longitudinally (Fig. 51F); terminal basal piece with a pair of spines on inner margin near base of tegmental strut (Fig. 51I and J); parameres almost always ending with small internal teeth (Fig. 51I); styli present or sometimes reduced and hardly visible ........................................................................Hemosepilachna Li
– Mandibular incisor edge with weak microdentulation (Fig. 52C); female ventricle 6 not divided longitudinally (Fig. 54E); tegmental basal piece simple, without spines on inner margin near base of tegmental strut (Fig. 54I and J); parameres simple apically (Fig. 54I); styli absent.......................................................... Afidentula Dieke

19. Mid and hind tibiae with oblique carina near apex (Fig. 56C); tarsal claws single with large basal tooth (Fig. 59B) or double without basal tooth (Fig. 56B and 62B)..............................20
– Mid and hind tibiae without oblique carina near apex (Fig. 68C); tarsal claws double with (Fig. 77B) or without basal tooth (Fig. 68B); rarely apices of tibiae with oblique carina but then tarsal claws with large basal tooth (Fig. 74B) and apical labial palpmere much narrower than penultimate one (Fig. 75G).................................................................23

20. Tibial spurs absent; terminal labial palpmere much narrower than penultimate one (Fig. 55G); head with ventral antennal grooves short, extending to hind margin of eyes only (Fig. 55A); Africa................................................................. Merma Weise
– One spur on fore tibiae and two spurs on mid- and hind tibiae; terminal labial palpmere about as wide as penultimate one (Fig. 58G); ventral antennal grooves on head, if present, then long, extending beyond hind margin of eyes (Fig. 58A); Palaearctic and Oriental regions..............................21

21. Tarsal claw single with large basal tooth (Fig. 59B); ventral antennal grooves long (Fig. 58A); elytral epipleuron with foveae for apices of mid and hind femora (Fig. 59A); outer edges of front tibiae strongly expanded/inflated (Fig. 59E); Palaearctic region............................................................... Cynegetis Chevolot
– Tarsal claws bifid, lacking basal tooth (Figs. 62B and 65B); ventral antennal grooves absent (Figs. 61A and 64A); elytral epipleuron smooth without foveae; outer edges of front tibiae simple (Fig. 65D).................................................................22

22. Mandibular incisor edge smooth (Fig. 61C); metaventral postcoxal lines widely separated on metaventral process (Fig. 62E); metaventral process with coarse punctures (Fig. 62E); elytral surface dually punctate; styli absent; Oriental region: India ......................................................... Macrolasia Weise
– Mandibular incisor edge multidentate (Fig. 64C); metaventral postcoxal lines joined on metaventral process (Fig. 65E); metaventral process simply/finely punctate; elytral surface with single sized punctures; Palaearctic region.................................................................23

23. Metanepisternum with inner edge serrate; female genitalia with coxites much longer than wide (Fig. 69K); prosternal process most often with lateral carinae; Asia ......................................................... Diexena Tomaszewska and Szawaryn
– Metanepisternum with inner edge smooth; female genitalia with coxites short oval, less than 2 times as long as wide; prosternal process without lateral carinae.................................................24

24. Prementum subquadrate, ligula produced anteriorly forming sub-rectangular membranous projection (Fig. 70G); female ventrite 6 (serrate VIII) with basal/anterior margin roundedly projected anteriorly in middle (Fig. 72G); Africa, Madagascar ......................................................... Cleta Mulsant
– Prementum subtriangular or oval, ligula simple, not produced anteriorly (Fig. 79H); Female ventrite 6 (serrate VIII) with basal/anterior margin simply arcuate posteriorly (Fig. 78F) .........................................................25

25. Labial terminal palpmere distinctly narrower than penultimate one (at most 0.7× as wide as penultimate palpmere) (Fig. 73G); styli absent (Fig. 75K); Asia and Africa......................................................... Afidentula Kapur
– Labial terminal palpomere about as wide as penultimate one (Figs. 76G and 79H); styli distinct or reduced (Figs. 78J and 81K)

26. Female ventrite 6 (sternite VIII) completely or almost divided longitudinally at middle or appears to be divided (with longitudinal suture) (Fig. 78F); [ventral antennal grooves short or absent; abdominal postcoxal lines sometimes strongly reduced; sclerite anteriorly to coxites in membrane connecting paraprocts sometimes present]; Africa

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........................................................................................................Papuaepilachna Szawaryn and Tomaszewska

........................................................................................................Chevrolat

26. Female ventrite 6 (sternite VIII) not divided longitudinally (Fig. 81F); [ventral antennal grooves absent; abdominal postcoxal lines well developed; membrane connecting paraprocts anteriorly to coxites without sclerite]; Australian Region

........................................................................................................Eremochilus Weise 1912: 117. Type species: Eremochilus peregrinus Weise 1912 (by monotypy).—Jadwiszczak and Węgrzynowicz 2003: 208, Szawaryn et al. 2015: 561, 565.

Genera of Epilachnini

Eremochilus Weise 1912
(Figs. 1-3 and 82E)
Diagnosis. *Eremochilus* can be easily distinguished from all other Epilachnini by the long oval body, ventral antennal grooves long, circular, bent towards outer margin of eye, the mouthparts directed posteriorly with maxillary lacinia plate-like and concave mesally, mentum strongly reduced, and tarsal claws single with quadrate tooth at base.

Description. Length 3.5–4.0 mm. Body elongate (Figs. 2A and 82E), convex; dorsum with short pubescence. Elytra yellowish brown or black.

Head. Interocular distance 0.50–0.75 head width. Inner orbits not emarginate antero-medially. Gular sutures shorter than half length of gula. Antenna (Fig. 1E) composed of 10 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate; antennomeres 4–5 subquadrate; antennomeres 6 and 7 transverse; club symmetrical. Ventral antennal grooves long, circular bent towards outer margin of eye (Fig. 1A and G). Dorsal antennal grooves absent. Clypeus short, parallel-sided, anterior margin straight with week groove. Labrum (Figs. 1B and 2D) triangular, highly modified, with long sclerotized projection curved ventrally, setose laterally, glabrous at median part. Mandible (Figs. 1C–D and 2D) multidentate apically forming “chanel” at inner edge, lacking incisor edge, surfaces smooth, and prostheca reduced. Maxilla (Fig. 1F) with cardo transverse; stipes much longer than galea with suture between basistipes and mediostipes well visible; lacinia plate-like, concave mesally with mesial surface glabrous; galea oval, well developed, mostly sclerotized, bent inwardly, ventral surface glabrous; terminal palpomere weakly elongate with sides subparallel. Submentum with deep emargination and suture not clearly visible; mentum reduced or absent; prementum oval, ligula without setae; labial palps separated by distance distinctly less than width of palpiger; apical palpomere distinctly shorter and narrower than penultimate one (Fig. 1G).

Prothorax. Hypomeron finely punctate. Prosternal process (Fig. 2D and E) smooth, without carinae, weakly bordered laterally. Prosternum in front of coxa shorter than half of coxal longitudinal diameter, its anterior margin broadly and deeply arcuate (Fig. 2E). Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 2E) with anterior edge straight, anterior border entirely raised; mesoventral process smooth with lateral bordering; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins not visible from above. Epipleuron (Fig. 2A) incomplete apically, smooth; inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in weakly arculate line, laterally complete, and distinctly recurved.

Legs (Fig. 2A and C) slender with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and
mid trochanters simple without cavities for receiving tip of tibiae. Mid and hind coxa simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina (Fig. 2C). Tibial spurs absent. Tarsus 3-segmented; tarsal claws single with quadrate basal tooth (Fig. 2B).

Abdomen. Six ventrites in both sexes. Abdominal postcoxal lines (Fig. 3A) recurved roundly and complete laterally, without additional line. In female: apical margin of ventrite 5 rounded laterally and triangularly produced posteriorly at middle without additional line. In female: apical margin of ventrite 5 (Fig. 3D); tergite VIII rounded at apex (Fig. 3C). Proctiger (TX) longitudinally looking like divided but connected by membrane (Fig. 3D); tergite VIII rounded at apex (Fig. 3C). Proctiger (TX) rounded.

Male genitalia (Gordon and Vandenberg 1987: 7). Tegminal basal piece without spines. Penis guide entire at apex; outer edge smooth or setose; inner edge without additional process. Parameres well developed, simple apically. Penis base with reduced T-shaped capsule.

Female genitalia (Fig. 3B). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, subtriangular; outer edge of coxite free, inner edge straight or rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, nondivided; sperm duct and spermatheca absent.

Distribution. Bolivia, Brazil, Mexico.

Species included (examined). Eremochilus weisei Gordon and Vandenberg, E. peregrinus* Weise.

Comment. We were able to examine two of three known species of Eremochilus, as listed in Jadwiszczak and Węgryniewicz (2003).

Adira Gordon and de Almeida 1986 (Figs. 4–6 and 82A)

Epilachna (Dira) Mulsant 1850: 849 (nec Dira Hübner 1819: 60).

Type species: Coccinella obscuricornis Klug 1829 (by subsequent designation of Gordon 1975).

Adira Gordon and de Almeida 1986: 365 (replacement name for Dira Mulsant 1850).—Jadwiszczak and Węgryniewicz 2003: 13; Szawaryn et al. 2015: 559, 565.

Diagnosis. Among New World genera Adira is most similar to Mada and Damatula by body size and shape, and having tarsal claws double with basal tooth or distinct angulation. However, Adira can be separated from both these genera by head without ventral antennal grooves, elytral epipleura without foveae, and metaventral postcoxal lines joined on metaventral process in form of straight line lacking additional projections (often present in Mada and Damatula).

Description. Length 4.5–6.3 mm. Body oval (Figs. 5A and 82A), strongly convex, dorsum pubescent. Elytra orange-brown or brown with yellow and/or brown and/or black bordering.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 4A) at least as long as half length of gula. Antenna (Fig. 4E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate; antennomeres 4–8 weakly elongate, subquadrate or transverse; club asymmetrical. Ventral and dorsal antennal grooves absent (Fig. 4A). Clypeus short, parallel-sided, its anterior margin emarginate, smooth without groove. Labrum (Fig. 4B) transverse, two times broader than long, emarginate at apex. Mandible (Fig. 4C and D) multidentate apically; incisor edge multidentate, its surfaces smooth, prosthecæ well developed. Maxilla (Fig. 4F) with cardo semicircular; stipes much longer than galea, with suture between basistipes and mediostipes well visible; lacinia simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, ventral surface at least sparsely pubescent; terminal palpmere elongate, broadened apically or at least weakly elongate, parallel-sided, or weakly expanded apically. Submentum short, transverse, about four times broader than long with suture well visible; mentum (Fig. 4G) about two times broader than long, widest near base; prementum oval, ligula without setae; labial palps separated by distance distinctly less than width of palpgier; apical palpmere about as long and as broad as penultimate one (Fig. 4G), sometimes distinctly narrower than penultimate palpmere.

Prothorax. Hypomeron simply/finely punctate (Fig. 5D). Prosternal process (Fig. 5D) smooth, without carinae, bordered laterally. Prosternal process in front of coxa 0.5–1.0 times length of coxal longitudinal diameter, its anterior margin weakly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventral (Fig. 5E) with anterior edge weakly emarginate, anterior border entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metavesternal suture smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate, bordering laterally. Elytra dually punctate, bordering laterally.

Fig 3. Eremochilus sp. (A) Abdomen, female, ventral, (B) Female genitalia, (C) Abdominal tergite VII, female, ventral, and (D) Abdominal ventrite 6, female.
Legs (Fig. 5A and E) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters rounded produced, with cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora swollen, simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 5C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 5B) double with basal angulation.

Abdomen (Fig. 6A and F). Six ventrites in males and five in females. Abdominal postcoxal lines recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 weakly emarginate; ventrite 6 emarginate (Fig. 6B); tergite VIII rounded (Fig. 6C); apodeme of sternum IX simple, rod-like (Fig. 6G); tergite X subtriangular. In female: apical margin of ventrite 5 rounded with triangular projection at middle (Fig. 6F); sternite VIII (Fig. 6D) rounded apically, with simple arcuate basal margin, longitudinally at middle not divided but with visible suture; tergite VIII weakly rounded (Fig. 6E). Proctiger (TX) rounded (Fig. 6K).

Male genitalia (Fig. 6H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres or longer, entire at apex; outer edge smooth or sparsely setose; inner edge without additional process. Parameres well developed, simple and setose apically. Penis stout, weakly curved, T-shaped capsule reduced.

Female genitalia (Fig. 6K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, subtrapezoidal; outer edge of coxite free, inner edge simple, rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, nondivided, with common oviduct entering at base. Sperm duct originated apically on bursa copulatrix. Spermatheca with only nodulus developed.

Distribution. South America: Argentina, Bolivia, Brazil, Colombia, French Guiana, Panama, Paraguay, Peru, Uruguay.

Species included (examined). Adira clarkii (Crotch), A. gossypioides Gordon, A. mucula (Weise), A. obscurocincta* (Klug).

Fig. 4. Adira obscurocincta Klug. (A) Head, ventral view, (B) Labrum, (C) Mandible, dorsal view, (D) Mandible, ventral view, (E) Antenna, (F) Maxilla, and (G) Labium.
We studied four of nine known species, as listed in Jadwiszczak and Węgrzynowicz 2003.

Damatula Gordon 1975
(Figs. 7–9)

Damatula Gordon 1975: 236. Type species: Epilachna fairmairii Mulsant 1850 (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 194; Szawaryn et al. 2015: 559, 565.

Diagnosis. Among New World genera of Epilachnini, Damatula is most similar to Mada and Adira by body size and shape, and sharing tarsal claws double with basal tooth or distinct angulation. Damatula however, can be separated from both these genera by having short labrum, head with long ventral antennal grooves, extending beyond hind margin of eyes, abdominal postcoxal lines recurved roundly or angularly, and provided with additional short postcoxal line sub-parallel to the hind margin of ventrite 1, penis guide on inner edge with additional process and body coloration with metallic shine.

Description. Length 3.7–5.4 mm. Body oval (Fig. 8A), strongly convex, dorsum pubescent. Elytra usually black with metallic shine—bluish, greenish, or purplish, sometimes elytra brown with pale macula on disc of elytron.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Gular sutures at least as long as half length of gula. Antenna (Fig. 7E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate; antennomeres 4–8 subquadrate; club asymmetrical. Ventral antennal grooves long, straight, reaching distinctly behind eyes. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 7B) very short, broadly weakly emarginate. Mandible (Fig. 7C and D) multidentate apically; incisor edge without teeth, its surfaces smooth or provided with week tubercles, prostheca narrow. Maxilla (Fig. 7F) with cardo semicircular; stipes much longer than galea with suture between basistipes and mediostipes well visible; lacinia simple, its mesal surface simply setose; galea oval, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere (Fig. 7A and F) at least weakly elongate, expanded apically. Submentum transverse, about two times wider than long; mentum (Fig. 7G) at least two times broader than long, widest at base; prementum oval with emargination at anterior margin, ligula membranous expanded apically, with long setae at anterior margin; labial palps (Fig. 7G) separated by distance at least equal to width of palpiger; apical palpomere as long as and distinctly narrower than penultimate one.

Fig. 5. Adira obscurocincta Klug. (A) Body, ventral view, (B) Tarsal claws, (C) Mid tibia, (D) Head and prothorax, ventral view, and (E) Pro-, meso-, and metathorax, ventral.
Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 8D) smooth, without carinae, bordered laterally. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin continuing as nearly straight line. Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 8D and E) with anterior edge weakly emarginate, anterior border entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Elytra dually punctate; lateral margins of elytra narrow but entirely visible from above. Epipleuron (Fig. 8A) incomplete apically, with foveae for receiving tips of femora, its inner margin with bordering line extending at most to level of mid coxa. Metaventral postcoxal lines joined on metaventral process in straight line with two widely separated, rounded, unisetose projections (Fig. 8E), laterally complete, and recurved or straight.

Legs (Fig. 8A) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly or angulately produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 8C). Tibiae without distinct spurs. Tarsal claws double with distinct basal angulation (Fig. 8B).

Abdomen. Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines recurved angulately and incomplete, with additional line parallel to hind margin of ventrite. In male: apical margin of ventrite 5 (Fig. 9A) truncate or emarginate medially; ventrite 6 (Fig. 9F) emarginate or notched medially at apex; tergite VIII (Fig. 9G) rounded or weakly emarginate; apodeme

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![Figure 6](image_url)

**Fig. 6.** *Adira obscurocincta* Klug. (A) abdomen, male, ventral, (B) Abdominal ventrite 6, male, (C) Abdominal tergite VIII, male, ventral, (D) Abdominal sternite VIII, female, ventral, (E) Abdominal tergite VIII, female, ventral. (F) Abdomen, female, ventral, (G) Male genital segment, (H) Penis, (I) Tegmen, ventral view as placed in abdomen, (J) Tegmen, its inner view, and (K) Female genitalia.
of sternum IX simple, rod-like (Fig. 9D); tergite X subtriangular. In female: apical margin of ventrite 5 (Fig. 9E) weakly truncate; ventrite 6 (Fig. 9B) rounded, with simple arcuate basal margin, medially with longitudinal suture; tergite VIII rounded at apex (Fig. 9C). Proctiger (TX) transverse, truncate apically.

Male genitalia (Fig. 9H–J). Tegminal basal piece without spines. Penis guide symmetrical, shorter or as long as parameres, at apex bent, entire; outer edge smooth or at most setose; inner edge with additional process. Parameres well developed, simple apically. Penis simple, rod-like, slightly curved apically, with T-shaped capsule reduced.

Female genitalia (Fig. 9K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, oval with anterolateral projection; outer edge of coxite free, inner edge simple—rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, non-divided with common oviduct entering apically or ventrally. Sperm duct originated apically on bursa copulatrix.

Distribution. South and Central America: Colombia, Brazil, Panama.
Species included (examined). Damatula carnegiana Grodon, D. colombiana Gordon Damatula fairmairii* (Mulsant), D. porioides (Weise), D. schwarzi Gordon, D. yurimagi Gordon.

Comment. We examined six of nine known species of Damatula, as listed in Jadwiszczak and Węgrynowicz (2003).

Mada Mulsant 1850
(Figs. 10–12 and 82F)

Epilachna (Mada) Mulsant 1850: 858. Type species, Epilachna fraterna Mulsant 1850 (by subsequent designation of Korschefsky 1931).

Mada: Korschefsky 1931: 68.—Gordon 1975: 217, Jadwiszczak and Węgrynowicz 2003: 197, Szawaryn et al. 2015: 559, 565.

Ladoria Mulsant 1850: 928. Type species, Ladoria desarmata Mulsant 1850 (by monotypy). Synonymized by Gordon 1975: 217.

Diagnosis. According to the phylogenetic analysis (Szawaryn et al. 2015), Mada does not constitute a monophyletic group but we were not able to resolve its status due to the limited material available for study. Among the New World genera, Mada is most similar to Adira and Damatula by the body size and shape, and the double tarsal claws with basal tooth or distinct angulation. However, it can be separated from Adira by having head with ventral antennal grooves, elytral epipleura with foveae and metaventral postcoxal lines joined at metaventral process in form of straight line. Abdominal postcoxal lines recurved roundly or angulately but without additional short postcoxal line, penis guide on inner edge without additional process, ventral antennal grooves short, extending to hind margin of eyes only, and body coloration without metallic shine distinguish Mada from Damatula.

Description. Length 3.25–5.75 mm. Body (Figs. 11A and 82F) round oval to elongate oval, convex, pubescent, variably colored. Head. Inner orbits emarginate antero-medially, closest posteriorly. Gular sutures shorter than half length of gula or at least as long as half length of gula. Antenna (Fig. 10E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 6 and 7 very short, transverse or subquadrate; two subterminal segments asymmetrical. Ventral antennal grooves short, straight, along inner margin of eye only; dorsal antennal grooves absent. Clypeus (Fig. 10A) parallel-sided, anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 10B) short, weakly emarginate, covered with long setae anteriorly. Mandible (Fig. 10C and D) multideterminate apically; incisor edge multideterminate or without teeth, its surfaces smooth, prostheca well developed, setose. Maxilla (Figs. 10F and 11D) with cardo subquadrate reaching at most slightly outside of mouth cavity; maxillary stipes much longer than galea, with suture between basistipes and
mediostipes at least partly well visible; lacinia simple, its mesal surface simply setose; galea, as long as wide or weakly elongate, mostly sclerotized, its ventral surface at least sparsely pubescent; terminal palpmere elongate, broadened apically. Mentum (Figs. 10G and 11D) transverse, less or more than two times broader than long, widest near base, or sides subparallel; prementum oval, ligula shortly setose, or without setae; labial palps (Fig. 10G) separated by distance distinctly less than width of palpiger; apical palpmere as long as or longer and distinctly narrower than penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 11E) smooth, without carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin continuing as straight or arcuate line (Fig. 11D). Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 11E) with intercoxal process smooth. Inner edge of metanepesternum smooth. Scutellum triangular, at least as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins rather narrow but entirely visible from above. Epipleuron (Fig. 11A) with foveae for receiving tips of femora, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in straight line (Fig. 11E), often with two widely separated, rounded, setose projections, laterally complete, and recurved.

Legs rather stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron (Fig. 11A). Fore and mid trochanters roundly or angulately produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 11C). Tibial spurs: 1-2-2, or spurs absent. Tarsal claws double with large basal tooth (Fig. 11B) or with basal angulation.
Abdomen. Six ventrites in males and five ventrites in females. Abdominal postcoxal lines (Fig. 12A and E) recurved roundly or angulately but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 12A), rounded or feebly emarginate; ventrite 6 truncate, emarginate or notched medially (Fig. 12B); tergite VIII rounded or emarginate apically (Fig. 12C); apodeme of sternum IX narrow, rod-like (Fig. 12D). Tergite X (Fig. 12D) rounded or truncate. In female: apical margin of ventrite 5 triangularly produced medially or weakly rounded (Fig. 12E); ventrite 6 (Fig. 12F) rounded apically with arcuate basal margin, longitudinally at middle looking like divided but connected by membrane; tergite VIII rounded (Fig. 12G). Proctiger (TX) with posterior margin simple, rounded or truncate (Fig. 12K) to weakly emarginate.

Male genitalia (Fig. 12H–J). Tegmental basal piece without spines. Penis guide symmetrical, slightly longer or shorter than parameres, entire and pointed at apex, often curved outwardly apically; outer edge smooth; inner edge without additional process. Parameres well developed, simple apically. Penis moderately long and stout, distinctively curved near base, with reduced arms of basal capsule.

Female genitalia (Fig. 12K). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites distinctly less than two

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**Fig. 10.** *Mada inepta* (Gorham). (A) Head, dorsal view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
times longer than wide, oval; outer edge of coxite free, inner edge simple—straight, rounded, or weakly emarginate, ventral surface smooth. Styli distinct. Bursa copulatrix without sclerite. Sperm duct originated dorsally or apically on bursa copulatrix. Spermatheca without nodulus and ramus or sometimes only nodulus present.

**Distribution.** Central and South America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, French Guiana, Mexico, Panama, Paraguay, Peru, Venezuela.

**Species included (examined):** Mada amydra Gordon, M. andeana Szawaryn, M. circumducta (Mulsant), M. circumflua (Mulsant), M. inepta (Gorham), M. lineatopunctata (Germar), M. nexophallus Gordon, M. polluta (Mulsant), M. synemia Gordon, M. virgata (Mulsant).

**Comment.** We agree with Gordon (1975) that Mada is not a homogeneous genus thorough taxonomic revision is needed to resolve a status of the species presently included in that genus. Currently Mada contains 43 described species (Szawaryn 2015a).

Malata Gordon 1975
(Figs. 13–15)

*Malata* Gordon 1975: 213. Type species: *Epilachna mitis* Mulsant 1850 (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 204, Szawaryn et al. 2015: 558, 565.

**Diagnosis.** This genus resembles African genus *Figura* in having tarsal claws with the inner teeth touching one another and forming a cordate pattern. However, Malata can be distinguished from *Figura* by the mid and hind tibiae with oblique carina near apex, penis guide symmetrical, female genitalia with sperm duct, spermatheca and accessory gland present, and the coxites laterally not fused with paraprocts.

**Description.** Length 3.5–5.0 mm. Body oval (Fig. 14A), convex, dorsum pubescent. Elytra usually black or brown with lateral margin orange or reddish-brown, sometimes with two large yellow or piceous maculae covering most of the elytral surface.

*Head* (Fig. 13A). Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures about as long as half length of gula or shorter. Antenna (Fig. 13E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 about four times longer than broad; antennomeres 4–8 subquadrate or weakly elongate; club asymmetrical. Ventral antennal grooves long, straight, reaching distinctly beyond eyes; dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin straight, smooth without groove. Labrum (Fig. 13B) narrow, transverse, weakly emarginate. Mandible (Fig. 13C and D) multidentate apically; incisor edge without teeth, surfaces smooth, prosthica well developed. Maxilla (Fig. 13F) with cardo semicircular; maxillary stipes much longer than galea, with suture between basistipes and
mediostipes partly visible; lacinia simple, its mesal surface simply setose; galea oval, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse, about three times wider than long; mentum (Fig. 13G) at least two times broader than long, widest near base; prementum oval with emargination at apex, ligula shortly setose; labial palps (Fig. 13G) separated by distance about width of palpiger; apical palpomere distinctly shorter and narrower than penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 14D) smooth, without carinae, bordered laterally. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, anterior margin uniformly arcuate (Fig. 14D). Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 14D-E) with anterior edge weakly emarginate, anterior border entirely raised; mesoventral process smooth; meso-metaventral suture straight or sinuate. Inner edge of metanepisternum smooth. Scutellum triangular, transverse. Elytra dually punctate, lateral margins at least narrow but entirely visible from above. Epipleuron (Fig. 14A) incomplete apically, with foveae for receiving tips of femora, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in weakly arcuate line, laterally complete, and distinctly recurved. Legs (Fig. 14A) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters angulately produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 14.C). Tibiae without distinct spurs. Tarsal claws (Fig. 14B) double, weakly swollen at base, with inner claws broad, touching each other, forming heart shaped pattern.

Abdomen (Fig. 15A and E). Five ventrites in both sexes. Abdominal postcoxal lines recurved rounded but incomplete laterally, without additional line. In male: apical margin of ventrite 5 rounded (Fig. 15A); sternite VIII (Fig. 15B) narrowly but deeply emarginate; tergite VIII rounded (Fig. 15C); apodeme of sternum IX long, rod-like, simple (Fig. 15D). Tergite X transverse, rounded
apically. In female: apical margin of ventrite 5 (Fig. 15E) rounded apically; sternite VIII (Fig. 15F) rounded at apex and rounded at basal margin, longitudinally at middle not divided; tergite VIII (Fig. 15G) rounded. Proctiger (TX) membranous at basal part, sclerotized at apical part and rounded at apex.

**Male genitalia** (Fig. 15H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres, at apex entire; outer edge simple or with small, sharp tooth near apex; inner edge without additional process. Parameres well developed, simple apically, shortly pubescent in apical part. Penis rod-like, curved, simple with T-shaped capsule at base.

**Female genitalia** (Fig. 15K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, transversely oval; outer edge of coxite free, inner edge simple—rounded, ventral surface. Styli strongly reduced and hardly visible. Bursa copulatrix without sclerite, divided apically in two parts, dorsal part ending with common oviduct and ventral part ending with spermatheca. Sperm duct originated apically on bursa copulatrix.

**Distribution.** Central America: Costa Rica, Guatemala, Mexico, El Salvador.

**Species included (examined).** *Malata apatela* Gordon, *M. burgdorfi* Gordon, *M. delphinae* (Gorham), *M. diekei* Gordon, *M. mitis* (Mulsant).

**Comment.** We examined five of six species of *Malata* as listed in the catalogue of Jadwiszczak and Węgrzynowicz (2003).

**Pseudodira Gordon 1975** (Figs. 16–18 and 82I)

*Pseudodira Gordon 1975: 207. Type species: *Pseudodira clypealis* Gordon 1975 (by original designation).—Gordon and de Almeida 1986: 373, Jadwiszczak and Węgrzynowicz 2003: 207, Szawaryn et al. 2015: 557, 566, Szawaryn 2015b: 204 (redescription).

**Diagnosis.** *Pseudodira* is easily distinguished by having metaventral postcoxal lines joined on metaventral process in form of
strongly arcuate line and abdominal postcoxal lines only parallel to posterior margin of ventrite 1 or distinctly V-shaped.

**Description.** Length 5.8–7.5 mm. Body oval (Fig. 17A and 82I), strongly convex, dorsum pubescent. Elytra chestnut brown or black with greenish sheen.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 16A) shorter than half length of gula. Antenna (Fig. 16E) composed of 10 or 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 4–7 very short, subquadrate or transverse; club asymmetrical. Ventral antennal grooves (Fig. 16A) short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided, short, its anterior margin emarginate, smooth without groove. Labrum (Fig. 16B) moderately broad, transverse, anterior margin emarginate. Mandible (Fig. 16C–D) multidentate apically; incisor edge somewhat roundly produced inwards, multidentate, its surfaces smooth without tubercles, prosthca well developed. Maxilla (Fig. 16F) with cardo semicircular; maxillary stipes much longer than galea, its surface smooth without tubercles; mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, its ventral surface at least sparsely pubescent; terminal palpomere secundiform. Submentum transverse, about two times broader than long, with suture visible; mentum (Fig. 16G) less than two times broader than long, widest in middle part; prementum oval, ligula without setae; labial palps (Fig. 16G) separated by distance distinctly less than width of palpiger; apical palpomere distinctly shorter and about as broad as penultimate one.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 17D–E) without lateral carinae, sometimes with weak tubercle at apex. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin uniformly arcuate (Fig. 17G). Procoxal cavity with bordering line connecting laterally with anterior prosternal bordering line.

**Pterothorax.** Mesoventrite (Fig. 17E) with anterior edge slightly emarginate, anterior margin entirely raised; mesoventral process smooth or with tubercule; meso-metaventral suture emarginate. Inner edge of metanepisternum smooth. Scutellum triangular, about as long as broad. Elytra dually punctate, lateral margins narrow but entirely visible from above. Epipleuron (Fig. 17A) incomplete apically, with foveae for receiving tips of femora, its inner margin with bordering line nearly complete, fading before base of elytron. Anterior margin of metaventrite emarginate and distinctly bordered, border with distinct incisions in the anterior angles between the mid coxae. Metaventral postcoxal lines joined on metaventral process in strongly arcuate line (Fig. 17E), laterally complete and recurved.

**Legs** (Fig. 17A and D) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters angulately produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 17C). Tibial spurs: 1–2–2. Tarsal claws (Fig. 17B) double, swollen at base.

**Abdomen** (Fig. 18A). Five ventrites in females. Abdominal postcoxal lines (Fig. 18A) parallel to posterior margin of ventrite 1 or V-shaped, incomplete, without additional line; sternite VIII (Fig. 18C) emarginate at apex, with simple, arcuate basal margin, longitudinally at middle not divided; tergite VIII rounded (Fig. 18B). Proctiger (TX) truncate apically.

**Female genitalia** (Fig. 18D). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than

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Fig. 14. *Malata mitis* (Mulsant). (A) Body, ventral view; (B) Tarsal claws; (C) Mid leg; (D) Prosternum and mesoventrite; (E) Meso- and metathorax, and abdominal ventrite 1.
two times longer than wide, oval; outer edge of coxite free, inner edge rounded, ventral surface smooth. Styli present or absent. Bursa coplatrix without sclerite, simple, nondivided, ending with common oviduct. Sperm duct and spermatheca absent. Male genitalia not studied (Gordon and de Almeida 1986).

**Distribution.** South America: Brazil, French Guinana, Peru.

**Species included (studied).** *Pseudodira amazona* Szawaryn, *P. carmelitana* (Mulsant), *P. clypealis* Gordon.

**Comment.** We studied all known species (according to the revision of the genus by Szawaryn 2015b).

**Lorma** Gordon 1975
(Figs. 19–21)

**Lorma** Gordon 1975: 207. Type species: *Lorma haliki* Gordon 1975 (by original designation)—Jadwiszczak and Węgrzynowicz 2003: 195, Szawaryn et al. 2015: 560, 565.

**Diagnosis.** *Lorma* is similar to *Pseudodira* in having tarsal claws double, smooth or swollen at base, mid and hind tibiae with oblique carina near their apices, apical tibial spurs present, gular sutures shorter than half length of gula and ventral antennal grooves short, extending along inner margin of eye only. *Lorma* however can be separated from *Pseudodira* by having metaventral postcoxal lines joined on metaventral process in form of straight or weakly arcuate line (strongly arcuate in *Pseudodira*), elytral epipleuron smooth without cavities for receiving tips of femora (cavities present in *Pseudodira*) and abdominal postcoxal lines recurved roundly (lines parallel to posterior margin of ventrite 1 or V-shaped in *Pseudodira*).

**Description.** Length 3.5–5.4 mm. Body oval (Fig. 20A), convex, dorsum pubescent. Elytra brown to black often with pale lateral margin and elytral suture, sometimes elytra with yellow spots.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures shorter than half length of gula. Antenna (Fig. 19E)
composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate, antennomeres 4–8 slightly elongate or subquadrate; club asymmetrical. Ventral antennal grooves (Fig. 19A) short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided; its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 19B) transverse, rounded at apex with apical part membranous. Mandible (Fig. 19C and D) multidentate apically; incisor edge multidentate, its surfaces smooth, prostheca well developed. Maxilla (Fig. 19A and 19F) with cardo quadrate to weakly transverse reaching at most slightly outside of mouth cavity; maxillary stipes much longer than galea, with suture between basistipes and mediostipes well visible; lacinia simple, its mesal surface simply setose; galea oval, as long as wide or weakly elongate, mostly sclerotized, its ventral surface at least sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum short, transverse, suture weakly visible; mentum (Fig. 19G) less than two times broader than long, widest at base; prementum oval, ligula shortly setose; labial palps (Fig. 19G) separated by distance distinctly less than width of palpiger; apical palpomere as long or longer and about as broad as penultimate palpomere.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 20D) smooth, without carinae, bordered laterally. Prosternum in front of coxa shorter than half length of coxal longitudinal diameter, anterior margin uniformly weakly arcuate. Procoxal cavity with bordering line reaching laterally notosternal suture.

Pterothorax. Mesoventricle (Fig. 20E) with anterior edge emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture weakly emarginate. Inner margin of metavesternum smooth. Scutellum triangular, at least as long as broad. Elytra dually punctate, lateral margins rather narrow but entirely visible from above. Epipleuron (Fig. 20A) incomplete apically, smooth, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in straight or weakly arcuate line, laterally complete and distinctly recurved or straight.

Legs (Fig. 20A) stout with apices of mid and hind femora not protruding from outer margin of epipleuron. Fore and mid

Fig. 16. *Pseudodira clypealis* Gordon. (A) Head, ventral view; (B) Labrum; (C) Mandible, ventral view; (D) Mandible, dorsal view; (E) Antenna; (F) Maxilla; (G) Labium.
trochanters roundly or angulately produced with weak cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 20C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 20B) double, swollen at base.

**Abdomen (Fig. 21A and E).** Six ventrites in males and five ventrites in females. Abdominal postcoxal lines recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 21A); ventrite 6 emarginate (Fig. 21B); tergite VIII rounded (Fig. 21C); apodeme of sternum IX rod-like (Fig. 21D). Tergite X rounded. In female: apical margin of ventrite 5 gently
rounded (Fig. 21E); sternite VIII (Fig. 21F) emarginate at apex, with simple, arcuate basal margin, longitudinally at middle not divided; tergite VIII (Fig. 21G) rounded at apex. Proctiger (TX) rounded.

**Male genitalia** (Fig. 21H–J). Tegminal basal piece without spines. Penis guide symmetrical, slightly longer than parameres, at apex entire and pointed; outer edge smooth, inner edge without additional process. Parameres well developed, simple apically. Penis long, rod-like with reduced arms of basal capsule.

**Female genitalia** (Fig. 21K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, long oval; outer edge of coxite free, inner edge simple—rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, not divided, with common oviduct at apex. Sperm duct originated at dorsal side of bursa copulatrix.

**Distribution.** Central and South America: Bolivia, Brazil, Columbia, Costa Rica, Panama, Peru.

**Species included (examined).** *L. haliki* Gordon, *L. imitator* Gordon, *L. sopita* Gordon, *L. paprzycki* Gordon, *L. specca* Gordon, *L. nevermanni* Gordon, *L. batesii* (Crotch).

**Comment.** We were able to study seven of 11 species of *Lorma*, according to Jadwiszczak and Węgrzynowicz (2003). As Gordon (1975) already mentioned, *Lorma batesii* (Crotch) does not fit well into any of the known genera due to its larger size and different structure of male genitalia. It is tentatively retained in *Lorma* pending further research.

*Epilachna* Chevrolat 1837

(Figs. 22–24 and 82D)

*Epilachna* Chevrolat in Dejean 1837: 460. Type species, *Coccinella borealis* Fabricius 1775 (by subsequent designation of Hope 1840).—*Epilachna* sensu stricto Szawaryn et al. 2015: 561.

**Diagnosis.** *Epilachna* is closely related and morphologically most similar to *Toxotoma*. Apart from the similar body size and shape, both New World genera, share tarsal claws double smooth at base and mid, and hind tibiae without oblique carinae near their apices. *Epilachna*, however can be separated from *Toxotoma* by having...
mandibular incisor edge multidentate with its surfaces most often tuberculate, metaventral postcoxal lines descending and continuing as lateral bordering of metaventrite (rarely descending and complete), fore tibia with single spur and abdominal postcoxal lines always well developed.

**Description.** Length 7.0–12.0 mm. Body (Fig. 23A and 82D) round oval to weakly elongate oval, strongly convex, pubescent. Variable in coloration.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Gular sutures (Fig. 22A) at least as long as half length of gula. Antenna (Fig. 22E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 6 and 7 quadrate or weakly elongate; two subterminal antennomeres asymmetrical. Ventral and dorsal antennal grooves absent (Fig. 22A). Clypeus parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 22B) transverse, weakly emarginate at apex with apical part membranous. Mandible (Fig. 22C–D) multidentate apically; incisor edge multidentate, its surfaces densely tuberculate, rarely smooth. Maxilla (Fig. 22F) with cardo quadrate to weakly transverse reaching at most slightly outside of mouth cavity; maxillary stipes much longer than galea, in form of single sclerite with at most weak trace of suture visible, rarely with suture between basistipes and mediostipes; terminal palpomere elongate, broadened apically or sometimes distinctly secundiform. Mentum (Fig. 22G) usually less than two times broader than long, rarely more than two times broader than long, widest near base; prementum oval, ligula shortly setose or sometimes covered with long setae; labial palps (Fig. 22G) separated by distance distinctly less than width of palpiger; apical palpomere at least as long and as broad as penultimate one.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 23D) smooth, without carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin continuing as arcuate line. Procoxal cavity with bordering line, reaching laterally notosternal suture, rarely without visible bordering line.

**Pterothorax.** Metaventrite with anterior edge emarginate (Fig. 23D), anterior margin entirely raised; mesoventral process (Fig. 23E) smooth; meso-metaventral suture straight or weakly emarginate. Inner margin of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins narrow or moderately broad, entirely visible from above, sometimes distinctly explanate in basal half. Epipleuron (Fig. 23A) smooth, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 23E) joined on metaventral process in straight or weakly arcuate line, laterally descending and continuing as lateral bordering of metaventrite or postcoxal lines rarely descending and complete.

**Legs** (Fig. 23A) rather stout with apices of mid and hind femora not protruding from outer margin of epipleuron. Fore and mid trochanters roundly or angulately produced, with weak cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge without carina (Fig. 23C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 23B) double, smooth at base.

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**Fig. 20.** *Lorma imitator* Gordon. (A) Body, ventral view; (B) Tarsal claws; (C) Mid tibia, apex; (D) Prosternum; (E) Meso-metaventral junction.
Abdomen (Fig. 24A and E). Six ventrites in males and five ventrites in females. Abdominal postcoxal lines recurved roundly but incomplete laterally or rarely complete, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 24A); ventrite 6 emarginate (Fig. 24B); tergite VIII (Fig. 24C) truncate or emarginate apically, sometimes rounded; apodeme of sternum IX rod-like (Fig. 24D). Tergite X rounded or truncate. In female: apical margin of ventrite 5 (Fig. 24E) somewhat triangularly produced medially; sternite VIII (Fig. 24F) narrowly emarginate or truncate at apex, with simple, arcuate basal margin, longitudinally at middle not divided or looking like divided but connected by membrane; tergite VIII (Fig. 24G) rounded, truncate or emarginate at apex. Proctiger (TX) with posterior margin rounded or truncate to weakly emarginate.

Male genitalia (Fig. 24H–J). Tegmental basal piece without spines. Penis guide symmetrical, slightly longer or shorter than parameres, at apex entire and pointed; outer edge smooth; inner edge without additional process. Parameres well developed, simple apically. Penis long, curved at base then straight and sometimes curved in opposite side near apex (resembling question mark in shape), basal capsule with arms reduced.

Female genitalia (Fig. 24K). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites distinctly less than two times longer than wide, oval; outer edge of coxite free, inner edge simple—straight, rounded, or weakly emarginate, ventral surface smooth. Styli distinct or sometimes strongly reduced and hardly visible. Bursa copulatrix without sclerite, divided in two parts, dorsal ending with common oviduct and ventral ending with sperm duct and spermatheca; sperm duct originated sometimes dorsally on bursa copulatrix.

Distribution. North, Central and South America: Argentina, Belize, Bolivia, Brazil, Chile, Ecuador, Guiana, French Guiana, Guatemala, Honduras, Colombia, Costa Rica, Mexico, Nicaragua,
Panama, Paraguay, Peru, United States of America, Salvador, Surinam, Uruguay, Venezuela.

Species included (examined): *Epilachna borealis* Chevrolat, *E. boraustralis* Gordon, *E. cacica* (Guérin-Méneville), *E. extrema* Crotch, *E. mexicana* (Guérin-Méneville), *E. mutabilis* Crotch, *E. nigrocincta* Mulsant, *E. olivacea* Mulsant, *E. praecipua* Gordon, *E. tumida* Gorham.

Comment. Studied species belonged to eight species groups of 34 groups recognized by Gordon (1975)—*Epilachna borealis* group, *E. axillaris* group, *E. mutabilis* group, *E. mexicana* group, *E. plagiata* group, *E. nigrocincta* group, *E. olivacea* group, and *E. cacica* group. It is probable that all remaining species from these groups will belong to *Epilachna*.

Toxotoma Weise 1900
(Figs. 25–27 and 83G)

Toxotoma Weise 1900a: 257. Type species: *Epilachna venusta* Erichson 1847 (by original designation).—Gordon 1975: 18, Szawaryn et al. 2015: 554, 561, 566. *Epilachna* Chevrolat in Dejean 1837 (in part).—Szawaryn et al. 2015: 554, 561, 566.

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Fig. 22. *Epilachna borealis* (Fabricius). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
Diagnosis. Among New World Epilachnini, Toxotoma is most similar to Epilachna by body size and shape, sharing the following combination of characters: tarsal claws double, smooth at base, and mid, and hind tibiae without oblique carina near their apices. Toxotoma can be separated from Epilachna by having mandibular incisor edge smooth with its surfaces lacking tubercles, the metaventral postcoxal lines recurved or straight, or rarely descending and always complete, and abdominal postcoxal lines sometimes reduced and hardly visible.

Description. Length 5.0–13.5 mm. Body (Fig. 26A and 83G) oval to elongate oval, strongly convex, pubescent, most often black with elytra covered with yellow or orange spots, bands or stripes.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Gular sutures (Fig. 25A) at least as long as half length of gula. Antenna (Fig. 25E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 6 quadrate or weakly elongate, sometimes very short, transverse or rarely at least 1.5 longer than broad; antennomere 7 very short, transverse or sometimes subquadrate; two subterminal antennomeres asymmetrical. Ventral antennal grooves absent (Fig. 25A), rarely present short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin smooth without groove, straight or weakly emarginate. Labrum (Fig. 25B) transverse, weakly emarginate at apex with apical part membranous. Mandible (Fig. 25C and D) multidentate apically; incisor edge without teeth, its surfaces smooth. Maxilla (Fig. 25F) with cardo subquadrate reaching at most slightly outside of mouth cavity; maxillary stipes much longer than galea, suture between basistipes, and medistipes at least partly well visible; lacinia simple, its mesal surface simply setose; galea about as long as wide or rarely transversely oval, mostly slerotized, its ventral surface at least sparsely pubescent; terminal palpmere variable, distinctly secuiiform, or at least weakly elongate, parallel-sided to weakly expanded apically, or elongate and broadened apically. Mentum (Fig. 15G) less than two times broader than long, widest near base; prementum oval, ligula shortly setose or sometimes covered with long setae; labial palps (Fig. 25G) separated by distance distinctly less than width of palpiger; apical palpomere at least as long and about as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 26D) smooth, without carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin arcuate or triangularly produced anteriorly at middle. Procoxal cavity with bordering line, reaching laterally notosternal suture or without visible bordering line.

Pterothorax. Mesoventral process (Fig. 26D) smooth, without carinate. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin arcuate or triangularly produced anteriorly at middle. Procoxal cavity with bordering line, reaching laterally notosternal suture or without visible bordering line.
above, sometimes distinctly explanate in basal half. Epipleuron (Fig. 26A) smooth, inner margin with bordering line nearly complete, fading before base of elytron or sometimes extending at most to level of mid coxa. Metaventral postcoxal lines (Fig. 26D) joined on metaventral process in straight or weakly arcuate line, laterally complete, and distinctly recurved or straight, rarely descending.

Legs (Fig. 26A and E) slender or moderately stout with apices of mid and hind femora often protruding from outer margin of epipleuron. Fore and mid trochanters simple, sometimes roundly or angulately produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge without carina (Fig. 26C). Tibial spurs: 0/1/2-2-2. Tarsal claws (Fig. 26B) double, smooth at base.

*Abdomen* (Figs. 26A, 27A and E). Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines recurved roundly, complete or incomplete laterally, without additional line, sometimes abdominal postcoxal lines reduced and hardly visible. In male: apical margin of ventrite 5 truncate to weakly emarginate (Fig. 27A); ventrite 6 emarginate (Fig. 27B); tergite VIII rounded, truncate or emarginate apically, sometimes distinctly excised medially at apex (Fig. 27C); apodeme of sternum IX rod-like (Fig. 27D). Tergite X rounded or truncate. In female: apical margin of ventrite 5 triangularly produced medially, subtruncate or narrowly emarginate (Fig. 27E); ventrite 6 narrowly emarginate or truncate at apex, sometimes excised with (Fig. 27F) or without additional median projection, basal margin arcuate, longitudinally at middle not divided or looking like divided but connected by membrane, rarely fully or almost divided along middle; tergite VIII rounded, truncate or emarginate (Fig. 27G), or sometimes distinctly excised medially at apex. Proctiger (TX) with posterior margin simple, rounded or truncate to weakly emarginate.

*Male genitalia* (Fig. 27H–J). Tegmental basal piece without spines. Penis guide symmetrical, slightly longer or shorter than parameres, at apex entire, pointed, often curved outwardly, sometimes...
penis guide divided near apex in two parts (inner shorter and outer
longer, e.g. in *T. satipennis*); outer edge smooth; inner edge without
additional process. Parameres well developed, simple apically. Penis
moderately long and stout, rather weakly curved, arms of basal cap-
sule reduced.

**Female genitalia** (Fig. 27K). Sclerite anteriorly to coxites in mem-
brane connected paraprocts absent. Coxites distinctly less than two
times longer than wide, oval; outer edge of coxite free, inner edge
simple—straight, rounded or weakly emarginate, ventral surface
smooth. Styli present or absent, sometimes strongly reduced and
hardly visible. Bursa copulatrix without sclerite. Sperm duct origi-
nated dorsally or sometimes apically on bursa copulatrix.

**Distribution.** South America: Argentina, Bolivia, Brazil,
Ecuador, Colombia, Peru, Uruguay, Venezuela.

**Species included (examined):** *Toxotoma aequatorialis* (Gordon)
comb. nov., *T. bizonata* (Crotch) comb. nov., *T. convergens*
(Crotch) comb. nov., *T. cruciata* (Mulsant) comb. nov., *T. dubia*
(Crotch) comb. nov., *T. flavofasciata* (Laporte) comb. nov., *T.
monovittata* (Gordon) comb. nov., *T. orthostriata* (Gordon) comb.
nov., *T. paracuta* (Gordon) comb. nov., *T. patricia* (Mulsant) comb.
nov., *T. satipensis* (Gordon) comb. nov., *T. univittata* (Crotch)
comb. nov., *T. andicola* Weise, *T. haywardi* Gordon, *T. forsteri*
Mader, *T. cuzcoensis* Gordon, *T. pilifera* (Weise), *T. pulchra*
(Weise).

**Fig. 25.** *Toxotoma andicola* Weise. (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
Comment. Studied species belonged to the genus *Toxotoma* and to eight species groups of 34 groups of former *Epilachna* recognized by Gordon (1975)—*Epilachna flavofasciata* group, *E. v-pallidum* group, *E. cruciata* group, *E. patricia* group, *E. vittigera* group, *E. approximata* group, *E. angustata* group, and *E. satipennis* group. It is therefore probable that all remaining species from these species groups of former *Epilachna* and remaining, unstudied species of *Toxotoma* will belong to *Toxotoma* in the present sense.

Apart from named/determined species, an unnamed species of former *Epilachna* from Ecuador was examined (voucher specimens used in Szawaryn et al. 2015: E.sp_KS194).

**Megatela Weise 1906**
(Figs. 28–30)

*Megatela Weise 1906: 159. Type species: *Megatela erotyloides* Weise 1906 (by monotypy). Jadwiszczak and Węgrzynowicz 2003: 205, Szawaryn et al. 2015: 544, 565.

**Diagnosis.** *Megatela* can be easily distinguished from other *Epilachnini* by having large, convex eyes with inner orbits being closer together near mouthparts then near vertex, frons with distinct depression between eyes, dorsal antennal grooves on the head, antennae with very long scape (about 1/3 of total length of antenna), and mid and hind femora angulately produced posteriorly on inner edge.

**Description.** Length 4.2–4.6 mm. Body (Fig. 29A) elongate oval, convex, dorsum pubescent, brown.

Head. Intercocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest anteriorly (Fig. 28A). Frons with distinct depression between eyes. Gular sutures shorter than half length of gula. Antenna (Fig. 28E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel longer than antennomeres 3–8 combined, and as broad as scape; antennomeres 6–8 very short, transverse; club large, broad, symmetrical. Ventral antennal grooves absent. Dorsal antennal grooves (Fig. 28A) present, deep. Clypeus moderately long, trapezoidal, its anterior margin weakly emarginate, smooth and simple. Labrum (Fig. 28B) strongly transverse, broadly emarginate. Mandible (Fig. 28C–D) multidentate apically; incisor edge provided with large subtriangular blunt teeth, its dorsal and ventral surfaces smooth; prostheca well developed. Maxilla (Fig. 28F) with cardo semicircular, not reaching outside of mouth cavity; maxillary stipes much longer than galea with suture between basistipes and mediostipes partly well visible; galea about as long as wide, subtriangular in shape, mostly sclerotized; lacinia small, simple with mesal surface simply setose, its ventral surface sparsely pubescent; terminal palpomere weakly elongate. Submentum transverse, about three times wider than long, suture well visible;
mentum (Fig. 28G) transverse, less than two times broader than long, widest near base; prementum suboval, emarginate anteriorly, produced antero-laterally, its dorsal surface covered with sclerotized tubercules anteriorly, ligula indistinct; labial palps (Fig. 28G) separated by distance distinctly less than width of palpiger; apical palpmere shorter and narrower than penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 29D) with surface smooth, distinctly bordered laterally. Prosternum in front of coxa, much shorter than half length of coxal longitudinal diameter, its anterior margin uniformly arcuate. Procoxal cavity without visible bordering line.

Pterothorax. Mesoventrite (Fig. 29D–E) with anterior edge straight, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternite smooth. Scutellum triangular, as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins moderately wide, entirely visible from above. Epipleuron (Fig. 29A) complete, smooth, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 29E) joined on metaventral process in straight line, descending laterally and continuing as lateral bordering of metaventrite.

Legs (Fig. 29A) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly produced with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxa simple; mid and hind femora swollen, on inner edge in median part angulately produced posteriorly (Fig. 29E); mid and hind tibiae on outer edge near apex without carina (Fig. 29C). Tibiae without spurs. Tarsal claws (Fig. 29B) double with large basal tooth.

Abdomen (Fig. 30A and E). Five ventrites in males and six in females. Abdominal postcoxal lines recurved roundly but incomplete laterally. In male: apical margin of ventrite 5 rounded to

Fig. 27. Toxoroma cuzcoensis Gordon. (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment, ventral; (E) Abdomen, female, ventral; (F) Abdominal ventrite 6, female; (G) Abdominal tergite VIII, female, ventral; (H) Penis; (I) Tegmen, its inner view; (J) Female genitalia.
subtruncate (Fig. 30A); sternite VIII weakly emarginate (Fig. 30B); tergite VIII rounded (Fig. 30C); apodeme of male sternum IX absent (Fig. 30D). Tergite X transverse, rounded apically. In female: apical margin of ventricle 5 weakly truncate (Fig. 30E); ventricle 6 (Fig. 30F) rounded apically, with basal margin simply arcuate, longitudinally at middle not divided; tergite VIII rounded (Fig. 30G). Proctiger (TX) rounded.

**Male genitalia** (Fig. 30H–J). Tegminal basal piece without spines. Penis guide symmetrical, shorter than parameres, at apex entire; outer edge smooth; inner edge without additional process. Parameres well developed, broad, simple apically, with long hair in apical part. Penis rod like, straight with basal T-shaped capsule reduced.

**Female genitalia** (Fig. 30K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites elongate, drop-like; outer edge of coxite free, inner edge simple, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, nondivided, ending with common oviduct. Sperm duct and spermatheca absent.

**Distribution.** Cameroon.

**Species included (examined):** *M. kamerunicola* (Mader).

Fig. 28. *Megatela kamerunicola* (Mader). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
Comment. Two species of *Megatela* are listed in the catalogue of Jadwiszczak and Węgrzynowicz (2003). We were not able to study the type species of the genus and only the original description of Weise (1906) was consulted.

Figura Ukrainsky 2006
(Figs. 31–33 and 82G)

*Bambusicola* Fürsch 1986: 392 (nec *Bambusicola* Gould 1862; Aves). Type species: *Epilachna aberratica* Fürsch 1975 (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 192.

Figura Ukrainsky 2006: 399 (replacement name for *Bambusicola* Fürsch 1986).—Szawaryn 2014: 105, redescription); Szawaryn et al. 2015: 556, 565.

Diagnosis. *Figura* can be distinguished from other Epilachnini genera by the following combination of the characters: labium with scale-like processes on dorsal surface; the tarsal claws having characteristic shape with the inner teeth touching one another and forming a cordate pattern (character sharing only with the Neotropical genus *Malata* Gordon); lack of tibial spurs; male genitalia with the penis guide of tegmen short, petal-like and asymmetrical, and penis with large membranous gonopore at apex; female genitalia lacking sperm duct and spermathecal, and coxites fused laterally with paraprocts.

Description. Length 2.8–4.1 mm. Body (Fig. 32A and 82G) oval, convex, dorsum pubescent. Pronotum yellow to reddish brown or black, elytra light brown, orange to red with black spots or black border, sometimes entirely black with red maculae.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 31A) shorter than half length of gula. Antenna (Fig. 31E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel about as broad as scape; antennomeres 3–5 elongate, antennomeres 6–8 subquadrate or transverse; club symmetrical. Ventral and dorsal antennal grooves absent (Fig. 31A–B). Clypeus short, parallel-sided, its anterior margin straight or weakly emarginate, with week groove. Labrum (Fig. 31C–D) multi-dentate apically; falcate; incisor edge without teeth, its surfaces smooth, prostheca well developed. Mandible (Fig. 31C–D) with cardo semicircular; maxillary stipes much longer than galea with suture between basistipes and mediostipes partly well visible; lacinia simple, falcate, with mesal surface simply setose and longer sete on apex; galea about as long as wide, mostly sclerotized, its ventral surface glabrous, anterior margin covered with sete; terminal palpomere large, weakly elongate, parallel-sided or weakly expanded apically. Submentum about two times wider than long, suture not clearly visible; mentum (Fig. 31G) less than two times broader than long, widest in median part; prementum oval, its dorsal...
surface with scale like projections, ligula without setae; labial palps (Fig. 31G) separated by distance distinctly less than width of palpiger; apical palpomere as long as and distinctly narrower than penultimate one.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 32D) with surface smooth, without carinae. Prosternum in front of coxa shorter than half length of coxal longitudinal diameter, anterior margin uniformly arcuate. Procoxal cavity without visible bordering line.

**Pterothorax.** Mesoventrite (Fig. 32D–E) with anterior edge weakly emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight or sinuate. Inner edge of metanepisternum smooth. Scutellum triangular, as long as broad. Metendosternite tendons widely separated and placed near apices of arms. Elytra dually punctate; lateral margins narrow but entirely visible from above. Epipleuron (Fig. 32A) incomplete apically, smooth, its inner margin with bordering line extending at most to level of mid coxa. Metaventral postcoxal lines (Fig. 32E) joined on metaventral process in straight or somewhat sinuate line, laterally complete and distinctly recurved.

Legs (Fig. 32A) rather short and slender with apices of mid and hind femora weakly protruding from outer margin of elytral epipleuron. Fore and mid trochanters simple with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple; mid and hind tibiae on outer edge smooth, without carina. Tibiae without distinct spurs (Fig. 32C). Tarsal claws (Fig. 32B) double, swollen at base, with inner claws broad, almost touching each other, forming heart shape.

**Abdomen** (Fig. 33A and E). Six ventrites in males and five in females. Abdominal postcoxal lines recurved roundly but incomplete laterally. In male: apical margin of ventrite 5 truncate (Fig. 33A); ventrite 6 emarginate (Fig. 33B); tergite VIII rounded (Fig. 33C); apodeme of male sternum IX absent (Fig. 33D). Tergite
X narrow, transverse, rounded apically. In female: apical margin of ventrite 5 rounded (Fig. 33E); sternite VIII (Fig. 33G) rounded at apex, with basal margin simply arcuate, longitudinally at middle not divided; tergite VIII rounded (Fig. 33F). Proctiger (TX) membranous at base, with simple posterior margin.

Male genitalia (Fig. 33H–J). Tegminal basal piece without spines. Penis guide petal-shaped, asymmetrical, about as long as parameres, pointed at apex; outer edge smooth; inner edge without additional processes. Parameres well developed, asymmetrical, simple apically. Penis widening towards apex with large membranous apical gonopore, its base with reduced T-shaped capsule.

Female genitalia (Fig. 33K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites much longer than wide, long-oval; outer edge of coxite fused with paraproct, inner edge simple, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, nondivided, ending with common oviduct. Sperm duct, spermatheca and accessory gland absent; two symmetrical membranous sac-like structures at the base of common oviduct (which probably are a place for storing sperm instead of the spermatheca) present.

Distribution. Central Africa: Albertine Rift—Burundi, Democratic Republic of the Congo, Rwanda, Uganda.
Species included (examined). *F. aberratica* (Fürsch), *F. bambusae* (Mader), *F. bitalenis* Szawaryn, *F. centralis* (Sicard), *F. lineata* Szawaryn, *F. ruwenzorica* Szawaryn, *F. tonsa* (Fürsch).

Comment. All known species were studied (according to the revision of the genus by Szawaryn 2014).

**Tropha Weise 1900** (Figs. 34–36 and 82H)

**Tropha Weise 1900b**: 121. Type species: *Tropha variabilis* Weise 1900 (by monotypy).—Jadwiszczak and Węgrynowicz 2003: 207, Tomaszewska and Szawaryn 2014: 348 (redescription), Szawaryn et al. 2015: 558, 566.

**Diagnosis.** *Tropha* is easily recognizable genus of Epilachnini by its long and deep ventral antennal grooves on the head, prosternum in front of coxae longer than coxal longitudinal diameter, deep epipleural foveae for receiving tips of mid and hind femora and the coxites of the ovipositor deeply emarginate on their inner edges near apices.

**Description.** Length 5.3–6.5 mm. Body (Fig. 35A and 82A) oval, strongly convex, dorsum pubescent. Elytra brown with black maculae, or elytra black with orange or yellow maculae.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 34A) shorter than half length of gula. Antenna (Fig. 34E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 3–5 weakly elongate; antennomeres 6–8 subquadrate or transverse; club asymmetrical. Ventral antennal grooves (Fig. 34A) long, deep, straight, reaching distinctly behind eyes. Dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin straight, smooth without groove. Labrum (Fig. 34B) moderately transverse, anterior margin emarginate with apex membranous. Mandible (Fig. 34C–D) multidentate apically; incisor edge multidentate, its surfaces smooth without tubercles, prostheca well developed. Maxilla (Fig. 34F) with cardo semicircular; maxillary stipes much longer than galea, with suture between basistipes and mediostipes well visible; labial palpomere weakly elongate, expanded apically. Submentum transverse, with suture visible, emarginate posteriorly; mentum (Fig. 34G) less than two times broader than long, widest near base; prementum oval, ligula shortly setose; labial palps (Fig. 34G) separated by distance distinctly less than width of palpiger; apical palpomere as long and about as broad as penultimate one.

**Prothorax.** Hypomeron (Fig. 35D) very coarsely punctured. Prosternal process (Fig. 35D) smooth, without carinae, with weak lateral grooves. Prosternum in front of coxa longer than coxal longitudinal diameter; anterior margin uniformly arcuate. Procoxal cavity without visible bordering line.
Pterothorax. Mesoventrite (Fig. 35E) with anterior edge emarginate, anterior margin entirely raised; mesoventral process coarsely punctured; meso-metaventral suture emarginate posteriorly. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins narrow but entirely visible from above. Epipleuron (Fig. 35A) incomplete apically with foveae for receiving tips of femora, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 35E) joined on metaventral process in weakly arcuate line, laterally complete and distinctly recurved.

Legs (Fig. 35A) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters angulately produced with cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora swollen, simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 35C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 35B) double, weakly swollen at base.

Abdomen. Six ventrites in both sexes. Abdominal postcoxal lines (Fig. 36A and H) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 36A); ventrite 6 rounded (Fig. 36B); tergite VIII rounded (Fig. 36C); apodeme of sternum IX rod-like, stout (Fig. 36D). Tergite X transverse, rounded at apex. In female: ventrite 5 rounded (Fig. 36H); ventrite 6 (Fig. 36I) rounded, produced anteriorly at base, longitudinally at middle not divided; tergite VIII rounded at apex (Fig. 36J). Proctiger (TX) transverse, rounded or emarginate apically.

Male genitalia (Fig. 36E–G). Tegmental basal piece without spines. Penis guide symmetrical, about as long as parameres, broad at its base, pointed at apex; outer edge setose; inner edge without additional process. Parameres well developed, broadened apically.

Fig. 33. Figura ruwenzorica Szawaryn. (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal tergite VIII, female, ventral; (G) Abdominal sternite VIII, female, ventral; (H) Penis; (I) Tegmen, its inner view; (K) Female genitalia.
Penis stout, narrowing apically, with large gonopore at apex, its base with reduced T-shaped capsule.

**Female genitalia** (Fig. 36K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, oval; outer edge of coxite free, inner edge deeply, angulately emarginate near apex, ventral surface smooth. Styli distinct. Bursa copulatrix without sclerite, divided in two parts, one large weakly sclerotized dorsal pocket blind and second, ventral part ending with common oviduct. Sperm duct and spermatheca absent.

**Distribution.** Africa: Cameroon, Democratic Republic of the Congo, Malawi, Mozambique, Tanzania, Zambia.

**Species included (examined).** *Tropha variabilis* Weise, *T. vini*ntiduoguttata (Weise), *T. zambiensis* Tomaszewska and Szawaryn.

**Comment.** All known species were studied (according to the revision of the genus by Tomaszewska and Szawaryn 2014).

Uniparodontata *Wang and Cao* 1993 stat. nov. (Figs. 37–39 and 83I)

Epilachna (Uniparodontata) *Wang and Cao* 1993: 126. Type species, *Epilachna paramagna* Pang and Mao 1979 (by original designation).
**Epilachna** (Aparodentata) Wang and Cao 1993: 126. Type species, *Epilachna yongshanensis* Cao and Xiao 1984 (by original designation). Syn. nov.

Ryszardia Tomaszewska and Szawaryn, in Szawaryn et al. 2015: 563. Type species: *Epilachna decipiens* Crotch 1874 (by original designation). Syn. nov.

*Epilachna* Chevrolat in Dejean 1837 (in part). —Szawaryn et al. 2015: 552, 563, 566.

**Diagnosis.** *Uniparodentata* resembles *Diekeana* by presence of serration on inner margin of metanepisternum and the prosternal process most often with lateral carinae. *Uniparodentata* however, can be separated from *Diekeana* by mid and hind coxae provided with small tubercles on hind/inner surfaces (which is an unique character among all genera of Epilachnini), metaventral postcoxal lines most often separate on metaventral process, elytral epipleuron often with foveae and mid and hind tibia with oblique carina near apex.

**Description.** Length 5.5–10.3 mm. Body (Fig. 83I) oval to elongate oval, convex, dorsum pubescent. Elytra orange, red or brown with black maculae or stripes; sometimes elytra black with orange or red maculae or stripes.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 37A) shorter than half length of gula. Antenna (Fig. 37E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 3–8 weakly or distinctly elongate; club asymmetrical. Ventral antennal grooves absent or sometimes short, straight, along inner margin of eye only (Fig. 37A). Dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 37B) transverse, straight or weakly emarginate anteriorly. Mandible (Fig. 37C–D) multidentate apically; incisor edge weakly roundly produced, without teeth, its surfaces smooth or provided with week tubercles, prostheca well developed. Maxilla (Fig. 37F) with cardo semicircular; maxillary stipes much longer than galea, in form of single sclerite with at most weak trace of suture visible; lacinia simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse, gular suture not clearly visible; mentum (Fig. 37G) less or more than two times broader than long, widest near base or in mid length; prementum suboval, ligula shortly setose or sometimes without setae; labial palps (Fig. 37G) separated by distance distinctly less than width of palpiger or equal to width of palpiger; apical palpomere about as long and as broad as penultimate one.

**Prothorax.** Hypomeron very coarsely punctured (Fig. 38A). Prosternal process (Fig. 38A) with distinct lateral carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter or shorter than half length of coxal diameter, its anterior
margin uniformly arcuate. Procoxal cavity without visible bordering line.

_Pterothorax_. Mesoventrite (Fig. 38A–B) with anterior edge emarginate posteriorly, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight or weakly sinuate. Inner edge of metaneupisternum serrate (Fig. 38D–E). Scutellum pentagonal or triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins entirely visible from above, although sometimes narrow. Epipleuron incomplete apically, smooth or with foveae for receiving tips of femora, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 38B) widely separated on metaventral process or sometimes joined on metaventral process in straight line, laterally complete and distinctly recurved.

Legs moderately long and slender with apices of mid- and hind femora protruding from outer margin of elytral epipleuron, or short and stout, with apices of mid- and hind femora not protruding from outer margin of epipleuron. Fore and mid trochanters roundly or angulately produced or simple, with distinct or weak cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae with tubercles on hind margin (Fig. 38C); mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 38G). Tibial spurs: 1-2-2. Tarsal claws (Fig. 38F) double, smooth or swollen at base.

_Abdomen_. Five or six ventrites in both sexes. Abdominal postcoxal lines (Fig. 39A and 39E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 (Fig. 39A) subtruncate or deeply concave; sternite VIII (or ventrite 6) (Fig. 39B) emarginate apically or deeply concave; tergite VIII (Fig. 39C) rounded or slightly truncate apically; apodeme of male sternum IX (Fig. 39D) well developed, rod-like, stout or sometimes extremely narrow. Tergite X (Fig. 39D) in form of small, transversely-oval plate, sometimes simple—large, transverse. In female: apical margin of ventrite 5 (Fig. 39E) rounded or deeply concave; sternite VIII (or ventrite 6) (Fig. 39F) rounded or deeply concave; sternite VIII (or ventrite 6) (Fig. 39F) rounded or deeply concave.

Fig. 36. _Tropha variabilis_ Weise. (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Penis; (F) Tegmen, ventral view as placed in abdomen; (G) Tegmen, its inner view; (H) Abdomen, female, ventral; (I) Abdominal ventrite 6, female; (J) Abdominal tergite VIII, female, ventral; (K) Female genitalia.
emarginate, longitudinally at middle not divided; tergite VIII rounded (Fig. 39G). Proctiger (TX) rounded apically or rolled up inwardly (Fig. 39L).

**Male genitalia** (Fig. 39H–J). Tegminal basal piece without spines. Penis guide symmetrical, at apex entire or emarginate; outer edge smooth or at most setose; inner edge without additional process. Parameres well developed, simple or very large, broadened throughout. Penis rod-like, straight or sinuate, often with processes or tubercules at apex, its base with reduced T-shaped capsule.

**Female genitalia** (Fig. 39K and L). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites elongate-oval much longer than wide or distinctly less than two times longer than wide, broad, transversely-oval or club-like; outer edge of coxite free, inner edge simple—straight, ventral surface. Styli distinct. Bursa copulatrix without sclerite, simple, nondivided, with common oviduct originated at base. Sperm duct originated apically on bursa copulatrix.

**Distribution.** South and South-Eastern Asia: China, India, Indonesia, Thailand, Vietnam.

**Species included (examined).** *Uniparodentata acuta* (Weise) comb. nov., *U. angusta* (Li) comb. nov., *U. bifibra* (Li) comb. nov., *U. boymi* (Jadwiszczak and Węgrzynowicz) comb. nov., *U. chapini*...
(Dieke) comb. nov., U. chingjing (Yu and Wang) comb. nov., U. circumdata (Hoâng) comb. nov., U. circummaculata (Pang and Mao) comb. nov., U. clematicola (Cao and Xiao) comb. nov., U. complicata (Dieke) comb. nov., U. convexa (Dieke) comb. nov., U. crepida (Pang and Ślipiński) comb. nov., U. decipiens (Crotch) comb. nov., U. dorotae (Bielawski) comb. nov., U. exornata (Bielawski) comb. nov., U. folifera (Pang and Mao) comb. nov., U. fugongensis (Cao and Xiao) comb. nov., U. glochisifoliata (Pang and Mao) comb. nov., U. gressiti (Li) comb. nov., U. hamulifera (Pang and Ślipiński) comb. nov., U. lata (Li) comb. nov., U. madanensis (Zeng) comb. nov., R. magna (Dieke) comb. nov., U. malleiforma (Peng, Pang and Ren) comb. nov., U. media (Li) comb. nov., U. militaris (Dieke) comb. nov., U. mobliteratiae (Li) comb. nov., U. paramagna* Pang and Mao, U. quadricollis (Dieke) comb. nov., U. saginata (Weise) comb. nov., U. siphodenticulata (Hoâng) comb. nov., U. subacuta (Dieke) comb. nov., U. szechuana (Dieke) comb. nov., U. yongshanaensis (Cao and Xiao) comb. nov.

Comment. The revision of Asian fauna of former Epilachna species would probably reveal more species belonging to Uniparodentata.

Apart from the named/determined species, an unnamed species of former Asian Epilachna was examined (voucher specimen used in Szawaryn et al. 2015: E.sp_KS169).
Solanophila Weise 1898 Name Resurrected
(Figs. 40–42 and 83D)

Solanophila Weise 1898: 99. Type species, Epilachna gibbosa Crotch 1874 (by subsequent designation of Li and Cook 1961). Synonymized with Epilachna Chevrolat in Dejean 1837 by Korschefsky 1931: 18.—Li and Cook 1961, Jadwiszczak and We˛grzynowicz 2003: 31.

Fuerschia Tomaszewska and Szawaryn in Szawaryn et al. 2015: 563. Type species: Coccinella canina Fabricius 1781 (by original designation). Syn. nov.

Epilachna Chevrolat in Dejean 1837 (in part).—Szawaryn et al. 2015: 554, 563, 566.

Diagnosis. Solanophila is very similar to Tropha in having the tarsal claws double without basal angulation or tooth, mid and hind tibia with oblique carina on outer edge near apex, the hypomeron coarsely punctured, and similar male genitalia with stout penis possessing strongly reduced basal capsule. However, short and rather shallow ventral antennal grooves, the elytral epipleura without foveae, the coxites of the ovipositor simple, not emarginate on their inner margins near apices and the presence of the spermatheca will easily separate Solanophila from Tropha.

Description. Length 5.5–8.0 mm. Body (Fig. 41A and 83D) oval or elongate oval, strongly convex, dorsum pubescent. Elytra variously colored, usually black with yellow-orange maculae, sometimes orange-brown with black maculae, sometimes elytra red with black suture and margins, and with yellow maculae, often a crescent-shaped macula present in apical part of elytra.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 40A) shorter than half length of gula. Antenna (Fig. 40E)
composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate, about 3 times longer than long; antennomeres 4–8 weakly elongate; club asymmetrical. Ventral antennal grooves (Fig. 40A) short, straight, along inner margin of eye only or absent. Dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 40B) transverse, anterior margin emarginate. Mandible (Fig. 40C–D) multidentate apically; incisor edge without teeth or sometimes with small denticles, its surfaces smooth without tubercles, prostheca well developed. Maxilla (Fig. 40F) with cardo semicircular; maxillary stipes much longer than galea, with suture between basistipes and medio-stipes partly visible; lacinia simple, its mesal surface simply setose; galea oval, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse about twice as broad as long with suture not clearly visible; mentum (Fig. 40G) less than two times broader than long, widest near base; prementum oval, ligula shortly setose; labial palps (Fig. 40G) separated by distance distinctly less than width of palpiger; apical palpomere as long and about as broad as penultimate one.

Prothorax. Hypomeron very coarsely punctured (Fig. 41D). Prosternal process (Fig. 41D) often with separate, short, weak
Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter; anterior margin uniformly arcuate, raised with distinct border. Procoxal cavity without visible bordering line or with bordering line reaching laterally notosternal suture.

**Pterothorax.** Mesoventrite (Fig. 41E) with anterior edge emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins at least narrow, entirely visible from above. Epipleuron (Fig. 41A) incomplete apically, smooth, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 41E) joined on metaventral process in straight line, laterally complete and distinctly recurved.

Legs (Fig. 41A) slender with apices of mid and hind femora protruding or not from outer margin of elytral epipleuron. Fore and mid trochanters roundly produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 41C), sometimes carina absent. Tibial spurs: 1-2-2, rarely spurs absent. Tarsal claws (Fig. 41B) double, swollen at base.

**Abdomen.** Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines (Fig. 42A and E) recurved roundly or parallel to hind margin of ventrite 1 and at most scarcely recurved, incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 42A); ventrite 6 truncate to emarginate (Fig. 42B); tergite VIII rounded or weakly narrowly emarginate at apex (Fig. 42C); apodeme of male sternum IX simple, rod-like (Fig. 42D). Tergite X transverse, narrow, subtruncate apically. In female: apical margin of ventrite 6 (Fig. 42F) rounded or emarginate, without projection at basal margin, longitudinally at middle not divided; tergite VIII rounded (Fig. 42G). Proctiger (TX) subtriangular or transverse, emarginate or arcuate, or rounded apically.

**Male genitalia** (Fig. 42H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres, at apex entire, curved; outer edge smooth, at most setose; inner edge without additional process. Parameres well developed, simple apically, setose at apex. Penis straight or S-shaped with large, elongate, membranous or sclerotized gonopore at apex, its base with reduced T-shaped capsule.

**Female genitalia** (Fig. 42K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites transverse subtriangular or elongate subrectangular; outer edge of coxite free, inner edge simple—straight or rounded, ventral surface smooth. Styli distinct. Bursa copulatrix sometimes with internal sclerite, simple, nondivided with common oviduct originated at base. Sperm duct originated apically on bursa copulatrix.
Distribution. Africa.

Species included (examined). *Solanophila canina* (Fabricius) comb. nov., *S. dregei* (Mulsant) comb. nov., *S. gibbosa* (Crotch), *S. karisimbica* Weise, *S. murrayi* (Crotch) comb. nov., *S. infirma* (Mulsant) comb. nov., *S. paykullii* (Mulsant) comb. nov., *S. deltoides* (Weise).

Comment. According to Szawaryn et al. (2015), species included in this genus were classified in *Epilachna canina* group (Mader 1941, Fürsch 1985) and *E. colorata* group (Fürsch 1991), containing in total, 46 species. Among them, *S. gibbosa* and *S. deltoides* were originally included in the genus *Solanophila* by Weise. For proper assignment of remaining species, taxonomic revision is needed.

Epiverta Dieke 1947
(Figs. 43–45 and 83E)

Epiverta Dieke 1947: 169. Type species: *Solanophila chelonia* Mader 1933 (by original designation).—Pang and Mao 1979: 159, Jadwiszczak and Węgrzynowicz 2003: 208, Kovár 2007: 631, Szawaryn et al. 2015: 556, 565.

**Diagnosis.** Epiverta is easily recognizable genus of Epilachnini by the following combination of characters: antenna longer than head width with antennomeres 3–8 elongate; elytral lateral margins widely explanate; metaventrite and abdominal ventrite 1 without postcoxal lines; elytral epipleura with foveae for receiving tips of femora.

**Description.** Length 4.6–8.1 mm. Body (Fig. 44A and 83E) oval, convex, dorsum pubescent. Elytra orange to brown with brown and black maculae or stripes.

**Head.** Intercocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 43A) slightly longer than half length of gula. Antenna composed of 11 antennomeres, longer than head width; pedicel distinctly narrower than scape; antennomeres 3–8 elongate; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus short,
parallel-sided, its anterior margin straight, smooth without groove. Labrum (Fig. 43B) transverse, anterior margin emarginate. Mandible (Fig. 43C–D) multidentate apically; incisor edge without teeth, its surfaces smooth without tubercles, prostheca small. Maxilla (Fig. 43F) with cardo semicircular; stipes much longer than galea, in form of single sclerite with weak trace of suture visible; lacinia simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse with suture not clearly visible; mentum (Fig. 43G) less than two times broader than long, widest near base; prementum oval, ligula shortly setose; labial palps (Fig. 43G) separated by distance distinctly less than width of palpi; apical palpomere longer and about as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 44D) smooth, without carinae. Prosternum in front of coxa nearly as long as coxal longitudinal diameter, its anterior margin arcuate with weak projection anteriorly in median part. Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 44D–E) with anterior edge weakly emarginate posteriorly, without raised border; mesoventral process smooth; meso-metaventral suture somewhat sinuate. Inner edge of metaneusternite smooth. Scutellum triangular, transverse. Metendosternite tendons separated by slightly less than width of

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**Fig. 43.** *Epiverta chelonia* (Mader). (A) Head, ventral view; (B) Labrum; (C) Mandible, ventral view; (D) Mandible, dorsal view; (E) Antenna; (F) Maxilla; (G) Labium.
stalk and placed on laminae. Elytra dually punctate; lateral margins explanate, entirely visible from above. Epipleuron (Fig. 44A and C) complete, with long shallow groove and foveae for receiving tips of femora, its inner margin without clear bordering line. Metaventral postcoxal lines absent (Fig. 44E).

Legs (Fig. 44A) slender with apices of mid and hind femora not protruding from outer margin of epipleuron. Fore and mid trochanters simple, without cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina. Tibial spurs: 1-2-2. Tarsal claws (Fig. 44B) double, weakly swollen at base.

Abdomen (Fig. 45A and E). Six ventrites in both sexes. Abdominal postcoxal lines absent (Fig. 44C). In male: apical margin of ventrite 5 weakly emarginate (Fig. 45C); ventrite 6 emarginate (Fig. 45B); tergite VIII emarginate (Fig. 45C); apodeme of male sternum IX absent (Fig. 45D). Tergite X transverse, weakly emarginate at apex (Fig. 45D). In female: apical margin of ventrite 5 truncate (Fig. 45E); ventrite 6 (Fig. 45F) with simple, basal margin, subtruncate apically, longitudinally at middle not divided; tergite VIII (Fig. 45G) emarginate or rounded apically, with narrow transparent membrane in apical part. Posterior margin of proctiger emarginate.

Male genitalia (Fig. 45H–J). Tegmental basal piece without spines. Penis guide symmetrical, as long as parameres; outer edge broadened in apical part, with small, sharp tooth at apex. Parameres well developed, broad, simple apically. Penis base with reduced T-shaped capsule.

Female genitalia (Fig. 45K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites long oval, distinctly less than two times longer than wide; outer edge of coxite free, ventral surface with sclerotized pocket/ridge antero-medially. Styli distinct. Bursa copulatrix without sclerite, simple, nondivided, with common oviduct emerging at base. Sperm duct originated apically on bursa copulatrix.

Distribution. China.

Species included (examined). Epiverta chelonia* (Mader)—monotypic genus.

Afissa Dieke 1947
(Figs. 46–48 and 83A)

Afissa Dieke 1947: 113. Type species: Coccinella flavicollis Thunberg 1781 (by original designation). Synonymized with Epilachna Chevrolat in Dejean 1837, by Li and Cook 1961. Resurrected from synonymy by Szawaryn et al. 2015: 565.

Afissula Kapur 1958. Type species: Afissula rana Kapur 1958 (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 25, Kovár 2007: 626, Ren et al. 2009: 254. Synonymized by Szawaryn et al. 2015: 565.
Epilachna Chevrolat in Dejean 1837 (in part).—Szawaryn et al. 2015: 552, 556, 565.

**Diagnosis.** Afissa is most similar to Afidentula, Afidenta and some species of Diekeana and Uniparodentata (both genera derived from former Epilachna). However, the following combination of characters separate Afissa from all Asian and also from the remaining genera of Epilachnini: antenna longer than width of head; coxites much longer than wide; mandibular incisor edge without teeth; lateral margins of elytra most often not or hardly visible from above (sometimes visible from above but narrow); metanepisternum with inner margin simple, smooth; mid and hind coxae on hind margin smooth.

**Description.** Length 3.3–9.0 mm. Body (Fig. 47A and 83A) oval to elongate oval, convex, dorsum pubescent. Elytra yellow, orange or brown with black maculae or stripes, sometimes elytra black with yellow, orange, or red maculae.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 46A) shorter than half length of gula. Antenna (Fig. 46E) composed of 11 antennomeres, longer than head width; pedicel distinctly narrower than scape; antennomeres 3–8 elongate; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin weakly emarginate, smooth without groove. Labrum (Fig. 46B) transverse, truncate or weakly emarginate at apex. Mandible (Fig. 46C–D) multidentate apically; incisor edge somewhat roundedly produced, without teeth, its surfaces smooth, prostheca well developed. Maxilla (Fig. 46F) with cardo quadrate to semicircular, reaching at most slightly outside of mouth cavity; stipes much longer than galea, with suture between basistipes and mediostipes well visible, or in form of single sclerite with trace of suture hardly visible; lacinia simple, with mesal surface simply setose, sometimes with patch of longer seate apically; galea oval, at least as long as wide, mostly sclerotized, its ventral surface at least

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*Fig. 45. Epiverta chelonia (Mader). (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal ventrite 6, female; (G) Abdominal tergite VIII, female, ventral; (H) Penis; (I) Tegmen, ventral view as placed in abdomen; (J) Tegmen, its inner view; (K) Female genitalia.*
sparsely pubescent, with long setae apically; terminal palpomere distinctly secundiform or elongate, parallel-sided or weakly expanded apically. Submentum short, transverse or subquadrate with suture not clearly visible; mentum (Fig. 46G) less than two times broader than long, widest near median part; prementum oval, ligula covered with long or short setae; labial palps (Fig. 46G) separated by distance at least equal to width of palpiger, or rarely separated by distance distinctly less than width of palpiger; apical palpomere at least as long and about as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate (Fig. 47D). Prosternal process (Fig. 47D) smooth, without carinae or with separate, short carinae. Prosternum in front of coxa usually shorter than half length of coxal longitudinal diameter or sometimes 0.5–1.0 length of coxal longitudinal diameter, its anterior margin weakly arcuate. Procoxa cavity without visible bordering line, or sometimes with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 47E) with anterior edge weakly emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, as long as broad, rarely shorter. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral

Fig. 46. *Afissa flavicollis* (Thunberg). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
margins most often not or hardly visible from above, sometimes narrow but entirely visible from above. Epipleuron (Fig. 47A) incomplete apically, smooth or rarely with foveae for receiving tips of femora, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 47E) joined on metaventral process in straight line, laterally complete and distinctly recurved.

Legs (Fig. 47A) long and slender with apices of mid and hind femora protruding from outer margin of elytral epipleuron or rarely more stout and not protruding from outer margin of epipleuron. Fore and mid trochanters simple or roundly, or angulately produced with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth or with oblique carina near apex. Tibial spurs: 1-2-2. Tarsal claws double, smooth at base (Fig. 47C), or double with large basal tooth (Fig. 47B).

Abdomen. Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines (Fig. 48A and E) recurved roundly but incomplete laterally or sometimes complete, without additional line. In male: apical margin of ventrite 5 rounded, emarginate or truncate (Fig. 48A); ventrite 6 rounded, emarginate or truncate (Fig. 48B); tergite VIII rounded or weakly emarginate (Fig. 48C); apodeme of male sternum IX (Fig. 48D) rod-like, thin and long, rarely submembranous. Tergite X (Fig. 48D) large, subtriangular or transverse, rounded or emarginate at apex. In female: apical margin of ventrite 5 (Fig. 48E) rounded, somewhat triangularly produced or truncate; sternite VIII (Fig. 48G) rounded or subtruncate (or ventrite 6 rounded), with basal margin simply arcuate, longitudinally at middle not divided; tergite VIII rounded (Fig. 48F). Proctiger (TX) large, elongate or subtriangular, rounded or arcuate apically.

Male genitalia (Fig. 48H–J). Tegminal basal piece without spines. Penis guide symmetrical, longer than parameres, at apex excised, emarginate or entire; outer edge smooth or at most setose; inner edge without additional process. Parameres well developed, thin or broad, sometimes broader at apex, simple apically, with long hair in apical part. Penis thin and long, sometimes curved at apex, its base sometimes with reduced T-shaped capsule.

Female genitalia (Fig. 48K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites much longer than wide, trianularly or regularly long-oval; outer edge of coxite free, inner edge simple—straight, ventral surface smooth. Styli reduced with one long seta on each. Bursa copulatrix without sclerite, divided in two pockets, one ending with common oviduct, the second blind, rarely ending with sperm duct and spermatheca.

Distribution. South and South-Eastern Asia.

Species included (examined): Afissa ampliata (Pang and Mao) comb. nov., A. anhweiana Dieke, A. antennata (Bielawski) comb. nov., A. expansa Dieke, A. flavicollis* (Thunberg), A. flavimarginalis (Hoang) comb. nov., A. gedeensis Dieke, A. max (Pang and
Comment. Examined species belonged formerly to *Afissula* and to *fallax* and *flavicollis* groups of *Afissa* (Dieke 1947). Probably most of the species formerly classified in *Afissula* and Asian *Epilachna* belong to the genus *Afissa*.

Apart from the named/determined species, nine unnamed species of former Asian *Epilachna* and *Afissula* were examined (voucher specimens used in Szawaryn et al. 2015: Es_KS112, Es_KS215, Es_KS155, Es_KS175, Es_KS181, Es_KS204, Es_KS232, Es_KSL038, Af_sp_KS233).

**Henosepilachna Li 1961** (Figs. 49–51)

*Henosepilachna* Li in Li and Cook 1961: 35. Type species: *Coccinella sparsa* Herbst 1786 (=*Coccinella vigintioctopunctata* Fabricius 1775) (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 132, Kovár 2007: 629, Ren et al. 2009: 302, Szawaryn et al. 2015: 554, 560, 565.

*Subafissa* Bielawski 1963. Type species: *Epilachna papuensis* Crotch 1874.—Jadwiszczak and Węgrzynowicz 2003: 183. Synonymized by Szawaryn et al. 2015: 565.

**Diagnosis.** *Henosepilachna* resembles *Afidenta* but can be distinguished by mandibular incisor edge having distinct denticles or teeth, female ventrite 6 fully (or almost) divided longitudinally in the middle, tegmental basal piece with a pair of spines on inner margin near base of tegmental strut, parameres almost always ending with small internal teeth, and the styli of ovipositor always present although sometimes reduced and hardly visible.

**Description.** Length 4.6–9.3 mm. Body (Fig. 50A) oval, strongly convex, dorsum pubescent. Elytra usually orange to reddish-brown with black maculae, rarely forming stripes, sometimes elytra entirely black or with red maculae.

\[\text{Fig. 48. Afissa flavicollis (Thunberg).} \text{ (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal tergite VII, female, ventral; (G) Abdominal sternite VIII, female, ventral; (H) Penis; (I) Tegmen, ventral view as placed in abdomen; (J) Tegmen, its inner view; (K) Female genitalia.}\]
Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Gular sutures (Fig. 49A) about half length of gula or longer than half length of gula. Antenna (Fig. 49E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate, antennomeres 4–8 subquadrate or elongate; club asymmetrical. Ventral antennal grooves absent or sometimes short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 49B) transverse, anterior margin rounded, truncate, or emarginate. Mandible (Fig. 49C–D) multidentate apically; incisor edge multidentate, its surfaces densely tuberculate or rarely smooth, prostheca well developed. Maxilla (Fig. 49F) with cardo quadrate to weakly transverse reaching at most slightly outside of mouth cavity; stipes much longer than galea, with suture between basistipes and mediostipes partly well visible, rarely in form of single sclerite with only weak trace of suture visible; lacinia simple, with mesal surface simply setose; galea transversely oval or as long as wide, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically or sometimes secundiform. Submentum transverse, with suture not clearly visible; mentum transverse, widest near base;
prementum oval, ligula shortly setose; labial palps (Fig. 49G) separated by distance distinctly less than width of palpiger; apical palpomere at least as long and about as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 50D) smooth, without carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter or shorter than half length of coxal diameter, its anterior margin straight or arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture, or sometimes without visible bordering line.

Pterothorax. Mesoventrite (Fig. 50D–E) with anterior edge weakly emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metaneusternum smooth. Scutellum triangular, at least as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins at least narrow but entirely visible from above. Epipleuron (Fig. 50A) incomplete apically, smooth, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined or almost so on metaventral process in somewhat w-shaped line in middle (Fig. 50C), laterally complete and distinctly recurved or straight (Fig. 50E), sometimes descending.

Legs (Fig. 50A) slender with apices of mid and hind femora slightly protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly or angulately produced with cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina. Tibial spurs: 1-2-2. Tarsal claws (Fig. 50B) double with large basal tooth or sometimes double, smooth at base.

Abdomen. Six ventrites in both sexes. Abdominal postcoxal lines (Fig. 51A and E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 (Fig. 51A) truncate or weakly emarginate; ventrite 6 emarginate (Fig. 51B); tergite VIII truncate or rounded apically (Fig. 51C); apodeme of male sternum IX (Fig. 51D) rod-like, thin and long, rarely absent. Tergite X large, subtriangular with depression on dorsal site (Fig. 51D). In female: apical margin of ventrite 5 subtruncate (Fig. 51E); ventrite 6 (Fig. 51F) with simple, arcuate basal margin, longitudinally fully or almost divided along middle; tergite VIII truncate or emarginate at apex, rarely rounded (Fig. 51G). Proctiger (TX) simple, rounded or somewhat acutely produced at apex.

Male genitalia (Fig. 51H–J). Tegminal basal piece with a pair of spines on inner margin near base of tegminal strut. Penis guide symmetrical, usually hooked at apex, entire or rarely emarginate apically; outer edge smooth or serrate, or with additional processes, sometimes setose; inner edge without additional process. Parameres well developed ending with small internal teeth or rarely simple at apices, sometimes with additional process in about half length of paramera. Penis thin, straight and long, sometimes broad and curved with hook at apex, its base with T-shaped capsule.
Female genitalia (Fig. 51K). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites distinctly less than two times longer than wide, oval, reniform; outer edge of coxite free, inner edge with small excision medio-basally or sometimes simple—straight, rounded, or weakly emarginate, ventral surface smooth or rarely with sclerotized pocket antero-medially. Styli distinct or sometimes strongly reduced and hardly visible. Bursa copulatrix without sclerite, nondivided, with common oviduct at base. Sperm duct originated ventrally or laterally on bursa.

**Distribution.** East Asia, South Asia, Oceania, Australia; *H. vigintioctopunctata* distributed all over the world in tropical and subtropical regions.

**Species included (examined):** *Henosepilachna altera* (Dieke), *H. brittoni* (Bielawski) **comb. nov.**, *H. eneastica* (Mulsant), *H. haemorrhhoa* (Boisdval), *H. indistincta* (Dieke), *H. kabakovi* Hoang, *H. kaszabi* (Bielawski and Fürsch), *H. laokayensis* Hoang, *H. ocellata* (Redtenbacher), *H. papuensis* (Crotch) **comb. nov.**, *H. signatipennis* (Boisdval), *H. tonkinensis* (Bielawski), *H. vigintioctomaculata* (Motschulsky), *H. vigintioctopunctata* (Fabricius).

**Comment.** Studied species belonged mostly to the *vigintioctopunctata*-group recognized by Dieke (1947), so it is most probable that all remaining species from this group will belong to *Henosepilachna*. Further research could also result in moving to this group, species not assigned to any species groups of former *Henosepilachna*.

Apart from the named/determined species, two unnamed species of *Henosepilachna* were examined (voucher specimens used in Szawaryn et al. 2015: KS015_H_sp., KS163_H_sp.

Afidenta Dieke 1947
(Figs. 52–54)

**Afidenta Dieke 1947: 109.** Type species: *Afidenta mimetica* Dieke 1947 (= *Epilachna misera* Weise 1901) (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 15, Kovář
Diagnosis. *Afidenta* is most similar to *Afidentula*, *Afissa* and small members of the genus *Henosepilachna* by the general body shape and coloration. The following combination of characters will separate *Afidenta* from these and all other genera of Epilachnini: mandible slender with two subapical teeth and additional microdenticles or tubercles, ventral surface of incisor edge tuberculate, galea transversely oval, terminal labial palpomere as long as but distinctly narrower than penultimate one, metaventral postcoxal lines joined on metaventral process, forming somewhat w-shaped line along discrimen, ventrite 6 in females not divided longitudinally and coxites without styli.

Description. Length 5.0–5.8 mm. Body (Fig. 53A) oval, strongly convex, dorsum pubescent. Elytra orange to reddish-brown with numerous black maculae.

*Head*. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 52A) as long as half length of gula. Antenna (Fig. 52E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3...
elongate; antennomeres 4–8 quadrate or at most weakly elongate; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus transverse, short, parallel-sided, its anterior margin weakly emarginate, smooth without groove. Labrum (Fig. 52B) oval, transverse, moderately long, with anterior part membranous, truncate at apex. Mandible (Fig. 52C and D) multidentate apically; incisor edge with two large subapical teeth and additional microdentication/tubercules on them and beyond them, basal part of incisor edge produced roundly inwards, its surfaces densely tuberculate, prostheca well developed. Maxilla (Fig. 52F) with cardo subquadrate, reaching at most slightly outside of mouth cavity; stipes much longer than galea, with suture between basistipes and mediostipes well visible; lacinia simple, its mesal surface simply setose; galea transversely oval, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse, about twice as broad as long with suture well visible; mentum (Fig. 52G) less than two times broader than long, widest at base; prementum oval, ligula shortly setose; labial palps (Fig. 52G) separated by distance distinctly less than width of palpiger; apical palpomere as long as and distinctly narrower than penultimate palpomere.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 53D) smooth, without carinae, bordered laterally. Prosternum in front of coxa about as long as coxal longitudinal diameter, its anterior margin uniformly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture.

**Pterothorax.** Mesoventrite (Fig. 53C and E) with anterior edge weakly emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins rather narrow but entirely visible from above. Epipleuron (Fig. 53A) incomplete apically, smooth, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in somewhat w-shaped line along discrinen (Fig. 53C), laterally complete and recurved or straight (Fig. 53E).

Legs (Fig. 53A) short and stout with apices od mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly produced. Mid and hind coxae simple; mid and hind femora swollen, simple along inner edge; mid and hind tibiae on outer edge smooth, without carina. Tibial spurs: 1-2-2. Tarsal claws (Fig. 53B) double with large basal tooth.

**Abdomen.** Six ventrites in both sexes. Abdominal postcoxal lines (Fig. 54A and D) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 54A); ventrite 6 emarginate (Fig. 54B); tergite VIII rounded

![Fig. 53. Afidenta misera (Weise). (A) Body, ventral view; (B) Tarsal claws; (C) Meso-metaventral junction; (D) Head and prothorax, ventral; (E) Meso- and metathorax, ventral, and abdominal ventrite 1.](image-url)
Apodeme of sternum IX (Fig. 54G) simple, rod-like. Tergite X subtriangular, rounded at apex. In female: apical margin of ventrite 5 rounded (Fig. 54D); ventrite 6 (Fig. 54E) arcuate, simply rounded at basal margin, longitudinally at middle not divided; tergite VIII (Fig. 54F) rounded at apex. Proctiger (TX) moderately large, arcuate apically.

Male genitalia (Fig. 54H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres, entire at apex; outer edge smooth; inner edge without additional process. Parameres well developed, simple apically, shortly setose at apex. Penis weakly curved, narrowing towards apex, its base with reduced T-shaped capsule.

Female genitalia (Fig. 54K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, reniform; outer edge of coxite free, inner edge simple—rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, nondivided, ending with common oviduct. Sperm duct originated apically on bursa copulatrix.

Distribution. Asia: China, India, Indonesia, Nepal, Philippines, Sri Lanka, Taiwan, Vietnam.

Species included (examined): Afidenta misera* (Weise)—monotypic genus.

Comment. A former genus Afidenta comprised 37 species from Africa and two species from Asia (with A. misera from Asia as the type species). According to analyses of Szawaryn et al. (2015), the African species of Afidenta formed a monophyletic group with Afidentula. The recent study of the second Asian species of former Afidenta, A. siamensis (Dicke) by Wang et al. (2015) resulted in placement of this species in the genus Afidentula. Therefore Afidenta includes presently only the type species.
Merma Weise 1898
(Figs. 55–57)

Merma Weise 1898: 123. Type species: Merma limbata Weise 1898 (by subsequent designation of Korschefsky 1931).—Jadwiszczak and Węgrzynowicz 2003: 206, Szawaryn et al. 2015: 558, 565.

**Diagnosis.** Merma is quite easily recognizable genus of Epilachnini by the following combination of characters: double tarsal claws swollen at base, mid, and hind tibiae with oblique carina near apex, tibial spurs absent, the male genitalia with penis guide possessing setose process on outer edge near mid length and tegmental basal piece with a pair of spines on inner surface near base of tegminal strut.

**Description.** Length 4.3–5.0 mm. Body (Fig. 56A) oval, strongly convex, dorsum pubescent. Elytra brown, sometimes covered with paler maculae, and sometimes with elytral margin and suture black.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 55A) shorter than half length of gula. Antenna (Fig. 55E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate; antennomeres 4–7 subquadrate; antennomere 8 transverse; club

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**Fig. 55.** Merma limbata Weise. (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
asymmetrical. Ventral antennal grooves (Fig. 55A) short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin emarginate, with angles weakly produced anteriorly, smooth without groove. Labrum (Fig. 55B) transverse, moderately long, anterior margin emarginate, membranous. Mandible (Fig. 55C–D) multidentate apically; incisor edge with several denticles in anterior part, its surfaces smooth without tubercles, prostheca well developed. Maxilla (Fig. 55F) with cardo semicircular; stipes much longer than galea, with suture between basistipes and mediostipes well visible; lacinia simple, its mesal surface simply setose; galea oval, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere at least weakly elongate, weakly expanded apically. Submentum transverse, two times broader than long with suture well visible; mentum (Fig. 55G) at least two times broader than long, widest near base; labial palps (Fig. 55G) separated by distance less than width of palpiger; apical palpomere at least as long and distinctly narrower than penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 56D) smooth, without carinae, bordered laterally. Prosternal in front of coxa about as long as coxal longitudinal diameter; anterior margin, uniformly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 56D–E) with anterior edge weakly emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight or weakly sinuate. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins narrow but entirely visible from above. Epipleuron (Fig. 56A) smooth, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 56E) joined on metaventral process in straight or arcuate line, laterally complete, descending.

Legs (Fig. 56A) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly or angulately produced, with cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 56C). Tibiae without distinct spurs. Tarsal claws (Fig. 56B) double, swollen at base.

Abdomen. Six ventrites in males and five in females. Abdominal postcoxal lines (Fig. 57A and E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 broadly emarginate (Fig. 57A); ventrite 6 emarginate (Fig. 57B); tergite VIII rounded (Fig. 57C); apodeme of sternum IX (Fig. 57D) rod-like, long, narrow. Tergite X subtriangular (Fig. 57D). In female: apical margin of ventrite 5 rounded (Fig. 57E); sternite VIII (Fig. 57F) rounded apically, simply arcuate at base, longitudinally at middle not divided; tergite VIII rounded (Fig. 57G). Proctiger (TX) large, longer than wide, truncate at apex.
Male genitalia (Fig. 57H–J). Tegminal basal piece with a pair of spines on inner margin near base of tegminal strut. Penis guide symmetrical, as long as parameres, entire at apex; outer edge with setose process near middle length; inner edge without additional process. Parameres well developed, simple apically. Penis rod-like, slightly sinuate, with hook-like projection at apex and with reduced T-shaped, basal capsule.

Female genitalia (Fig. 57K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, subtriangular or drop-like; outer edge of coxite free, inner edge simple—straight, ventral surface smooth. Styli distinct. Bursa copulatrix without sclerite, simple, nondivided, ending with common oviduct. Sperm duct long, originated at base, dorsally on bursa.

Distribution. Africa: Cameroon, Republic of the Congo, République de Côte d’Ivoire, Uganda.

Species included (examined). Merma limbata* Weise, M. meditata Kapur, M. spilota Weise.

Comment. Jadwiszczak and Węgrzynowicz (2003) listed four species of Merma.

Cynegetis Chevrolat 1837
(Figs. 58–60)

Cynegetis Chevrolat in Dejean 1837: 461. Type species: Coccinella impunctata Linnaeus 1767 (by subsequent designation of Crotch 1874).—Jadwiszczak and Węgrzynowicz 2003: 193, Kovár 2007: 625, Szawaryn et al. 2015: 557, 565.

Cynegetis (sic!) Crotch 1874: 90.

Diagnosis. Cynegetis resembles Subcoccinella in general shape of the body, similar genitalia of both sexes and interocular distance of more than 0.75 width of head. It, however, can be distinguished.
from *Subcoccinella* by having the body strongly convex, anterior margin of clypeus distinctly emarginate, subapical teeth and incisor edge of mandible without denticles, the terminal maxillary palpomere barrel shaped, elytral surface dually punctate, elytral epipleuron with distinct foveae, outer edges of front tibiae strongly expanded/inflated and tarsal claw single provided with large basal tooth.

**Description.** Length 3.0–4.0 mm. Body (Fig. 59A) short oval, strongly convex, dorsum densely pubescent. Elytra yellowish brown with black maculae or transverse bands, sometimes uniformly colored.

**Head.** Intercocular distance more than 0.75 head width (Fig. 59D). Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 58A) shorter than half length of gula. Antenna (Fig. 58E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 strongly elongate; antennomeres 4–8 at least 1.5 times longer than broad; club asymmetrical. Ventral antennal grooves (Fig. 58A) long, straight, reaching distinctly behind eyes. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin slightly emarginate, smooth without groove. Labrum (Fig. 58B) transverse, apical margin emarginate, membranous. Mandible (Fig. 58C–D) multidentate.
apically; incisor edge without teeth, its surfaces smooth or at most with weak tubercles, prostheca well developed. Maxilla (Fig. 58F) with cardo semicircular; stipes longer than galea, with suture between basistipes and mediostipes well visible; lacinia hook-like or simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, its ventral surface glabrous; terminal palpmere elongate, subcylindrical. Submentum transverse, about three times broader than long with suture rather distinct; mentum (Fig. 58G) transverse, at least two times broader than long, widest near middle length; prementum somewhat rectangular or oval, truncate anteriorly, ligula sclerotized, without setae. Labial palps (Fig. 58G) separated by distance less than width of palpiger; apical palpmere about as long and as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 59E) with weak lateral grooves. Prosternum in front of coxa shorter than half length or 0.5–1.0 length of coxal longitudinal diameter, its anterior margin weakly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture.

Pterothorax. Mesoventrite (Fig. 59E) with anterior edge weakly emarginate posteriorly or almost straight, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture emarginate posteriorly or straight. Inner edge of metanepisternum smooth. Scutellum triangular, transverse. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate, two types of punctures of almost the same size; lateral margins not or hardly visible from above. Epipleuron (Fig. 59A) incomplete apically, with foveae for receiving tips of femora, inner margin with bordering line nearly complete, fading before base of elytron. Wings present or absent. Metaventral postcoxal lines joined on metaventral process in straight or arcuate line, laterally complete and distinctly recurved.

Legs (Fig. 59A and E) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly or angulately produced with deep cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 59C). Tibial spurs: 1-2-2. Tarsal claws single with subquadrate tooth at base (Fig. 59B).

Abdomen. Six ventrites in males and five in females. Abdominal postcoxal lines (Fig. 60A and E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 subtruncate (Fig. 60A); ventrite 6 emarginate (Fig. 60B); tergite VIII rounded (Fig. 60C); apodeme of sternum IX stout, rod-like (Fig. 60D). Tergite X transverse, truncate at apex. In female: apical margin of ventrite 5 arcuate (Fig. 60E); sternite VIII (Fig. 60F) rounded, longitudinally not divided; tergite VIII rounded (Fig. 60G). Proctiger (TX) rounded or emarginate at apex (Fig. 60K).
Male genitalia (Fig. 60H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres, at apex entire; outer edge smooth; inner edge without additional process. Parameres well developed, simple apically. Penis base with T-shaped capsule arms reduced.

Female genitalia (Fig. 60K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, elongate oval; outer edge of coxite free, inner edge simple—straight or rounded, ventral surface smooth. Styli distinct or absent. Bursa copulatrix simple, nondivided, with common oviduct at base. Sperm duct originated apically on bursa copulatrix.

Distribution. Palaearctic Region.

Species included (examined). Cynegetis chinensis Wang and Ren, C. impunctata* (Linnaeus), C. syriaca (Mader).

Comment. All known species were studied (see Wang et al. 2014).

Macrolasia Weise 1903 (Figs. 61–63 and 83F)

Macrolasia Weise 1903: 230. Type species: Macrolasia arcula Weise 1903 (by monotypy).—Jadwiszczak and Węgrzynowicz 2003: 183, Szawaryn and Tomaszewska 2014: 578 (redescription), Szawaryn et al. 2015: 557, 565.

Diagnosis. Macrolasia is most similar to Subcoccinella in the general color pattern, presence of the apical tibial spurs and oblique carina near the apices of the mid and the hind tibiae. Macrolasia, however, can be distinguished by having clypeus with weakly raised anterior border, incisor edge of the mandibles without denticles, mentum strongly transverse, metaventral postcoxal lines widely separated on metaventral process, elytra dually punctate and male and female genitalia of different structure.
Description. Length 4.4–5.0 mm. Body (Fig. 62A and 83F) oval, convex, dorsum pubescent. Elytra yellow to orange with several (usually five) black maculae.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 61A) shorter than half length of gula. Antenna (Fig. 61A and E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel about as broad as scape; antennomeres 3–5 elongate; antennomeres 6–8 subquadrate; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus very short, parallel-sided, its anterior margin straight, with distinct groove just beyond anterior edge. Labrum (Fig. 61B) short, transverse, weakly broadly emarginate, with anterior margin membranous. Mandible (Fig. 61C–D) multidentate apically; incisor edge produced, without teeth, its surfaces smooth without tubercles, prostheca well developed. Maxilla (Fig. 61F) with cardo semicircular; stipes much longer than galea, with suture between basistipes and mediostipes partly well visible; lacinia simple, its mesal surface simply setose; galea weakly elongate, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere weakly elongate, expanded apically. Submentum (Fig. 61A) transverse, about two times broader than long, with suture visible only laterally; mentum (Fig. 61G) strongly

Fig. 61. Macrolasia arcula Weise. (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
transverse, at least 2.5 times broader than long, widest near median part; prementum suboval, ligula sclerotized, without setae; labial palps (Fig. 61G) widely separated by distance more than width of palpiger; apical palpomere about as long and as broad as penultimate one.

**Prothorax.** Hypomeron simply/finitely punctate. Prosternal process (Fig. 62D) with short lateral grooves. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter, its anterior margin weakly arcuate. Procoxal cavity without visible bordering line.

**Pterothorax.** Mesoventrite (Fig. 62D–E) with anterior edge emarginate posteriorly, anterior margin raised, interrupted in median part; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, transverse. Metendosternie tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins narrow but entirely visible from above. Epipleuron (Fig. 62A) incomplete at apex, smooth, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines widely separated on metaventral process (Fig. 62E), laterally complete and distinctly recurved.

Legs (Fig. 62E) short and stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron. Fore and mid trochanters roundly produced. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 62C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 62B) double, swollen at base.

**Abdomen.** Six ventrites in both sexes. Abdominal postcoxal lines (Fig. 63A and E) recurved roundly but incomplete laterally. In male: apical margin of ventrite 5 truncate (Fig. 63A); ventrite 6 weakly emarginate (Fig. 63B); tergite VIII rounded (Fig. 63C); apodeme of sternum IX long, rod-like (Fig. 63D). Tergite X transverse (Fig. 63D). In female: apical margin of ventrite 5 emarginate (Fig. 63E); ventrite 6 (Fig. 63F) arcuate, longitudinally not divided; tergite VIII rounded at apex (Fig. 63G). Proctiger (TX) rounded, membranous at base.

**Male genitalia** (Fig. 63H–J). Tegminal basal piece without spines. Penis guide symmetrical, about as long as parameres, at apex entire; outer edge with small, sharp tooth near apex; inner edge without additional process. Parameres well developed, simple apically. Penis long, rod-like, curved at base, divided at apex, its basal capsule with reduced arms.

**Female genitalia** (Fig. 63K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, reniform; outer edge of coxite free, inner edge sinuate, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, nondivided, with common oviduct originated at base. Sperm duct originated apically on bursa copulatrix.

**Distribution.** Asia: India.

**Species included (examined).** *Macrolasia arcula* Weise—monotypic genus.
Subcoccinella Agassiz and Erichson 1845
(Figs. 64–66)

Lasia Hope 1840: 137 (nec Wiedemann 1824: 11; Diptera). Type species: Coccinella globosa Schneider 1792 (= Coccinella vigintiquatuor punctata Linnaeus 1758), by original designation. Subcoccinella Agassiz and Erichson 1845: 156 (replacement name for Lasia Hope 1840).— Pang and Mao 1979: 160.

Fig. 63. Macrolasia arcula Weise. (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal ventrite 6, female; (G) Abdominal tergite VIII, female, ventral; (H) Penis; (I) Tegmen, ventral view as placed in abdomen; (J) Tegmen, its inner view; (K) Female genitalia.

Jadwiszczak and Węgrzynowicz 2003: 184, Kovár 2007: 630, Ren et al. 2009: 314, Szawaryn et al. 2015: 557, 566.

Diagnosis. Subcoccinella is most similar to Cynegasis Chevolat in having similar body size and shape, the eyes separated by more than 0.75 width of head, and prosternum in front of coxa being shorter than half length of coxal longitudinal diameter. It differs however, from Cynegasis by the head without ventral antennal.
grooves, the elytra with lateral margins narrow but entirely visible from above, the epipleura without foveae and the tarsal claws double only weakly swollen at their bases.

**Description.** Length 3.0–4.0 mm. Body (Fig. 65A) oval, convex, dorsum pubescent. Elytra orange with numerous black maculae, some of them may be joined together, sometimes maculae absent.

**Head.** Interocular distance more than 0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 64A) shorter than half length of gula. Antenna (Fig. 64E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate, three times longer than broad, antennomeres 4–8 about 1.5 longer than broad; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus short, parallel-sided, its anterior margin straight, smooth without groove. Labrum (Fig. 64B) transverse, weakly emarginate at apex with apical part membranous. Mandible (Fig. 64C–D) multidentate apically; incisor edge multidentate, its surfaces smooth without tubercles, prostheca well developed. Maxilla (Fig. 64F) with cardo subtriangular, slightly longer than wide; stipes much longer than galea, with suture between basistipes...
and mediostipes partly visible; lacinia simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, its ventral surface sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum transverse, about 2.5 broader than long, suture weakly visible; mentum (Fig. 64G) less than two times broader than long, widest at 1/3 length basaly; prementum oval, truncate apically, ligula shortly setose; labial palps (Fig. 64G) separated by distance at least equal to width of palpiger; apical palpomere at least as long and about as broad as penultimate one.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 65D) smooth, without carinae. Prosternum in front of coxa shorter than half length of coxal longitudinal diameter, anterior margin uniformly weakly arcuate. Procoxal cavity with bordering line connecting laterally with anterior prosternal bordering line.

Pterothorax. Mesoventrite (Fig. 65E) with anterior edge emarginate posteriorly, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture stright. Inner edge of metanepisternum smooth. Scutellum triangular, as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra with single size punctures; lateral margins narrow but entirely visible from above. Epipleuron (Fig. 65A) incomplete apically, smooth, its inner margin with bordering line nearly complete, undulate, fading before base of elytron.

Metaventral postcoxal lines (Fig. 65E) joined on metaventral process in straight line, laterally complete and distinctly recurved.

Legs stout with apices of mid and hind femora weakly protruding from outer margin of epipleuron (Fig. 65A). Fore and mid trochanters roundly produced with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora weakly swollen, simple along inner edge; mid and hind tibiae on outer edge with oblique carina near apex (Fig. 65C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 65B) double, weakly swollen at base.

Abdomen. Six ventrites in males and five ventrites in females. Abdominal postcoxal lines (Fig. 66A and E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 66A); ventrite 6 emarginate (Fig. 66B); tergite VIII rounded (Fig. 66C); apodeme of sternum IX moderately short and broad (Fig. 66D). Tergite X arcuate (Fig. 66D). In female: apical margin of ventrite 5 rounded (Fig. 66E); sternite VIII (Fig. 66F) rounded at apex with simple, arcuate basal margin, longitudinally at middle not divided; tergite VIII (Fig. 66G) rounded at apex. Proctiger (TX) rounded at apex.

Male genitalia (Fig. 66H-J). Tegminal basal piece without spines. Penis guide symmetrical, slightly longer than parameres, at apex entire, pointed; outer edge smooth; inner edge without additional process. Parameres broad, well developed, simple apically.
Penis stout, curved with appendages at apex, its basal capsule with reduced arms.

Female genitalia (Fig. 66K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites distinctly less than two times longer than wide, elongate oval; outer edge of coxite free, inner edge simple—rounded, ventral surface smooth. Styli distinct. Bursa copulatrix without sclerite, simple, nondivided, with common oviduct at base. Sperm duct originated apically on bursa copulatrix.

Distribution. Palaearctic Region.

Species included (examined). Subcoccinella vigintiquatuorpunctata* (Linnaeus).

Comment. Park and Yoon (1991) described S. coreae from South Korea, indicating differences in male genitalia between both species. However, comparing figures provided in their paper with studied genitalia of S. vigintiquatuorpunctata, we cannot ascertain without doubts if S. coreae represents a valid species or it is only a population of S. vigintiquatuorpunctata.

Diekeana Tomaszewska and Szawaryn 2015
(Figs. 67–69 and 83C)

Diekeana Tomaszewska and Szawaryn, in Szawaryn et al. 2015: 562. Type species: Epilachna alternans Mulsant 1850 (by original designation).

Epilachna Chevrolat in Dejean 1837 (in part).—Szawaryn et al. 2015: 552, 562, 566.

Diagnosis. Diekeana is most similar and closely related to Uniparodentata by having the serration along inner margin of metanepisternum and the prosternal process usually with lateral carinæ. Diekeana however differs from Uniparodentata by mandibular incisor edge multidentate, pronotal hypomeron simply punctate,
metaventral postcoxal lines joined on metaventral process, mid and hind coxae simple without tubercles, tibiae without oblique carina near apex and coxites being spindle-shaped.

**Description.** Length 6.6–12.0 mm. Body (Fig. 68A and 83C) oval to elongate oval, convex, dorsum pubescent. Elytra orange, red or brown with black maculae or stripes.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 67A) shorter than half length of gula. Antenna (Fig. 67E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 3–5 elongate, more than two times longer than broad, antennomeres 6–8 elongate, about 1.5 times longer than broad; club asymmetrical. Ventral and dorsal antennal grooves absent (Figs. 67A and 68D). Clypeus short, parallel-sided, its anterior margin straight, smooth without groove. Labrum (Fig. 67B) transverse, anterior margin truncate or emarginate. Mandible (Fig. 67C–D) multidentate apically; incisor edge weakly roundly produced, multidentate, its surfaces smooth, prostheca well developed. Maxilla (Fig. 67F) with cardo semicircular; stipes much longer than galea, in form of single sclerite with weak trace of suture visible; lacinia simple, its mesal surface simply setose; galea oval, about as long as wide, mostly sclerotized, its ventral

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**Fig. 67.** Diekeana admirabilis (Crotch). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
surface pubescent with long sete on apical margin; terminal palpomere elongate, broadened apically. Submentum subquadrate to weakly elongate, with suture not clearly visible; mentum (Fig. 67G) less than 2 times broader than long, widest near base; prementum oval, ligula shortly setose; labial palps (Fig. 67G) separated by distance distinctly less than width of palpiger; apical palpomere at least as long and about as broad as penultimate one.

Prothorax. Hypomeron simply/finally punctate. Prosternal process (Fig. 68E) smooth or with separate carinae. Prosternum in front of coxa shorter than half length of coxal longitudinal diameter, its anterior margin uniformly arcuate. Procoxal cavity without visible bordering line.

Pterothorax. Mesoventrite (Fig. 68E) with anterior edge emarginate posteriorly, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Metanepisternum serrate on inner edge. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins not or hardly visible from above. Epipleuron (Fig. 68A) incomplete apically, smooth, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines joined on metaventral process in straight line, laterally complete and distinctly recurved.

Legs slender or stout with apices of mid and hind femora weakly protruding from outer margin of elytral epipleuron (Fig. 68A). Fore and mid trochanters simple or roundingly produced with weak cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina (Fig. 68C). Tibial spurs: 1-2-2. Tarsal claws (Fig. 68B) double, weakly swollen at base.

Abdomen. Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines (Fig. 69A and E) recurved roundly, incomplete or complete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 69A); ventrite 6 emarginate (Fig. 69B); tergite VIII (Fig. 69C) rounded apically with expanded antero-lateral projections, apodeme of sternum IX long, rod-like (Fig. 69D), sometimes broadened. Tergite X rounded apically (Fig. 69D). In female: apical margin of ventrite 5 (Fig. 69E) rounded or truncate; ventrite 6 (Fig. 69F) rounded or truncate (or sternite VIII) rounded or notched in middle) with simple, arcuate basal margin, longitudinally at middle not divided; tergite VIII rounded (Fig. 69G). Proctiger (TX) truncate or broadly emarginate.

Male genitalia (Fig. 69H–J). Tegmental basal piece without spines. Penis guide symmetrical, about as long as parameres, at apex entire; outer edge smooth or at most setose; inner edge without additional process. Parameres well developed, broadened apically, with long hair in apical part. Penis long, rod like, straight or curved, its base with T-shaped capsule.
**Female genitalia** (Fig. 69K). Sclerite anteriorly to coxites in membrane connecting paraprocts absent. Coxites much longer than wide, triangularly or regularly long-oval; outer edge of coxite free, inner edge simple—straight, rounded, or weakly emarginate, ventral surface smooth. Styli distinct. Bursa copulatrix without sclerite, large, nondivided, with common oviduct protruding at base. Sperm duct originated apically on bursa copulatrix.

**Distribution.** South and South-Eastern Asia.

**Species included (examined).** *Diekeana alternans* (Mulsant) comb. nov., *D. admirabilis* (Crotch) comb. nov., *D. glochinosa* (Pang and Mao) comb. nov., *D. hopeiana* (Miyatake) comb. nov., *D. insignis* (Gorham) comb. nov., *D. macularis* (Mulsant) comb. nov., *D. maxima* (Weise) comb. nov., *D. parainsignis* (Pang and Mao) comb. nov.

**Comment.** As stated in Szawaryn et al. (2015), all studied species have belonged to *Epilachna admirabilis*-group of Dieke (1947). So probably the remaining species of this group will also belong to *Diekeana* as well as some other species unassigned to any group of former *Epilachna* (Szawaryn et al. 2015).

**Cleta Mulsant 1850 stat. nov.**

(Figs. 70–72 and 82C)

*Epilachna* (Cleta) Mulsant 1850: 866. Type species, *Epilachna eckloni* Mulsant 1850 (by subsequent designation of Jadwiszczak and Węgrzynowicz 2003).

*Epilachna* (Hypsa) Mulsant 1850: 860. Type species, *Epilachna nigroimbata* J. Thomson 1875 (by subsequent designation of Korschefsky 1931). Syn. nov.

*Chazeauiana* Tomaszewska and Szawaryn in Szawaryn et al. 2015: 564. Type species: *Epilachna salibergi* Mulsant 1850 (by original designation). Syn. nov.

*Epilachna* Chevrolat in Dejean 1837 (in part).—Szawaryn et al. 2015: 554, 564, 566.
Diagnosis. Although species of *Cleta* are very diverse in shapes and color, the genus can be distinguished by the following combination of characters: mid and hind tibiae without oblique carina near their apices, apical tibial spurs absent, metaventral postcoxal lines laterally descending and complete (or sometimes continuing as lateral bordering of metaventrite) and female ventrite 6 with anterior margin roundly projected anteriorly in middle.

Description. Length 2.5–8.5 mm. Body (Fig. 71A and 82C) oval or elongate oval, convex, dorsum pubescent. Elytral coloration very diverse, can be yellow, orange, brown or black with black, yellow, or red maculae, sometimes maculae are connected and forming circles, stripes, or other shapes.

Head. Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 70A) shorter than half length of gula. Antenna (Fig. 70E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 elongate; antennomeres 4–8 subquadrate or elongate, antennomere 8 sometimes transverse; club asymmetrical. Ventral antennal grooves

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Fig. 70. (A–F) *Cleta punctipennis* Mulsant; (G) *Cleta consignata* (Weise). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
usually absent, sometimes present short, straight, extending along inner margin of eye only. Clypeus short, parallel-sided, anterior margin smooth without groove, straight or weakly emarginate. Labrum (Fig. 70B) transverse, short, with anterior margin emarginate. Mandible (Fig. 70C–D) multidentate apically; incisor edge without teeth, its surfaces smooth, prostheca well developed. Maxilla (Fig. 70F) with cardo semicircular, reaching at most slightly outside of mouth cavity; maxillary stipes much longer than galea, with suture between basistipes and mediostipes at least partly well visible; lacinia simple, its mesal surface without distinct hairs; galea transversely oval, mostly sclerotized, its ventral surface at least sparsely pubescent; terminal palpomere at least weakly elongate, parallel-sided or weakly expanded apically. Submentum transverse, suture not visible; mentum (Fig. 70G) transverse, less or more than two times broader than long, widest at base; prementum subquadrate with membranous ligula produced anteriorly, rectangular or rounded apically, with scale like appendages; labial palps (Fig. 71G) separated by distance at least equal to width of palpiger; apical palpmere usually distinctly shorter than penultimate one, distinctly narrower than penultimate, or sometimes as long and as broad as penultimate palpmere.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 71E) smooth, without carinae, bordered laterally. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter or sometimes shorter, its anterior margin uniformly arcuate or rarely triangularly produced anteriorly in median part. Procoxal cavity with bordering line, reaching laterally notosternal suture.

**Pterothorax.** Mesoventrite (Fig. 71F) with anterior edge straight or emarginate, anterior margin entirely raised; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular or pentagonal, at least as long as broad or rarely transverse. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins at least narrow, entirely visible from above; epipleuron smooth, usually incomplete at apex, sometimes complete, its inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 71F) joined on metaventral process in straight or weakly arcuate line, laterally complete, descending, sometimes continuing as lateral bordering of metaventrite.

Legs short, stout with apices of mid and hind femora not protruding from outer margin of elytral epipleuron (Fig. 71A). Fore and mid trochanters weakly roundly produced, with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora weakly swollen, simple along inner edge; mid and hind tibiae on outer edge smooth, without carina (Fig. 71D). Tibiae without spurs. Tarsal claws double,
smooth or swollen at base (Fig. 71B) or double with large basal tooth (Fig. 71C).

**Abdomen.** Six ventrites in males and five or six ventrites in females. Abdominal postcoxal lines (Fig. 72A and E) recurved roundly, incomplete or rarely complete laterally. In male: apical margin of ventrite 5 truncate (Fig. 72A); ventrite 6 emarginate (Fig. 72B); tergite VIII (Fig. 72C) rounded or emarginate; apodeme of sternum IX simple, narrow, slender (Fig. 72D). Tergite X (Fig. 72D) subtriangular, suboval or subrectangular. In female: apical margin of ventrite 5 truncate (Fig. 72E) or rounded; ventrite 6 (sternite VIII) (Fig. 72G) rounded, truncate with median notch or emarginate, basal margin roundly projected anteriorly in middle, longitudinally at middle not divided or sometimes looking like divided but connected by membrane; tergite VIII rounded (Fig. 72F) or emarginate. Proctiger (TX) rounded, truncate or emarginate.

**Male genitalia** (Fig. 72H–J). Tegminal basal piece without spines. Penis guide symmetrical, narrowing anteriorly or sometimes expanded at apical part, shorter or longer than parameres, at apex entire; outer edge smooth, at most setose, bent at apical part, rarely with small, sharp tooth near apex; inner edge without additional process or with process covered with setae. Parameres well developed, simple apically, rarely with small external teeth. Penis simple or slightly curved, rod-like, sharply pointed at apex, its base with T-shaped capsule sometimes reduced.

**Female genitalia** (Fig. 72K). Sclerite anteriorly to coxites in membrane connecting paraprocts present (Fig. 72K) or absent. Coxites distinctly less than two times longer than wide, oval or subquadrate; inner edge of coxites simple—straight, rounded, or weakly emarginate, ventral surface with sclerotized pocket/ridge antero-medially or smooth. Styli strongly reduced and hardly visible or distinct. Bursa copulatrix sometimes with sclerite (Fig. 72K), simple.
nondivided, with common oviduct originated at base. Sperm duct originated dorsally or apically on bursa.

**Distribution.** Africa, Madagascar.

**Species included** (examined). *Cleta coquereli* (Sicard) comb. nov., *C. consignata* (Weise) comb. nov., *C. distincta* (Thunberg), *C. fulvobirta* (Weise) comb. nov., *C. gyldenstolpei* (Weise) comb. nov., *C. sahlbergi* Mulsant, *C. griveaudi* (Chazeau) comb. nov., *C. vadoni* (Chazeau) comb. nov. *C. eckloni* Mulsant, *C. nigrolimbata* (Thomson) comb. nov., *C. punctipennis* Mulsant.

**Comment.** Studied species of *Cleta* belong to the former *Epilachna sahlbergi* group, comprising in total approximately 106 species from Africa (Fürsch 1963, 1987). Four of the studied species (*C. distincta*, *C. eckloni*, *C. punctipennis*, *C. sahlbergi*) belonged originally to the subgenus *Cleta* of *Epilachna* Mulsant. The studied species from Madagascar belonged to *Epilachna* and *Henosepilachna* (Chazeau 1975, 1976). Probably more species of Madagascan Epilachnini may belong to this genus.

Apart from named/determined species, three unnamed species of former *Epilachna* from Africa were examined (voucher specimens

**Fig. 73.** (A–F) *Afidentula manderstjernae* (Mulsant); (G) *Afidentula bisquadripunctata* (Gyllenhal). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
used in Szawaryn et al. 2015: *E.sp_KS152, E.sahlb.gr_KS138, E.sahlb.gr_KS239*.

**Afidentula Kapur 1958**  
(Figs. 73–75 and 82B)

**Afidentula Kapur 1958**: 324. Type species: *Epilachna manderstjerna* Mulsant 1853 (by original designation).—Jadwiszczak and Węgrzynowicz 2003: 22, Kovár 2007: 625, Ren et al. 2009: 252, Tomszewska and Szawaryn 2013: 27, Wang et al. 2015: 38, Szawaryn et al. 2015: 559, 565.

**Afidenta Dieke 1947** (in part); Szawaryn et al. 2015: 558, 565.  
**Epilachna** Chevrolat in Dejean (in part), 1837; Szawaryn et al. 2015: 559, 565.  
**Henosepilachna** Li in Li and Cook 1961 (in part); Szawaryn et al. 2015: 559, 565.

**Diagnosis.** *Afidentula* is most similar to *Afidenta* and *Afissa* (= *Afissula* Kapur). *Afidentula* however, can be distinguished from *Afidenta* by having the mandibular incisor edge smooth, ventral surface of incisor edge without tubercles and gular sutures shorter than half length of gula. From *Afissa* it can be separated by having antennae distinctly shorter than width of the head and with at least antennomer 7 and 8 subquadrate, labial apical palpomere distinctly narrower than penultimate palpomere and styli absent.

**Description.** Length 2.7–5.4 mm. Body (Fig. 74A and 82B) round to oval, strongly convex, dorsum pubescent. Elytra light brown, brown, or sometimes black, covered with black maculae, sometimes with black lateral margins, rarely unicolor.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 73A) shorter than half length of gula. Antenna (Fig. 73E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomere 3 much elongate, about as long as three successive antennomeres combined; antennomeres 4–7 subquadrate or weakly elongate; antennomere 8 transverse; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus short, parallel-sided, anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 73B) transverse, densely setose. Mandible (Fig. 73C–D) multideterminate apically; incisor edge without teeth, its surfaces smooth without tubercles, prosthetha well developed. Maxilla (Fig. 73F) with cardo semicircular; stipes much longer than galea, with suture between basistipes and mediostipes well visible; lacinia simple, small, its mesal surface simply setose; galea mostly sclerotized, transversely oval or about as long as wide, with its ventral surface glabrous or at least sparsely pubescent;

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**Fig. 74.** *Afidentula manderstjerna* (Mulsant). (A) Body, ventral view; (B) Tarsal claws; (C) Mid tibia, apex; (D) Head, pro-, and mesothorax, ventral; (E) Pro-, meso-, and metathorax, ventral, and abdominal ventrite 1.
terminal palpmere at least weakly elongate, parallel-sided or weakly expanded apically. Submentum transverse with suture not clearly visible (Fig. 73A); mentum transverse, widest at or near base; prementum oval, ligula with medio-apical brush of setae or spines (Fig. 73G), shortly setose or without setae; labial palps (Fig. 73G) separated by distance distinctly less than width of palpiger; apical palpmere distinctly shorter and narrower than penultimate one or at least as long but distinctly narrower than penultimate palpmere.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 74D) smooth, without carinae. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter or shorter than half length of coxal longitudinal diameter, its anterior margin uniformly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture or with bordering line connected laterally with anterior prosternal bordering line.

Pterothorax. Mesoventrite (Fig. 74E) with anterior edge weakly emarginate posteriorly, anterior margin entirely raised; mesoventral process smooth or rarely tuberculate; meso-metaventral suture straight or weakly emarginate posteriorly. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins of elytra narrow but entirely visible from above. Epipleuron (Fig. 74A) incomplete apically, smooth, inner margin with bordering line nearly complete, fading before base of elytron. Metaventral postcoxal lines (Fig. 74E) joined on metaventral process in straight or weakly arcuate line, laterally complete and straight or weakly recurved, sometimes descending or descending and continuing as lateral bordering of metaventrite.

Legs short and stout with apices of mid and hind femora weakly protruding from outer margin of elytral epipleuron (Fig. 74A). Fore

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Fig. 75. *Afidentula manderstjernae* (Mulsant). (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal sternite VIII, female, ventral; (G) Abdominal tergite VIII, female, ventral; (H) Penis; (I) Tegmen, its inner view; (J) Tegmen, ventral view as placed in abdomen; (K) Female genitalia.
and mid trochanters angulately produced with distinct cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina, rarely with oblique carina near apex. Tibiae without distinct spurs (Fig. 74C), rarely tibial spurs 1-2-2. Tarsal claws (Fig. 74B) double with large basal tooth.

**Abdomen.** Six ventrites in males and five or six in females. Abdominal postcoxal lines (Fig. 75A and E) recurved roundly but incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 75A); ventrite 6 weakly truncate or emarginate (Fig. 75B); tergite VIII rounded (Fig. 75C); apodeme of sternum IX simple, rod-like (Fig. 75D). Tergite X transverse, rounded (Fig. 75D). In female: apical margin of ventrite 5 (Fig. 75E) rounded, weakly sinuate or truncate; sternite VIII (or ventrite 6) (Fig. 75F) rounded, longitudinally at middle not divided or rarely looking like divided but connected by membrane; tergite VIII rounded (Fig. 75G). Proctiger (TX) transverse, rounded, truncate, or emarginate apically.

**Male genitalia** (Fig. 75H–J). Tegmental basal piece without spines. Penis guide symmetrical, at apex entire; outer edge smooth; inner edge without additional process. Parameres well developed,

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**Fig. 76.** *Chnootriba hova* (Weise). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Labium.
simple apically, long narrow, sometimes broadened. Penis simple, rod-like, straight or curved, simple apically or with gonopore, its base with T-shaped capsule sometimes reduced.

**Female genitalia** (Fig. 75K). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites distinctly less than two times longer than wide, oval; outer edge of coxite free, inner edge simple—rounded, ventral surface smooth. Styli absent. Bursa copulatrix without sclerite, simple, nondivided with common oviduct originated ventrally. Sperm duct originated dorsally or apically on bursa.

**Distribution.** South and South-Eastern Asia, Africa, Madagascar.

**Species included (examined):** Afidentula acervata (Chazeau) comb. nov., A. bisquadripunctata (Gyllenhal), A. blaesa (Weise) comb. nov., A. capicola (Mulsant) comb. nov., A. godarti (Mulsant) comb. nov., A. himalayana Kapur, A. janczyki (Fürsch) comb. nov., A. manderstjernae* (Mulsant), A. minima (Gorham), A. quindecemguttata (Dicke), A. scitula (Weise) comb. nov., A. semisqualens Tomaszewska and Szawaryn, A. stephensi (Mulsant), A. thanhsonnensis Hoang.

**Comment.** Originally Afidentula comprised only nine species from Asia (Tomaszewska and Szawaryn 2013). However, Szawaryn et al. (2015) has found that four studied African species of Afidenta formed a monophyletic group with Afidentula and probably all African species formerly classified in Afidenta may belong to Afidentula. Some other species of former Epilachna and Henosepilachna may also belong to this genus, as E. blaesa and H. acervata.

**Chnootriba Chevrolat 1837**
(Figs. 76–78 and 83B)

**Chnootriba Chevrolat in Dejean 1837: 460. Type species:** Coccinella similis Thunberg 1781 (by monotypy).—Jadwiszczak and Węgrzynowicz 2003: 28, Szawaryn et al. 2015: 554, 560, 565.

**Henosepilachna (Elateria) Fürsch 1964: 182. Type species:** Coccinella elaterii Rossi 1794 (by original designation). Synonymized with Henosepilachna Li 1961 by Jadwiszczak and Węgrzynowicz 2003: 132. Syn. nov.

**Epilachna Chevrolat in Dejean 1837 (in part). Szawaryn et al. 2015: 560, 565.**

**Henosepilachna Li in Li and Cook 1961 (in part). Szawaryn et al. 2015: 554, 560, 565.**

**Diagnosis.** Chnootriba is one of the most morphologically diverse genera of Epilachnini. The following combination of characters can separate species of Chnootriba from species of other African Epilachnini genera: mid and hind tibiae without oblique carina near apex, tarsi double with large basal tooth or distinct

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**Fig. 77.** (A–C) Chnootriba similis (Thunberg); (D–E). Chnootriba erichi (Weise). (A) Body, ventral view; (B) Tarsal claws; (C) Ventral mouthparts; (D) Head and pro-thorax, ventral; (E) Meso- and metathorax, ventral, and abdominal ventrite 1.
angulation, prementum oval with ligula simple, not produced anteriorly, apical labial palpomere as broad as penultimate one, female ventrite 6 (sternite VIII) fully divided or appears like divided medi-ally but connected by membrane, with basal/anterior margin simply arcuate (Fig. 78F).

**Description.** Length 6.0–10.1 mm. Body (Fig. 77A and 83B) oval to elongate oval, convex, dorsum pubescent. Elytral coloration very diverse, with ground color yellow, orange, red, brown to black with diverse patterns made by maculae or stripes.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 76A) about half length of gula. Antenna (Fig. 76E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel about as broad as scape; antennomeres 4–8 elongate, subquadrate, rarely transverse; club asymmetrical. Ventral antennal grooves absent or short, straight, along inner margin of eye only. Dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin straight or weakly emarginate, smooth without groove. Labrum (Fig. 76B) transverse, truncate or emarginate at apex. Mandible (Figs. 76C–D and 77C) multidentate apically; incisor edge without teeth or multidentate, its surfaces smooth or densely tuberculate, prostheca well developed. Maxilla (Fig. 76F) with cardo quadrate to weakly transverse reaching at most slightly outside of mouth cavity; stipes much longer than galea, with suture between basistipes and mediostipes at least partly well visible; lacinia simple, its mesal surface simply setose; galea as long as wide or weakly elongate, mostly sclerotized or modified in form of sclerotized hook, sometimes transversely oval, its ventral surface pubescent or glabrous; terminal palpomere at least weakly elongate, parallel-sided or weakly expanded apically or elongate and broadened apically, sometimes distinctly securiform. Submentum usually short transverse, sometimes longer than broad, suture weakly visible; mentum (Fig. 76G) transverse, widest at or near base or sides subparallel; prementum oval, ligula covered with long setae or shortly setose, rarely without setae; labial palps (Fig. 76G) separated by distance distinctly less than width of palpiger or at least equal to width of palpiger; apical palpomere as long or longer and about as broad as penultimate one.

**Prothorax.** Hypomeron simply/finely punctate. Prosternal process (Fig. 77D) with surface smooth, without carinae, with lateral bordering, sometimes with lateral depressions. Prosternum in front of coxa 0.5–1.0 length of coxal longitudinal diameter or shorter than half
length of coxal longitudinal diameter, anterior margin uniformly weakly arcuate. Procoxal cavity with bordering line, reaching laterally notosternal suture or sometimes without visible bordering line. Anterior margin of prosternum often with bordering.

Ptero thorax. Mesoven trite (Fig. 77E) with anterior edge emarginate posteriorly, anterior margin entirely raised, sometimes without border in mid part; mesoventral process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite with tendons separated by slightly less than width of stalk and placed on laminae. Elytra dually punctate; lateral margins narrow or moderately wide, entirely visible from above, sometimes distinctly explanate in basal half. Epipleuron (Fig. 77A) incomplete apically, smooth, sometimes with foveae for receiving tips of femora, inner margin with bordering line nearly complete, fading before base of elytron or rarely with bordering line extending at most to level of mid coxa. Metaventral postcoxal lines (Fig. 77E) joined on metaventral process in straight or weakly arcuate line or rarely separated on metaventral process; laterally complete or rarely incomplete, recurved, straight, or descending.

Legs slender, rarely more stout with apices of mid and hind femora protruding from outer margin of epipleuron (Fig. 77A), rarely

Fig. 79. Papuaepilachna kapuri (Bielawski). (A) Head, ventral view; (B) Labrum; (C) Mandible, dorsal view; (D) Mandible, ventral view; (E) Antenna; (F) Maxilla; (G) Mentum; (H) Prementum and labial palp.
when elytra lateraly explanate not protruding from outer margin of epipleuron. Fore and mid trochanters simple or roundly or angulately produced, with weak cavities on their inner surfaces for receiving tips of tibiae in repose. Mid and hind coxae simple; mid and hind femora simple along inner edge; mid and hind tibiae on outer edge smooth, without carina. Tibial spurs: 1-2-2 or rarely 2-2-2, sometimes tibial spurs absent. Tarsal claws double with large basal tooth (Fig. 77B) or double with basal angulation.

Abdomen. Six ventrites in males and six or five ventrites in females. Abdominal postcoxal lines (Fig. 78A and E) recurved roundly, incomplete or complete laterally, without additional line, sometimes abdominal postcoxal lines reduced. In male: apical margin of ventrite 5 truncate (Fig. 78A); ventrite 6 emarginate (Fig. 78B); tergite VIII distinctly excised medially at apex or rounded (Fig. 78C); apodeme of sternum IX thin, rod-like (Fig. 78D). Tergite X arcuate (Fig. 78D) or truncate at apex. In female: apical margin of ventrite 5 rounded, sometimes triangularly produced posteriorly at middle (Fig. 78E); ventrite 6 (sternite VIII) (Fig. 78F) longitudinally at middle looking like divided but connected by membrane or fully or almost divided along middle, with simple arcuate basal margin; tergite VIII (Fig. 78G) truncate or emarginate apically or distinctly excised medially at apex, sometimes rounded. Proctiger (TX) emarginate (Fig. 78J) or rounded at apex.

Male genitalia (Fig. 78H and I). Tegminal basal piece without spines. Penis guide symmetrical, as long or longer than parameres, at apex entire; outer edge smooth or at most setose, sometimes with small, sharp tooth near apex; inner edge without additional process. Parameres well developed, simple apically or sometimes with small external teeth. Penis long, thin, with curved apex, sometimes with apex broadened or pointed with gonopore and appendages, base with T-shaped capsule reduced.

Female genitalia (Fig. 78J). Sclerite anteriorly to coxites in membrane connecting paraprocts absent or present. Coxites distinctly less than two times longer than wide, elongate oval or pentagonal; outer edge of coxite free, inner edge with small excision medio-basally or simple—straight, rounded, or weakly emarginate, ventral surface of coxite with sclerotized pocket antero-medially or smooth. Styli distinct or sometimes strongly reduced and hardly visible. Bursa copulatrix without sclerite, simple, nondivided, with common oviduct originated at base. Sperm duct simple, its base originated apically or dorsally on bursa copulatrix.

Distribution. Africa, Madagascar, Middle East, South Europe. Species included (examined): Chnootriba annulata (Kolbe) comb. nov., Ch. bigemmata (Fürsch) comb. nov., Ch. biplagiata (Kolbe) comb. nov., Ch. cinerascens (Weise) comb. nov., Ch. connectens (Weise) comb. nov., Ch. elaterii (Rossi) comb. nov., Ch.
erectepubescens Mader, Ch. erichi (Weise) comb. nov., Ch. guttifera (Weise) comb. nov., Ch. birta (Thunberg) comb. nov., Ch. bova (Weise) comb. nov., Ch. kauffeensis (Weise) comb. nov., Ch. maderi (Fursch), Ch. ocellata (Bertoloni) comb. nov., Ch. pauli (Weise) comb. nov., Ch. pavonia (Olivier) comb. nov., Ch. similis* (Thunberg), Ch. tetracycla (Gerstaecker) comb. nov., Ch. umbratilis (Weise) comb. nov., Ch. vulgaris (Weise) comb. nov.

Comment. Studied species belonged mainly to the elaterii-group of Fürsch (1964), hirta-group, tertacycla-group and pauli-group (Fürsch 1991) of former Henosepilachna. It is probable that all remaining species from these groups will belong to Chnootriba. Further research could also result in moving some species of former Epilachna from Madagascar to the genus Chnootriba.

Apart from the named/determined species, an unnamed species of former Henosepilachna was examined (voucher specimen used in Szawaryn et al. 2015: K5111_H_sp.

Papuaepilachna Szawaryn and Tomaszewska 2013 (Figs. 79-81 and 83H)

Papuaepilachna Szawaryn and Tomaszewska 2013: 2435. Type species: Afidentula nasti Bielawski 1963 (by original designation).—Szawaryn et al. 2015: 554, 560, 565.

Lalokia Szawaryn and Tomaszewska 2013: 2429 [nec Lalokia Hardy 1987]. Type species: Epilachna aruensis Crotch 1874 (by original designation). Synonymized by Szawaryn et al. 2015: 565.

Henosepilachna Li in Li and Cook 1961 (in part)—Szawaryn et al. 2015: 554, 560, 565.

Diagnosis. Papuaepilachna is most similar and closely related to Henosepilachna. It however, can be distinguished from Henosepilachna by having female ventrite 6 not divided longitudinally.

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Fig. 81. Papuaepilachna kapuri (Bielawski). (A) Abdomen, male, ventral; (B) Abdominal ventrite 6, male; (C) Abdominal tergite VIII, male, ventral; (D) Male genital segment; (E) Abdomen, female, ventral; (F) Abdominal ventrite 6, female; (G) Abdominal tergite VIII, female, ventral; (H) Penis; (I) Tegmen, its inner view; (J) Tegmen, ventral view as placed in abdomen; (K) Female genitalia.
at middle, metaventral postcoxal lines joined on metaventral process in straight line and tegminal basal piece without a pair of spines on inner margin near base of tegminal strut.

**Description.** Length 5.8–9.3 mm. Body (Fig. 80A and 83H) oval, strongly convex, dorsum pubescent. Elytra black, sometimes with red maculae or with yellow-orange spots, rarely elytra yellow-orange with black maculae.

**Head.** Interocular distance 0.50–0.75 head width. Inner orbits emarginate antero-medially, closest posteriorly. Frons simple. Gular sutures (Fig. 79A) at least as long as half length of gula. Antenna (Fig. 79E) composed of 11 antennomeres, length 0.5–1.0 head width; pedicel distinctly narrower than scape; antennomeres 3–8 transverse, quadrate or weakly elongate; club asymmetrical. Ventral and dorsal antennal grooves absent. Clypeus parallel-sided, its anterior margin straight or weakly arcuate posteriorly, without groove. Labrum (Fig. 79B) transverse with apical margin emarginate medi-ally. Mandible (Fig. 79C–D) multidentate apically; incisor edge multidentate or without teeth, its surfaces smooth or provided with

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**Fig. 82.** Representatives of Epilachnini genera. (A) *Adira obscurocincta* Klug; (B) *Afidentula manderstjerane* (Mulsant); (C) *Cleta punctipennis* Mulsant; (D) *Epilachna borealis* (Fabricius); (E) *Eremochilus* sp.; (F) *Mada* sp.; (G) *Figura ruwenzorica* Szawaryn; (H) *Tropha variabilis* Weise; (I) *Pseudodira clypealis* Gordon.
tubercles; molar part absent or rarely with molar tooth; prostheca well developed, setose. Maxilla (Fig. 79F) with cardo quadrate to weakly transverse reaching at most slightly outside of mouth cavity; stipes much longer than galea, in form of single sclerite with weak trace of suture or with suture between basistipes and mediostipes well visible; maxillary lacinia simple, its mesal surface simply setose; galea as long as wide or weakly elongate, mostly sclerotized, its ventral surface at least sparsely pubescent; terminal palpomere elongate, broadened apically. Submentum (Fig. 79A) transverse or subquadrate with suture clearly visible; mentum (Fig. 79G) less than two times broader than long, widest at base, or sides subparallel; prementum oval, ligula shortly setose or with medio-apical brush of long setae or spines; labial palps (Fig. 79H) separated by distance distinctly less or equal to width of palpiger; apical palpomere as long as or longer than penultimate one and about as broad as penultimate palpomere.

Prothorax. Hypomeron simply/finely punctate. Prosternal process (Fig. 80D) smooth, without carinae. Prosternum in front of coxa
shorter than half length of coxal longitudinal diameter, anterior margin continuing as straight or arcuate line. Procoxal cavity with bordering line reaching laterally notosternal suture or without visible bordering line.

*Pterothorax*. Mesonotrite (Fig. 80E) with anterior edge weakly emarginate posteriorly, anterior margin entirely raised; mesonotval process smooth; meso-metaventral suture straight. Inner edge of metanepisternum smooth. Scutellum triangular, at least as long as broad. Metendosternite tendons separated by slightly less than emarginate posteriorly, anterior margin entirely raised; mesoventral bordering line. 

bordering line reaching laterally notosternal suture or without visible margin continuing as straight or arcuate line. Procoxal cavity with bordering line extending at most to level of mid coxa or nearly complete, fading before base of elytra. Metaventral postcoxal lines (Fig. 80E) joined on metaventral process in straight or weakly arcuate line, laterally complete and distinctly recurved or straight.

Legs (Fig. 80A) long and slender with apices of mid and hind femora protruding from outer margin of elytral epipleuron or rarely more stout and not protruding from outer margin of elytral epipleuron. Fore and mid trochanters simply or angulately produced with weak cavities on their inner surfaces for receiving tip of tibiae in repose. Mid and hind coxae simple; mid and hind femora along inner edge; mid and hind femora on outer surface smooth, without carina (Fig. 80C). Tibial spurs: 1-2-2 or sometimes spurs absent. Tarsal claws double with large basal tooth (Fig. 80B).

*Abodyen*. Six ventrites in both sexes. Abdominal postcoxal lines recurved roundly or angulately, incomplete laterally, without additional line. In male: apical margin of ventrite 5 truncate (Fig. 81A) or emarginate; ventrite 6 emarginate (Fig. 81B); tergite VIII rounded (Fig. 81C) or truncate; apodeme of sternum IX rod-like, thin and long (Fig. 81D). Tergite X large, subtriangular, truncate or rounded at apex (Fig. 81D). In female: apical margin of ventrite 5 truncate or weakly sinuate (Fig. 81E); ventrite 6 (Fig. 81F) rounded or arcuate, sometimes truncate, with basal margin simply arcuate, longitudinally at middle not divided; tergite VIII rounded (Fig. 81G). Proctiger (TX) large, rounded or arcuate (Fig. 81K).

*Male genitalia* (Fig. 81H-J). Tegminal basal piece without spines. Penis guide symmetrical, as long as or slightly longer than parameres, at apex entire; outer edge smooth or serrate; inner edge without additional process. Parameres well developed, simple apically. Penis thin, long, straight or recurved at apex, its base with reduced T-shaped capsule.

*Female genitalia* (Fig. 81K). Sclerite anteriorly to coxites in membrane connected paraprocts absent. Coxites distinctly less than two times longer than wide, oval or almond-shaped; outer edge of coxite free or sometimes fused with paraprocts, inner edge simple—straight, rounded, or weakly emarginate, ventral surface smooth. Styli distinct or strongly reduced and hardly visible. Bursa copulatrix without sclerite, large, nondivided, ending with common oviduct, and with narrowing part of bursa leading to short sperm duct.

**Distribution.** Bismarck Is., Solomon Is., Aru Is., New Guinea, New Hebrides, Australia.

**Species included (examined):** *Papuaepilachna arnesii* (Crotch) comb. nov., *P. biroi* (Weise) comb. nov., *P. biwakana* (Bielsawski), *P. buqueti* (Montrouzier) comb. nov., *P. fulvumana* (Weise) comb. nov., *P. guttatus* (Fabricius) comb. nov., *P. immaculata* (Bielsawski) comb. nov., *P. kapuri* (Bielsawski), *P. karapensi* (Bielsawski) comb. nov., *P. nasti* (Bielsawski), *P. orrori* (Bielsawski) comb. nov., *P. samuelsoni* (Jadwiszczak) comb. nov., *P. sipinski* (Jadwiszczak) comb. nov., *P. tenmanana* (Bielsawski), *P. watalai* (Jadwiszczak), *P. wiebesi* (Bielsawski).

**Comment.** *Papuaepilachna* in the present sense includes species belonging to *Papuaepilachna* of Szawaryn and Tomaszewska (2013), Papuan species of *Henoepilachna guttatus* (Dieke 1947) and *Lalokia* of Szawaryn and Tomaszewska (2013).

**Acknowledgments**

Funding for this study was provided by a grant from the Polish National Science Center (Narodowe Centrum Nauki), 2013, to K.W. Tomaszewska.

The authors express sincere thanks to the following curators and their institutions for the loan of material used in this study: Adam Sliwinski (ANIC), Shepard Myers (BPBM), Hong Pang (CGCEC), William Foster (CUMZ), Lech Borowicz (DBET), Helmut Fursch (HFC), Otto Merkli (HNHM), Patricia Escalante Pleigo (IBUNA), Jerome Constant (INSB), Juan Enrique Barriga Tunon (JEBC), Nora Cabrera (MLPA), Antoine Mantillier (MNHN), Marc De Meyer (MRAC), Roger Booth (NHM), Vladimir Gusarov (NHMO), Bernd Jaeger (NMB), James E. Hogan (OXUM), Stephan Blank (SDEI), Ruth Muller (TMNH), Natalia J. Vandenberg (USNM), Hans Meijon (UZM), Sergey Belokobylsky and Nikolay Korotyaev (ZMAS), Nikolay Nikitsky (ZUM), Alexey Solodovnikov (ZMUC), Michael Balle (ZSMC). Other material examined belongs to the Museum i Instytut Zoologii PAN, Warsaw, Poland (MIZ). Adam Sliwinski is acknowledged for reading an early draft of this manuscript providing many helpful suggestions. Magdalena Kowalewska-Groszkowska (MIZ) helped with scanning electron micrographs. Two anonymous reviewers are sincerely acknowledged for their comments.

**References Cited**

Agassiz, L., and G. F. Erichson. 1845. Nomina systematica Generum Coleopterorum, tam viventium quosam foessulum, secundum ordinem alphabeticum disposita, adjectis auctorum, libris in quibus reperitur, anno editionis, etymologiae, et familiis ad quas pertinent. Sumptibus et Typis Jent et Gassmann, Solodurid. XII + 170 pp.

Akahdeh, M., and P. Shishchibor. 2011. Life history traits of melon ladybeetle, *Epilachna chrysomelina* (Coleoptera: Coccinellidae), on four host plant species. J. Entomol. Soc. Iran. 31:17–27.

Aruugod, A. G. B., R. Shunxiang, and Q. Baoli. 2010. Molecular phylogeny of ladybird beetles (Coleoptera: Coccinellidae) inferred from mitochondria 16s rDNA sequences. Trop. Agric. Res. 21:209–17.

Bayene, Y., T. Hofsvang, and F. Azerefegne. 2007. Population dynamics of the *Epilachna* (*Chnootriba similis*) Thunberg (Coleoptera, Coccinellidae) in Ethiopia. Crop Protect. 26:1634–43.

Bielsawski, R. 1963. Monographie der Epilachninae (Coleoptera: Coccinellidae) der Australischen Region. Ann. Zool. 21:295–461.

Bocek, L., C. Barton, A. Crompton-Platt, D. Chesters, D. Ahrens, and A. Vogler. 2014. Building the Coleoptera tree-of-life for >8000 species: composition of public DNA data and fit with Linnaean classification. Syst. Entomol. 39:97–110.

Cao, C. Y., and N. Y. Xiao. 1984. New species of Coccinellidae from Yunnan, China, Entomotaxonomia. 6:109–32.

Chapuis, M. F. 1876. Famille des Erotylides, des Endomychides et des Coccinellides. In: T. Lacordaire and M.F. Chapuis (eds.), Histoire Naturelle des Insectes. Genera des Coleopteres ou expose´m e´thodique et critique de tous les genres propose´s jusqu’ici dans cet ordre d’insectes, vol. 12. Paris, 424 pp.

Chavez, J. 1975. Nouvelles especes d’Epilachninae de Madagascar (Coleopteres, Coccinellidae). 1re Note. Cahiers O. R. S. T. O. M., Serie Biologie. 10:41–59.

Chavez, J. 1976. Nouvelles especes d’Epilachninae de Madagascar (Coleopteres, Coccinellidae). 2eme Note. Cahiers O. R. S. T. O. M., Serie Biologie. 11:69–84.

Crawson, R. A. 1955. The natural classification of the families of Coleoptera. Nathaniel Lloyd, London, 187 pp.

Crotch, G. R. 1874. A Revision of the Coleopterous Family Coccinellidae. E. W. Johnson, London, 311 pp.

Crotch, G. R. 1874. A Revision of the Coleopterous Family Coccinellidae. E. W. Johnson, London, 311 pp.
Two new genera of Epilachnini. Revision of the Neotropical genus Szawaryn, K. 2015b. Szawaryn, K. 2015a. Szawaryn, K. 2014. Szawaryn, K., and W. Tomaszewska. 2014. Thomson, C. G. 1866. Szawaryn, K., L. Bocak, A. Slipiński. Dissertatio Entomologica. Novas Insectorum Species, sistens cujas partem primam, Cons. Exper. Facul. Med. Upsal., publ ice ventilandam exhibent praeses Caecol. P. Thunberg, et respondens Samuel Casström. Joh. Edman, Direct. et Reg. Acad. Typogr., Upsaliae, 28 pp. Tomaszewska, W. 2000. Morphology, phylogeny and classification of adult Endomychidae (Coleoptera: Coccinoidae), Ann. Zool. 50:449–558. Tomaszewska, K. W. 2005. Phylogeny and generic classification of the subfamily Lycoperdininae with a re-analysis of the family Endomychidae (Coleoptera: Coccinoidae), Ann. Zool. 55:1–172. Tomaszewska, W., and K. Szawaryn. 2013. Revision of the Asian species of Afidentula Kapur, 1958 (Coleoptera: Coccinellidae: Epilachnini). Zootaxa. 3608:26–50. Tomaszewska, W., and K. Szawaryn. 2014. On African Epilachnini—a revision of the genus Trophiwa Weise (Coleoptera: Coccinellidae). Ann. Entomol. Soc. Am. 107:347–355. Ukrainsky, A. S. 2006. Five new replacement ladybird (Coleoptera: Coccinellidae) generic names. Russ. Entomol. J. 15:399–400. Vandenberg, N. J. 2002. Family 93. Coccinellidae Latreille 1807, 19 pp. In: R.H., Arnett, Jr., M.C., Thomas, P.E., Skelley, and J.H., Frank (eds.). American Beetles. Volume 2. Polyphaga: Scarabaeoidea through Curculionoidea. CRC Press LLC, Boca Raton, FL, xiv + 861 pp. Wang, H., and C. Y. Cao. 1993. Studies on the systematic position and generic relationship of the tribe Epilachnini (Coleoptera: Coccinellidae) from Yunnan. Zool. Res. 14:118–127. Wang, X., W. Tomaszewska, and S. X. Ren. 2014. A new species and first record of the genus Cynegetis Chevrolat (Coleoptera, Coccinellidae, Epilachnini) from China. Zookeys. 448:35–47. Wang, X., W. Tomaszewska, and S. X. Ren. 2015. A contribution to Asian Afidentula Kapur (Coleoptera: Coccinellidae, Epilachnini). Zookeys 516:35–48. Weise, J. 1898. Coccinelliden aus Kamerun. Deutsche Entomologische Zeitschrift. Berlin. 1898:97–125. Weise, J. 1900a. Coccinelliden aus Süd-Amerika. Deutsche Entomologische Zeitschrift. Berlin. 1899:257–272. Weise, J. 1900b. Kurze Mitteilungen über ostafrikanische Coccinelliden und Beschreibungen neuer Arten. Deutsche Entomologische Zeitschrift, Berlin. 1900:113–131. Weise, J. 1901. Coccinelliden aus Ceylon gesammelt von Dr. Horn. Deutsche Entomologische Zeitschrift, Berlin. 1900:417–445. Weise, J. 1903. Neue Coccinelliden. Deutsche Entomologische Zeitschrift, Berlin. 2:229–232. Weise, J. 1906. Zwei neue Coccinelliden. Deutsche Entomologische Zeitschrift, Berlin. 1906:159–60. Weise, J. 1912. Über Hispanen und Coccinelliden. Archiv Für Naturgeschichte. Berlin. 78:100–20. Wiedemann, C. R. W. 1824. Analecta entomologica ex Museo Regio Havniensi maxime congesta profect i coniubaque illustrat. A Regio Typographeo Scholarum, Kiliae, 60 pp. Zhang, X. N., and X. H. Ou. 2010. Fauna of some species of phytophagous ladybirds Epilachninae (Coleoptera: Coccinellidae) in Yunnan province. Entomotaxonomia. 32:53–60.