

A new genus of Dasylabrinae (Hymenoptera: Mutillidae) from Madagascar

Новый род Dasylabrinae (Hymenoptera: Mutillidae) из Мадагаскара

D.J. Brothers*, K.A. Williams**, M. Boutin***
Д.Дж. Бразерс*, К.А. Вильямс**, М. Баутин***

* Biological Sciences, School of Agriculture and Science, University of KwaZulu-Natal (Pietermaritzburg), Private Bag X01, Scottsville, 3201 South Africa. E-mail: brothers@ukzn.ac.za

* Биологические науки, Факультет сельского хозяйства и естественных наук, Университет Квазулу-Натал (Питермарицбург), Прайвит Бэг Х01, Скоттсвилл, 3201, Южная Африка.

** Plant Pest Diagnostics Center, California Department of Food & Agriculture, 3294 Meadowview Road, Sacramento, CA 95832, USA. E-mail: Kevin.Williams@cdfa.ca.gov

** Центр диагностики вредителей растений, Департамент продовольствия и сельского хозяйства Калифорнии, 3294 Мидоувью-роуд, Сакраменто, Калифорния 95832, США.

*** Muséum national d'Histoire naturelle, Entomologie, C.P. 50, 57 Rue Cuvier, 75231 Paris, France. E-mail: maxime.boutin@mnhn.fr

*** Национальный музей естественной истории, энтомология, С.П. 50, ул. Кювье, 57, 75231 Париж, Франция.

Key words: *Anomalotilla*, keys, new species, taxonomy.

Ключевые слова: *Anomalotilla*, определительные таблицы, новый вид, таксономия.

Abstract. A new genus and two new species from Madagascar are described: *Anomalotilla* gen.n., *A. leleji* sp.n. and *A. olsoufieffi* sp.n. An updated key to the subfamilies of Mutillidae, genera of Dasylabrinae and species of *Anomalotilla* of Madagascar is presented.

Резюме. Описаны новый род и два новых вида с Мадагаскара: *Anomalotilla* gen.n., *A. leleji* sp.n. и *A. olsoufieffi* sp.n. Представлен обновленный ключ к подсемействам Mutillidae, родам Dasylabrinae и видам *Anomalotilla* с Мадагаскара.

Introduction

Madagascar is colloquially recognized as a home for bizarre endemic creatures. The velvet-ant fauna of Madagascar was recently catalogued by Brothers et al. [2011]. Each of the 73 species, and 6 of the 12 genera, are exclusively known from Madagascar. Here we describe one more endemic genus known from both sexes and placed within the subfamily Dasylabrinae, and two species of the genus, one known from a male only.

Materials and methods

The following codens are used for material discussed in this study: CASC — California Academy of Sciences, San Francisco, California, USA; CSCA — California State Collection of Arthropods, Sacramento, California, USA; DJBC — Collection of D.J. Brothers, to be transferred to Iziko South African Museum (SAMC) in due course; MNHN — Muséum national d'Histoire naturelle, Paris, France; NHMUK — The Natural History Museum, London, United Kingdom.

Specimens were examined using different microscopes in different labs. Photographs of the male holotype of *Anomalotilla leleji* were taken using a Leica MC170 HD camera through a Leica M165C stereomicroscope, lit using a ring light under an opaque dome and stacked using Helicon Focus 8; other photographs were taken using a Canon G12 camera adapted to a Wild M400 macroscope, lit using four fibre-optic lights illuminating a translucent cone and stacked using Combine ZM 1.0 (Alan Hadley).

We use the abbreviations T2, T3, etc., to denote the second, third, etc., metasomal terga while S2, S3, etc., denote the second, third, etc., metasomal sterna and F2, F3, etc., denote the antennal flagellomeres. DLO is the diameter of a lateral ocellus; DMO is the diameter of the median ocellus; IOD is the inter-ocellar distance, the minimal distance between the lateral ocelli; MLOD is the minimal distance between the median and lateral ocelli; and OOD is the ocellocular distance, the minimal distance between a lateral ocellus and the inner eye margin. Body length is measured laterally as the sum of the lengths of each component, the metasomal length being adjusted to compensate for any unnatural extensions of the sclerites. The measurements of the female of *A. leleji* are the means of those of the two specimens examined. The measurements of the male of *A. leleji* are those of the holotype. The labels of the holotypes are quoted verbatim with separate lines indicated by «/».

The present work is registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:EBD43D82-0C98-49C0-8EED-BA5C36C4C80C

Results

DESCRIPTIONS OF THE NEW TAXA

Mutillidae: Dasylabrinae

Anomalotilla Brothers et Williams, **gen.n.**

<https://zoobank.org/NomenclaturalActs/9D53B1E6-92D9-47A2-AE44-F949C1C9CBF1>

Type species: *Anomalotilla leleji* Brothers et Williams, **sp.n.**

Diagnosis. *Male.* Amongst Mutillidae, males can be recognized by the distinct carinae or lamellae separating the dorsal and lateral surfaces of the pronotum and of the propodeum. Additionally, the clypeus has an erect baso-medial tubercle; the short subcircular tegula is smooth and convex; T1 is posteriorly subsessile on T2; and both T2 and S2 bear elongate lateral felt lines. *Female.* Amongst Mutillidae, females can be recognized by the mesosoma shape, which is broadly rectangular in dorsal view with the dorsal and lateral surfaces separated by irregular lamellae. Additionally, the T2 disc has a single baso-medial patch of golden setae; T1 is very weakly convex and posteriorly sessile on T2; and T6 is convex but with an apically truncate smooth pygidial plate bordered laterally by a weak carina.

Description. *Male.* Color and setae: Cuticle without metallic tint. Body with simple setae only.

Head subquadrate. Occipital carina distinct dorsally. Eye broadly ovate, moderately protruding, surface generally dull, ommatidia distinct. Ocelli small. Antennal tubercles separated basally, rounded and mostly smooth. Antennal scrobe moderately deep, with small tubercle dorsally. Clypeus with large tubercle baso-medially, antero-ventral margin bidentate. Malar space less than one-third eye height. Genal carina absent. Hypostomal carina indistinct. Scape with one longitudinal carina anteroventrally. Pedicel slightly wider than long, much shorter than F1 which is about as long as F2; flagellomeres cylindrical with very many dense sensilla placodea. Mandible subangular near midpoint, apically bidentate, obliquely weakly dilated apically, dorsal carina extending to inner apical tooth, ventrally with large tooth basally. Maxillary palp 6-segmented; labial palp 4-segmented, densely covered with short setae.

Mesosoma: Pronotal dorsal face (excluding anterior flange) with anterior margin straight, epaulet transverse but indistinct, humeral angle rounded, humeral carina obliterated, lateral and dorsal pronotal surfaces separated by distinct strong carina or lamella. Tegula sub-circular, convex, mostly smooth, not reaching level of trans-scutal articulation. Mesoscutum laterally longitudinally carinate, without notaulus but its anterior extremity indicated by a pit, parapsidal line about half length of mesoscutum. Mesoscutellum convex; axilla without tooth or lobe. Metanotum simple, transverse. Mesepisternum with evenly convex dorsal and ventral areas separated by a deep sulcus. Propodeum with dorsal and posterior surfaces undifferentiated, evenly rounded, lateral surface defined above by wavy lamella.

Wings: Fore wing with large sclerotized pterostigma; marginal cell short, acute apically, without spurlike vein postero-apically; apparently with three closed submarginal cells, but second and third cells partially fused through posterior shortening of vein 2r-m and third cell apically delimited only by nebulous vein 3r-m; one closed discoidal cell, apparent second discoidal cell apically with vein 2m-cu anteriorly incomplete or only nebulous; veins incomplete at junction of second and third submarginal cells and second discoidal cell. Hind wing without delimited submedial cell, anal vein restricted to basal stub.

Legs: Coxae unarmed. Tibial spur formula 1-2-2. Mid and hind tibiae with dorsal spines, apical spines not inserted on any processes; apical spurs cylindrical, densely clothed with microsetae. Metatibia with minute circular subapical secretory pore near base of inner spur.

Metasoma: T1 shape sub-sessile on T2, slightly wider than long, about $0.6 \times$ width of T2; anterior auricle short, indistinct. T2 felt line long, almost half length of T2, situated at about mid-length of T2. T7 with apparent pygidial plate defined by lateral carinae. S2 shallowly convex with blunt longitudinal ridge antero-medially, with long felt line. S7 exposed apically. Hypopygium (S8) slightly wider than long, surface weakly convex without lateral ridge, posterior margin emarginate medially. Cercus well developed, essentially cylindrical but slightly broadened and flattened apically.

Genitalia: Paramere moderately elongate, slightly laterally flattened, apically bluntly acuminate, parallel and nearly straight, completely separated from basiparamere externally. Basiparameres simple, completely separated along midline, parapenial lobe apically sub-triangular. Cuspid and digitus fused, laterally flattened, setose, forming short subcircular lobe with dorsal arm. Penis valves short, symmetrical, dorsal margin swollen and convex posteriorly, with two short postero-ventral teeth.

Female. Color and setae: Cuticle without metallic tint. Body with simple setae only.

Head rounded behind eyes. Occipital carina obscure and interrupted dorsally. Eye broadly ovate, moderately protruding, surface generally dull, ommatidia distinct. Antennal scrobe broad, subcircular, with distinct dorsal carina almost straight and nearly reaching eye margin. Antennal tubercle rounded, tubercles not connected by transverse carina. Clypeus strongly convex baso-medially, ventral margin with two blunt conical teeth dividing margin into approximate thirds. Malar space slightly less than eye diameter. Hypostomal carina weak, extending in weak curve to posterior mandibular condyle. Postmandibular carina well developed, forming distinct lateral margin for slightly concave oral region. Genal carina very short and scarcely indicated; postgenal carina distinct, curved towards midline ventrally. Scape simple, broadly curved. Pedicel about as long as wide, shorter than F1; F1 longer than wide, much longer than F2. Mandible weakly curved, slender, tapering, acute apically, no ventral basal tooth. Maxillary palp 6-segmented; labial palp 4-segmented; covered with short setae. Prementum smooth, evenly convex in cross-section.

Mesosoma: Almost square; dorsal surface convex and expanded laterally as irregular lamellate lobes separating it from strongly concave lateral surface; propodeum entirely almost perpendicular to dorsal face, flattish with lateral lamella delimiting lateral face. Pronotal dorsal face (excluding anterior flange) with anterior margin almost straight, anterior epaulet very indistinct, humeral angle rounded, lateral epaulet not evident. Scutellar scale short, transverse. Lateral face of pronotum strongly concave dorsally; no humeral carina. Pronotal-mesopleural suture entirely obliterated. Mesopleuron strongly concave dorsally; no vertical mesopleural ridge. Mesopleural-metapleural suture weakly curved, mostly distinct but obliterated dorsally. Metapleuron concave dorsally. Metapleural-propodeal suture mostly obliterated; endophragmal pit indistinct and far dorsad. Lateral surface of propodeum flattish but at an acute angle to posterior surface, defined postero-dorsally by weak lamella and few conical teeth. Metasternal process inconspicuous, triangular.

Legs: Tibial spur formula 1-2-2. Fore leg with weak tarsal comb. Mid and hind tibiae each with fairly few long dorsal

spines, paired curved apical spines not inserted on a short process; each subapically with inconspicuous secretory pore near base of inner apical spur; apical spurs almost cylindrical, roughened, not at all serrate, outer spur shortened. Inner metacoxal carina very indistinct, ending well before coxal apex.

Metasoma: T1 broad, sessile on T2, about $0.8 \times$ width of T2, evenly expanded from base, anterior face weakly convex; anterior auricle very inconspicuous. T2 lateral felt line moderately long, situated at about midlength of T2. T6 with distinct narrowly oval pygidial plate defined by lateral carina, apex weakly convexly truncate, surface almost smooth. S1 with median tubercle. S2 shallowly convex but weakly depressed on either side of low antero-median ridge, without felt line. S6 with apex bifidate.

Species included. Two species, *Anomalotilla leleji* sp.n. (σ^7 ♀) and *Anomalotilla olsoufieffi* sp.n. (σ^7).

Etymology. This genus name was chosen by Guido Nonveiller (deceased) in an unpublished manuscript key to mutillid genera of Madagascar. The name was apparently derived from the Ancient Greek *anomalos* «irregular, abnormal, unusual» and the suffix *-tilla*, a common suffix for genera of Mutillidae.

Distribution. This genus is exclusively found in Madagascar.

Remarks. The two known species of this genus are found in well separated ecoregions, one apparently restricted to dry regions of xeric shrubland in southern Madagascar and the other in a deforested area in the tropical moist forest of north-central Madagascar. The female is immediately recognizable by the tooth-like lamellae separating the dorsal from the lateral areas of the mesosoma, a feature recognized by Nonveiller in his unpublished key. We were unable to find any specimens of this genus labeled by Nonveiller, so we are unsure which specific epithet he attached to *Anomalotilla*. The male does not appear in his key and Nonveiller apparently never saw males of this genus.

Anomalotilla leleji Brothers et Williams, sp.n.

Figs 1–12.

<https://zoobank.org/NomenclaturalActs/8CF25B5E-4885-42D6-A666-3964CCEABF1A>

Material. Madagascar, Toliara Province: Holotype, σ^7 , «MADAGASCAR: Tuléar Prov. / Beza Mahafy Reserve, / near research station, 165m / 23°41'19" N (sic!) 44°35'46" E, MT / Gallery dry deciduous forest [M. Irwin & R. Harin'Hala] / MA-02-14A-23 / 10-29.IV.2002» (CASC); Paratypes, 24 σ^7 , 2 σ^7 ♀: Parc Nat. de Kirindy Mite, 16.3 km 127° SE Belo sur Mer, 20°47'43" S 44°8'49" E, Elev. 80m, 6–10.XII.2001, coll. Fisher, Griswold et al., pitfall trap — tropical dry forest, BLF4725 (1 σ^7 CASENT 2051202, 1♀ allotype CASENT 2051203 CASC); Atsimo Andrefana Region, District of Betioky: 30km E Betioky, Beza Mahafaly Special Reserve (Around Research Station), 23°41.19' S 44°35.46' E, 164m, Gallery dry deciduous forest, Malaise, M. Irwin & R. Harin'Hala, 15.X–10.XI.2001, MA-02-14A-01 (1 σ^7 CASC, 1 σ^7 DJBC); same label data — 10–21.XI.2001, MA-02-14A-02 (1 σ^7 CASC); idem. — 11–18.XII.2001, MA-02-14A-06 (1 σ^7 MNHN); idem — 18–25.XII.2001, MA-02-14A-07 (1 σ^7 DJBC); idem — 25.XII.2001–2.I.2002, MA-02-14A-08 (1 σ^7 CASENT 2051205 CASC); idem — 18–25.I.2002, MA-02-14A-12 (1 σ^7 CASC); idem — 7–14.III.2002, MA-02-14A-19 (1 σ^7 NHMUK); idem — 14–22.III.2002, MA-02-14A-20 (1 σ^7 CASC); idem — 18–28.VII.2002, MA-02-14A-30 (1 σ^7 CASC); idem — 9–16.VIII.2002, MA-02-14A-32 (1 σ^7 CSCA); idem — 28.X–10.XI.2002, MA-02-14A-39 (1 σ^7 CASENT 2051219 CASC); idem — 2–12.XII.2002, MA-02-14A-42 (1 σ^7 CSCA); idem — 12–17.XII.2002, MA-02-14A-43 (1 σ^7 CASC); idem — 25.XII.2002–2.I.2003, MG-14A-46 (1 σ^7 CASENT 2051226 CASC); idem — 2–10.IV.2003, MA-02-14A-55 (1 σ^7 CASC); idem — 21–29.IV.2003, MA-02-14A-57 (1 σ^7 CASC); Beza Mahafaly Special reserve, Parcelle Belle vue, 7 Km W of Research Station, 23°41.39' S 44°34.53' E, 177m, Spiny forest, Malaise, M. Irwin & R. Harin'Hala: 21–28.XI.2001, MA-02-14B-3 (1 σ^7 CASC);

same label data — 11–18.XII.2001, MA-02-14B-6 (1 σ^7 CASC); idem — 2–9.I.2002, MA-02-14B-09 (1 σ^7 CASC); idem — 8–15.II.2002, MA-02-14B-15 (1 σ^7 CSCA); Parc Nat. de Tsmanampetsotsa, Forêt de Bemanateza, 20.7 km 81°E Efoetse, 23.0 km 131°SE Beheloka, 22–26 March 2002, 23°59'32" S 43°52'50" E, coll. Fisher, Griswold et al., pitfall trap in spiny forest thicket, elev 90m, BLF6258 (1♀ CASENT 2051201 CASC); Andohahela Nat'l Park, Ihazofotsy Parcelle III, 24°50.09' S, 46°29.21' E, 7–17.XII.2003, California Acad of Sciences, colls ME Irwin, FD Parker, R Harin'Hala, elev 80m., malaise trap — in dry spiny forest, MA-02-21-41 (1 σ^7 CASENT 2051209 CASC); Andohahela National Park, Ihazofotsy Parcelle III, 24°49.85' S, 46°32.17' E, 14.II–1.III.2004, coll. M. Irwin, R. Harin'Hala, Malaise trap in dry forest, spiny forest, 58 m, MA-02-21-47 (1 σ^7 CASENT 2051227 CASC).

Diagnosis. Male. As for the genus; coloration mainly blackish but mesosoma mainly reddish-orange. Female. As for the genus.

Description. Male (Fig. 1–6). Body length: 3.1–4.2 mm.

Color and setae. Head cuticle black, except antenna and clypeus brown, mandible light yellow-orange. Mesosoma reddish-orange, except tegula, legs, and mesosomal venter brown. Tibial spurs white. Metasoma blackish, except T7 and S7 reddish-orange posteriorly. Entire body with sparse, mostly erect whitish or pale golden setae, tending toward brown on apical tergites. Felt lines with whitish setae.

Head quadrate, post-ocular distance subequal to dorsal eye length. Head sculpture densely punctate, sparser on vertex. Ocelli small; ratios of DMO:DLO:MLOD:IOD:OOD 10:9:14:24:30. Antennal scrobe with slightly transverse dorsal tubercle. Clypeus with moderate punctures and setae; medially with protuberant, apically truncate erect tubercle; bidentate along ventral margin. F1 length $2.5 \times$ pedicel length; F2 length $2.5 \times$ pedicel length; F1 length subequal to F2 length. Mandible robust, apically bidentate, dilated pre-apically; deeply excised beneath with large acute ventral tooth; ventral tooth height slightly less than mandible height beyond excision; dorsal carina complete, terminating at inner apical tooth.

Mesosoma. Almost parallel-sided, $1.4 \times$ as long (excluding anterior pronotal flange) as wide (across pronotal expansion). Pronotum, mesoscutellum, and dorsal portion of mesopleuron with nearly confluent shallow punctures; mesoscutum and lower portion of mesopleuron with separated punctures; lateral pronotal surface and metapleuron smooth; mesopleuron with swollen dorsal and ventral regions separated by deep furrow. Dorsal and lateral pronotal surfaces separated by large carinate lobe posteriorly rounded and extending laterally beyond level of tegula. Humeral angle rounded, humeral carina obliterated. Notauli apparently absent; parapsidal line shallow, indistinct. Tegula subcircular, evenly convex; smooth postero-laterally, with separated punctures and setae elsewhere. Mesoscutellum distinctly convex and evenly sculptured but posteriorly smooth, laterally carinate. Metanotum evenly transverse, medially sparsely punctured. Propodeum with large dense punctures dorsally and posteriorly, without clear enclosed area; lateral surface partly smooth, with punctures, micropunctures, and a few areolations medially, differentiated from dorsal surface by large lamella. Metasternal process transverse, weakly bi-lobate.

Wings nearly colorless with pale brown veins. Fore wing with vein 2r-m almost complete, extending over at least three-quarters of height of second submarginal cell; apparent second discoidal cell apically with vein 2m-cu anteriorly incomplete.

Metasoma. T1 with dense separated punctures. T2 disc with moderately dense punctures; felt line $0.33 \times$ as long as T2. T2 fringe area and T3–T6 with fine separated punctures, interspaces shagreened. T7 with obscurely areolate-punctate pygidial plate defined by carinae laterally. S1 with longitudinal carina reduced to medial tubercle. S2 disc with sparser punctures than T2; felt line $0.6 \times$ length of T2 felt line. S2 fringe

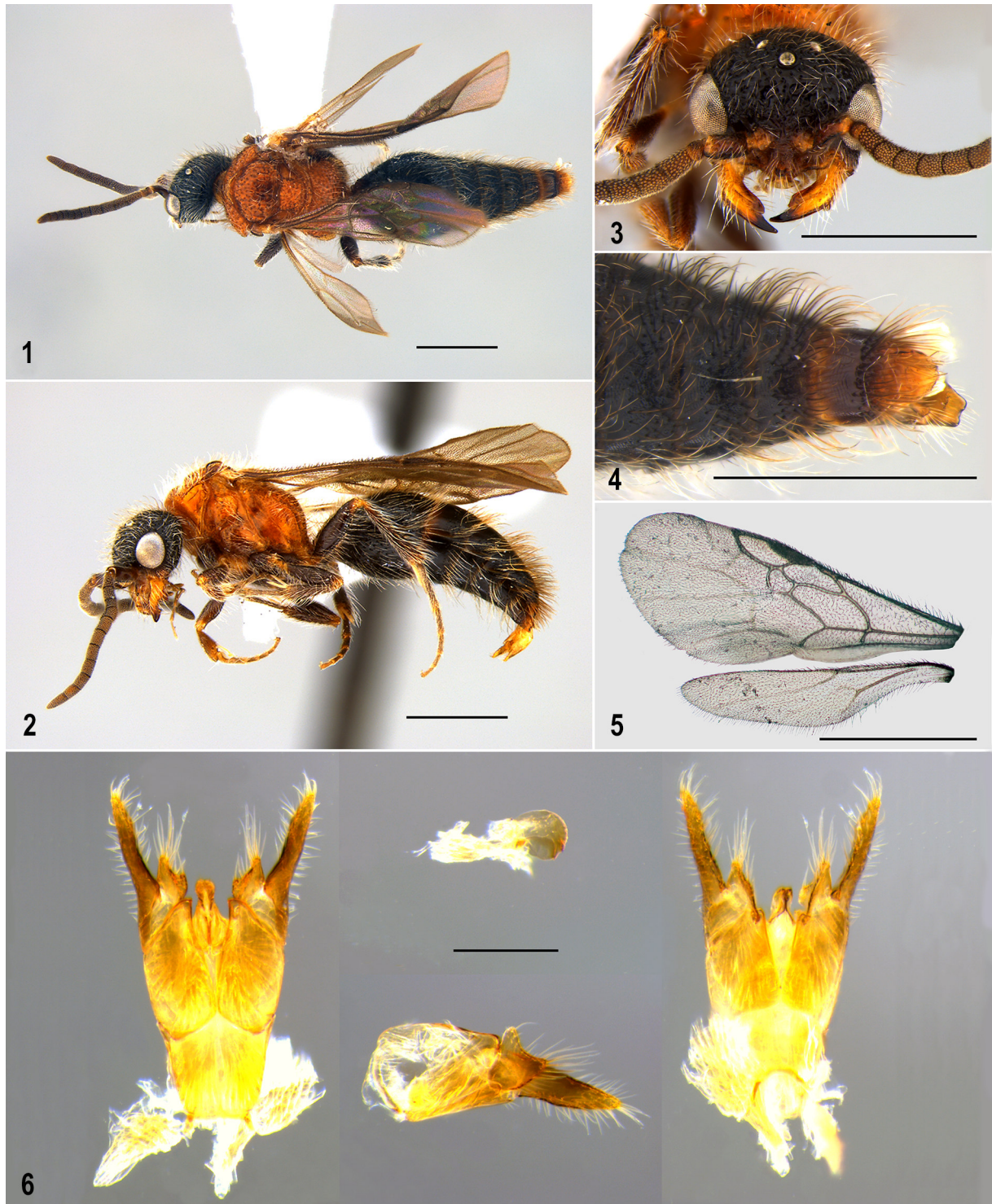


Fig. 1–6. *Anomalotilla leleji* Brothers et Williams, sp.n. ♂. 1 — habitus, dorsal view, holotype; 2 — habitus, lateral view, holotype; 3 — head, frontal view, holotype; 4 — metasomal T4–T7, cercus and S8, dorsal view, holotype; 5 — left fore and hind wings, dorsal view, paratype, transmitted light; 6 — genitalia, entire, dorsal view (left), penis valve, lateral view (upper middle), right half minus penis valve, sagittal view (lower middle), genitalia entire, ventral view (right), holotype. Scale bars: 1–5 — 1 mm; 6 — 0.2 mm.

Рис. 1–6. *Anomalotilla leleji* Brothers et Williams sp.n. ♂. 1 — габитус, вид сверху, голотип; 2 — габитус, вид сбоку, голотип; 3 — голова, вид спереди, голотип; 4 — метасомальные T4–T7, церкус и S8, вид сверху, голотип; 5 — левые переднее и заднее крылья, вид сверху, паратип, в проходящем свете; 6 — гениталии целиком, вид сзади (слева), створка пениса, вид сбоку (вверху посередине), правая половина без створки пениса, сагиттальный вид (внизу посередине), гениталии целиком, вид снизу (справа), голотип. Масштаб: 1–5 — 1 мм; 6 — 0,2 мм.

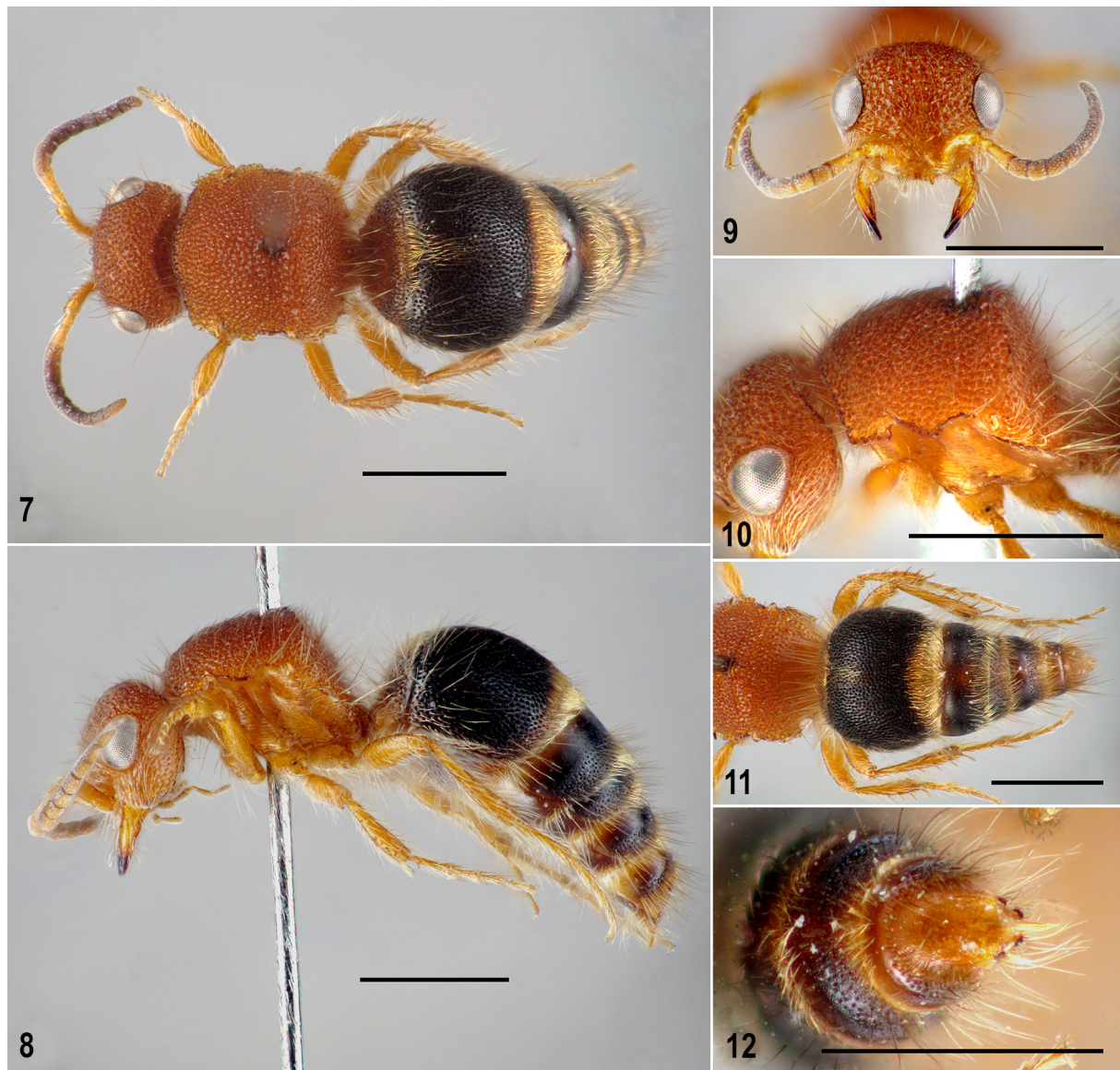


Fig. 7–12. *Anomalotilla leleji* Brothers et Williams, sp.n. ♀ allotype. 7 — habitus, dorsal view; 8 — habitus, lateral view; 9 — head, frontal view; 10 — head and mesosoma, dorso-lateral view; 11 — mesosoma and metasoma, dorsal view; 12 — metasomal apex, postero-dorsal view. Scale bars: 1 mm.

Рис. 7–12. *Anomalotilla leleji* Brothers et Williams, sp.n. ♀ аллотип. 7 — габитус, вид сверху; 8 — габитус, вид сбоку; 9 — голова, вид спереди; 10 — голова и мезосома, вид сверху-сбоку; 11 — мезосома и метасома, вид сверху; 12 — вершина метасомы, вид сзади-сверху. Масштаб: 1 мм

area and S3–S6 with fine separated punctures, interspaces shagreened. S7 unarmed, smooth. S8 finely punctate on anterior half, posteriorly smooth, with truncate posterior margin shallowly emarginate medially.

Genitalia. In dorsal view, ratios of apical distances of genitalic structures from anterior margin of basiparamere: paramere, cuspis, digitus, penis valve, parapenial lobe: 100:75:67:65:57. Paramere nearly straight with bluntly acuminate apex, with extensive long setae; basiparamere simple, midline completely separated; cuspis short, bluntly angular, densely setose; digitus fused with cuspis, directed dorsally into blunt angle; penis valves short, symmetrical, ventrally bidentate apically, dorsal margin roundly raised.

Female (Fig. 7–12). Body length 3.0–3.8 mm.

Color and setae. Cuticle of head, mesosoma dorsally, T1, and T6 reddish-orange; scape, pedicel, F1, mandible basally,

palpi, mesosoma laterally, legs, and apical band on T2 yellowish-orange; F2–F10 dorsally brownish but ventrally yellowish-orange. T2 black except apically; T3–T5 blackish-brown. Body setae generally fairly sparse and pale, except T1 with median apical band of pale golden setae; T2 disc with decumbent black setae, small longitudinally ovate patch of golden setae anteromedially, and apically with transverse patch and fringe of pale golden setae; T3–T5 entirely with decumbent pale golden setae and long erect darker setae; T6 anteriorly and laterally with long erect darker setae; S2–S6 with sparser decumbent and erect pale golden setae. Felt line whitish.

Head. Maximum head width $0.92 \times$ maximum pronotal width; vertex width $0.81 \times$ maximum pronotal width. Longitudinal eye diameter $0.42 \times$ frons width. Frons, vertex, and gena finely and densely punctate. Mandible slender, apically unidentate, strong inner carina ending apically before mandible

apex, no ventral tooth. Clypeus with basal rounded projection and apical tubercle, ventral margin almost straight but with two small tubercles delimiting approximate thirds. Genal carina absent but postgenal carina well developed, posteriorly reaching occipital carina, anteriorly curved and approaching midline, not reaching hypostomal carina. Hypostomal carina indistinct. F1 $1.85 \times$ pedicel length, F2 $1.20 \times$ pedicel length.

Mesosoma. Mesosomal dorsum weakly convex, length $0.72 \times$ maximum width; laterally with longitudinal irregular lamellate flanges on pronotum and meso-metanotum. Humeral angle obscure; epaulets not evident. Dorsum and propodeal declivity finely and densely punctate, similar to head; propodeal declivity antero-laterally with lamellate flange ending posteriorly in a distinct tooth and more posteriorly with an acute lateral tooth. Lateral surface of mesosoma deeply concave dorsally but flatter ventrally, mainly finely and densely longitudinally striate and asetose. Ratios of widths at humeral angle, pronotal maximum, anterior spiracle, mesonotum maximum, propodeum basal to spiracle, and propodeum maximum: 100:117:101:123:114:116. Scutellar scale transverse, with a straight row of small tubercles extending laterally on each side to anterior base of propodeal spiracle.

Metasoma. T1 width $0.76 \times$ T2 width; T2 length $0.79 \times$ T2 width. T1 and T2 finely and densely punctate; T3–T5 more finely and less densely punctate with interspaces shagreened; T6 antero-laterally finely and densely punctate, postero-medially with smooth oval pygidial area bounded laterally by weak carina and posteriorly truncate with a small tooth on each side. S1 short with median longitudinal elevation ending posteriorly in a weak tubercle; S2 with median elevation on anterior third between depression on each side, punctation slightly less dense and coarser than on T2; S3–S5 apically finely and densely punctate; S6 convex, smooth basally but finely and densely punctate apically, posterior margin weakly bidentate.

Variation. Apart from size differences, no obvious variation was observed between the specimens of each sex, except that two of the male paratypes have the vertex cuticle partly orange-brown medially.

Etymology. We are proud to name this species after our colleague and friend, Arkady S. Lelej, in celebration of his 80th birthday and in recognition of his tremendous career studying the Mutillidae.

Distribution. Madagascar: Toliara Province.

Remarks. The sexes were associated by similarities in size and coloration, coupled with co-occurrence in the same pitfall trap sample, and, most importantly, by the development of a carina or lamella separating the dorsal and lateral surfaces of the pronotum and propodeum in both sexes.

Anomalotilla olsoufieffi Brothers, **sp.n.**

Fig. 13–18.

<https://zoobank.org/NomenclaturalActs/A9E0AD16-F6E6-4E5F-87A4-DAAFE774A637>

Material. Madagascar, *Antananarivo Province*: Holotype, ♂, «MADAGASCAR: Province / Antananarivo, 46 km NE of / Ankazobe: Ambohitantely / 18° 11.88' S, 47° 16.89' E / 7–22 December 2004»; «California Acad of Sciences / coll: M. Irwin, R. Harin'Hala / malaise trap — in sclerophyl / forest elev 700 m / MA-27-23» // «CASENT / 2051225» (CASC).

Diagnosis. *Male.* As for the genus; coloration entirely black to very dark reddish-brown. *Female* unknown.

Description. *Male.* Body length: 5.4 mm.

Color and setae. Head cuticle black, except antenna dark reddish-brown, mandible medium reddish-brown and palpi light greyish-brown. Mesosoma black, except tegula medium reddish-brown and legs dark reddish-brown; tibial spurs white.

Metasoma blackish, T3–T7 and S3–S8 grading into dark reddish-brown, T7 and S8 dark reddish-orange posteriorly. Entire body with sparse, mostly erect whitish or pale brownish setae, tending toward brown on apical tergites. Felt lines with whitish setae.

Head quadrate, post-ocular distance equal to dorsal eye length. Head sculpture densely punctate, coarser with few irregular rugae on frons. Ocelli small; ratios of DMO:DLO:MLOD:IOD:OOD 10:9:11:25:36. Antennal scrobe with acute conical dorsal tubercle. Clypeus with moderate punctures and setae; medially with erect rounded tubercle; bidentate along ventral margin. F1 length $2.0 \times$ pedicel length; F2 length $1.7 \times$ pedicel length; F1 length $1.2 \times$ F2 length. Mandible robust, apically bidentate, not dilated pre-apically; deeply excised beneath with large apically-directed acute ventral tooth; ventral tooth height slightly less than mandible height beyond excision; dorsal carina complete, terminating at inner apical tooth.

Mesosoma. Almost parallel-sided, $1.5 \times$ as long (excluding anterior pronotal flange) as wide (across pronotal expansion). Pronotal dorsum with fine dense punctures medially becoming sparser laterally; mesoscutum with slightly coarser and sparser punctures; mesoscutellum dorsally with punctation similar to mesoscutum, posteriorly shagreened with separate punctures; metanotum evenly transverse, medially finely and densely punctate; lateral pronotal surface weakly concave, micropunctate with fine irregular longitudinal rugae; mesopleuron with swollen dorsal and ventral regions separated by deep furrow, dorsal punctation coarser and denser than sparse and very fine ventral punctation; metapleuron smooth but with a few longitudinal ridges dorsally. Dorsal and lateral pronotal surfaces separated by carina ending postero-laterally in rectangular lobe not extending laterally beyond level of tegula. Humeral angle rounded, humeral carina obliterated. Notaulus apparently absent; parapsidal line a deep groove. Tegula subcircular, evenly convex; entirely smooth except for very few separated punctures and setae anteriorly. Mesoscutellum with flat dorsal surface separated from sloping posterior surface by distinct curved carina. Propodeum evenly weakly convex in lateral view, disc and declivity not differentiated, entirely coarsely and densely punctate, without enclosed basal area; lateral surface smooth but with a few diagonal ridges dorsally, differentiated from dorsal surface by conspicuous elongate lamella. Metasternal process tridentate with median tooth longest.

Wings nearly colorless with medium-brown veins. Venation reduced; fore wing with second and third submarginal cells merged, vein 2r-m extending over only about anterior one-third of cell height, veins delimiting second and third submarginal and second discoidal cells evanescent, second discoidal cell apically delimited by partial nebulous vein 2m-cu.

Metasoma. T1 with dense small separated punctures but smooth along posterior margin. S1 with paired adjacent longitudinal carinae diverging posteriorly and ending anteriorly in slight medial tubercle. S2 with distinct felt line $0.48 \times$ as long as T2 felt line. T2 disc with moderately dense small punctures slightly sparser medially; S2 disc with sparser similar punctures. T2 apical fringe area, T3–T6, and S3–S6 moderately densely and finely punctate with shagreened interspaces. T7 basally and laterally more coarsely punctate and shagreened, apico-medially with smooth pygidial plate defined by curved lateral carinae. S7 unarmed, densely finely punctate. S8 moderately densely punctate, coarsely on anterior half, finely posteriorly, with truncate posterior margin shallowly emarginate medially. Cercus well developed, essentially cylindrical but slightly broadened and flattened apically.

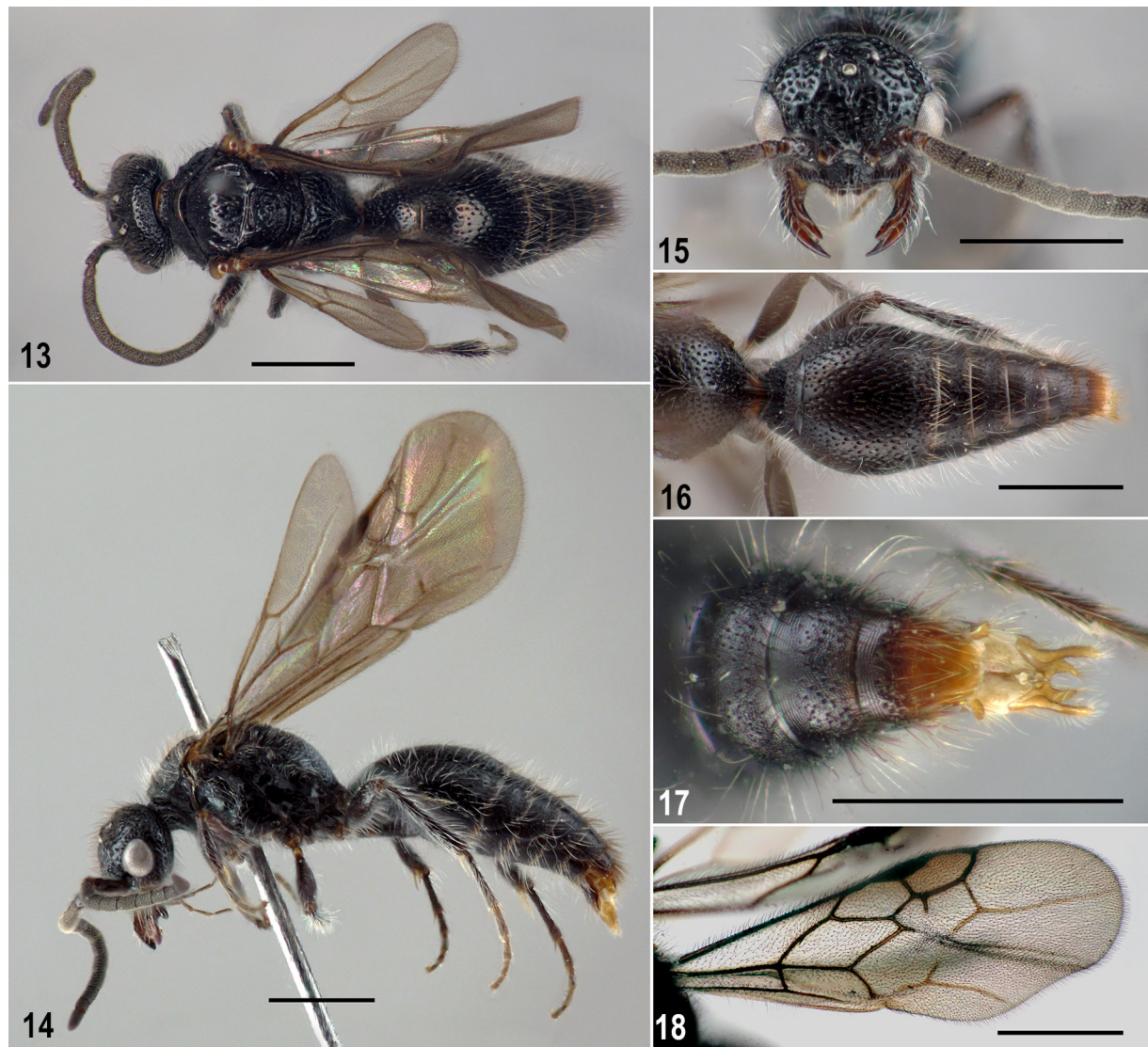


Fig. 13–18. *Anomalotilla olsoufieffi* Brothers, sp.n. ♂ holotype. 13 — habitus, dorsal view; 14 — habitus, lateral view; 15 — head, frontal view; 16 — metasoma, dorsal view; 17 — metasomal apex, postero-dorsal view; 18 — right fore wing, dorsal view (costal cell obscured by deflection of anterior margin). Scale bars: 1 mm.

Рис. 3. *Anomalotilla olsoufieffi* Brothers, sp.n. ♂ голотип. 13 — габитус, вид сверху; 14 — габитус, вид сбоку; 15 — голова, вид спереди; 16 — метасома, вид сверху; 17 — вершина метасомы, вид сверху-сзади; 18 — правое переднее крыло, вид сверху (костальная ячейка скрыта из-за изгиба переднего края крыла). Масштаб: 1 мм.

Genitalia. In dorsal view, ratios of distances to apices of genitalic structures from anterior margin of basiparamere: paramere, cuspis, digitus, penis valve, parapenial lobe: 100:84:62:61:54 (estimated, since genitalia not fully exposed in holotype). Paramere weakly sinuate with bluntly acuminate apex, with extensive long setae; basiparamere simple, midline completely separated, parapenial lobe poorly differentiated and apically narrowly rounded; cuspis short, bluntly angular, densely setose; digitus fused with cuspis, directed dorsally into blunt angle; penis valves short, symmetrical, dorsal margin roundly raised (apico-ventral teeth not clearly visible).

Female unknown.

Etymology. This species is named after Gregory Olsoufieff, the author of the pioneering and thus far only monograph of Madagascan Mutillidae, published about 90 years ago.

Distribution. Madagascar: Antananarivo Province.

KEY TO MADAGASCAN MUTILLID SUBFAMILIES, GENERA OF DASYLABRINAE AND SPECIES OF *ANOMALOTILLA* (MALES)

1. First metasomal segment petiolate (Dasylabrinae, in part) 2
- First metasomal segment subsessile or sessile with T2 .. 4
2. Felt line present on T2, lacking on S2
..... *Dasylabris* Radoszkowski, 1885
- Felt line lacking on T2, present on S2 3
3. Mesosoma black with entirely black setae; S2 felt line reduced to few setae *Seyrigilla* Krombein, 1972
- Mesosoma reddish or black with silvery setae; S2 felt line distinct *Stenomutilla* André, 1896

4. Tegula elongate, sub-ovate, posterior margin reaching or exceeding trans-scutal articulation; compound eye with inner margin distinctly notched Mutillinae (not treated here)
- Tegula short, sub-circular, posterior margin well anterior to trans-scutal articulation; compound eye with inner margin convex 5
5. Clypeus relatively flat; mandible with ventral margin straightish, without basal tooth; pronotum and propodeum without carinate flanges separating dorsal and lateral surfaces; felt line on T2 only (Myrmillinae)..... *Labidomilla* André, 1902b
- Clypeus with raised medial tubercle basally; mandible with ventral margin deeply excavated with strong subacute basal tooth; pronotum and propodeum with distinct carinate flanges separating dorsal and lateral surfaces; elongate felt lines on T2 and S2 (Dasylabrinae, in part) *Anomalotilla* **gen.n.** 6
6. Body bicolored, head and metasoma black and mesosoma reddish-orange; width across pronotal flanges greater than width across tegulae; fore-wing vein 2r-m extending over at least two-thirds cell height *A. leleji* **sp.n.**
- Body entirely black; width across pronotal flanges less than width across tegulae; fore-wing vein 2r-m extending over at most one-third cell height *A. olsoufieffi* **sp.n.**

KEY TO MADAGASCAN MUTILLID SUBFAMILIES AND GENERA OF DASYLABRINAE (FEMALES)

1. First metasomal segment petiolate (Dasylabrinae, in part) 2
- First metasomal segment subsessile or sessile with T2 4
2. Felt line present on T2, lacking on S2 *Dasylabris* Radoszkowski, 1885
- Felt line lacking on T2, present on S2 3
3. Mesosoma black; fore tarsus lacking comb *Seyrigilla* Krombein, 1972
- Mesosoma reddish; fore tarsus with comb of flattened setae *Stenomutilla* André, 1896
4. Lateral margin of mesosoma with sharp wavy lamellate carinae separating dorsal from lateral surfaces; T2 disc with single baso-medial golden setal patch (Dasylabrinae, in part) *Anomalotilla leleji* **gen.n. et sp.n.**
- Lateral margin of mesosoma without lamellate carinae, but sometimes with series of teeth; if with apparent carina separating dorsal from lateral surfaces, then T2 disc with two patches of golden setae basally 5
5. Head quadrate, broad, angulate postero-laterally; antennal tubercle dentate (Myrmillinae) *Labidomilla* André, 1902b
- Head usually narrow, rounded postero-laterally; antennal tubercle unarmed Mutillinae (not treated here)

Discussion

Seven subfamilies of Mutillidae are recognized from the Afrotropical realm, three of which occur in Madagascar: Dasylabrinae, Mutillinae, and Myrmillinae. We place this genus within the Dasylabrinae based on the

male eye shape, pterostigma structure and genitalia. The compound eye is moderately protruding and broadly ovate with no trace of a notch on the inner margin, like all members of Dasylabrinae, while the compound eye of Myrmillinae and Mutillinae is scarcely protruding and more narrowly ovate, usually with a distinct notch on the inner margin. The pterostigma is broadly ovate and completely sclerotized, as in Dasylabrinae, whereas it is narrower and baso-medially unsclerotized in Myrmillinae, and small and entirely cell-like in Mutillinae. The free paramere is fully divided from the basiparamere in this genus and some other genera of Dasylabrinae, while all known members of Myrmillinae and Mutillinae have the paramere baso-laterally fused with the basi-paramere. For the female, the general form is reminiscent of that of *Brachymutilla* André, 1901, with a squat mesosoma and broad posteriorly sessile T1, but the presence of well developed cerci in the male precludes a close relationship with that genus which was linked with two others in a proposed dasylabrine tribe, Apteromutillini Brothers et Lelej, 2017, in which the males lack cerci, a condition highly exceptional in Aculeata.

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