Zootaxa 5633 (2): 288–315
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5633.2.4
http://zoobank.org/urn:lsid:zoobank.org:pub:71AFB6B1-258E-43F5-A79B-0DC0B915D21B

Revision of the genus *Dentilla* Lelej in Lelej et Kabakov, 1980 (Hymenoptera: Mutillidae)

ARKADY S. LELEJ
Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok-22, 690022, Russia.
lelej@biosoil.ru; https://orcid.org/0000-0001-7501-0981

Abstract

Twenty species of the genus *Dentilla* Lelej in Lelej and Kabakov, 1980 are revised. Three species-groups are proposed. The new species *D. dehghanii* **sp. nov.** (Iran: Isfahan) and *D. bischoffi* **sp. nov.** (Algeria, Sudan) are described. New synonyms are proposed for *D. erronea* (André, 1900) (=*Smicromyrme errana* Nonveiller, 1958, **syn. nov.**; *S. errana* var. *nigrescens* Nonveiller, 1958, **syn. nov.**; *S. errana cretica* Nonveiller, 1972, **syn. nov.**; *Dentilla curtiventris* auct.); *D. dichroa* (Sichel et Radoszkowski, 1869) (=*Ephutomma quinquedentata mesopotamica* Bischoff, 1920, **syn. nov.**); *D. irana* Lelej, 1985 (=*D. kompantsevi* Lelej, 1995, **syn. nov.**); *D. sabulicola* (Skorikov, 1935) (=*D. zarudnyi* Lelej, 1985, **syn. nov.**); *D. persica* (Sichel et Radoszkowski, 1869) (=*Smicromyrme ursina* Nagy, 1972, **syn. nov.**); *Skorikovia trinotata* (Costa, 1858) (=*Mutilla curtiventris* André, 1901, **syn. nov.**; *Mutilla viduata* var. *rubescens* André, 1901, **syn. nov.**). A lectotype of *Mutilla testacea* Klug 1829, ♂ is designated. New combinations are proposed for *Dentilla semirubra* (Bischoff, 1920), **comb. nov.** and *D. gabesiana* (Bischoff, 1920), **comb. nov.** (both from the genus *Ephutomma* Ashmead, 1899) and *Skorikovia caucasica* (Lelej, 1985), **comb. nov.** (from the genus *Dentilla*). *Dentilla weidneri* (Nagy, 1971) is transferred to the genus *Smicromyrme* incertae sedis. Fourteen new country records are presented: two from India, two from Pakistan, two from Syria, two from Jordan, one from Turkey, one from Israel, one from Egypt, one from Saudi Arabia, one from Oman, and one from Eritrea. The genus *Ephutomma s. str.* is removed from the Afrotropical fauna.

Key words: velvet ants, Smicromyrmini, *Ephutomma*, *Skorikovia*, new species, new synonymy, new combination, new records, Palaearctic Region

Introduction

The species of the genus *Dentilla* were previously placed in the genera *Mutilla* Linnaeus, 1758, *Smicromyrme* Thomson, 1870, *Ephutomma* Ashmead, 1899 (Bischoff 1920) or even *Eremomyrme* Suárez, 1965, and also *Edrionotus* Radoszkowski, 1885 until 1980, when these species were placed in the subgenus *Dentilla*, which was later elevated to a separate genus (Lelej 1985). The genus *Dentilla* Lelej in Lelej et Kabakov, 1980 comprises twenty species that are mainly distributed in the Palaearctic, but a few species penetrate to the south of the Arabian Peninsula (*D. arabica*, *D. ehrenbergi*, *D. purcharti*) or northwest India (*D. irana*, *D. malinka*). All but two of the species are dull brown in color and apparently nocturnal in their behavior. These nocturnal species are somewhat commonly encountered in arid habitats from North Africa east to India (Lelej 2002, 2005). The more colorful diurnal species occur mainly in the Mediterranean (Lelej 2002). Lelej's (1985) key includes more than half of the currently recognized species. Natural history of the *Dentilla* species is known for a few species. Recently (Dehghani *et al.* 2018, Kassiri *et al.* 2021), the importance of *Dentilla dehghanii* **sp. nov.** for human health and natural history in central Iran was studied. Due to the high number of stings in carpet weaving workshops, living rooms and bedrooms, it was concluded that this wasp is a domestic pest.

 Accepted by V. Loktionov: 17 Apr. 2025; published: 12 May 2025

Material and methods

In total, 1204 specimens (1124 ♂ and 80 ♀) have been examined for this work, including 16 holotypes, one lectotype and 317 paratypes and paralectotypes of the nominal species. Most of the material is deposited in the bioresource collection of the Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok, Russia (reg. number 2797657). The types and comparative material from different museums were also examined. The following abbreviations are used to denote the institutions housing the species and specimens studied here:

EMET—Entomology museum, Erzurum, Turkey;

IBSS—Federal Scientific Center of the East Asia Terrestrial Biodiversity (formerly Institute of Biology and Soil Science), Vladivostok, Russia;

ISEA-PAN—Institute of Systematics and Evolution of Animals' collection at the Polish Academy of Sciences, Kraków, Poland;

MNCN—Colección del Museo Nacional de Ciencias Naturales, Madrid, Spain;

MNHN—Muséum National d'Histoire Naturelle, Paris, France;

MNHU—Museum für Naturkunde der Humboldt-Universität, Berlin, Germany;

MZLU—Biological Museum, Lund University, Lund, Sweden;

NHMD—Natural History Museum of Denmark, Copenhagen, Denmark;

NHMW—Naturhistorisches Museum Wien, Vienna, Austria;

NHME—Naturkundemuseum Erfurt, Germany;

NMPC—National Museum of Prague, Czech Republic;

NZC—National Zoological Collections of the Zoological Survey of India, Kolkata, India;

RMNH—National Museum of Natural History, Leiden, the Netherlands;

OLML—Oberösterreichisches Landesmuseum Linz, Austria;

SMNS—Staatliches Museum für Naturkunde in Stuttgart, Germany;

ZIN—Zoological Institute, St. Petersburg, Russia;

ZMAN—Zoölogisch Museum Amsterdam, the Netherlands;

ZMMU—Zoological Museum of Moscow University, Moscow, Russia;

ZSM—Zoologische Staatssammlung München, Germany.

Terminology mostly follows the Hymenoptera Anatomy Ontology (2013). The following abbreviations are used in the text: T1, T2, T3, etc., to denote the first, second, third, etc., metasomal terga, while S2, S3, etc., denote the second, third, etc., metasomal sterna, and F1, F2, F3, etc., denote the antennal flagellomeres; OOD is an abbreviation for ocellocular distance, the minimal distance between a lateral ocellus and the inner eye margin; POD is an abbreviation for inter-ocellar distance, the minimal distance between the lateral ocelli.

The photographs were taken with an Olympus SZX16 stereomicroscope and an Olympus DP74 digital camera, and then stacked using Helicon Focus software. The photographs of the type specimens in the MNHU and NHMW (Figs 45–53, 72–76) were taken in 2011 with the Canon PowerShort SX100 digital camera. The final illustrations were postprocessed for contrast and brightness using Adobe® Photoshop® software.

Results

Tribe Smicromyrmini Bischoff, 1920

Dentilla Lelej in Lelej et Kabakov, 1980

Dentilla Lelej in Lelej & Kabakov, 1980: 195, ♂, ♀ (as subgenus of *Smicromyrme* Thomson, 1870); Lelej 1985: 190, ♂, ♀; Lelej & Brothers 2008: 19; Brothers & Lelej 2017: 95, ♂, ♀; Pagliano *et al.* 2020: 170; Gadallah *et al.* 2020: 145; Lelej & Williams 2023: 111, ♂, ♀.

Ephutomma (non Ashmead, 1899): André 1900: 136 (♂ non ♀) (partim, as subgenus of *Mutilla* Linnaeus, 1758); 1902: 19 (♂ non ♀) (partim); Bischoff 1920: 144 ♂ non ♀) (partim).

Eremomyrme (non Suárez, 1965): Invrea 1965: 90, ♂

Edrionotus (partim): Radoszkowski 1885: 33, ♂; Nagy 1972: 4 (♀) (as subgenus of *Smicromyrme* Thomson, 1870).

Smicromyrme: Skorikov 1935: 312, ♂, part.

Type species. *Mutilla erronea* André, 1900, ♂, by original designation (junior subjective synonym of *Mutilla curtiventris* André, 1901 according to Pagliano & Strumia (2007: 69), resurrected to valid species by Lelej & Yildirim (2009: 15).

Diagnosis. MALE. Inner eye margin with weak notch. Mandible strongly widened apically, quadridentate, rarely tridentate, beneath with large subbasal tooth; preapical inner teeth equal to apical one or larger than it. Clypeus concave, anterior border usually with protruding medial part. Stigmatic cell 1.4 × distance between base of stigmatic cell and origin of base *RS* on *Sc*. T2 with long lateral felt lines, S2 with short (reduced) lateral felt lines. FEMALE. Head not widened posterad, posteriorly rounded. Mandible tridentate. Meso- and metafemur with two row of well developed setae. Pronotum with protruding humeral part, distinctly wider than propodeum. Scutellar scale more or less developed. T2 with one or three basal spots of pale setae, rarely with basal band of pale setae. Pygidial area widely triangular, carinated laterally, surface with divergent striae.

Sex association. The female of the type species was associated and identified (as *Mutilla curtiventris* André, 1901: 269) by Pagliano & Strumia 2007: 69; and collected *in copula* in Turkey (Lelej & Yildirim 2009).

Species-groups included. *Erronea*, *dichroa* and *saharica* species-groups are proposed here. For diagnosis see the key to the species below.

Diversity and distribution. Twenty species (11 based on males only, four based on females only, and five known from both sexes) are recognised predominantly from the Palaearctic Region; there are six Afrotropical species (two of which penetrate from the Palaearctic); and *Dentilla irana* Lelej, 1985 and *D. malinka* (Nurse, 1903) occur in the Palaearctic and Oriental Regions.

Remarks. All but two of the species are dull brown in color and apparently nocturnal in their behavior. These nocturnal species are somewhat commonly encountered in arid habitats from North Africa east to India (Lelej 2002, 2005). The more colorful diurnal species occur mainly in the Mediterranean (Lelej 2002). Lelej's (1985) key includes about half of the currently recognized species.

Key to the species of *Dentilla*

Males

(unknown in *arabica*, *malinka*, *socotrana*, and *speciosa*)

1. Ocelli small, OOD 6–7 × diameter of lateral ocellus. The head is black. Wings are dark. (**Durnal**) (***erronea* species-group)** 2
– Ocelli large, OOD 2 × diameter of lateral ocellus. The head is reddish-brown. Wings are hyaline with darkened apex or preapical area. (**Nocturnal**) 3
2. Mesosoma ferruginous-red with blackish mesopleuron beneath. Metasoma with pale band on T3–4 and pale apical fringe on T1–2. T7 apically rounded. 7.5–14.0 mm. Albania, Azerbaijan, Armenia, Turkey, Syria, Greece, Bulgaria, Serbia, North Macedonia, Italy (including Sicily), Algeria . . . . . **1. *D. erronea*** (André, 1900) (=*curtiventris* auct., *cretica* Nonveiller)
– Mesosoma black with ferruginous-red dorsum or totally black. Metasoma with pale band on T3 and pale apical fringe on T1–2. T7 apically straight. 9.5–12.0 mm. Azerbaijan, Armenia, Iran, Turkey, Greece, Jordan, Palestine . . . . . 2. ***D. persica*** (Sichel et Radoszkowski, 1869)
3. Anterior border of clypeus with a narrow medial projection whose dorsal length is about equal to its width (***dichroa* species-group**) 4
– Anterior border of clypeus with a broad medial projection whose dorsal length is about half its width (***saharica* species-group**) 10
4. Basal half of T2 with coarse elongate foveae mixed with longitudinal striae. 7.2–12.0 mm. UAE, Oman . . . . . 8. ***D. rasnitsyni*** Lelej in Lelej & van Harten, 2011
– Basal half of T2 at least with dense separate punctures 5
5. POD:OOD ratio 0.5–0.6 ×, ocelli small. Upper carina of mandible weak, mandible almost flat. Longitudinal carina between antennal tubercles and base of clypeus scarcely visible. 7.5–8.5 mm. Iran . . . . . **5. *D. beludzhistana*** Lelej, 1985
– POD:OOD ratio 0.8 × and more, ocelli large. Upper carina of mandible high. Longitudinal carina between antennal tubercles and base of clypeus well developed 6
6. First subbasal tooth of mandible inside with long carina approximately equal to distance from base of carina to base of mandible 7
– First subbasal tooth of mandible inside with short carina much less than the distance from base of this carina to the base of mandible 8
7. Second subbasal tooth of mandible located approximately in the middle between first subbasal tooth and apical tooth. Distance between posterior ocellus and occipital carina 2.0 × POD. 6.9–12.3 mm. Yemen, Saudi Arabia . . . . . 10. ***D. ehrenbergi*** Lelej in Lelej & van Harten, 2006

– Second subbasal tooth of mandible located closer to first subbasal tooth than apical tooth. Distance between posterior ocellus and occipital carina 1.73 × POD. 6.9–12.3 mm. Yemen (Socotra, Samha) . . . . . 11. ***D. purcharti*** Lo Cascio, Romano & Grita, 2012

8. T7 apically with weak notch. T1 length less than its maximal width 9
– T7 apically rounded. T1 length more than its maximal width.—Height of lower subbasal tooth of mandible approximately equal to smallest distance between notch and upper carina of mandible. Metasoma pale towards apex. 7.5–11.0 mm. Iran, India, Pakistan . . . . . 4. ***D. irana*** Lelej, 1985 (=*kompantsevi* Lelej)

9. Lower subbasal lobe of mandible invaginated below, height of subbasal tooth more than smallest distance between notch and upper carina of mandible (Fig. 26). 9.5–13.0 mm. Turkmenistan, Afghanistan, Iran, Iraq, Syria, Jordan, Israel, Palestine, Saudi Arabia, Oman, Egypt (Sinai) . . . . . 3. ***D. dichroa*** (Sichel et Radoszkowski, 1869) (=*sabulosa* Skorikov)
– Lower subbasal lobe of mandible scarcely invaginated below, height of subbasal tooth less than smallest distance between notch and upper carina of mandible (Fig. 30). 7.2–9.9 mm. Iran (Isfahan) . . . . . 6. ***D. dehghanii* sp. nov.**

10. Whole body light yellow-brown.—Propodeum abrupt, reticulate with median dorsal longitudinal cell distinctly delimited posteriorly by two denticles. 10.4 mm. Yemen, Saudi Arabia . . . . . 16. ***D. testacea*** (Klug, 1829)
– At least metasoma dark brown or blackish. 11

11. Mandible below with large apical lobe (Fig. 67). Length of first metasomal segment 1.2 × its maximum width. 7.2–10.0 mm. South Iran . . . . . 17. ***D. osteni*** Lelej in Lelej & Osten, 2004
– Mandible below without large apical lobe or with weak apical widening. Length of first metasomal segment less than its maximum width 12

12. OOD slightly larger than diameter of lateral ocellus.—Head darker than mesosoma. Metasternum bidentate with median notch. Mandible below with weak apical widening. Body length 9.0–12.0 mm. India, Pakistan, Afghanistan, Iran, Turkmenistan; Oman, United Arab Emirates . . . . . 15. ***D. sabulicola*** (Skorikov, 1935) (=*zarudnyi* Lelej)
– OOD nearly 2 × diameter of lateral ocellus 13

13. T1 pale, strongly contrasting with the dark T2. Mandible tridentate with lower subbasal tooth. Body length 9.0–11.0 mm. Algeria, Sudan . . . . . 20. ***D. bischoffi* sp. nov.**
– T1 dark or slightly red. Mandible quadridentate with lower subbasal tooth 14

14. Legs pale, slightly brownish. 8.0–12.5 mm. Western Sahara, Algeria, Morocco . . . . . 14. ***D. saharica*** (Giner Mari, 1945)
– Legs black.—Medial cell of propodeum not bordered posterad by carina 15

15. Propodeum shorter, posterior face abrupt. 12.0 mm. Libya, Egypt . . . . . 18. ***D. semirubra*** (Bischoff, 1920)
– Propodeum longer, posterior face gentle. 12.0 mm. Tunisia . . . . . 19. ***D. gabesiana*** (Bischoff, 1920)

Females

(unknown in *beludzhistana*, *bischoffi*, *ehrenbergi*, *gabesiana*, *irana*, *osteni*, *purcharti*, *rasnitsyni*, *saharica*, *semirubra*, and *testacea*)

1. T2 without basal medial spot or band of pale setae. 5.5–6.5 mm. Yemen (Socotra) . . . . . 12. ***D. socotrana*** Lo Cascio, Romano & Grita, 2012
– T2 with basal medial spot or band of pale setae 2

2. T4–5 with black setae 3
– T4–5 with pale setae 4

3. Mesosoma black or dark brown, dorsum dark red with dense yellowish-white setae. Pygidial area wide (Fig. 23). 9.2–12.0 mm . . . . . 2. ***D. persica*** (Sichel et Radoszkowski, 1869) (=*ursina* Nagy)
– Mesosoma ferruginous to brownish red, with sparse golden or silvery setae dorsally. Pygidial area narrow (Fig. 19). 7.0–9.0 mm . . . . . 1. ***D. erronea*** (André, 1900)

4. Eye located at about same distance from articulation of mandible and posterior margin of vertex. Ratio of smallest distance between eyes to longitudinal eye diameter 1.6–1.8. T2 with basal medial spot of pale setae 5
– Eye closer to posterior margin of vertex than to articulation of mandible. Ratio of smallest distance between eyes to longitudinal eye diameter 1.3. T2 with basal band of pale setae 7.0–9.0 mm . . . . . 15. ***D. sabulicola*** (Skorikov, 1935)

5. Length T2 0.8 × its maximal width (Fig. 33). 9.0–10.0 mm . . . . . 3. ***D. dichroa*** (Sichel et Radoszkowski, 1869)
– Length T2 0.9–0.95 × its maximal width (Fig. 42) 6

6. Species from India. 4.0–5.9 mm. India (Gujarat, Maharashtra) . . . . . 9. ***D. malinka*** (Nurse, 1903)
– Species from Palaearctic and Arabian Peninsula 7

7. Pygidial area longitudinally striate, striae slightly divergent apically. 7.0 mm. Yemen .. . . . . 13. ***D. arabica*** (Hammer, 1962)
– Pygidial area granulose at least in apical half 8

8. Mesosoma dorsally with coarse punctures; scutellar scale larger (dark), with distinct tubercles around scutellar scale. 7.0–7.5 mm. Afghanistan . . . . . 7. ***D. speciosa*** (Lelej, 1980)
– Mesosoma dorsally with reticulate punctures; scutellar scale smaller (less visible), without distinct tubercles around scutellar scale. 6.4–7.2 mm . . . . . 6. ***D. dehghanii* sp. nov.**

List of the species

erronea species-group

1. *Dentilla erronea* (André, 1900)

(Figs 1–10, 16–19)

Mutilla littoralis: Sichel & Radoszkowski 1869: 160, ♂, 1870: 180, ♂ non ♀ (Albanie [Albania], Grèce [Greece], Corfou [Corfu, Kerkira], Syra [Syros], Micanos [Mykonos], Gènes [Genoa]); Costa 1887: 130, ♂ non ♀.

Mutilla erronea André, 1900: 134, ♂; 1902: 362, ♂, syntypes from Albania, Greece, Corfou [Corfu, Kerkira], Zante [Zakynthos], Syra [Syros], Mycanos [Mykonos], Lesina [Italy], Sicily, Algeria [MNHN]; 1902: 33, ♂. Junior subjective synonym of *Mutilla curtiventris* André, 1901 according to Pagliano & Strumia 2007: 69. Resurrected to valid name by Lelej & Yildirim 2009: 15.

Smicromyrme erronea: Invrea 1964: 153, 237, ♂ (Italy including Sicily, Albania, Serbia, Greece, Algeria).

Smicromyrme (*Edrionotus*) *erronea*: Nagy 1972: 8, ♀ (Turkey).

Smicromyrme (*Dentilla*) *erronea*: Lelej & Kabakov 1980: 195, ♂.

Dentilla erronea: Lelej 1985: 192, ♂, ♀; Lelej 2002: 52; Lelej *et al.* 2003: 129, ♂, ♀; Lelej & Yildirim 2009: 15, ♂, ♀; Pagliano *et al.* 2020: 170; Lelej *et al.* 2022: 70, ♂.

Smicromyrme errana Nonveiller, 1958: 214, fig. 1, ♀, holotype, ♀, Kopaiz près de Levadia, Grèce [Greece] [OLML]. Junior subjective synonym of *Mutilla curtiventris* André, 1901, according to Petersen 1988: 159. **Syn. nov.**

Smicromyrme errana var. *nigrescens* Nonveiller, 1958: 217, ♀, holotype, ♀, Rujen pl., 18.VII.[19]56, leg. Bjedović [Serbia]. [OLML]. Junior subjective synonym of *Mutilla curtiventris* André, 1901, according to Petersen 1988: 159. **Syn. nov.**

Smicromyrme erronea cretica Nonveiller, 1972: 7, ♂, holotype, ♂, Creta, Iraklion [Greece], [OLML]. Junior subjective synonym of *Mutilla curtiventris* André, 1901, according to Lelej *et al*. 2003. **Syn. nov.**

Smicromyrme errana f. *rutilans* Nonveiller, 1972: 7, ♀. Invalid name according to Article 15.2 of Code (ICZN 1999).

Smicromyrme (*Dentilla*) *cretica*: Lelej & Kabakov 1980: 195, ♂.

Dentilla errana: Lelej 1985: 191, 192, ♀.

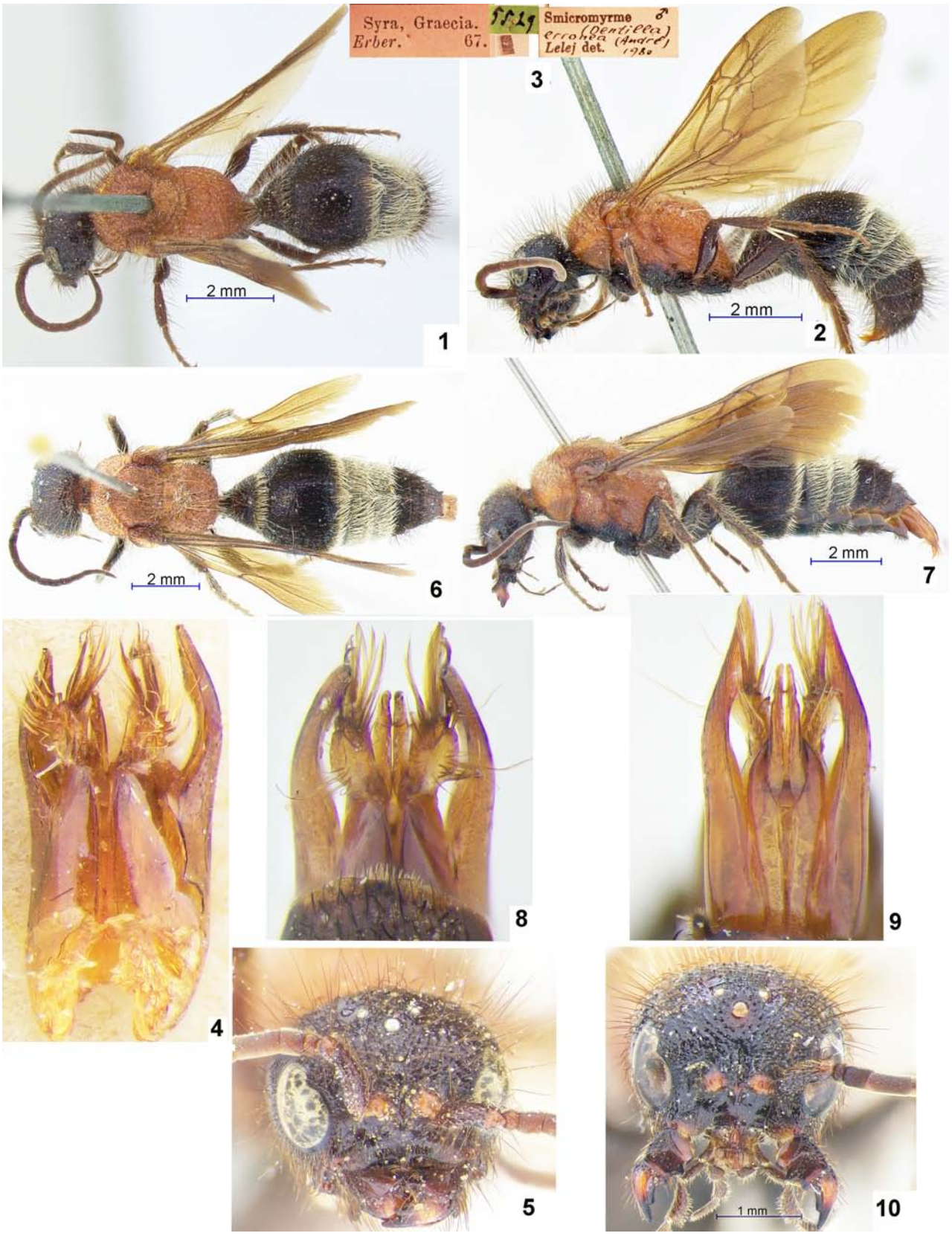
Dentilla cretica: Lelej 1985: 190, 193, ♂; Lelej 2002: 51, ♂.

Dentilla curtiventris: Lelej 2002: 51, ♂, ♀; Lelej *et al.* 2003: 129, ♂, ♀; Pagliano & Strumia 2007: 69, ♂, ♀; Lelej & Yildirim 2009: 15, ♂, ♀; Standfuss & Standfuss 2012: 461, 463, ♂, ♀; Pagliano *et al.* 2020: 170; Lelej *et al.* 2022: 70, ♂; Lelej & Williams 2023: figs 13–16.

Diagnosis. MALE. Ocelli small, OOD 6–7 × diameter of lateral ocellus. Head black. Wings dark. Mesosoma ferruginous-red with blackish mesopleuron beneath. Metasoma with pale band on T3–4 and pale apical fringe on T1–2. T7 apically rounded. Body length 9.0–14.0 mm. FEMALE. T2 with one median subbasal spot of pale setae. Mesosoma ferruginous to brownish red, with sparse golden or argent setae dorsally. Pygidial area much narrow. Longitudinal eye diameter less than 2.0 × distance from posterior edge of eye to posterior edge of vertex. Body length 7.0–9.0 mm.

Material examined. (87♂, 36♀). **Type material.** Paratype of *Smicromyrme erronea cretica* Nonveiller, 1972, ♂, **Greece**, Iraclion, Creta, 25.IX.1959, J. Stančić [IBSS]. **Additional material.** 10♂ and 4♀ from **Greece** (Lelej *et al.* 2003); 3♂ and 3♀ from **Turkey** (Lelej & Yildirim 2009). 9♂ from **Azerbaijan** [IBSS] (Lelej *et al.* 2022). **Greece**: Crete, 1♂ [ZIN]; Rhodos, Ixia, 1–4.IX.1962, 2♂, PMF Verhoeff // *Smicromyrme erronea* André, J. Suárez det., 1963 [IBSS]; Hellas, Peloponisos, 5 km S Monemvasia, 26–31.VIII.1983, 1♂, Zool. Mus. Copenh. Exped. // *Smicromyrme erronea* André, B. Petersen det., 1984 [IBSS]; Hellas, Lakonia, 5 km S Monemvasia, 22.VIII.1983, 1♂, G. Chistensen // *Smicromyrme erronea* André, B. Petersen det., 1984 [IBSS]. **Turkey**: Prov. Cankiri, Ilgaz Dagi, Ilgaz, ca. 900 m, 13.VII.1995, 1♂, Gelbrecht & E. Schwabe [IBSS]. **Serbia**: Preševo, Reljani, 18.VII.[19]56, Bjegović / Vučji Kamen / *Smicromyrme errana* Nonvll. det. Nonvll., 1976, 1♀ [IBSS]; Macedonia [**North Macedonia**], Dojran, 9.IX.[19]56, 1♀, Nonvll. [Nonveiller] [IBSS]. **Greece**: Corfu [Kerkira], 1867, 8♂, J. Erber [ZIN]; Syra [Syros, Siros], 1867, 4♂, J. Erber [ZIN]; 1♂ and 4♀ from Volos and Poros [NHME, IBSS] (Lelej *et al.* 2003); Thessaloniki, Sindos, 11.IX.[19]57, 1♀, Jovanović [IBSS]; Hellas, Timfi, Óros, Aristi/Papingo, 900-1100 m, 24.VIII.1983, 1♀, Zool. Mus. Copenh. Exped. / *Smicromyrme errana* Nonv., B. Petersen, 1984 [IBSS]. **Bulgaria**: 2♂ [NHME] (Lelej *et al.* 2003); Melnik, 16–22.VI.1987, 2♂, H. Halada [OLML]; Melnik, 29–31.VII.1982, 1♀, H. Halada [OLML]. **Turkey**: 16♂ and 20♀ including five pairs taken *in copula* by E. Yildirim [EMET, IBSS] (Lelej & Yildirim 2009); Kasimpaşa [Istanbul], 1♂, Morawitz coll. [ZIN]. **Azerbaijan**: Kangarli, Chalkhangala, 39º25'N, 45º13'E, 1445 m, 17.VI.2020, 1♂, M. Maharramov [IBSS]. Tash-Bulag, [North Azerbaijan, Shekinsky Region], 19.VI.1928, 1♂, O. Botsharnikov [ZIN]; Ordubad [Azerbaijan, Nakhchivan], 1892, 1♂, E. Reitter [ZIN]; Nakhchivan, Karabaglar, 17.VI.1960, 1♂, G. Dlussky [ZMMU]; same place, 19.VI.1959, 2♂, G. Viktorov [ZMMU];

Arafsa, 29.VI.1958, 1♂, L. Zimina [ZMMU]. **Armenia**: Garni, 22.VI.1960, 2♂, G. Dlussky [ZMMU]; Khosrov Reserve, 29.VI–8.VII.1983, 9♂, M. Nesterov [IBSS]; 23.VI.1980, 2 ♂, V. Ermolenko [IBSS]; Jrvezh, 5.VII.1976, 2♂, V. Gorbatovsky [IBSS]; same place, 1.VII.1959, 1♂, G. Viktorov [ZMMU]; Chimankend, 22.VII.1960, 1♂, E. Antonova [ZMMU].

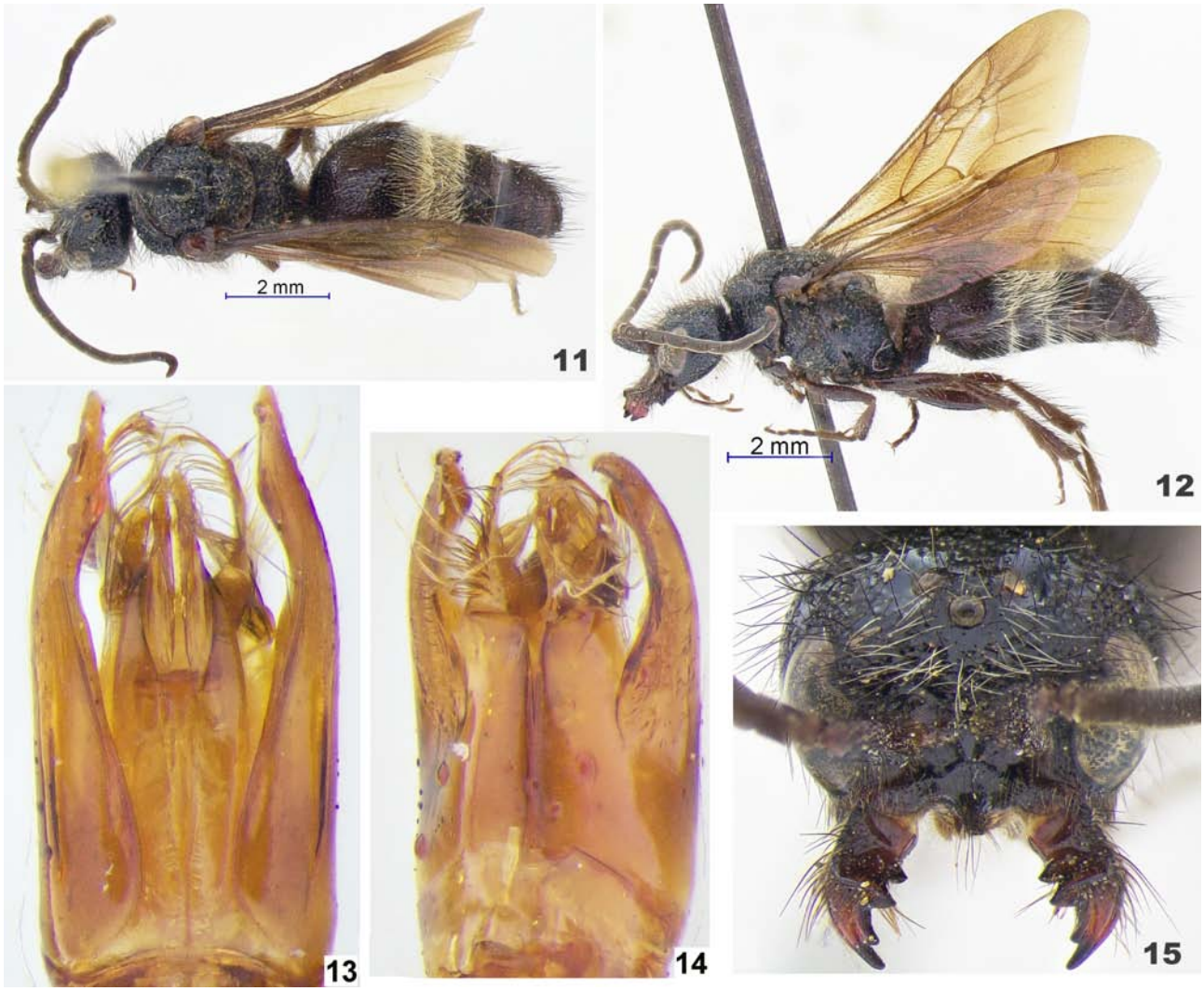


FIGURES 1–10. *Dentilla erronea*, male. 1–5. Greece, Syros; 6–10. Greece, Platania, Volos. 1, 6. Habitus, dorsal view; 2, 7. Habitus, lateral view; 3. Labels; 4, 8. Genitalia, ventral view; 9. Genitalia, dorsal view; 5, 10. Head, face view.

Distribution. Albania, Azerbaijan, Armenia, Bulgaria, Greece, Serbia, North Macedonia, Italy (including Sicily), Turkey, Algeria.

Remarks. In the key to the subgenera, André (1900: 134) wrote: "Yeux étroitement et plus ou moins profondément échancrés en dedans, très rarement avec une échancrure indistincte [Chez la *Mutilla erronea* André]". According to Articles 11 and 12.1 of the ICZN (1999), *Mutilla erronea* André, 1900 is an available specific name. A full description of this species is given on pages 360–362 [dated 1902].

For a long time I followed the synonymy of *Smicromyrme curtiventris* (André, 1901) (=*S. errana* Nonveiller, 1958) proposed by B. Petersen (1988). When I examined the holotype of *Mutilla curtiventris* André, 1901 in the NHMW in 2011, I understood that this synonymy is wrong and *M. curtiventris* belongs to the genus *Skorikovia* Ovtchinnikov, 2002, where it becomes a new junior subjective synonym of *S. trinotata* (Costa, 1858). Such a form with a shortened metasoma is already known for this species (*S. pouzdranensis* Hoffer, 1936).



FIGURES 11–15. *Dentilla persica*, male. 11, 12, 15. Azerbaijan, Mardakan; 13, 14. Armenia, Asni. 11. Habitus, dorsal view; 12. Habitus, lateral view; 13. Genitalia, dorsal view; 14. Genitalia, ventral view; 15. Head, face view.

2. *Dentilla persica* (Sichel et Radoszkowski, 1869)

(Figs 11–15, 20–23)

Mutilla persica Sichel et Radoszkowski, 1869: 160 (in key), 269 (description), ♂; syntypes 2 ♂,"Persia" [Iran] [1 syntype in ISEA-PAN], examined by photo; André 1899a : 9, ♂; 1902: 352, ♂.
Smicromyrme persica: Invrea 1965: 87, ♂ (Israel, Palestina).
Smicromyrme (*Dentilla*) *persica*: Lelej & Kabakov 1980: 195, ♂.
Dentilla persica: Lelej 1985: 193, ♂, ♀; 2002: 53; Lelej *et al.* 2003: 129; Lelej & Yildirim 2009: 15, ♂; Pagliano *et al.* 2020:

171; Standfuss & Standfuss 2012: 461, 463, ♂; Lelej *et al.* 2022: 71, ♂, ♀.
Smicromyrme (*Edrionotus*) *ursina* Nagy, 1972: 4, ♀, holotype, ♀, Turkey, Salt Lake (Tuz-Gölü), Ankara [Nagy's coll., depository unknown (Kimsey & Brothers 2016)]. **Syn. nov.**
Smicromyrme (*Dentilla*) *ursina*: Lelej & Kabakov 1980: 195, ♀.
Dentilla ursina: Lelej 1985: 191, ♀; 2002: 52, ♀; Pagliano *et al.* 2020: 171, ♀.

Diagnosis. MALE. Ocelli small, OOD 6–7 × diameter of lateral ocellus. Head black. Wings dark. Mesosoma black with ferruginous-red dorsum or totally black. Metasoma with pale band on T3 and pale apical fringe on T1–2. T7 apically straight. Body length 9.5–12.0 mm. FEMALE. T2 with basal medial spot of pale setae. T4–5 with black setae. Mesosoma black or dark brown, dorsum dark red with dense yellowish-white setae. Pygidial area very wide. Body length 9.2–12.0 mm.

Material examined. (22♂, 10♀). **Greece**: 2♂, 5♀ (Lelej *et al.* 2003). **Turkey**: 2♂ (Lelej & Yildirim 2009). **Azerbaijan**: 3♂, 4♀ (Lelej *et al.* 2022). **Armenia**: Arazdayan, 15.VII.1961, 10♂, 1♀, D. Panfilov [ZMMU]; Asni, 28.VI.1971, 3♂, V. Rikhter [IBSS]. **Jordan**: Wadi el Heidan, 8.V.1995, 1♂, K. Deneš [OLML]. **Palestine**: 5 km W Jericho, Wadi Qelet St.Georg, 30°57′N 35°08′E, 1♂, Ch. Schmid-Egger [IBSS].

Distribution. Azerbaijan, Armenia, Greece, Iran, Turkey, Jordan (new record), Palestine.

Remarks. The morphological characters of *Dentilla ursina* (Nagy, 1972), ♀, especially the wide pygidial area and the shape of the head, as well as the coloration of the mesosoma, are similar to those of *Dentilla persica*, ♀, and I consider the former to be a synonym of the latter.

dichroa species-group

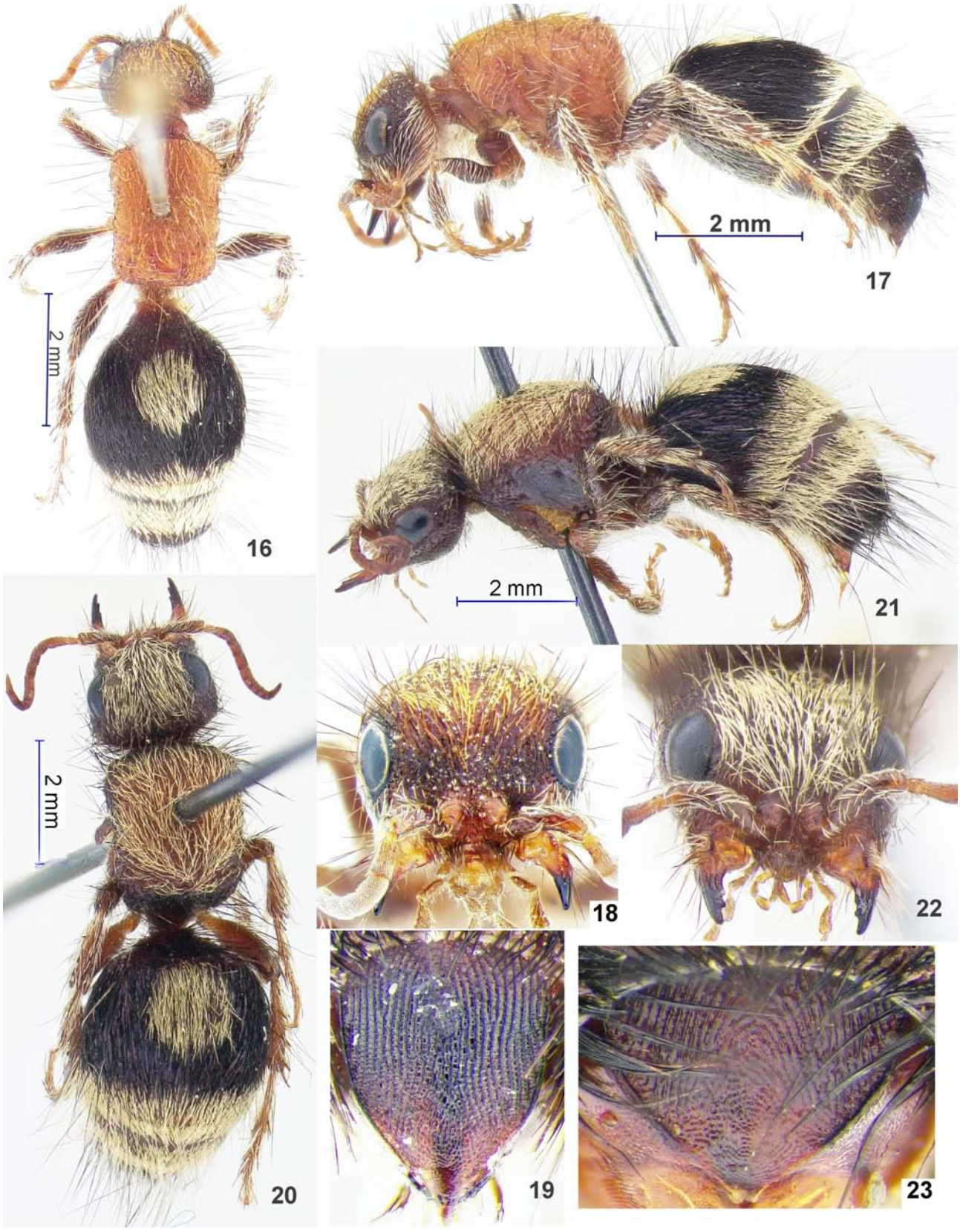
3. *Dentilla dichroa* (Sichel et Radoszkowski, 1869)

(Figs 24–28, 33–35)

Mutilla bicolor Olivier, 1811: 52, 57, ♂, nom. praeocc., non Pallas, 1771, holotype, ♂: "dans le petit désert de l'Arabie, près de l'Euphrate" [Iraq] [MNHN].
Mutilla dichroa Sichel et Radoszkowski, 1869: 159; 1870: 300, ♂ (replacement name for *Mutilla bicolor* Olivier, 1811; André 1898: 6, ♂.
Mutilla (*Ephutomma*) *dichroa*: André 1901a: 150, ♂ (Turkestan, Région transcaspienne, Arabie, Sinai).
Ephutomma dichroa: Skorikov 1935: 324, tab. 5, fig. 1, ♂.
Smicromyrme (*Dentilla*) *dichroa*: Lelej & Kabakov 1980: 195, ♂.
Dentilla dichroa: Lelej 1985: 194, ♂; 2002: 51, ♂; Lelej & Osten 2004: 255, ♂; Pagliano *et al.* 2020: 170.
Mutilla quinquedentata Morawitz, 1890: 638, ♂, holotype, ♂, Repetek, 16.V.1889, on light, A. Semenov, probably lost. Junior subjective synonym of *Mutilla dichroa* Sichel et Radoszkowski, 1869 according to André, 1898: 6.
Ephutomma quinquedentata: Bischoff 1920: 149, 153, ♂ (Iraq: Al Faw).
Ephutomma quinquedentata mesopotamica Bischoff, 1920: 149, 153, ♂, holotype, ♂, Centr.-Mesopotamien, 518, Teklekberge [boundary between Syria and Turkey], 14.VII.[19]13, Exp. v. Oppenheim, Kohl S. // *mesopotamica* Bisch. det. Bischoff // Type // *Dentilla dichroa* (Sich.+Rad.) B. Petersen det. 1989 // Zool. Mus. Berlin [MNHU], examined; Pagliano *et al.* 2020: 173 (as separate species). **Syn. nov.**
Smicromyrme sabulosa Skorikov, 1935: 313, 317, ♀, holotype, ♀, Kerman, strana Megas, Shurab [Sistan & Baluchestan, Sor Ab, 27°10'24"N 60°41'17"E], 13–14.II.1901, N. Zarudny [ZIN], examined. **Syn. nov.**
Smicromyrme (*Dentilla*) *sabulosa*: Lelej & Kabakov 1980: 195, ♀.
Dentilla sabulosa: Lelej 1985: 191, 196, ♀; 2002: 52, ♀; Pagliano *et al.* 2020: 171.
Eremomyrme quinquedentata: Invrea 1965: 91, ♂ (Israel).
Eremomyrme bicolor: Invrea 1965: 90, ♂ (Israel, Palestine).

Diagnosis. MALE. Ocelli large, OOD 2 × diameter of lateral ocellus. Head reddish-brown. Wings hyaline with darkened apex. Anterior border of clypeus with narrow medial projection whose dorsal length is about equal to its width. Basal half of T2 with dense separate punctures. POD:OOD ratio 0.8 × and more, ocelli large. Upper carina of mandible high. Longitudinal carina between antennal tubercles and base of clypeus well developed. First subbasal tooth of the mandible with short carina much less than distance from the base of this carina to the base of the mandible. T7 apically with weak notch. T1 length less than its maximal width. Lower subbasal lobe of mandible invaginated below, height of subbasal tooth more than smallest distance between notch and upper carina of mandible. Body length 9.5–13.0 mm. FEMALE. T2 with basal medial spot of pale setae. T4–5 with pale setae.

Eye located about same distance from articulation of mandible and posterior margin of vertex. Ratio of smallest distance between eyes to longitudinal eye diameter 1.6–1.8 ×. Length T2 0.8 × its maximal width. Body length 9.0–10.0 mm.



FIGURES 16–23. *Dentilla*, females. 16–19. *D. erronea*, Greece, Platania, Volos. 20–23. *D. persica*, Azerbaijan, Mardakan. 16, 20. Habitus, dorsal view; 17, 21. Habitus, lateral view; 18, 22. Head, face view; 19, 23. Pygidial area, dorsal view.

Material examined. (157♂ 3♀). **Type material.** Holotype of *Ephutomma quinquedentata mesopotamica* Bischoff, 1920, ♂. **Additional material. Turkmenistan**: Dus-olum [south-western Turkmenistan], J. Pomerantsev / к. Моравица / *5-dentata* F.Mor. 1♂" [ZIN]; Peskimar, D. Glasunov [1893], 1♂ [ZIN]; Kopet-Dag, Firyuza, 8.VI.1903, K.Anger, 3♂ [ZIN]; 8, 20.VII.1991, on light, V. Dubatolov, 2♂ [IBSS]; East Kopet-Dag, Charlyk, 37°09′45″N 59°49′22″E, 26–27.VI.1991, V. Krivokhatsky, 1♂ [IBSS]; Bairam-Ali, 27.IX.1896, K.Anger, 1♂ [ZIN]. **Afghanistan**: (Uruzgan, Kabul), 2 ♂ (Lelej & Kabakov 1980). *Herat*, Zulfagar [Sulfagar], [28.V.1893] D.Glasunov / к. Моравица / *5-dentata* F.Mor. 3♂" [ZIN]. **Iran**: (*Hormozgan, Fars, Ilam*), 100♂ (Lelej & Osten 2004; Lelej *et al*. 2008) *Tehran*, 14.VIII.1951, N. Shutova, 1♂ [ZIN]. *Razavi Khorasan* Prov., Nerduali, [1893], D. Glasunov / к. Моравица / *5-dentata* F.Mor. 2♂" [ZIN]; *South Khorasan* Prov., Nehbandan, 24.VI–2.VII.1901, N. Zarudny, 1♂ [ZIN]; *Yazd* Prov., ca 23 km SW Kharanaq, 1600 m, on light, 32°11′N 54°30′E, A. Timokhov, 1♂ [IBSS]. *Kerman* Prov., 75 km S Sirjan, 9.IV.1970, Ressel, 1♀ [ZSM]; Keshi [Keshit], 28.III–2.IV.1901, N. Zarudny, 3♂ [ZIN]; 25 km NE Jiroft, 5 km E Saghdar, 2000–2400 m, on light, 28°50′N 57°56′E, A. Timokhov, 15♂ [IBSS]. *Fars* Prov., 50 km NNE of Shiraz, Bamoo Res., 29°45′N 52°46′E, 18–28.V.2000, Yu. Marusik, 2 ♂ 1♀ [IBSS]; *Sistan & Baluchestan*, Bampur, 14.V.1901, N. Zarudny, 1♂ [ZIN]; Karavandar [Karvandar], 23–24.IV. 1901, N. Zarudny, 4♂ [ZIN]; Sargad, 29–31.VIII.1898, N. Zarudny, 2♂ [ZIN]; Sargad, Chaashen-Sadk, 28–30.IV.1901, N. Zarudny, 1♂ [ZIN]; Shurab [Sor Ab], 27.VI.1898, N. Zarudny, 1♂ [ZIN]; Bazman, 28.VI–3.VII.1898, N. Zarudny, 3♂ [ZIN]; Makran, Rong River, 29.III.1901, N. Zarudny, 1♂ [ZIN]; Khash, 20.V.1955, D. Steinberg, 1♀ [ZIN]. **Israel**: 50 km SE Beer Sheva, Wadi En Aqrabbin, Negev, 30°57′N 35°08′E, 8.V.1996, Ch. Schmid-Egger, 1♂ [IBSS]. **Jordan**: Jemini, 19.XI.1966, coll. G. Pagliano, 1♂ [IBSS]. **Oman**: NE, S of Sur, 15 km W of Al Askharah, 13.III.2015, M. Snižek, 1♂ [IBSS]. **Saudi Arabia**: Riyadh, 1♂ [OLML].

Distribution. Turkmenistan, Afghanistan, Iran, Iraq, Syria (new record), Jordan (new record), Israel, Palestine, Saudi Arabia (new record), Oman (new record), Egypt (Sinai).

Remarks. The holotype of *Mutilla quinquedentata* Morawitz, 1890 from Repetek is not found in the ZIN where the Morawitz collection is deposited. This holotype is probably lost. In the ZIN collection there are 7♂ from Nerduali, Sulfagar, Peskimar collected by D. Glasunov in the Transcaspian region and northern Iran and Dus-olum collected by J. Pomerantsev in south-western Turkmenistan, all are with Morawitz identification label "*5-dentata* F.Mor., ♂". They cannot be syntypes (Lelej 1985), because they were collected by D. Glasunov in 1893 (after the description of *M. quinquedentata*) (Semenov 1896). Børge Petersen (unpublished) labelled the holotype of *Ephutomma quinquedentata mesopotamica* Bischoff, 1920, ♂ in MNHU as *Dentilla dichroa* (Sichel et Radoszkowski, 1869). As this synonymy has not yet been published, I hereby support it and propose it as a new synonymy.

The female of *D. dichroa* (Sichel et Radoszkowski, 1869) may eventually be recognized as *D. sabulosa* (Skorikov, 1935) due to its co-occurrence in Iran: Sistan and Baluchestan Prov. and especially Fars Prov., 50 km NNE of Shiraz, Bamoo Res., 29°45′N 52°46′E, 18–28.V.2000, Yu. Marusik, 1♀ and 2 ♂. There is no direct evidence (pair collected *in copula*) to support this relationship.

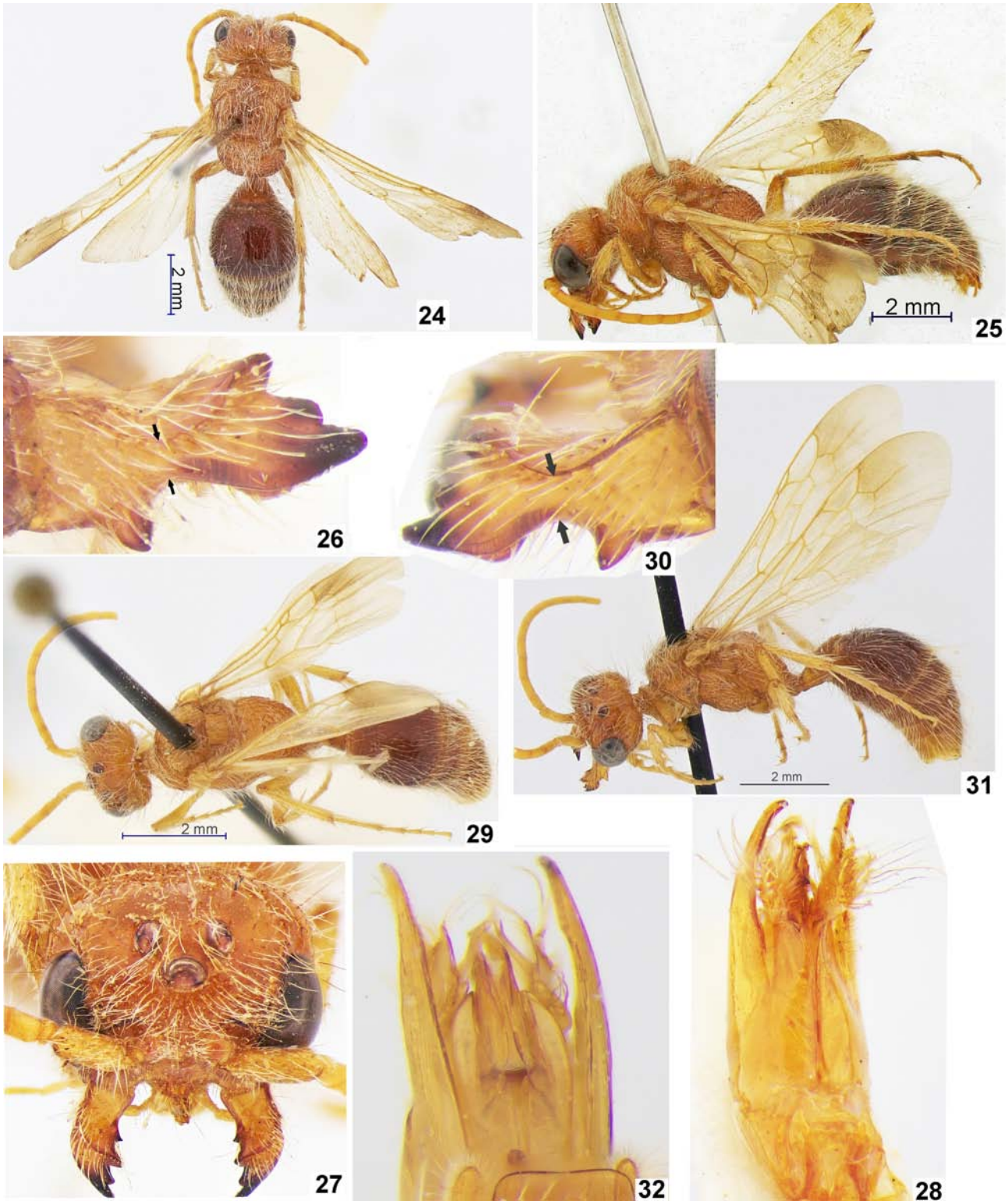
4. *Dentilla irana* Lelej, 1985

(Fig. 63)

Dentilla irana Lelej, 1985: 191, 194, ♂, holotype, "Вост. Иран: Керман, страна Куче, Камбиль [Eastern Iran, SE of Province Sistan and Baluchestan], 8–9.III.1901", N. Zarudny [ZIN], examined; 2002: 52, ♂; Lelej & Osten 2004: 255, ♂; Pagliano *et al*. 2020: 170.

Dentilla kompantsevi Lelej, 1995: 5, ♂, holotype, India, Rajasthan, Jodhpur, Farm of Central Arid Zone Research Institute, 7–9.X.1989, A. Kompantsev [ZMMU], examined; 2005: 39, ♂; Pagliano *et al*. 2020: 170. **Syn. nov.**

Diagnosis. MALE. Ocelli large, OOD 2 × diameter of lateral ocellus. Head reddish-brown. Wings hyaline with darkened apex. Anterior border of clypeus with narrow medial projection whose dorsal length about equal to its width. Basal half of T2 with dense separate punctures. POD:OOD ratio 0.8 × and more, ocelli large. Upper carina of mandible high. Longitudinal carina between antennal tubercles and base of clypeus well developed. First subbasal tooth of mandible with short carina much less than distance from base of this carina to base of mandible. T7 apex rounded. T1 length more than its maximal width. Body length 7.5–11.0 mm. FEMALE. Unknown.



FIGURES 24–32. *Dentilla*, males. 24–28. *D. dichroa*, Iran, Shiraz. 29–32. *D. dehghanii* **sp. nov.**, holotype. 24, 29. Habitus, dorsal view; 25, 31. Habitus, lateral view; 26, 30. Mandible; 27. Head, face veiw; 28. Genitalia, ventral view; 32. Genitalia, dorsal view.

Material examined. (66♂). **Type material.** Holotype and 18 paratypes of *D. irana* [ZIN]. Holotype of *D. kompantsevi* [ZMMU]. **Additional material. Iran**: *Hormozgan*, 7♂ (Lelej & Osten 2004). *Fars*, Estahban, 15-18.VI.2010, R. Yakovlev, 9♂ [IBSS]; **India**: Rajasthan, 15 km W Jaisalmer, 24.VIII.2004, on light, T. Osten, 4♂; 7 km W Jaisalmer, 22.VIII.2004, on light, T. Osten, 2♂; 15 km SE Jaisalmer, 20.VIII.2004, on light, T. Osten, 1♂ [IBSS, SMNS]. **Pakistan**: Sindh Prov., Tharparker distr., Thar desert, 1.VII.2016, G. Lakho, 2♂ [IBSS]; Hyderabad distr., Miani Forest, 1.II.2016, G. Lakho, 1♂ [IBSS]; Pashwar - Islamabad Road, bridge across Indus River, 33°53′N, 72°18′E, 1.IX.2005, S. Ovtchinnikov, 1♂ [ZIN]; Baluchistan, 10 km W of Kach vill., 30°25′N, 67°16′E, 28.VII.2005, S. Ovtchinnikov, 18♂ [ZIN]; Wam vill. Pil Forest, 2213 m, 30°26′N, 67°26′E, 29.VII-5.VIII.2005, S. Ovtchinnikov, 1♂ [ZIN]; Zijarat - Multan Road, 50 km E of Zijarat, 1486 m, 30°18′N, 68°30′E, 7.VIII.2005, S. Ovtchinnikov, 1♂ [ZIN].

Distribution. Iran (Sistan and Baluchestan, Hormozgan), India (Rajasthan) (new record), Pakistan (Sind, Baluchistan) (new record).

Remarks. Examination of *D. irana* specimens from India and Pakistan shows that ratio of first abscissa of radial sector (RS_1') to second abscissa (RS_1'') of forewing varies (0.6–1.5 ×) and wing venation characters of holotype of *D. kompantsevi* are within this variation. Therefore, I consider *D. kompantsevi* to be a junior subjective synonym of *D. irana*.

5. *Dentilla beludzhistana* Lelej, 1985

Dentilla beludzhistana Lelej, 1985: 190, 195, ♂, holotype, "Иран: Керман, страна Бемпур, [Eastern Iran, SE of Province Sistan & Baluchestan], 19–23.IV.1901", N. Zarudny [ZIN], examined; 2002: 51, ♂ (*beludzistanica*, incorrect subsequent spelling!); Pagliano *et al.* 2020: 170.

Diagnosis. MALE. POD:OOD ratio 0.5–0.6 ×, ocelli small. Upper carina of mandible weak, mandible almost flat. Longitudinal carina between antennal tubercles and base of clypeus scarcely visible. Body length 7.5–8.5 mm. FEMALE. Unknown.

Material examined. (5♂). **Type material.** Holotype and 1 paratype of *D. beludzhistana* [ZIN]. **Additional material. Iran:** *Fars*, Estahban, 15-18.VI.2010, R. Yakovlev, 2♂ [IBSS]; *Loristan*, Machmudvan, 4-5.VI.2020, 1♂, R. Yakovlev [IBSS].

Distribution. Iran (Fars, Loristan, Sistan & Baluchestan).

6. *Dentilla dehghanii* Lelej, sp. nov.

(Figs 29–32, 42–44)

Dentilla sp.: Dehghani *et al.* 2018: 1, ♂, ♀; Kassiri *et al.* 2021: 20, ♂, ♀.

Diagnosis. MALE. Ocelli large, OOD 2 × diameter of lateral ocellus. Head reddish-brown. Wings hyaline with darkened apex or preapical area. Anterior border of clypeus with narrow medial projection whose dorsal length about equal to its width. Basal half of T2 at least with dense separate punctures. POD:OOD ratio 0.8 × and more, ocelli large. Upper carina of mandible high. Longitudinal carina between antennal tubercles and base of clypeus well developed. First subbasal tooth of mandible with short carina approximately equal to or smaller than this tooth and much less than distance from base of this carina to base of mandible. T7 apex with weak notch. T1 length less than its maximal width. Lower subbasal lobe of mandible scarcely invaginated below, height of subbasal tooth less than smallest distance between notch and upper carina of mandible. Body length 7.2–9.9 mm. FEMALE. T2 with basal medial spot of pale setae. T4–5 with pale setae. Eyes located at about same distance from articulation of mandible and posterior margin of vertex. Ratio of smallest distance between eyes to longitudinal eye diameter 1.6–1.8 ×. Length T2 0.9–0.95 × its maximal width. T2 laterally strongly rounded. Pygidial area granulose at least in apical half. Mesosoma dorsally with reticulate punctures; scutellar scale small, without distinct tubercles around scutellar scale. Body length 6.4–7.2 mm.

Description. MALE. Body length 7.2–9.9 mm. Head width equal mesosoma width including tegulae. Clypeus deeply concave with narrow median process anteriorly and short acute basal median carina. Scape distinctly bicarinate beneath, upper ridge visible basally. Ocelli large, POD : OOD 0.8 ×; POD equal to maximal diameter of

anterior ocellus; distance between posterior ocellus and posterior head margin 1.9 × POD. Frons with longitudinal median furrow. F1 1.4 × its width, 2.7 × pedicel, and 0.55 × F2, F2 1.1 × F3. Antennal sockets with arcuate carina. Mandible quadridentate with strong curved upper carina, with acuminated subbasal tooth beneath, first subbasal tooth of mandible with short carina approximately equal to or smaller than this tooth and much less than distance from base of this carina to base of mandible; first preapical tooth less than second preapical tooth, latter with tuft of setae beneath. Vertex sparsely punctate, genae densely punctate. Pronotal dorsum almost straight anteriorly, pronotal width 1.2 × propodeal width (on spiracle line). Metasternal process with medial carina, apically without denticles. Posterior coxae carinate inside. Tegulae slightly projecting over mesoscuto-scutellar suture, shining, glabrous, with a few punctures inside. Propodeum abrupt, reticulate with median dorsal longitudinal cell distinctly delimited posteriorly by carina interrupted medially. S1 carinate beneath, T1 0.85 × its maximal width; T2 with long lateral felt lines, S2 with very short one and approximately 3 × less than distance between felt line and posterior border of S2; T2 with dense large punctures, sparser on disc. T7 apically straight or with weak notch, densely punctured. Genitalia (Fig. 32).

Head, palps, mesosoma, tegulae, legs, T1 basally, and S1 yellowish-red. Antenna yellowish-red. Mandible yellowish-red with dark denticles. Metasoma brownish. Meso- and metatibial spurs whitish. Wings hyaline with pale brown veins, forewing (distal of cells) slightly infuscated, darker toward anterior margin. Body and legs clothed with recumbent short and scattered long erect whitish pubescence; T2–6 and S2–6 with apical fringes of whitish setae which denser on T2; felt lines on T2 and S2 whitish.

FEMALE. Body length 6.4–7.2 mm. Head pale red, roundish, width equal to pronotum. Surface of vertex shiny, with wide dense punctuation, sparser on occipital area, gena densely punctate Eyes oval, large, clearly protruding from head profile and strongly convex; interocular distance 1.7 × maximum orbital diameter. Clypeus with prominent upper carina, clearly visible from above, ending in shiny basal tubercle. Mandible tridentate, ferruginous, weakly curved, darkish in apical half. Antennae entirely pale reddish, with curved scape. Mesosoma pale red, subrectangular, 1.2 × than broad; pronotum just slightly arched, with sharp angles, less rounded and evanescent than posterior ones; lateral margins wavy. Mesosoma dorsally shiny, with punctuation larger and denser than head; in posterior half, interpuctual spaces very small but protruding in jagged denticles, aligned in arcuate rows. Scutellar scale large and rounded. Pleurae with slightly punctate on mesopleural area. Propodeum feebly arched, without a distinct angle between propodeal and dorsal surface of mesosoma. Legs including calcaria pale red. Metasoma brown with reddish segment 1. Width of T1 0.45 × than T2. T2 sparsely and finely punctate, dorsally with variolate punctures that laterally are larger, denser, and sometime confluent. Pygidial area (Fig. 44).

Pubescence on head yellowish, with recumbent yellowish short setae mostly on vertex; erect setae uniformly occurring, longer ones close to eyes and on occipital side; shorter erect setae occur also on clypeal margin and around upper carina, as well as on scapes, pedicels and F1, Mesosoma dorsally with recumbent yellowish setae, with long erect yellowish setae on lateral and posterior margins, shorter setae occur on dorsum and on pronotal margin. T2 with medial subbasal spot of whitish setae, with long erect scattered yellowish setae and brownish recumbent setae; posterior margin with yellowish-whitish fringe of short and recumbent setae, just slightly forward extended in middle. Pubescence of T3–5 mixed between long erect and short recumbent yellowish-whitish setae. Felt lines whitish, 1.2 × longer than their distance from posterior margin of T2.

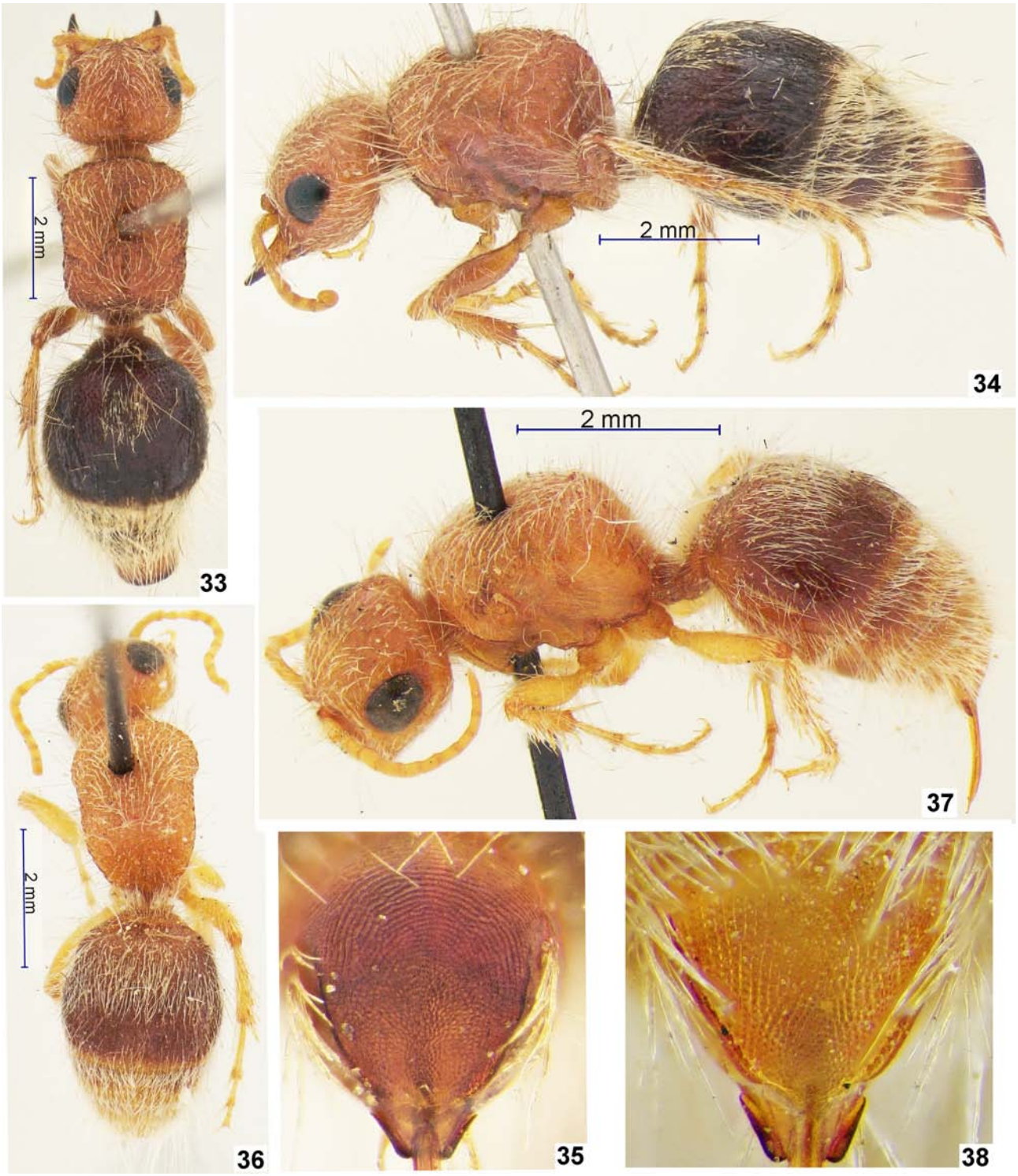
Material examined. (6♂ 21♀). **Type material.** Holotype, ♂, Iran, Isfahan, Kashan, 34°01'37.98"′N 51°21′19.86"E, 975 m, 16.IX.2013, R. Dehghani [IBSS]. Paratypes, 5♂ and 21♀ with the same label [IBSS].

Distribution. Iran (Isfahan).

Etymology. This species is dedicated to Rouhullah Dehghani, who studied the importance of this species for human health and natural history in central Iran and collected the type series.

Natural history. (Dehghani *et al.* 2018, Kassiri *et al.* 2021). During 2013–2015, 49 individuals stung by velvet ants in the residential areas of Kashan were studied. The identification of the stinging agent was made according to the morphological speciation of the insect samples collected in the houses of the injured. Stinging complications in individuals were studied according to the clinical manifestation and the time of stinging, which was from June to September. The stinging agent was identified as velvet ants, *Dentilla* sp. [*Dentilla dehghanii* **sp. nov.** AL].

The first sign of the sting was a severe and sharp pain. The highest percentage of redness in individuals was 47% on the first day, and the lowest was 2% four or five days after the sting. Intense itching was one of the main symptoms of velvet ant stings. In the final stages of pain and itching, signs of hemolysis and bruising were observed as brown spots. Due to the high number of stings in the carpet weaving workshops, living rooms and bedrooms, it was concluded that this wasp is a domestic pest.



FIGURES 33–38. *Dentilla*, females. 33–35. *D. dichroa* (=*sabulosa* Skorikov, 1935), Iran, Shiraz. 36–38. *D. sabulicola* Skorikov, 1935, holotype. 33, 36. Habitus, dorsal view; 34, 37. Habitus, lateral view; 35, 38. Pygidial area, dorsal view.

7. *Dentilla speciosa* (Lelej in Lelej & Kabakov, 1980)

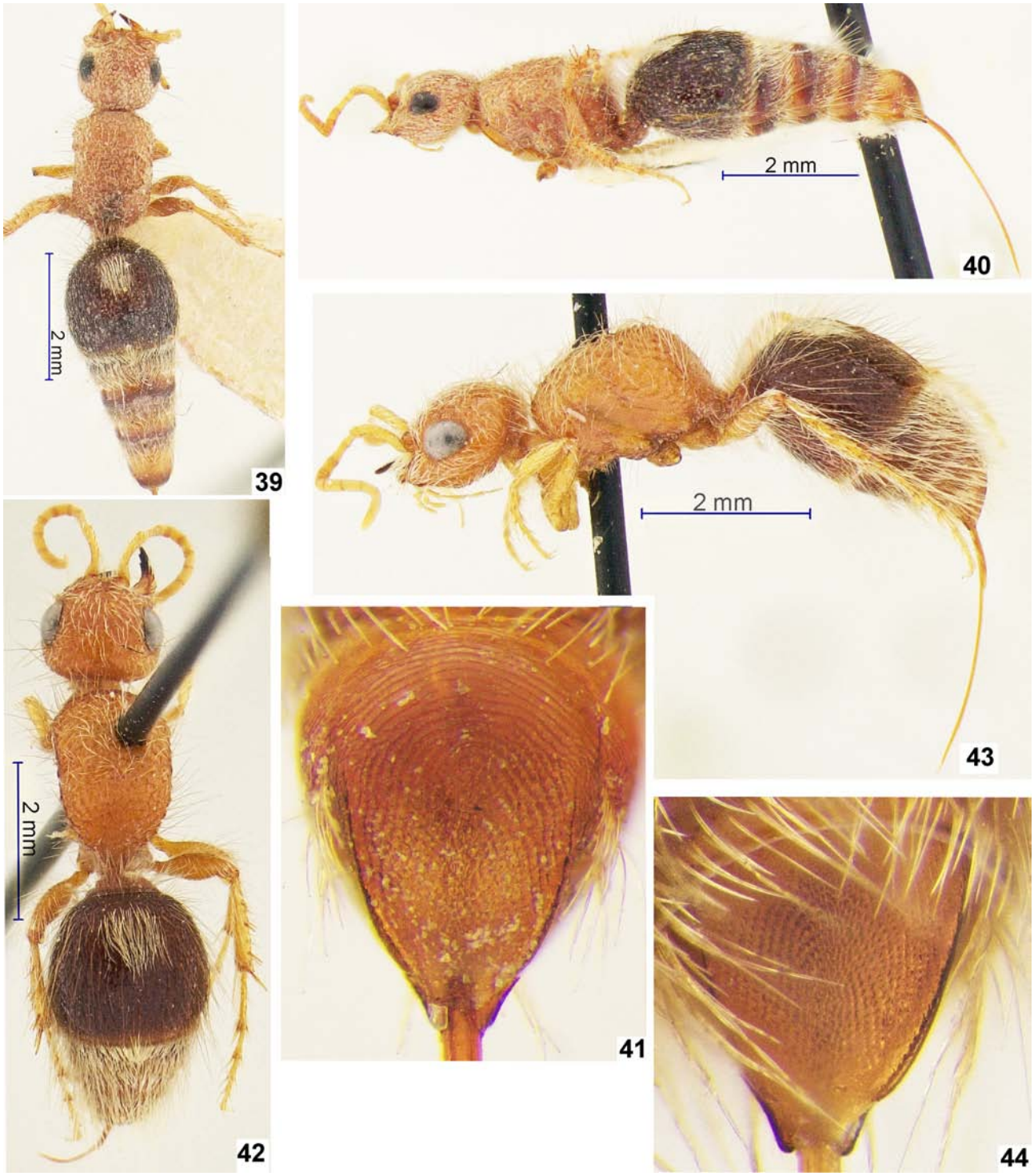
(Figs 39–41)

Smicromyrme speciosa Lelej in Lelej & Kabakov, 1980: 195, fig. 10, ♀, holotype, ♀, Afghanistan, Lagman Prov., Shamakat, 2.IV.1972, O. Kabakov [ZIN], examined.
Dentilla speciosa: Lelej 1985: 195, ♀; 2002: 52; Pagliano *et al.* 2020: 171.

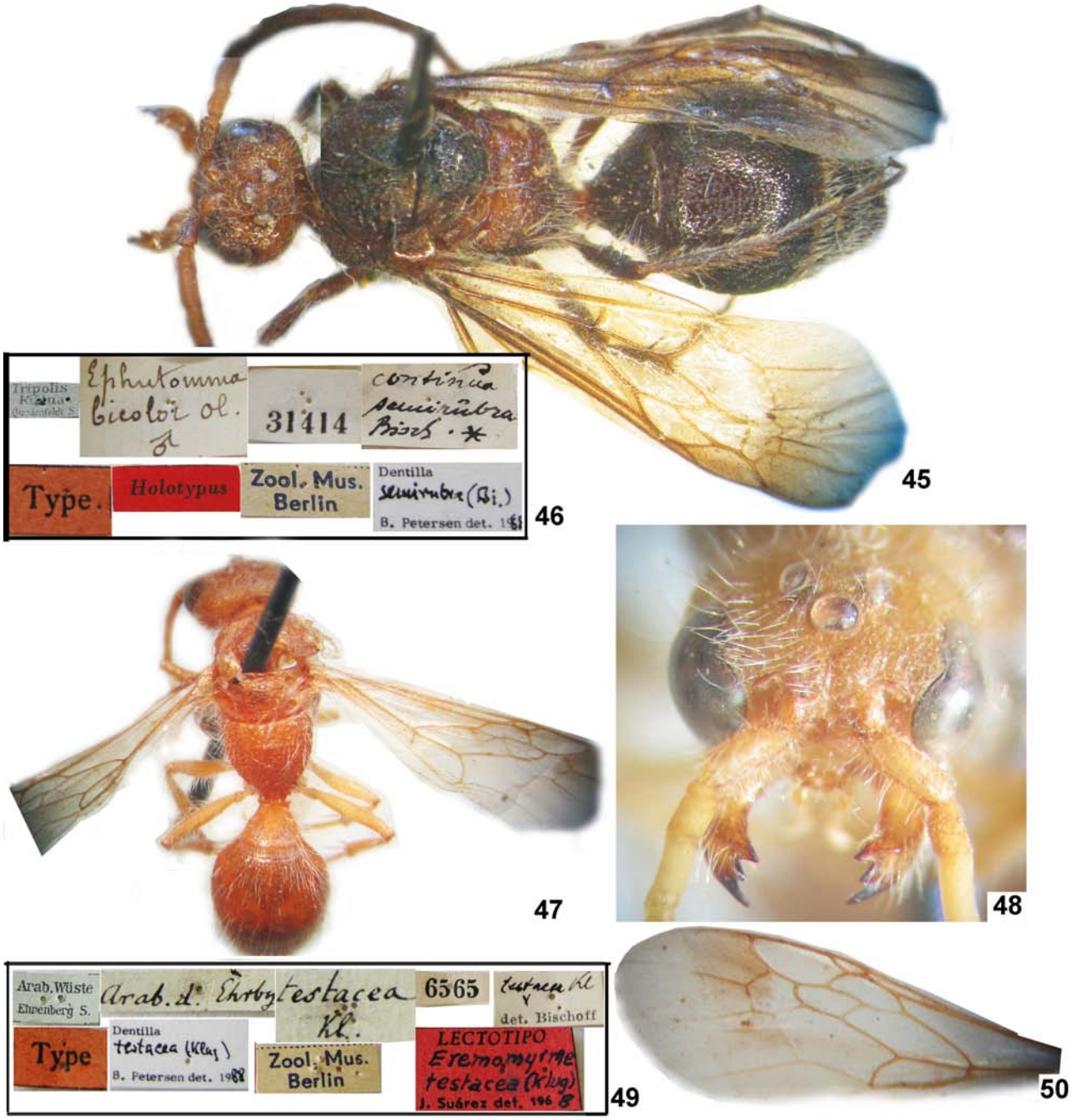
Diagnosis. FEMALE. T2 with basal medial spot of pale setae. T4–5 with pale setae. Eye located at about same distance from articulation of mandible and posterior margin of vertex. Ratio of smallest distance between eyes to longitudinal eye diameter 1.6–1.8. Length T2 0.9 × its maximal width. T2 laterally strongly rounded (Fig. 39). Body length 7.0–7.5 mm. MALE. Unknown.

Material examined (2♀). **Type material.** Holotype and paratype of *Dentilla speciosa* [ZIN, IBSS].

Distribution. Eastern Afghanistan.



FIGURES 39–44. *Dentilla*, females. 39–41. *D. speciosa* Lelej, 1985, holotype. 42–44. *D. dehghanii* **sp. nov.**, paratype. 39, 42. Habitus, dorsal view; 40, 43. Habitus, lateral view; 41, 44. Pygidial area, dorsal view.



FIGURES 45–50. *Dentilla*, males. 45, 46. *D. semirubra* (Bischoff, 1920), holotype. 47–50. *D. testacea* (Klug, 1829), lectotype. 45 (montage), 47. Habitus, dorsal view; 46, 49. Labels; 48. Head, face view; 50. Forewing.

8. *Dentilla rasnitsyni* Lelej in Lelej et van Harten, 2011

(Figs 58–62)

Dentilla rasnitsyni Lelej in Lelej et van Harten, 2011: 300, ♂, holotype, United Arab Emirates, Wadi Bih dam, 21–30.IV.2008, Light Trap, A. van Hartern [RMNH], examined; Pagliano *et al.* 2020: 171; Gadallah *et al.* 2020: 146, ♂.

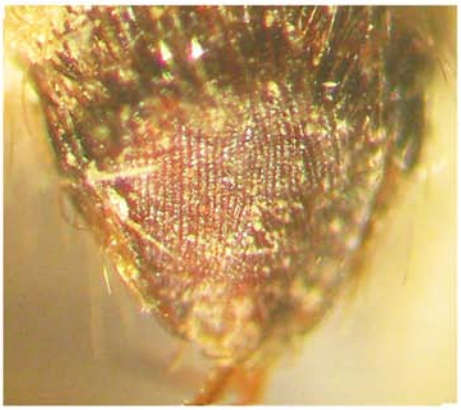
Diagnosis. MALE. This species easily differs from species of *dichroa* species-group by having basal half of T2 with coarse elongate foveae mixed with longitudinal striae (at least dense separate punctures in other species), darkened apical half of fore and hind wings (at least darkened apical spot of fore wing in other species). Body length 7.2–12.0 mm. FEMALE. Unknown.

Material examined. (172♂). **Type material.** Holotype and 170 paratypes of *D. rasnitsyni* from United Arab Emirates and Oman [RMNH, IBSS, SMNH, NHME] (Lelej & van Harten 2011). **Additional material. Oman**: NE, NW of Ibri, S of Dank, 9.III.2015, M. Snižek, 1♂ [IBSS].

Distribution. United Arab Emirates, Oman.

Natural history. This nocturnal species inhabits mountainous areas, i.e. stony deserts, and is rarely found in sandy deserts.

52



FIGURES 51–54. *Dentilla*, females. 51–53. *D. arabica* (Hammer, 1962), paratype. 54. *D. malinka* (Nurse, 1903). 51, 54. Habitus, dorsal view; 52. Labels; 53. Pygidial area, dorsal view. (54. Photograph by M. Boutin).

9. *Dentilla malinka* (Nurse, 1903)

(Fig. 54)

Mutilla malinka Nurse, 1903: 399, ♀, holotype, ♀, Deesa [India, extreme north of Gujarat, 24°15′31″N 72°11′27″E].
Dentilla malinka: Lelej 2005: 39; Pagliano *et al.* 2020: Boutin & Vilhelsem 2024: suppl. data, fig. S1.

Diagnosis. FEMALE. Head as wide as mesosoma, head and mesosoma closely punctured, metasoma almost round (dorsal view) with fine and somewhat sparse punctures; mesosoma subquadrate. Head, antennae, mesosoma, legs and apical two or three metasomal segments light red; basal 1–3(4) metasomal segments very dark brown, almost black. Pubescence greyish white, sparse but long, especially on metasoma. Body length 4.0–5.9 mm. MALE. Unknown.

Material examined. No material examined.

Distribution. India (Gujarat, Maharashtra).

Remarks. Børge Petersen saw the holotype of *Mutilla malinka* Nurse, 1903 (Petersen in litt., Dec. 12, 1980) and identified the female specimen from Bombay (India: Maharashtra, Mumbai) in the collection of NHMD as *Dentilla malinka*. Recently (Boutin & Vilhelsem 2024) the latter specimen has been figured.

10. *Dentilla ehrenbergi* Lelej in Lelej & van Harten, 2006

(Fig. 64)

Dentilla ehrenbergi Lelej in Lelej & van Harten, 2006: 22, ♂, holotype, Yemen, Al Kowd, III.2001, LT [Light Trap], A. van Harten & S. Al Haruri [ZMAN]; Pagliano *et al.* 2020: 170, ♂; Gadallah *et al.* 2020: 145, ♂.
Ephutomma continua aurea: Bischoff 1920: 151, ♂ non ♀. Misidentification.
Ephutomma bicolor: Invrea 1965: 65, ♂ (Hadhramaut, Yemen). Misidentification.

Diagnosis. MALE. The male can be distinguished from Palaearctic *D. dichroa* (Sichel et Radoszkowski 1869) in having the apex of T7 rounded (emarginated in *dichroa*), in having golden felt lines on T2 and S2 (whitish in *dichroa*), in having more infuscated forewing (infuscated spot beyond marginal cell in *dichroa*), in having differing shape and setae of volsella (long setae of basivolsella project over apex of gonostylus in *dichroa*). Body length 8.0–12.8 mm. FEMALE. Unknown.

Material examined. (27♂). **Type material**. Holotype and 16 parat ypes of *D. ehrenbergi* from **Yemen** and **Saudi Arabia** [ZMAN, IBSS, RMNH, ZMMU] (Lelej & van Harten 2006). **Additional material. Eritrea**: Massaua [Mitsiwa], 1892, 1♂, Ragazzi [MNHU]. **Israel**: Arava Valley, 40 km N Elat, Yotvata, 29 53 N35 02 E, 3.VI.1991, 9♂, Müller [IBSS].

Distribution. Israel (new record), Yemen, Saudi Arabia, Eritrea (new record).

11. *Dentilla purcharti* Lo Cascio, Romano & Grita, 2012

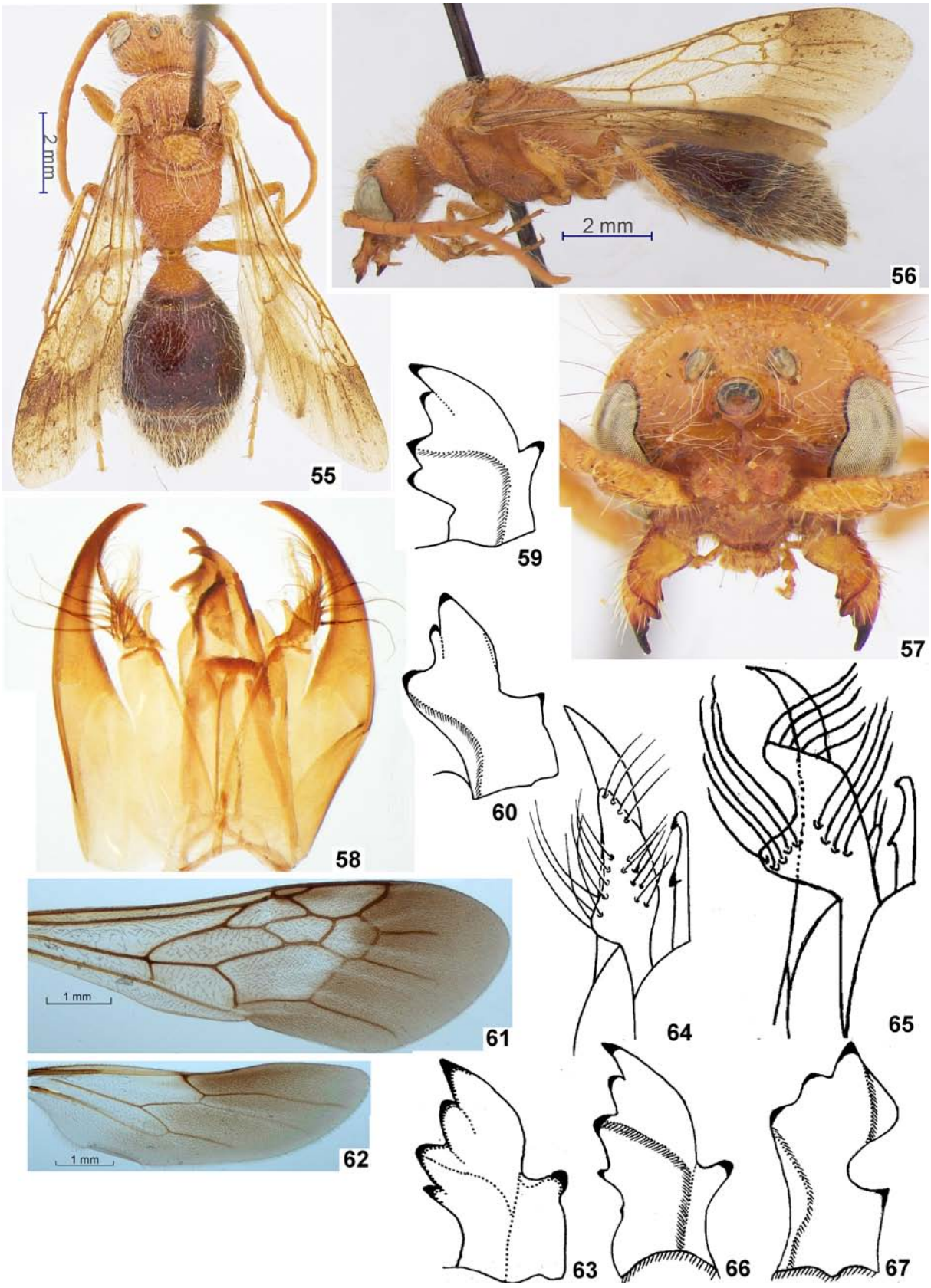
Dentilla purcharti Lo Cascio, Romano & Grita, 2012: 534, figs 6–11(!), ♂, holotype, ♂, Yemen, Socotra Island / Dixam plateau / Firmihin (*Dracaena* forest) / 12°28.5′N, 54°01.1′E, 490 m / J. Bezděk leg., 15-16.XI.2010 [NMPC]; Gadallah *et al.* 2020: 145; Pagliano *et al.* 2020: 171.

Diagnosis. MALE. POD:OOD ratio 0.8 × and more, ocelli medial. Upper carina of mandible high. Longitudinal carina between antennal tubercles and base of clypeus well developed First subbasal tooth of mandible inside with long carina approximately equal to distance from base of carina to mandibular base. Second subbasal tooth of mandible located closer to first subbasal tooth than apical tooth. Distance between lateral ocelli and occipital carina 1.73 × POD. Body length 6.9–12.3 mm. FEMALE. Unknown.

Material examined. No specimens examined.

Distribution. Yemen (Socotra, Samha).

Natural history. The species occurs from the coastal belt up to 1000 m and has been found in several different habitats, including sandy or rocky coastal plains, succulent and open deciduous shrublands of inland sheltered valleys, and *Dracaena* woodlands (Lo Cascio *et al.* 2012).



FIGURES 55–67. *Dentilla*, males. 55–57. *D. saharica*. 58–62. *D. rasnitsyni*, paratype. 63. *D. irana* (=*kompantsevi*, holotype). 64. *D. ehrenbergi*, holotype. 65–67. *D. osteni*, paratype. 55. Habitus, dorsal view; 56. Habitus, lateral view; 57. Head, face view; 58. Genitalia, ventral view; 59, 63, 66. Mandible, dorsal view; 60, 67. Mandible, face view; 61. Forewing; 62. Hind wing; 64, 65. Genitalia ventrally, left part, inner view. (58–62 from Lelej & van Harten 2011; 63 from Lelej 1995; 64 from Lelej & van Harten 2006; 65–67 from Lelej & Osten 2004).

Remarks. In the legend of the figures (Lo Cascio *et al.* 2012), fig. 11 belongs to *D. purcharti* and not to *D. ehrenbergi* (M. Romano per. comm.). The female of *D. socotrana* (holotype) and four males of *D. purcharti* were collected by J. Batelka (7–8.XI.2010, Wadi Ayhaft, 200 m), and I am sure that they belong to the same species. There is no direct evidence (pair collected *in copula*) to support this relationship.

12. *Dentilla socotrana* Lo Cascio, Romano & Grita, 2012

Dentilla socotrana Lo Cascio, Romano & Grita, 2012: 539, figs 14, 15, ♀, holotype, ♀, Yemen, "Socotra Is., Wadi Ayhaft / 12°36.5′N–53°58.9′E, 200 m / Jan Batelka leg., 7–8.xi.2010" [NMPC]; Gadallah *et al.* 2020: 146, ♀. Pagliano *et al.* 2020: 171.

Diagnosis. FEMALE. A female of *Dentilla* belonging to the group that includes species without spots of setae on T2, head and mesosoma red. Body length 5.5–6.5 mm. MALE. Unknown (see Remarks to *Dentilla purcharti*).

Material examined. No specimens examined.

Distribution. Yemen (Socotra).

Natural history. Data from labels indicate a broad phenology for this species, extended at least from November to April, and a wide distribution on the island. One of the specimens was collected at Homhil (about 1000 m) in a stony area subject to intensive grazing. Other traits of its biology are still unknown (Lo Cascio *et al.* 2012).

13. *Dentilla arabica* (Hammer, 1962)

(Figs 51–53)

Smicromyrme arabica Hammer, 1962: 32, ♀, holotype, "Fiyush Dist[rict] near Aden [Yemen], 1915 // Ind[ian] Mus[eum], [R.B.S.] Sewell, Desert fauna" [NZC].

Dentilla arabica: Lelej & van Harten 2006: 22, ♀; Lo Cascio *et al.* 2012: 541, fig. 13, ♀; Pagliano *et al.* 2020: 170, ♀; Gadallah *et al.* 2020: 145, ♀.

Diagnosis. FEMALE. Head, mesosoma and legs ferruginous red, metasoma black, T2 with round medial basal spot and narrow marginal band slightly protruding in the middle, T3–4 with broad band, all with pale golden setae. Scutellar scale not very distinct, hardly protruding, pygidial area with parallel striae diverging apically. Body length 7.0 mm. MALE. Unknown.

Material examined (2♀). **Type material. Paratype** of *Smicromyrme arabica* Hammer, 1962: 1♀, Fiyush Dist[rict] near Aden [Yemen], 1915 // Ind[ian] Mus[eum], [R.B.S.] Sewell, Desert fauna // Paratype // *Smicromyrme arabica*, m[ihi], Type, ♀, det. Hammer" [NHMW]. **Other material. Yemen**: Wadi Bana, 26.X.1992, A.van Harten, 1♀ [ZMAN].

Distribution. Yemen.

Remarks. *Dentilla arabica* may be the opposite sex of *D. testacea* or *D. ehrenbergi*, since all three species were collected from nearby localities (Lelej & van Harten 2006).

saharica species-group

14. *Dentilla saharica* (Giner Mari, 1945)

(Figs 55–57)

Ephutomma saharica Giner Mari, 1945: 253, fig. 17, ♂, type locality: "Tizguerrentz /Tuisguirrentz/ Tizgui Remz" [Western Sahara[1], 28°25′14″N, 09°12′57″W (Louveaux *et al.* 2022)] [MNCN]; 1947: 28.

Smicromyrme (*Dentilla*) *saharica:* Lelej & Kabakov 1980: 195, ♂.

Dentilla saharica: Lelej 1985: 191, ♂; 2002: 52, ♂; Brothers & Lelej 2017: 56; Pagliano *et al.* 2020: 171.

[1] Currently, the Province of Assa-Zag belongs to Morocco, but MINURSO (United Nations Mission for the Referendum in Western Sahara) is working according to the settlement proposals accepted on 30 August 1988 by Morocco and the Frente Popular para la Liberación de Saguia el-Hamra y de Río de Oro (POLISARIO Front).

Diagnosis. MALE. Anterior border of clypeus with broad medial projection whose dorsal length about half its width. Mandible quadridentate, below with subbasal tooth. Length of first metasomal segment less than its maximum width. OOD nearly 2.0 × diameter of lateral ocellus. Legs pale, slightly brownish. Head and mesosoma brownish red. Metasternum 4-toothed, lateral teeth clearly higher than median teeth. Apical part of forewings darkened. First mandibular inner subbasal tooth small, sharp. Body length 8.0–12.5 mm. FEMALE. Unknown.

Material examined. (4♂). **Morocco**: Assa-Zag Province, Aouinet - Torkoz, Draa, 20–24.X.[19]74, J. Mateu // *Eremomyrme saharica* (Gin.), ♂, J. Suárez det., 1976, 2♂ [IBSS]; Maader Aster, Oued, Tigzirt, Draa, 26.X.1971, J. Mateu // *Eremomyrme saharica* (Gin.), ♂, J. Suárez det., 1976, 1♂ [IBSS]. **Algeria**: Beni Abbés, Sahara Algérien, 4–11.IV.1965, J. Mateu // *Eremomyrme saharica* (Gin.), ♂, J. Suárez det., 1976, 1♂ [IBSS].

Distribution. Western Sahara, Morocco, Algeria.

Remarks. My record of this species from Sudan (Lelej 2002) was wrong and belongs to the *Dentilla bischoffi* Lelej, **sp. nov.**

15 . *Dentilla sabulicola* (Skorikov, 1935)

(Figs 36–38)

Smicromyrme sabulicola Skorikov, 1935: 313, 316, tab. 1, fig. 8; tab. 3, fig. 8, ♀, holotype, ♀, "г. Бампур и его окрестн., ЮВ Персия, 12–18.IV.1901, Зарудный" [Iran, Sistan and Baluchestan, Bampur and its vicinities, 12–18.IV.1901, N. Zarudny] [ZIN], examined.

Smicromyrnme (*Dentilla*) *sabulicola*: Lelej & Kabakov 1980: 195, ♀.

Dentilla sabulicola: Lelej 1985: 196, ♀; 2002: 52, ♀; Pagliano *et al.* 2020: 171, ♀.

Dentilla sp. 1: Lelej & van Harten 2011: 301, ♀.

Dentilla zarudnyi Lelej, 1985: 195, ♂, holotype, Eastern Iran "Керман, страна Саргад, Дузаб, 16–18.V.1901, Н.Зарудный" [Iran, Sistan and Baluchestan] [ZIN], examined; 2002: 52; Lelej & Osten 2004: 257, ♂; Lelej & van Harten 2011: 301, ♂; Pagliano *et al.* 2020: 171; Gadallah *et al.* 2020: 146, ♂. **Syn. nov.**

Diagnosis. MALE. Anterior border of clypeus with broad medial projection whose dorsal length is about half its width. Mandible below with weak apical widening. OOD slightly larger than diameter of lateral ocellus. Head darker than mesosoma. Metasternum 2-toothed with medial notch. Body length 9.0–12.0 mm. FEMALE. T2 with broad basal band of long appressed silvery setae. T4–5 with pale setae. Eyes closer to posterior margin of vertex than to articulation of mandible. Ratio of smallest distance between eyes to longitudinal diameter of eye is 1.3 ×. Body length 7.0–9.0 mm.

Material examined. (557♂, 6♀). **Type material.** Holotypes of *Smicromyrme sabulicola* Skorikov, 1935, ♀ and *Dentilla zarudnyi* Lelej, 1985, ♂ [ZIN] and 62 paratypes of *D. zarudnyi* Lelej, 1985, ♂ from **Turkmenistan**, **Iran**, **Afghanistan** [ZMMU, ZIN, IBSS, NHMD, MZLU]. **Additional material. Iran**: 58 ♂ **(**Lelej & Osten 2004). **United Arab Emirates**: 424 ♂ and 3♀. **Oman**: 5 ♂ (Lelej & van Harten 2011). **Iran**: Yazd Prov., ca 23 km SW Kharanaq, 1600 m, on light, 32°11′N 54°30′E, A. Timokhov, 1♂ [IBSS]; Horrnozgan, Bila'i, 13–14.V.1977 (loc. no. 329), 1♀, Exped. Nat. Mus. Praha [Praha]. **Pakistan**: Baluchistan, Taftan-Quetta road, 160 km W of Quetta, 22.VI.2003, S. Ovtchinnikov, 3♂; 490 km W of Quetta, 26.VII.2005, S. Ovtchinnikov, 1♂ [ZIN]. **India**: Rajasthan, 15 km W Jaisalmer, 24.VIII.2004, on light, T. Osten, 1♂ [IBSS]. **United Arab Emirates**: Jebel Hafeet, 293 m, Green Mub dam, 24°03′18.5″N, 55°26′36.9″E, 4.XI.2010, 1♀, H. Roberts [IBSS]. **Oman**: South of Sur, 15 km W of Al Askharah, 13.III.2015, M. Snižek, 1♂ [IBSS].

Distribution. Afghanistan, Iran, Pakistan (new record), India (new record), Turkmenistan (Lelej 2002); Oman, United Arab Emirates (Lelej & van Harten 2011).

Natural history. This nocturnal species inhabits mountainous areas, i.e. stony deserts, and is rarely found in sandy deserts.

Remarks. The record of *D. zarudnyi* from Yemen (Lelej & van Harten 2011) was incorrect; this species was not recorded by Lelej & van Harten (2006) from Yemen, nor by Lo Cascio *et al.* (2012) from Socotra.

The female of *D. zarudnyi* Lelej, 1985 may eventually be recognized as *D. sabulicola* (Skorikov, 1935) due to its co-occurrence in Iran (Sistan & Baluchestan: Bampur and its vicinities, 14♂, 1♀, 12–18.IV.1901, N. Zarudny), and United Arab Emirates (Wadi Bih dam, 19♂, 1♀, 30.IV–4.VI.2008, LT, leg. A.van Harten). There is no direct evidence (pair collected *in copula*) to support this relationship.

16. *Dentilla testacea* (Klug, 1829)

(Figs 47–50)

Mutilla testacea Klug, 1829: [20], tab. 5, fig. 4, ♂, lectotype (designated here), ♂ – "Arab. Wüste / Ehrenberg S. // Arab. d. Ehrbg [Arabia deserta as referring to Jiddah and places to the north, perhaps including Al Muwaylib of the 1823-I824 journey (Baker 1997)] // *testacea* Kl. // 6565 // *testacea* Kl det. Bischoff // Type // Lectotipo / *Eremomyrme testacea* (Klug) / J. Suárez det. 1968 // Zool. Mus. Berlin // *Dentilla testacea* (Klug) B. Petersen det. 1988" [MNHU], examined.
Ephutomma testacea: Bischoff 1920: 154, ♂.
Dentilla testacea: Lelej 2002: 52; 2006: 24, ♂; Pagliano *et al*. 2020: 171; Gadallah *et al.* 2020: 146, ♂.

Diagnosis. MALE. Ocelli large, OOD 2 × diameter of lateral ocellus. The head is reddish-brown. Wings are hyaline with darkened apex. Anterior border of clypeus with broad medial projection whose dorsal length is about half its width. Propodeum abrupt, reticulate with median dorsal longitudinal cell distinctly delimited posteriorly by two denticles. Whole body light yellow-brown. Body length 10.4 mm. FEMALE. Unknown.

Material examined. (8♂).**Type material.** Lectotype and three paralectotype of *Mutilla testacea* in MNHU from "Arabia deserta" [Saudi Arabia]. **Additional material.** 3♂ from Yemen and 1♂ from Saudi Arabia (Lelej & van Harten 2006).

Distribution. Yemen, Saudi Arabia.

Remarks. Francisco-Javier Suárez unpublished labelled the specimen in MNHU with Klug's "*testacea* Kl." label as the lectotype. Since no validly published lectotype designation has yet been made, I hereby designate the specimen so labelled by Suárez as the lectotype. My designation of the holotype of this species was wrong (Lelej & van Harten 2006).

17. *Dentilla osteni* Lelej in Lelej & Osten, 2004

(Figs 65–67)

Dentilla osteni Lelej in Lelej & Osten, 2004: 255, ♂, holotype, ♂, Iran, Hormozgan, 10 km W Gavbandi, 28.V.2001, T. Osten [SMNS], examined; Pagliano *et al.* 2020: 171.

Diagnosis. MALE. The male of this species differs from Palaearctic nocturnal species by large apical lobe beneath of mandible. By wide median clypeal process this species similar with *D. sabulicola* (Skorikov) and *D. saharica* (Giner) but differs, except mandible shape, by elongate body, and by elongate metasomal segment 1 (length less its maximum width in *D. sabulicola* and *D. saharica*). FEMALE. Unknown.

Material examined. (10♂). **Type material.** Holotype [SMNS] and nine paratypes [SMNS, IBSS] of *D. osteni* from Iran (Lelej & Osten 2004).

Distribution. Iran (Hormozgan).

18. *Dentilla semirubra* (Bischoff, 1920), comb. nov.

(Figs 45, 46)

Ephutomma semirubra Bischoff, 1920: 153, ♂, holotype, ♂, "Tripolis [Libya], Kedua, S. Quedenfeldt // *Ephutomma bicolor* Ol. ♂ // 31414 // *continua semitubra* Bisch . * // Type // Holotype // Zool. Muz. Berlin // *Dentilla semirubra* (Bi.) B. Petersen det., 1987" [MNHU], examined; Lelej 2002: 53, ♂; Pagliano *et al*. 2020: 173.

Diagnosis. MALE. Mandible below without large apical lobe. Length of first metasomal segment less than its maximum width. OOD nearly 2.0 × diameter of lateral ocellus. T1 dark or slightly red. Mandible quadridentate with lower subbasal tooth. Legs black. Medial cell of propodeum not bordered posterad by carina. Head and antennae ferruginous-red. The lower parts of the pleura and the sterna of mesosoma blackened. The legs are black, the tibial spurs pale. The wing edge is darker brown. Body length 12.0 mm. FEMALE. Unknown.

Material examined. (3♂).**Type material.** Holotype of *Ephutomma semirubra* Bischoff, 1920. **Additional material. Egypt**: Mersa-Matruh, 2 ♂ [NHMW].

Distribution. Libya, Egypt (new record).

19. *Dentilla gabesiana* (Bischoff, 1920), comb. nov.

Ephutomma semirubra gabesiana Bischoff, 1920: 154, ♂, holotype, ♂, Tunisia, Gabés, Weiß 1906 [MNHN]; Lelej 2002: 53, ♂; Pagliano *et al*. 2020: 172.

Diagnosis. MALE. "A second specimen from Tunisia, Gabés (Weiß 1906), [M. P.] is distinguished [from *semirubra* - AL] by the somewhat longer, horizontal surface of the middle segment, which is less steeply truncated at the back. I call this form, which should probably be regarded as a separate subspecies, *gabesiana* n. subsp. The basal field of the middle segment is only vaguely present in both forms. Length: 12 mm." (Bischoff 1920: 154). FEMALE. Unknown.

Material examined. No specimen examined.

Distribution. Tunisia.

Remarks. The shape of propodeal posterior face in other species (examined in long series of males) can vary from abrupt to gentle. I think that *gabesiana* Bischoff, 1920 is simple synonym of *semirubra* Bischoff, 1920.

20. *Dentilla bischoffi* Lelej, sp. nov.

Ephutomma continua geyri Bischoff, 1920: 152, ♂ non ♀ (holotype, ♀, valid species in the genus *Pseudophotopsis* André, 1896, paratypes male belong to the genus *Dentilla*).

Diagnosis. MALE. "The males I have placed here are also extremely similar to those of the previous species [*Ephutomma continua aurea*, ♂ non ♀ = *Dentilla ehrenbergi* according to Lelej & van Harten 2006], but differ morphologically in that the middle basal field of the middle segment [propodeum] is not bordered by a lamella. In addition, the second tergite of the male also has a stronger shine. Length: 9–11 mm]" (Bischoff 1920: 153). Mandible broad, tridentate with subbasal tooth below. Clypeus with a broad medial projection whose dorsal length is about half its width, and belongs to species group *Dentilla saharica*. FEMALE. Unknown.

Material examined. (10♂). Holotype, ♂, **Algeria**: "SO Algerien [SE Algeria] / Ravis, 15–17.4.14 / Bar. v. Geyr S.G." [MNHU]. Paratypes (8♂ from Algeria and 1♂ from Sudan), 9♂, "SO Algerien [SE Algeria] / Ravis, 15–17.4.14 / Bar. v. Geyr S.G." [MNHU]; Tig'amaiin-en-tisita [Algeria, Tamanraset region], 25–30.4.14, Bar. v. Geyr S.G. [MNHU]; Gara Djenoun [Djanet, Algeria] 10–14.3.14, Bar. v. Geyr S.G. [MNHU]; **Sudan**: Chartum, Hartmann [MNHU].

Distribution. Algeria, Sudan.

Remarks. The type series of *Ephutomma continua geyri* Bischoff consists of 1♀ (holotype) and 10♂ (paratypes) as designated by Bischoff (1920). Actually, the female belongs to the genus *Pseudophotopsis* André, 1896 and the male to the genus *Dentilla*. I have studied in the MNHU the male of *Pseudophotopsis fumata* Bischoff, 1920 with the same label as the holotype of *Ephutomma continua geyri* Bischoff, ♀ "SO Algerien [SE Algeria] / Ravis, 15–17.4.14 / Bar. v. Geyr S.G." and I predict that they are the opposite sexes of the same species. The paratypes (male) of *Ephutomma continua geyri* are described here as *Dentilla bischoffi* **sp. nov.**

Taxonomical notes on the species of the genus *Skorikovia* Ovtchinnikov, 2002

Skorikovia caucasica (Lelej, 1985), comb. nov.

(Figs 68–71)

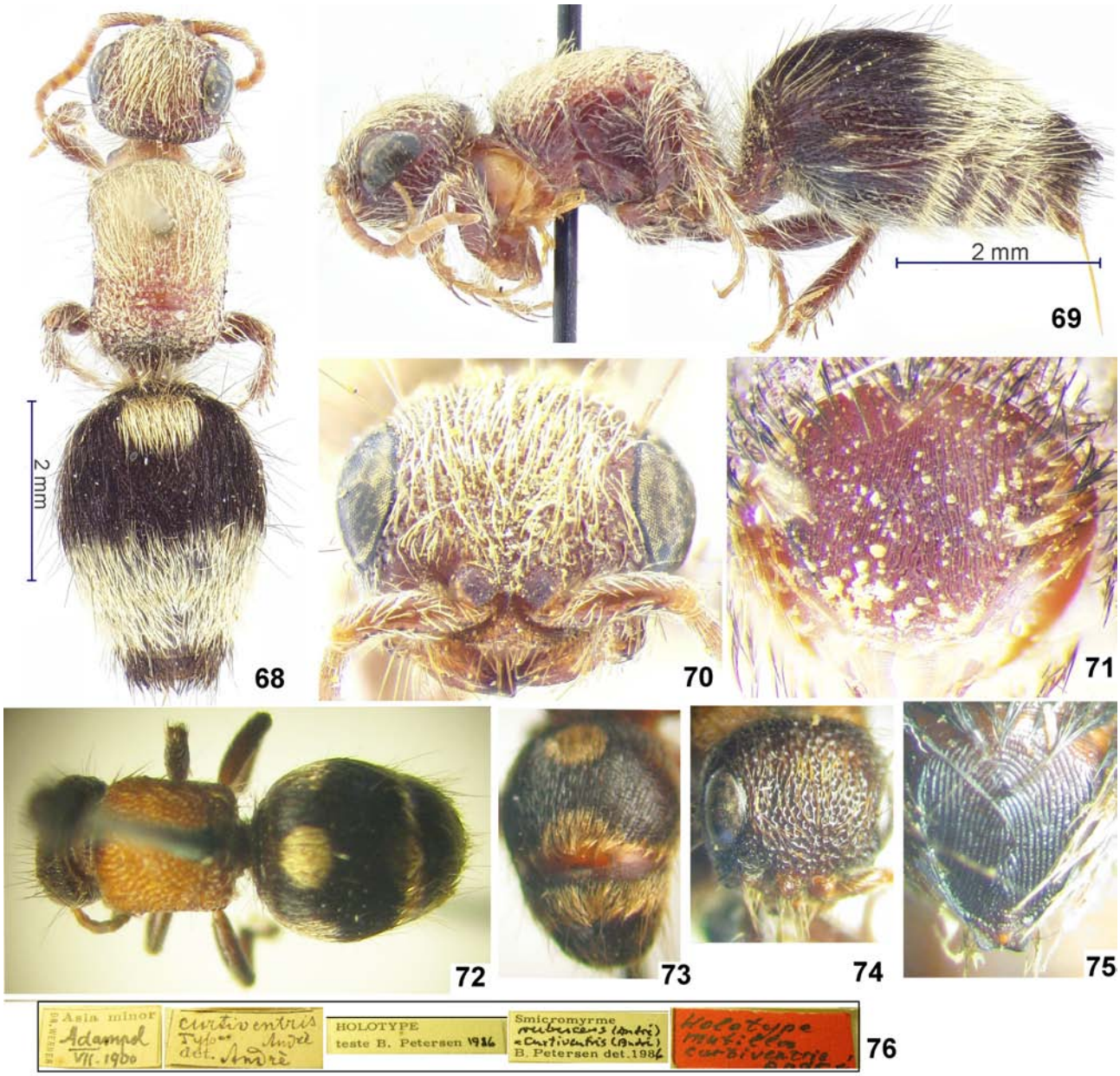
Dentilla caucasica Lelej, 1985: 191, 193, ♀, holotype, ♀, Azerbaijan, Ordubad, 10.VI.1934, Kirshenblat [ZIN], examined; 2002: 51, ♀; Pagliano *et al.* 2020: 170; Lelej *et al.* 2022: 70, ♀.

Diagnosis. MALE. Unknown. FEMALE. Eyes well protruding from head contour (face view). Head has no developed posterior angles (face view). Longitudinal diameter of eye 2.3 × distance from posterior edge of eye to posterior edge of vertex. T2 with one median subbasal spot of pale setae. T4–5 with black setae. Body length 7.5 mm.

Material examined. Holotype only.

Distribution. Azerbaijan.

Remarks. This species should be placed in the genus *Skorikovia* Ovtchinnikov, 2002, based on the shape of the eyes and the very broad scutellar scale, where it may be the opposite sex of *Skorikovia transcaucasica* (Lelej, 1985), which is known only by the male.



FIGURES 68–76. *Skorikovia*, females. 68–71. *S. caucasica* (Lelej, 1985), holotype. 72–76. *S. trinotata* (=*Mutilla curtiventris* André, 1901, holotype). 68, 72. Habitus, dorsal view; 69. Habitus, lateral view; 70, 74. Head, face view; 73. Metasoma, dorsal view; 71, 75. Pygidial area, dorsal view; 76. Labels.

***Skorikovia trinotata* (Costa, 1858)**

(Figs 72–76)

Mutilla trinotata Costa, 1858: 22, tab. 22, fig. 5, ♀; type locality "Trovata da noi nelle adiacencze di Napoli, e dal sig G. Costa nella Terra d'Otranto" [Italy: Naples, Puglia]. Junior subjective synonym of *Mutilla quadripunctata* Olivier, 1811 according to Sichel & Radoszkowski 1870: 234. Junior subjective synonym of *Mutilla pusilla* Klug, 1835 according to André 1902: 451. Resurrected as *Smicromyrme trinotatus* according to Pagliano & Strumia 2007: 97.

Mutilla triangularis Radoszkowski, 1865: 448, tab. 7, fig. 16, ♀, lectotype (designated Lelej 2024: 68) [Russia], golden round label / [red label] Lectotype *Mutilla triangularis* Radoszkowski, 1865, B. Petersen des., 1987, [ISEA-PAN], examined photos of lectotype. Junior subjective synonym of *Mutilla quadripunctata* Olivier, 1811 according to Sichel & Radoszkowski

1870: 234. Resurrected as *Smicromyrme triangularis* according to Lelej 1978: 82. Junior subjective synonym of *Mutilla trinotata* Costa, 1858 according to Lelej 2024: 68.

Smicromyrme pouzdranensis Hoffer, 1936: 157, ♀, holotype, ♀, "Stepni stran zv. Kolby u Pouzdran, okres Mikulov (v kvetnu [May] 1934), leg. A. Hoffer)" [Czech Republic: Moravia merid., Mikulov]. Junior subjective synonym of *Smicromyrme triangularis* according to Lelej & Schmid-Egger 2005: 1532.

Smicromyrme pliginskiji Lelej, 1984: 81, fig. 1, 1–3, ♂ [holotype, ♂, Crimea, Sevastopol, 27.VII.1909, V.G. Pliginskij], [ZIN], examined. Junior subjective synonym of *Mutilla trinotata* Costa, 1858 according to Lelej 2024: 68.

Skorikovia trinotata: Lelej 2024: 68, ♀, ♂.

Mutilla curtiventris André, 1901: 269, ♀, holotype, ♀, "Asia Minor / Adampol [Polonezköy, east of Istanbul] / VII.1900 / Dr. Werner // *curtiventris* / Type André / det. André // Holotype / teste B. Petersen 1986 // *Smicromyrme* / *rubescens* (André) / =*curtiventris* (André) / B. Petersen det, 1986 // Holotype / *Mutilla* / *curtiventris* / André [last label by AL]" [NHMW], examined. **Syn. nov.**

Mutilla viduata var. *rubescens* André, 1901: 273, ♀, lectotype (designated by Petersen 1988: 159), Syrie [MNHN]. Junior subjective synonym of *Mutilla curtiventris* André, 1901, according to Petersen 1988: 159. **Syn. nov.**

Distribution. Russia (Crimea, Dagestan, South and East of European part, South Ural), Bulgaria, Croatia, Czech Republic, Greece, Hungary, Italy (Toscana, Campania, Puglia), Montenegro, Slovakia, Austria, Turkey (new record) (Istanbul, Manisa, Kastamonu, Erzurum), Syria (new record).

Remark. After further detailed examination of the holotype of *Mutilla curtiventris* André, 1901 I conclude that it belongs to the genus *Skorikovia* Ovtchinnikov, 2002 and is a new junior subjective synonym of *Skorikovia trinotata* (Costa, 1858). Such a form with a shortened metasoma is already known for this species (*pouzdranensis* Hoffer).

Discussion

Species groups are useful and helpful for separating diverse genera and arranging taxonomic knowledge. The behavioral differences separating the *D. erronea* species-group from the others are also accompanied by a few structural differences. The remaining males fit easily into two groups based on the clypeal structure. Although a few species are recognized from both sexes in each of the nocturnal groups, there are, sadly, no recognizable differences in the clypeal structure between females of these groups.

The distribution of the three species-groups is somewhat interesting. The *erronea* species-group is focused around the Mediterranean region. The *dichroa* species-group has most of its species in Central Asia; some of the species are found in the Arabian Peninsula, but none occurs west of the Sinai Peninsula in Egypt. The *saharica* species-group has most of its species in North Africa, only two of the seven species have been found in Asia.

On the history of the genus *Ephutomma* Ashmead, 1899. The male species of *Pseudophotopsis* were described by Radoszkowski (1885) in *Agama* Blake 1871, nom. praeocc., nec Daudin, 1802 (Reptilia) and later placed in the subgenus *Pseudophotopsis* (André 1896). The females of this genus, first associated with males by Radoszkowski (1887), were so unique that Ashmead (1899) placed them in his genus *Ephutomma* on the basis of a misidentification of the female of the type species *Mutilla incerta* Radoszkowski, 1877 (=*Mutilla turcestanica* Dalla Torre, 1897). Later, the sex association of Radoszkowski (1887) was confirmed (Schuster 1950) and Suárez (1965) placed the female of *Ephutomma* in the genus *Pseudophotopsis*. Bichoff (1920) placed the males of four genera in his *Ephutomma*: the males with a short felt line on S2 belong to *Dentilla* (*testacea*, *aurea*, *quinquedentata*, *mesopotamica*, *geyri*, and *semirubra*) or *Skorikovia* (*sanguinicollis*); the males without a short felt line on S2 belong to *Physetopoda* (*pallipes*) or true *Ephutomma* (palaearctic *incerta*). The female of *Mutilla somalica* Magretti, 1892 from Somalia ("Wuorandi" = Warandi, near Obbia [Hobyo]) was erroneously placed in *Ephutomma* (Pagliano *et al.* 2020), but actually belongs to *Pseudophotopsis somalica* (Magretti, 1892) (Nonveiller 1974). These changes remove *Ephutomma s. str.* from the Afrotropical fauna.

Acknowledgement

I thank Alexander Timokhov (Moscow State University, Russia), Dmitry Milko (Institute for Biology and Pedology, Bishkek, Kyrgyzstan), Roman Yakovlev (Altai State University, Russia) and late Sergey Ovtchinnikov for the collecting of the material. The late Børge Petersen provided me with important comparative material. I am deeply

grateful to the curator of Hymenoptera collection S.A. Belokobylskij (ZIN) and collection managers Sándor Csősz (HNHM), Dominique Zimmermann (NHMW), Frank Koch (MNHU), and Fritz Gusenleitner (OLML), who helped me to study the material during scientific trips in 2010–2011. I thank Maxime Boutin (MNHN) for the permission to reproduce of the figure of *Dentilla malinka*. Denis Brothers (University of KwaZulu-Natal, Pietermaritzburg, South Africa) consulted me about the correct dating of *Mutilla erronea* André. I thank Kevin Williams (California Department of Food & Agriculture, Sacramento, USA), anonymous reviewer and Subject Editor Valery Loktionov, who help me to improve this MS. The research was carried out within the state assignment of Ministry of Science and Higher Education of the Russian Federation (theme No. 124012400285-7).

References

André, E. (1896) Notes pour servir à la connaissance de mutilles paléarctiques et description de quelques espèces nouvelles. Deuxieme partie. *Mémoires de la Société Zoologique de France*, 9, 261–277.

André, E. (1898) Étude sur les mutillides du Muséum de Paris. *Annales de la Société Entomologique de France*, 67, 1–79.

André, E. (1899a) Les types des mutillides de la collection O. Radoszkowski. *Annales de la Société Entomologique de France*, 68, 1–43.

André, E. (1899–1902) *Species de Hyménoptères d'Europe & d'Algérie. Tome Huitième. Les Mutillides*. Vve Dubosclard and A. Hermann, Paris, 480 pp., 15 pls. [pp. 1–64, pls. I–VIII (1899b), pp. 65–144 (1900), pp. 145–304 (1901), pp. 305–384 (1902), pp. 385–478 (1902), pls. IX–XV (unknown date)]

André, E. (1902 ["1903"]) Fam. Mutillidae. *In*: Wytsman, P. (Ed.), *Genera Insectorum. Fasc. 11*. L. Desmet-Verteneuil, Bruxelles, 77 pp., 3 pls.

Ashmead, W.H. (1899) Superfamilies in the Hymenoptera and generic synopses of the families Thynnidae, Myrmosidae, and Mutillidae. *Journal of the New York Entomological Society*, 7, 45–60.

Baker, D.B. (1997) C.G. Ehrenberg and W.F. Hemprich's Travels, 1820–1825, and the Insecta of the Symbolae Physicae. *Deutsche Entomologische Zeitschrift*, 44 (2), 165–202.

Bischoff, H. (1920–1921) Monographie der Mutil liden Afrikas. *Archiv für Naturgeschichte*, 86A (1–3) & 86A (4–5), 1–480 (1920) & 481–830 (1921).

Blake, C.A. (1871) Synopsis of the Mutillidae of North America. *Transactions of the American Entomological Society*, 3, 217–265.
https://doi.org/10.2307/25076249

Boutin, M. & Vilhelmsen, L. (2024) Colour pattern diversity and evolution in Oriental velvet ants (Hymenoptera: Aculeata: Mutillidae). *Biological Journal of the Linnean Society*, XX, 1–16. [Supplement data available in Zenodo at: https://doi.org/10.5281/zenodo.10853048]
https://doi.org/10.1093/biolinnean/blae064

Brothers, D.J. & Lelej, A.S. (2017) Phylogeny and higher classification of Mutillidae (Hymenoptera) based on morphological reanalyses. *Journal of Hymenoptera Research*, 60, 1–97.
https://doi.org/10.3897/jhr.60.20091

Costa, A. (1858–1860) Famiglia de'Mutillidei; Mutillidea. *In*: *Fauna del Regno di Napoli ossia Enumerazione di Tutti gli Animali che abitano le Diverse Regioni di questo Regno e le Acque che le bagnano e Descrizione de' Nuovi o poco esattamente conosciuti con Figure ricevute da Originali viventi e dipinte al Naturale. Imenotteri Aculeati*. Gaetano Sautto, Napoli, pp. 1–8 (1856) + 9–28, tabs. 21–24 (1858), pp. 29–36, tab. 25 (1860). [dating by Shernborn 1937, Petersen 1994, and printed data on pp. 1 + 9 + 17 + 29]

Dehghani, R., Kassiri, H., Gharali, B., Hoseindoost, G., Chimehi, E., Takhtfiroozeh, S. & Moameni, M. (2018) Introducing of a new sting agent of velvet ant *Dentilla* sp. (Hymenoptera: Mutillidae) in Kashan, Center of Iran (2014-2015). *Archives of Clinical Infectious Diseases*, 13 (6), e60553.
https://doi.org/10.5812/archcid.60553

Gadallah, N.S., Lelej, A.S. & Bothers, D.J. (2020) Biodiversity of the aculeate wasps (Hymenoptera: Aculeata) of the Arabian Peninsula: Vespoidea, Mutillidae. *Zootaxa*, 4754 (1), 141–152.
https://doi.org/10.11646/zootaxa.4754.1.15

Giner Marí, J. (1945) Himenópteros del Sáhara español. Familias: Sphecidae, Psammocharidae, Apterogynidae y Mutillidae. *Eos: Revista Española de Entomología*, 21, (3–4), 215–257.
http://hdl.handle.net/10261/149449

Giner Marí, J. (1947) Himenópteros del Sáhara español: III Familias: Sphecidae, Apterogynidae, Mutillidae y Psammocharidae. *Eos: Revista Española de Entomología*, 23 (1), 17–31.
http://hdl.handle.net/10261/149685

Hammer, K. (1962 [1960]) Mutilliden (Insecta: Hymenoptera) aus dem Indischen Museum in Calcutta. *Records of the Indian Museum*, 58 (1), 1–51.
https://doi.org/10.26515/rzsi/v58/i1/1960/161983

Hoffer, A. (1936) Diagnoses novae mulillidarum Čechosloveniae. *Časopis České společnosti entomologické*, 33, 157–163, 7 figs. [in Czech]
Hymenoptera Anatomy Ontology (2013) Hymenoptera Glossary. Available from: http://glossary.hymao.org (accessed 19 May 2023)
International Commission on Zoological Nomenclature [ICZN] (1999) *International Code of Zoological Nomenclature. 4th Edition*. ITZN, London, xxx + 306 pp.
Invrea, F. (1964) *Mutillidae – Myrmosidae. Fauna d'Italia. Vol. 5*. Edizioni Calderini, Bologna, xii + 302 + [1] pp.
Invrea, F. (1965) Studi sugli Apterogynidi e Mutillidi della Palestina (Hymenoptera). *Memorie della Società Entomologica Italiana*, 44, 53–93.
Kassiri, H., Dehghani, R., Khodkar, I., Hosseindoost, G. & Karami, S. (2021) Study of *Dentilla* sp. (Hymenoptera: Mutillidae), velvet ants habitats in the center of Iran. *Entomology and Applied Science Letters*, 8 (2), 20–25. https://doi.org/10.51847/HxQNb9pest
Kimsey, L.S. & Brothers, D.J. (2016) The life, publications and new taxa of Qabir Argaman (Carol Nagy). *Journal of Hymenoptera Research*, 50, 141–178. https://doi.org/10.3897/JHR.50.7973
Klug, J.C.F. (1829) *Symbolae Physicae seu Icones et Descriptiones Insectorum quae ex Itinere per Africam Borealem et Asiam Occidentalem Friderici Guilelmi Hemprich et Cristiani Godofredi Ehrenberg Studio Novae aut Illustratae redierunt. III, Insectorum. Hymenoptera, Decas Prima. & Symbolae Physicae seu Icones et Descriptiones Insectorum quae ex Itineribus per Libyam, Aegyptum, Nubiam, Dongalam, Syriam Arabiam et Habbesiniam Publico Institutis sumptu Friderici Guilelmi Hemprich et Cristiani Godofredi Ehrenberg Medicinae et Chirurgiae Doctorum, Studio Annis MDCCXX–MDCCCXXV redierunt. III, Insectorum. Hymenoptera, Decas Prima.* s.n., Berolini, .n., Berolini, [17] pp. &10 pls.
Klug, J.C.F. (1835) *Mutilla*. *In*: Waltl, J. (Ed.), *Reise durch Tirol, Oberitalien und Piemont nach dem südlichen Spanien, Passau*, 2, pp. 91–95.
Lelej, A.S. (1978) [Superfamily Mutillioidea]. *In*: Medvedev, G.S. (Ed.), *Opredelitel' Nasekomykh Evropeiskoi Chasti SSSR. Vol. 3. Pt. 1*. Nauka, Leningrad, pp. 71–84. [in Russian]
Lelej, A.S. (1984) New and little-known species of velvet ants of the genus *Smicromyrme* Thomson (Hymenoptera, Mutillidae). *In*: Savtshenko, E.N. (Ed.), *Taxonomy and zoogeography of the insects*. Naukova Dumka, Kiev, pp. 79–89. [in Russian]
Lelej, A.S. (1985) *Osy-nemki (Hymenoptera, Mutillidae) Fauny SSSR i Sopredelnykh Stran [The Velvet Ants (Hymenoptera, Mutillidae) of the USSR and Neighbouring Countries]*. Nauka, Leningrad, 268 pp. [in Russian]
Lelej, A.S. (1995) To the knowledge of the velvet ants (Hymenoptera, Mutillidae) of Rajasthan, Western India. *Far Eastern Entomologist*, 20, 1–11.
Lelej, A.S. (2002) *Catalogue of the Mutillidae (Hymenoptera) of the Palaearctic Region*. Dalnauka, Vladivostok, 172 pp.
Lelej, A.S. (2005) *Catalogue of the Mutillidae (Hymenoptera) of the Oriental Region*. Dalnauka, Vladivostok, 252 pp.
Lelej, A.S. (2024) Revision of the Palaearctic genus *Skorikovia* Ovtchinnikov, 2002 (Hymenoptera: Mutillidae). *Zootaxa*, 5529 (1), 52–72. https://doi.org/10.11646/zootaxa.5529.1.2
Lelej, A.S. & Brothers, D.J. (2008) The genus-group names of Mutillidae (Hymenoptera) and their type species, with a new genus, new name, new synonymies, new combinations and lectotypifications. *Zootaxa*, 1889 (1), 1–79. https://doi.org/10.11646/zootaxa.1889.1.1
Lelej, A.S. & Kabakov, O.N. (1980) On Bradynobaenidae and Mutillidae (Hymenoptera) of Afghanistan. *Entomologicheskoe Obozrenie*, 59 (1), 181–196. [in Russian, English translation: (1981) *Entomological Review*, 59 (1), 141–156]
Lelej, A.S., Gharali, B. & Lotfalizadeh, H. (2008) New records of velvet ants (Hymenoptera: Mutilidae) from the west of Iran. *Far Eastern Entomologist*, 191, 1–7.
Lelej, A.S. & Osten, T. (2004) To the knowledge of the mutillid and bradynobaenid wasps of Iran (Hymenoptera: Mutililidae, Bradynobaenidae). *Proceeding of the Russian Entomological Society, St. Petersburg*, 75 (1), 253–262.
Lelej, A.S., Proshchalykin, M.Yu. & Maharramov, M.M. (2022) A review of the Mutillidae (Hymenoptera) of Azerbaijan. *Zootaxa*, 5155 (1), 61–86. https://doi.org/10.11646/zootaxa.5155.1.3
Lelej, A.S. & Schmid-Egger, C. (2005) The velvet ants (Hymenoptera, Mutillidae) of Central Europe. *Linzer Biologische Beiträge*, 37 (2), 1505–1543.
Lelej, A.S., Standfuss, L. & Standfuss, K. (2003) To the knowledge of the mutillid wasps of Greece (Hymenoptera, Mutillidae). *Entomofauna*, 24 (6), 121–140.
Lelej, A.S. & van Harten, A. (2006) A review of the Mutillidae (Hymenoptera) of Yemen. *Zootaxa*, 1226 (1), 1–50. https://doi.org/10.11646/zootaxa.1226.1.1
Lelej, A.S. & van Harten, A. (2011) Mutillidae (Hymenoptera) of the United Arab Emirates. Part 2. Genus *Dentilla* Lelej. *Russian Entomological Journal*, 20 (3), 299–302.
Lelej, A.S. & Willams, K.A. (2023) Review of the tribe Smicromyrmini Bischoff, 1920 (Hymenoptera: Mutillidae). *Zootaxa*, 5231 (2), 101–140. https://doi.org/10.11646/zootaxa.5231.2.1
Lelej, A.S. & Yildirim, E. (2009) A review of the Mutillidae (Hymenoptera) of Turkey. *Zootaxa*, 2160 (1), 1–28. https://doi.org/10.11646/zootaxa.2160.1.1

Linnaeus, C. (1758) *Systema Naturae per Regna Tria Naturae, secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Tomus I. Editio Decima Reformata.* Laurentii Salvii, Holmiae [Stockholm], [4] + 823 + [5] pp.
https://doi.org/10.5962/bhl.title.542

Lo Cascio, P., Romano, M. & Grita, F. (2012) New species and new records of mutillid wasps from the Socotra Archipelago (Hymenoptera: Mutillidae). *Acta Entomologica Musei Nationalis Pragae*, 52 (Supplement 2), 525–544.

Louveaux, A., Garcin, A. & Desutter-Grandcolas, L. (2022) A comprehensive analysis of Morales Agacino entomological expeditions in Spanish Sahara 1941–1946, with an updated checklist of collection sites and collected insect species (Insecta Polyneoptera, Hymenoptera, Coleoptera Carabidae and Tenebrionidae). *Zoosystema*, 44 (10), 227–258.
https://doi.org/10.5252/zoosystema2022v44a10

Morawitz, F. (1890) Hymenoptera Fossoria Transcaspica nova. *Horae Societatis Entomologicae Rossicae*, 24 (3–4), 570–645.

Nagy, C.G. (1971) A new *Smicromyrme* species from Iran (Hymenoptera, Mutillidae). *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg*, 4 (72), 167–169.

Nagy, C.G. (1972) Two new species of Mutillidae (Hymenoptera) from Asia Minor and description of female *Mutilla erronea*. *Bulletin of the Iraq Natural History Museum, University of Baghdad*, 5 (2), 4–9.

Nonveiller, G. (1958) *Smicromyrme errana* n. sp. (Hymenoptera, Mutillidae). Гласник Природњачког Музеја, Београд / *Bulletin du Muséum d'Histoire Naturelle, Belgrade*, Series B, 12, 213–219.

Nonveiller, G. (1972 [1971]) Mutillides de l'lle de Crète, récoltèes lors d'un voyage en automne 1959 (Quatrieme contribution à la connaissance des mutillides, hyménoptères). *Acta entomologica Jugoslavica*, 7 (2), 3–23.

Nonveiller, G. (1974) Recherches sur les MutiIIIdes de l'Afrique (Hymenoptera, MutiIIIdae). V. Description du male encore inconnu de *Pseudophotopsis continua* F. seul representant du genre en Afrique occidentale. *Annales de la Faculté des Sciences du Cameroun*, 18, 95–108.

Nurse, C.G. (1903) New species of Indian Aculeate Hymenoptera. *The Annals and Magazine of Natural History*, Series 7, 11, 393–403 + 511–526 + 528–549.
https://doi.org/10.1080/00222930308678789

Olivier, [A.G.] (1811) Mutille. *Encyclopédie Méthodique. Histoire Naturelle. Insectes*, 8, 49–66.

Ovtchinnikov, S.V. (2002) Materials to the fauna of velvet ants (Hymenoptera, Mutillidae) of Kyrghizia. *In*: Zonstein, S.L. (Ed.), *Entomological Investigations in Kyrgyzstan. Vol. 22*. Kyrghyz Society of Entomology, Bishkek, pp. 79–104. [in Russian]

Pagliano, G., Brothers, D.J., Cambra, R., Lelej, A.S., Lo Cascio, P., Matteini Palmerini, M., Scaramozzino, P.L., Williams, K.A. & Romano, M. (2020 [“2018”]) Checklist of names in Mutillidae (Hymenoptera), with illustrations of selected species. *Bollettino del Museo Regionale di Scienze Naturali di Torino*, 36 (1–2), 5–425.

Pagliano, G. & Strumia, F. (2007) Contributo alla conoscenza dei Mutillidae italiani (Hymenoptera, Scolioidea). *Bollettino del Museo Regionale di Scienze Naturali di Torino*, 24 (1), 25–110.

Pallas, P.S. (1771) *Reise durch verschiedene Provinzen des Russischen Reichs. Erster Theil*. Kayserlichen Academie der Wissenschaften, St. Petersburg, 504 pp.

Petersen, B. (1988) The Palaearctic Mutillidae of I.C. Fabricius and some related material (Insecta, Hymenoptera, Aculeata). *Steenstrupia*, 14 (6), 129–224.

Petersen, B. (1994) A bibliography of the Palaearctic Mutillidae, 1753–1993 (Insecta, Hymenoptera). *Steenstrupia*, 20 (8), 185–207.

Radoszkowski, O. (1865) Les mutilles russes. *Bulletin de la Société impériale des naturalistes de Moscou*, 38, 422–464, tab. 7–9.

Radoszkowski, O. (1885) Revision des armures copulatrices des mâles de la famille de Mutillides. *Horae Societatis Entomologicae Rossicae*, 19 (1–2), 3–49, 9 pls.

Radoszkowvski, O.I. (1887) Faune Hyménopterologique Transcaspienne. 2. *Horae Societatis Entomologicae Rossicae*, 21 (1–2), 88–101.

Semenov, P.P. (1896) *History of half a century of activity of the Russian Geographical Society. 1845–1895. Part 3*. Tip. V. Bezobrazova, St. Petersburg, xii + 396 + 66+ 7 pp. [pp. xii + 983–1378 + 1–66 + 1–7, in Russian]

Shernborn, C.D. (1937) On the dates of publication of Costa (O.G. and (A.) Fauna del Regno di Napoli, 1829–1886. *Journal of the Society for the Bibliography of Natural History*, 1, 35–47.
https://doi.org/10.3366/jsbnh.1937.1.2.35

Schuster, R.M. (1950) Notes оп the Pseudophotopsidinae (MutiIIIdae) with descrlptlon of the female sex. *Journal of the New York Entomological Society*, 58, 192–198.

Sichel, J. & Radoszkowski, O. (1869–1870) Essai d’une monographie des Mutilles de l’ancien continent. *Horae Societatis Entomologicae Rossicae*, 6 (3 & 4), 139–172 (1869) & 173–309, tabs. 6–11 (1870).

Skorikov, A.S. (1935) Zur Mutilliden-Fauna Zentralasiens. *Trudy Tadzhikskoi Basy Akademii Nauk SSSR*, 5, 257–349, 7 pls. [in Russian]

Standfuss, L. & Standfuss, K. (2012) Zur Kenntnis der Spinnenameisen (Hymenoptera, Mutillidae) im Süden der Thessalischen Pilion-Halbinsel/Griechenland. *Entomofauna*, 33 (32), 457–468.

Suárez, F.J. (1965) Nota sinonímica preliminar y propuesta del nombre genérico *Eremomyrme* nom. nov. (Hymenoptera, Mutillidae). *Memorie della Società Entomologica Italiana*, 44, 51–52.

Thomson, C.G. (1870) Öfversigt af Sveriges rofsteklar. *Opuscula Entomologica*, 1 (2), 202–251.