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Erimerinae, a prior name to Microdontomerinae (Hymenoptera, Torymidae) with the description of a new genus and three new species from Iran

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Abstract

Erimerinae has been proposed as a subfamily group name prior to Microdontomerinae and the latter was considered as a junior synonym of Erimerinae. A new genus, *Perserimerus* Lotfalizadeh & Rasplus, **gen. nov.**, and three new species, *Perserimerus marginalis* Lotfalizadeh & Rasplus, **sp. nov.**, *Microdontomerus iriphagus* Lotfalizadeh & Janšta, **sp. nov.**, and *M. quadrimaculatus* Lotfalizadeh & Rasplus, **sp. nov.**, are described from Iran. Diagnostic characters of the new genus and newly described species are provided and compared with morphologically similar genera and species. *Microdontomerus iriphagus* and *M. quadrimaculatus* were reared from oothecae of *Iris oratoria* (Linnaeus, 1785) (Mantodea) and galls of *Stefaniola similata* Mamaev, 1972 (Diptera: Cecidomyiidae) on *Haloxylon ammodendron* C.A. Mey, respectively. A key to the known species of *Microdontomerus* of Iran is provided.

Keywords

Galls, *Haloxylon*, Mantid egg cases, Microdontomerinae, new genus, new species, parasitoid

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Introduction

The family Torymidae consists of six subfamilies including Erimerinae (Crawford, 1914; Microdontomerinae sensu Janšta et al., 2018; for synonymy details see Results). Erimerinae have a broad range of hosts spanning primary parasitoids of various life stages of gall-maker insects (mostly Hymenoptera and Diptera), several Lepidoptera, Coleoptera, Apoidea, and also of Mantodea (Grissell 1995; Janšta et al. 2016, 2018). They are also known as hyperparasitoids of Lepidoptera and Coleoptera larvae (Janšta et al. 2016). One species, *Microdontomerus anthonomi* (Crawford), has been reported to have negative effect on biocontrol agent of *Bangasternus orientalis* (Capiomont) (Coleoptera: Curculionidae) and *Urophora affinis* Fraunfeld (Diptera: Tephritidae) introduced to the U.S. from Europe for biological control program against spotted knapweed (*Centaurea stoebe* L.) and diffuse knapweed (*C. diffusa* Lam.) (Turner et al. 1990).

The genus *Microdontomerus* Crawford, 1907 includes seven species in the Palaearctic region (Table 1). Only two species, *M. albipes* (Giraud, 1870) and *M. annulatus* (Spinola, 1808), have been reported from Iran so far (Lotfalizadeh and Gharali 2005; Fallahzadeh et al. 2009; Nazemi Rafie and Lotfalizadeh 2012). This genus appears more diverse in the Nearctic region where it includes 19 species (Grissell 2005; Janšta et al. 2016).

During our recent collections in different regions of Iran we have been discovered some taxa that do not correspond with the known genera and species of the subfamily Erimerinae. These include one new genus with remarkable morphological characters and two interesting *Microdontomerus* species reared from two different hosts. These three new taxa are described in the presented paper.

Materials and methods

Examined specimens were either reared from hosts (oothecae of Mantodea, galls of Cecidomyiidae, Diptera) or collected by Malaise trap from Sistan & Balauchestan, Isfahan, Khuzestan and South-Khorasan provinces during 2015–2019.

Table 1. Species of *Microdontomerus* known in the Palaearctic region (Picard 1930; Steffan 1967; Janšta et al. 2016; Doğanlar 2016; Noyes 2019).

Species	Hosts	References
M. albipes (Giraud, 1870)	Lepidoptera: Gelechiidae	Noyes (2019)
M. altinekinesis Doğanlar, 2016	Uknown	Doğanlar (2016)
M. annulatus (Spinola, 1808)	Diptera: Cecidomyiidae and Tephritidae; Hymenoptera: Cynipidae; Lepidoptera: Tortricidae	Noyes (2019)
M. direklinensis Doğanlar, 2016	Uknown	Doğanlar (2016)
M. gurcukoyensis Doğanlar, 2016	Uknown	Doğanlar (2016)
M. iridis (Picard, 1930)	Mantodea: Mantidae	Picard (1930), Janšta et al. (2016)
M. ovivorus (Steffan, 1967)	Coleoptera: Buprestidae	Steffan (1967)

Altogether, we examined 72 specimens (48 females and 24 males), all were card mounted. Identifications were realized using Grissell (2005), Doğanlar (2016) and Janšta et al. (2016). Harris (1979) was followed for the terminology of sculpture. Examination of the external morphology of dry-mounted specimens was done using a Leica M205C research stereomicroscope with a maximum magnification of 180×. External morphology was illustrated using a Keyence VHX-5000 digital microscope. Artifacts removal, background standardization and plate assembling were done in Photoshop CS4. Specimens examined during this study are deposited in the following collections:

CBGP Centre de Biologie pour la Gestion des Populations, Montferrier-sur-Lez, France.
HMIM Hayk Mirzayans Insect Museum, Iranian Research Institute of Plant Protection, Tehran, Iran.
SMNS State Museum of Natural History Stuttgart, Germany.

Morphological terminology follows Gibson et al. (1997) and Janšta et al. (2016). All measurements were made with special reference to the correct orientation following Janšta et al. (2016). Abbreviations of used morphological characters are:

anl_1–anl_3	anellus 1–3;
clv_1–clv_3	clavomere 1–3;
fu_1–fu_6	funicular 1–6;
Gt_1–Gt_6	gastral tergite 1–6;
LOL (lateral ocellar line)	minimum distance between the anterior and a posterior ocellus;
MPS	multiporous plate sensilla;
mv	marginal vein;
OI (ovipositor index)	ratio of ovipositor length to length of metatibia;
OOL (ocello-ocular line)	distance between the posterior ocellus and the eye;
pmv	postmarginal vein;
POL	distance between posterior ocelli;
st	stigma;
stv	stigmal vein;
tsc	terminal spine.

Results

Nomenclatory remarks

The following described genus and all species belong to the subfamily Erimerinae (Hymenoptera: Torymidae). Erimerinae was described by Crawford (1914). Later, Grissell (1995) recognized the subfamily just as a clade in the tribe Microdontomerini. Subsequently, Janšta et al. (2018) reclassified Microdontomerini *sensu* Grissell (1995) as the

subfamily Microdontomerinae. However, as *Erimerus* is the type genus of the subfamily group name Erimerinae (Crawford, 1914) and Erimerinae has been proposed as a subfamily group name prior to Microdontomerinae, we treat Microdontomerinae as a junior synonym of Erimerinae.

Descriptions

***Perserimerus* Lotfalizadeh & Rasplus, gen. nov.**
https://zoobank.org/05F35775-6A17-4495-9273-BC832B8DD566
Figs 1, 2

Type species. *Perserimerus marginalis* Lotfalizadeh & Rasplus, sp. nov., by present designation.

Etymology. The generic name is composed of the Latin prefix "*Pers*", referring to the old name of Iran (Persia) and the genus "*Erimerus*". Masculine gender.

Description. Body metallic green, laterally with coopery to dark blue-violet (Fig. 1A), dorsally with coopery reflection (Fig. 1B). Head and mesosoma finely reticulate, metasoma alutaceous. Head 1.36× as broad as high; 1.88× as broad as long. Occipital carina not developed. Anterior margin of clypeus nearly straight. Scrobes bare and finely sculptured relative to the rest of face. Toruli inserted above the ventral level of eye. OOL about 0.56× as long as LOL. POL about 3× as long as OOL. Antenna (Fig. 2A) with scape not reaching anterior ocellus; flagellum with three anelli and five funiculars, all funiculars transverse. Clava four segmented with fourth segment forming distinct terminal spine (Fig. 2A, C; tsc). Pronotum forming a collar. Mesonotum 1.27× as long as broad. Notauli complete. Propodeum with delicate reticulate sculpture, without median carina. Fore wing (Fig. 1A) bare in basal half with speculum reaching stigmal vein; marginal vein 1.8× as long as postmarginal vein and 4.5× as long as stigmal vein; marginal and postmarginal veins distinctly triangularly enlarged, marginal vein about 2.6× as long as its broadest part (Fig. 2B); stigmal vein very short and stigmal uncus nearly closes to postmarginal vein. Hind femur simple, without subapical tooth; hind tibia with one apical spur. Metasoma sessile, with short petiole; tip of hypopygium almost reaching two-thirds of metasoma (Fig. 1A); Gt_1–Gt_6 not incised medially. Ovipositor 0.31× as long as gaster. OI 0.79.

In the key to genera of Toryminae by Grissell (1995), the new genus run to the Afrotropical and Australian genus *Echthrodape* Burks (couplet 30) by having marginal and postmarginal vein conspicuously thickened relative to submarginal vein (marginal and postmarginal veins distinctly triangularly enlarged, 2.25× and 2.6× as long as broad, respectively). However, *Perserimerus*, gen. nov., clearly differs from *Echthrodape* by the presence of three anelli, a well-developed terminal spine on clava, the absence of occipital carina, the marginal vein reaching margin of wing and malar space not longer than the breadth of oral fossa. Further, *Echthrodape* exhibits uniformly widened marginal and postmarginal veins (Grissell 1995; figs 374–375), while in *Perserimerus*, gen. nov., marginal and postmarginal veins are triangularly thickened (Fig. 2B).

Perserimerus, gen. nov., is similar to *Erimerus* as for both genera the reduction of a few apical flagellar segments to anelli, clava with terminal spine and hind tibia with only one spur are characteristic. However, none of the *Erimerus* species has marginal and postmarginal vein widened throughout. Furthermore, *Erimerus* has body including metasoma densely reticulated and hence dull and not shiny.

Host association. Unknown.

***Perserimerus marginalis* Lotfalizadeh & Rasplus, sp. nov.**

https://zoobank.org/E3E12CA8-9EDB-4B2C-8185-5EFAFF267471

Figs 1, 2

Material examined. ***Holotype*:** Iran • ♀; Sistan & Bluchestan province, near to Hamun Lake, 30.iv.2015, sweeping net on *Tamarix*, E. Rakhshani leg. (deposited in HMIM).

Etymology. The species name refers to the unique shape of the marginal and postmarginal veins.

Description. Female (Fig. 1A): Body length including ovipositor 1.24 mm; length of ovipositor 0.18 mm.

***Colour*.** Head, mesosoma, metasoma and all coxae metallic green, dorsally with coppery, laterally with coopery to dark blue violet reflection (Fig. 1A). Pedicel brown with metallic reflection. Scape, tegula, all femora distally, entire fore- and mesotibia, metatibia apically and distally, tarsi and wing venation pale yellow. Flagellum dark brown with apical part of clava bright brown to yellow, pro- and mesofemur and metatibia medially brown. Metafemur dark with metallic reflection. Fore wing hyaline, setae brown.

***Head*.** Head 1.36× as broad as high; 1.88× as broad as long; 1.12× as broad as mesonotum at its widest part in dorsal view. Temple short, strongly converging, 0.23× as long as eye. Eyes separated by 1.06× their own height, eye 1.78× as high as long. Head with fine reticulate sculpture with thin, short, pale setae on face, vertex and temple; scrobes more finely reticulate, without setae. Clypeus with anterior margin nearly straight; ventral part of clypeus smooth. Malar space 0.41× as long as eye height. Occipital carina absent (Fig. 1B). POL 3× OOL, OOL 0.56× LOL.

Antenna (Fig. 2A). Scape 5.38× as long as broad, not reaching ventral margin of anterior ocellus; pedicel 1.25× as long as broad; toruli inserted slightly above ventral level of eye. Combined length of pedicel and flagellum shorter than breadth of head (0.78× as long as breadth of head). Flagellum with three ring-like anelli, distinctly wider than long; first anellus (anl_1) smaller, other gradually larger toward third one; remaining flagellomeres distinctly transverse, with Fu_1 1.66× as broad as long, as wide as pedicel; fu_2–fu_5 of about same dimensions, 2.00–2.33× as broad as long, bearing only one row of MPS; clava 2× longer than broad, with three clavomeres (clv_1–clv_3) and terminal spine; antennal formula 1,1,3,5,3 (Fig. 2A).

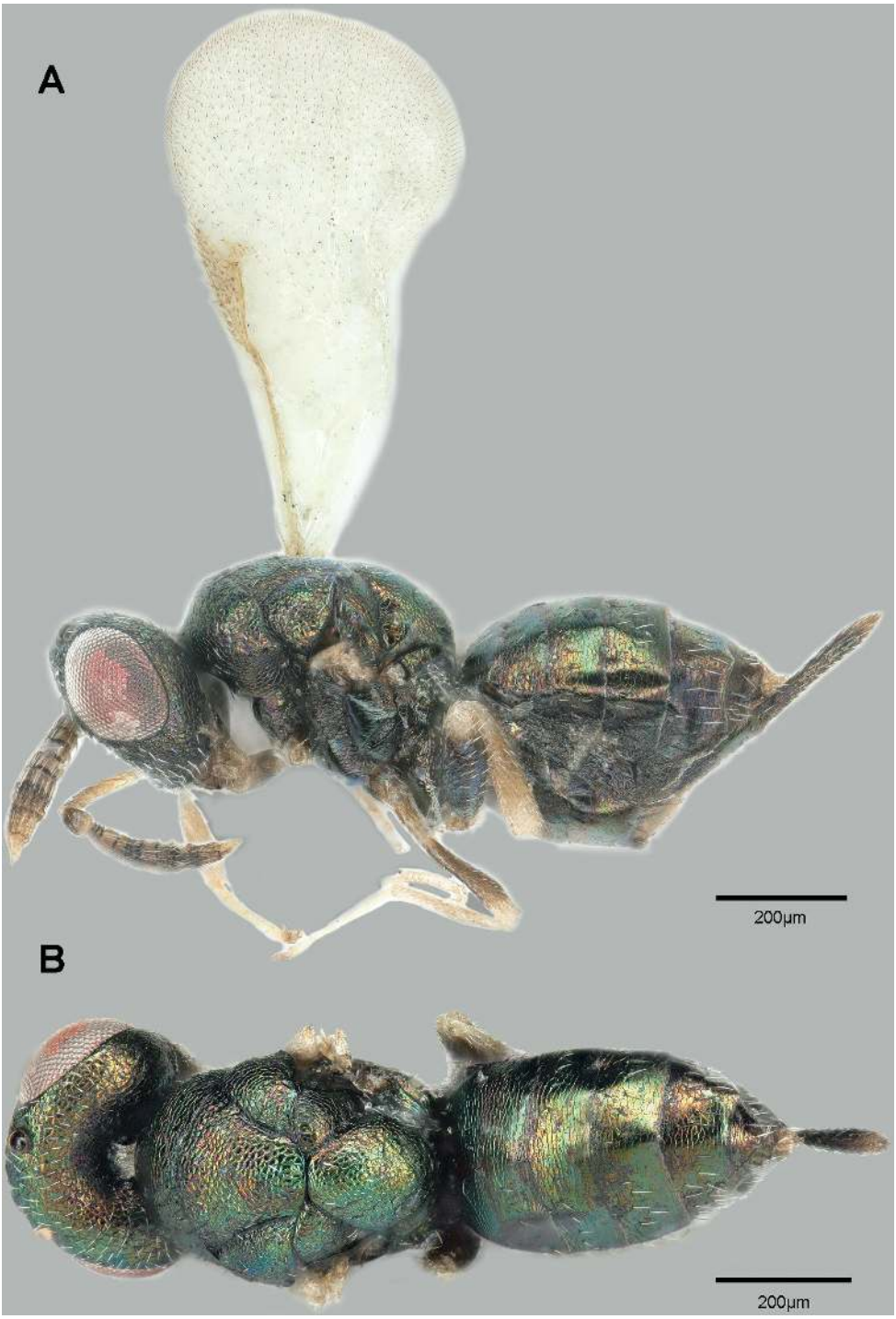


Figure 1. *Perserimerus marginalis*, female holotype **A** habitus, lateral view **B** habitus, dorsal view.

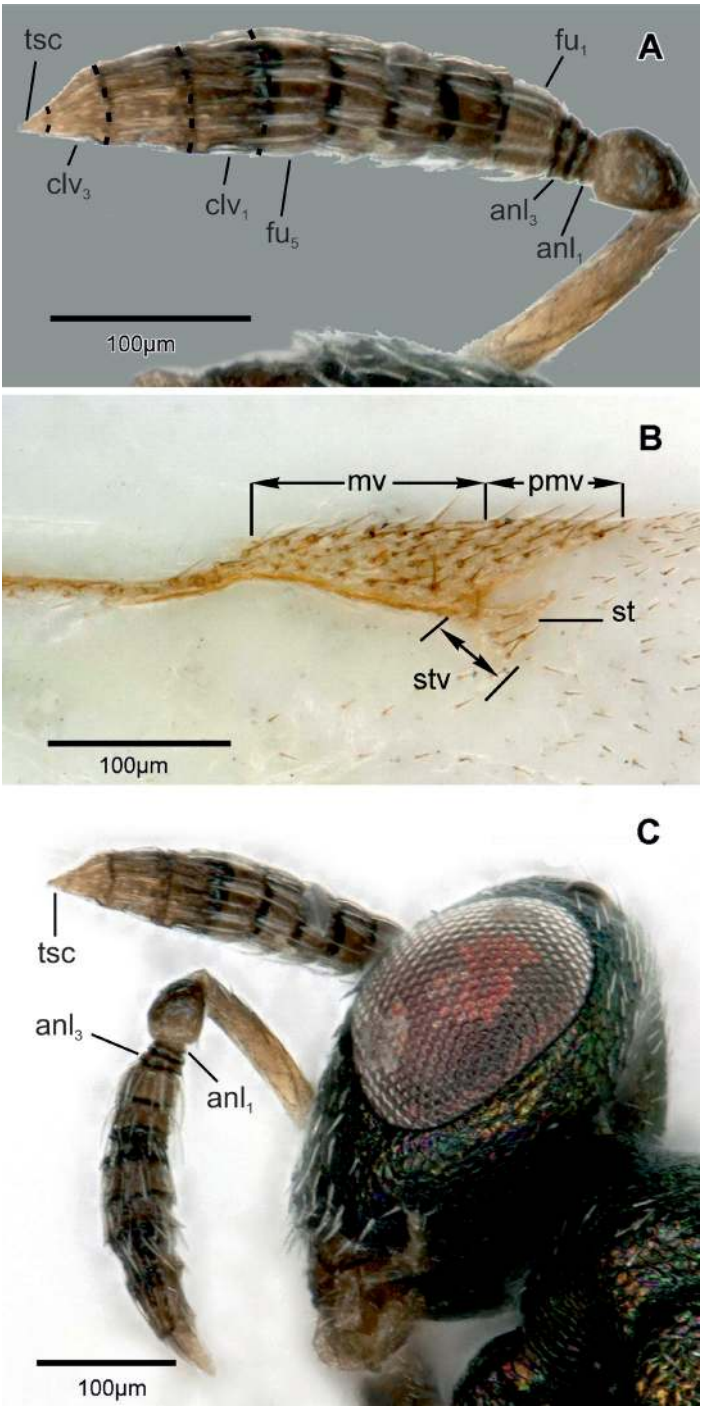


Figure 2. *Perserimerus marginalis*, female holotype **A** antenna, lateral view **B** fore wing, venation **C** head, lateral view ($anl_{1, 3}$ – anellus 1, 3; $clv_{1,3}$ – clavomere 1, 3; $fu_{1,5}$ – funicular 1, 5; mv – marginal vein; pmv – postmarginl vein; st – stigma; stv – stigmal vein; tsc – terminal spine).

Mesosoma (Fig. 1A, B). Mesosoma 1.35× as long as broad. Pronotum 0.82× as broad as mesoscutum. Pronotum and mesoscutum entirely reticulate, and covered with thin, short, pale setae. Notauli complete, distinct and not obliterated by sculpture. Mesoscutellum 1.11× as long as broad, without frenal area, broadly abutting mesoscutum and separating axillae. Mesoscutellum and axilla more sparsely covered with setae. Hind leg with coxa 1.85× as long as broad, alutaceous, with sparse setae dorsally and ventrally; metafemur 3.8× as long as broad, simple, without subapical tooth; metatibia 4.25× as long as broad, with one apical spur. Fore wing 1.94× as long as wide, hyaline, with dense brown setae on distal half; speculum broad and reach below marginal vein; costal cell bare; marginal vein 1.8× as long as postmarginal vein and 4.5× as long as stigmal vein; marginal and postmarginal veins distinctly triangularly enlarged, 2.25× and 2.6× as long as broad, respectively; stigmal vein very short and stigma nearly closes to marginal and postmarginal veins (Fig. 2B).

Metasoma (Figs 1A, B) excluding ovipositor 1.14× as long as mesosoma. Petiole very short. Gaster with shallow alutaceous sculpture; Gt_1–Gt_6 not incised medially; tip of hypopygium almost reaching two-third of gaster; ovipositor short, 0.31× as long as gaster. OI 0.79.

Male. Unknown.

Distribution. Palaearctic: Iran.

Biological association. This species was swept on *Tamarix* and could be parasitoid of associates of this shrub, such as gall-makers or other phytophages.

Microdontomerus iriphagus **Lotfalizadeh & Janšta, sp. nov.**
https://zoobank.org/D5CE0234-A11D-47EE-AE9D-DB41A04A2F98
Figs 3–5

Material examined. ***Holotype*****:** Iran • ♀; Isfahan province, Tiran-Daran Highway (32°42'36"N, 51°11'07"E), ex *Iris oratoria* oothecae, Z. Mirzaee (deposited in HMIM). ***Paratypes*****:** Iran • same as holotype (23♀♀, 1♂, HMIM; 1♀, 1♂, SMNS; 1♀, CBGP); Khuzestan province, Deh-dez (31°44'37"N, 50°11'52"E), ex *I. oratoria* oothecae (19♀♀, 5♂♂), Z. Mirzaee (HMIM).

Etymology. The species name refers to the mantid host.

Diagnosis. Head almost circular in frontal view, about 1.13× as broad as high (Fig. 4C); 2.14× as broad as long. Anterior margin of clypeus straight and recessed relative to oral margin. Scrobes bare and finely sculptured relative to the rest of face. Toruli inserted above ventral level of eye. OOL about 0.85× as long as LOL. POL about 2.82× as long as OOL (Fig. 5B). Antenna in female with scape not reaching anterior ocellus; flagellum with one anellus and seven funicular segments, all funicular segments transverse (Fig. 4A). Pronotum and mesoscutum reticulate, mesoscutellum coriaceous and less sculptured in contrast to aforementioned (Fig. 5B). Fore wing (Fig. 5C) with speculum reaching end of marginal vein; costal cell dorsally with 1–2 rows of setae along anterior margin, cubital cell without setae and basal cell at most with few setae

along anterior margin; basal and cubital line of setae complete; marginal vein less than 2× as long as postmarginal vein and more than 2.5× as long as stigmal vein. All tarsi slightly longer than tibiae, metafemur simple, without any tooth. Metasoma with hypopygium reaching near to end of gaster (Fig. 3A); Gt_1 incised medially, Gt_2–Gt_3 distinctly emarginate medially, Gt_4–Gt_5 slightly emarginated (Fig. 5D). Ovipositor about 0.65× as long as body; OI 2.3.

Comments. *Microdontomerus iriphagus*, sp. nov., was reared from oothecae of *Iris oratoria* (Linnaeus, 1785) (Mantodea) in 2018–2019 and has already been reported as *Microdontomerus* sp. by Mirzaee et al. (2021). It is similar to *M. iridis*, but *M. iriphagus* possesses one anellus while *M. iridis* has two anelli Fig. 4A, B; also *M. iriphagus* differs from *M. iridis* in having brownish-yellow metasoma with a pair of oval pale-yellow spots on all tergites (Fig. 5D) (entirely metallic in *M. iridis*), yellowish legs (Fig. 3A) (at least metallic coxae in *M. iridis*), pale scape (Fig. 4A) (dark-brown in *M. iridis*). *Microdontomerus iriphagus* has also shorter ovipositor with OI about 2.3 (OI-2.5 to 2.9 in *M. iridis*) and OOL only about 0.85× LOL (about the same in *M. iridis*).

Microdontomerus iriphagus, sp. nov., is similar to *M. gurcukoyensis* Doğanlar, 2016 in having yellowish antennae and legs but these species can be easily separated by the coloration of their metasoma (brownish and yellowish basally in *M. gurcukoyensis*); the scape yellowish and the metallic flagellomeres (yellowish in *M. gurcukoyensis*), with whitish-yellow fore coxa (concolorous with body in *M. gurcukoyensis*). The ovipositor of *M. iriphagus* is also slightly longer with an OI about 2.3, while *M. gurcukoyensis* has an OI=1.66 (Doğanlar 2016).

Description. Female (Fig. 3A): Body length excluding ovipositor 2.10 mm (including ovipositor 3.50 mm [3.2–4.4 mm]); length of ovipositor 1.40 mm.

***Colour*.** Head, mesosoma, meso- and metacoxa metallic green (except distal part); metasoma brownish-yellow laterally, pale-yellow dorsally on all tergites, with pair of dark brown spots dorsolaterally on each tergite. Spots connecting medially on Gt_1 and $G_{t6\text{-}7}$ (Fig. 5D). Scape, tegula, legs (except most of meso- and metacoxa and metafemur) pale yellow. Tarsomeres brownish distally. Metafemur rightly brown yellow. Distal part of scape brown with slight metallic reflection, pedicel black with distinct metallic reflection, flagellum dark brown; ovipositor brownish yellow, ovipositor sheath dark brown. Fore wing hyaline, wing venation yellowish-brown, setae dark-brown.

***Head*.** Head 1.13× as broad as high (Fig. 4C); 2.14× as broad as long in dorsal view and 1.83× in lateral view (Fig. 5A); 1.10× as broad as mesonotum at its widest part in dorsal view. Without occipital carina. Temple short, strongly converging, 0.3× as long as eye. Eyes separated by 1.17× their own height, eye 1.45× as high as long. Head reticulate with thin, short, silvery setae on face; scrobes more finely reticulate, without setae. Torulus separated by 1× their own diameter; clypeus with anterior margin nearly straight and recessed relative to corners of oral fossa; ventral part of clypeus finely reticulate. Malar space 0.5× as long as eye height. POL 2.82× OOL, OOL 0.85× LOL (Fig. 5B).

Antenna (Fig. 4A). Scape 3.2× as long as broad and pedicel about as long as broad, the former not reaching ventral margin of anterior ocellus; torulus inserted above ventral level of eye. Combined length of pedicel and flagellum as long as breadth of head.

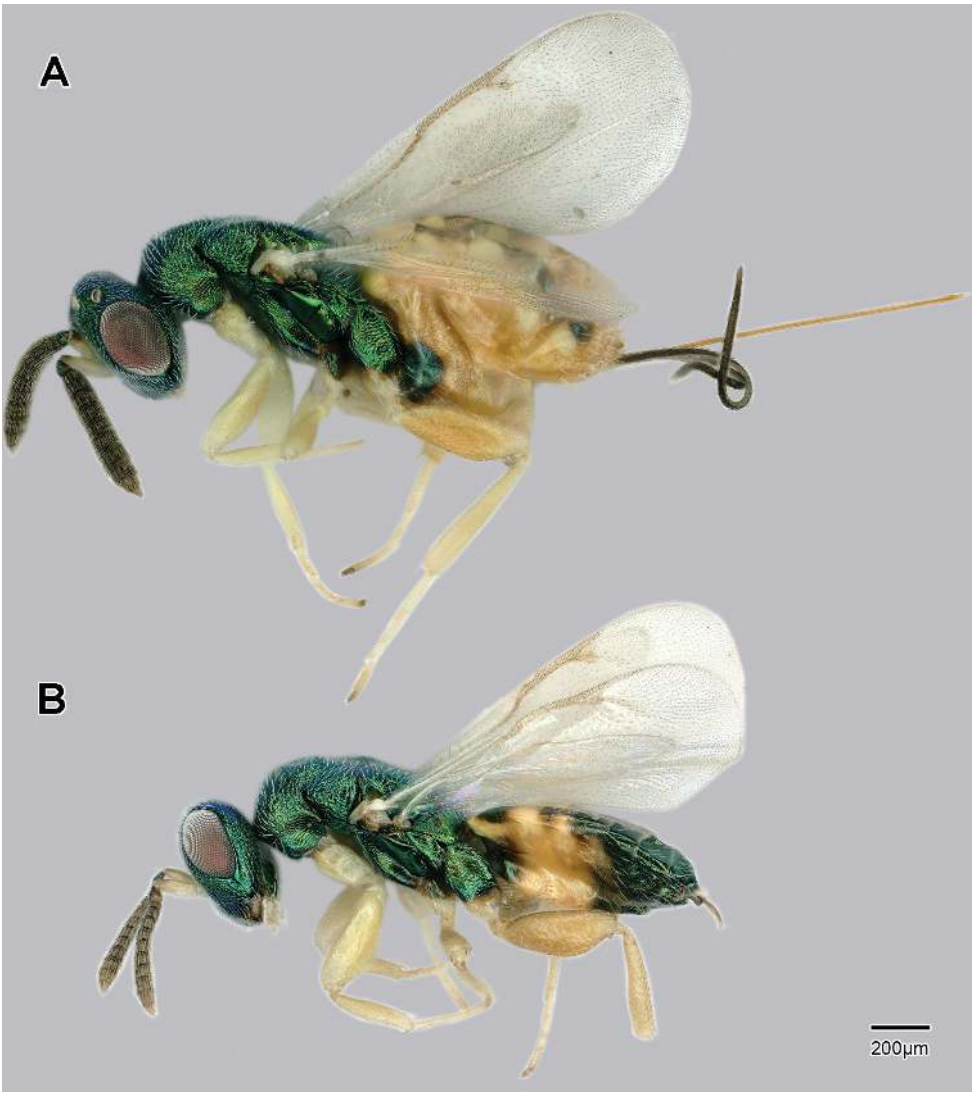


Figure 3. *Microdontomerus iriphagus* **A** female habitus, lateral view **B** male habitus, lateral view.

Flagellum with one anellus; all flagellomeres distinctly transverse, with fu_1 the smallest, 0.71× as long as broad, 1.4× as wide as pedicel, and bearing only few MPS; fu_2–fu_6 of about same dimensions, 0.55× as long as broad.

Mesosoma (Figs 5A, B) 1.31× as long as broad. Pronotum 0.73× as broad as mesoscutum. Pronotum and mesoscutum entirely and uniformly reticulate, and covered with thin, short, silvery setae (Fig. 5B). Mid lobe of mesoscutum posteriorly and entire mesoscutellum flattened dorsally. Notaulus distinctly impressed and obliterated by sculpture. Mesoscutellum 0.9× as long as broad, broadly abutting mesoscutum and separating axillae. Frenal area not separated but relatively distinct with coriaceous

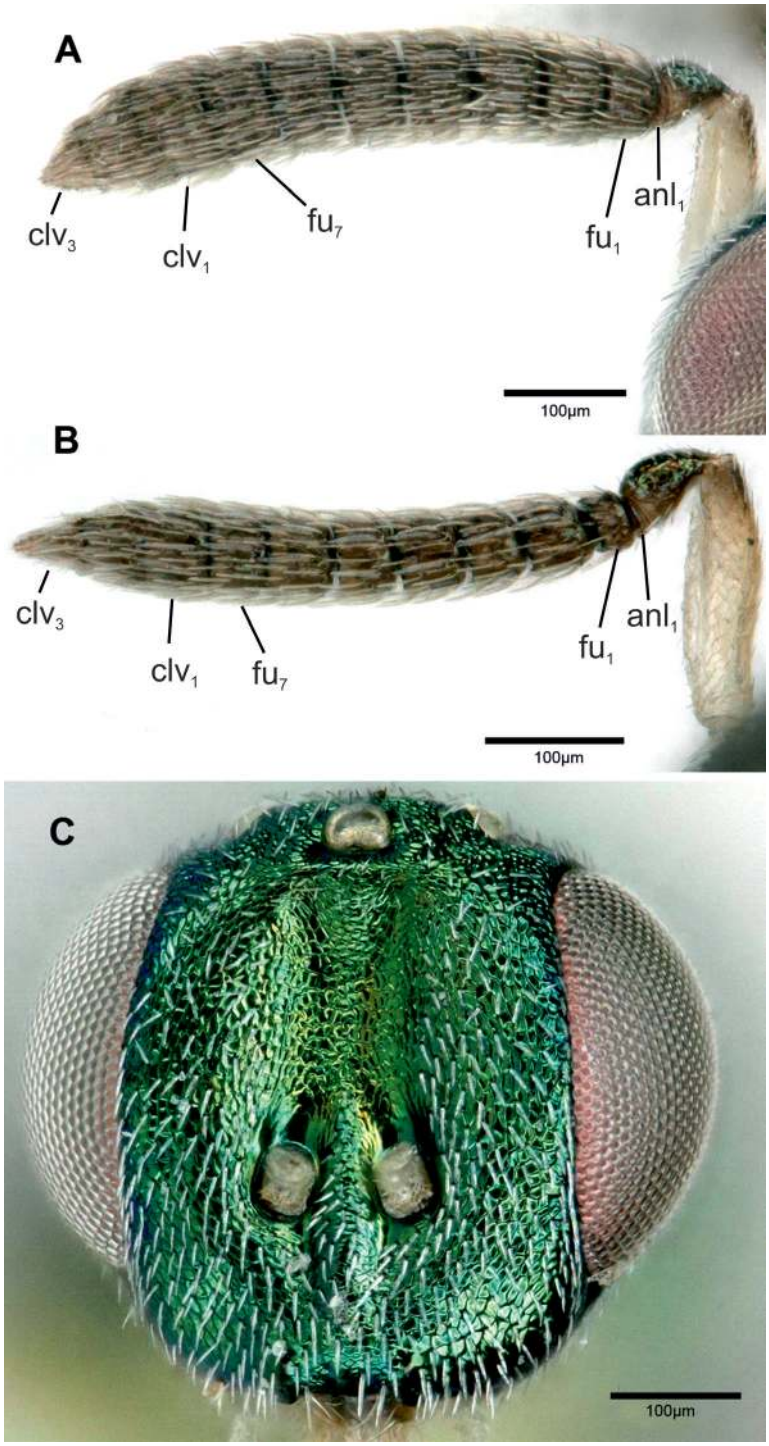


Figure 4. *Microdontomerus iriphagus* **A** female antenna, lateral view **B** male antenna, lateral view **C** male head, frontal view (anl_1 – anellus 1; $clv_{1,3}$ – clavomere 1, 3; $fu_{1,7}$ – funicular 1, 7).

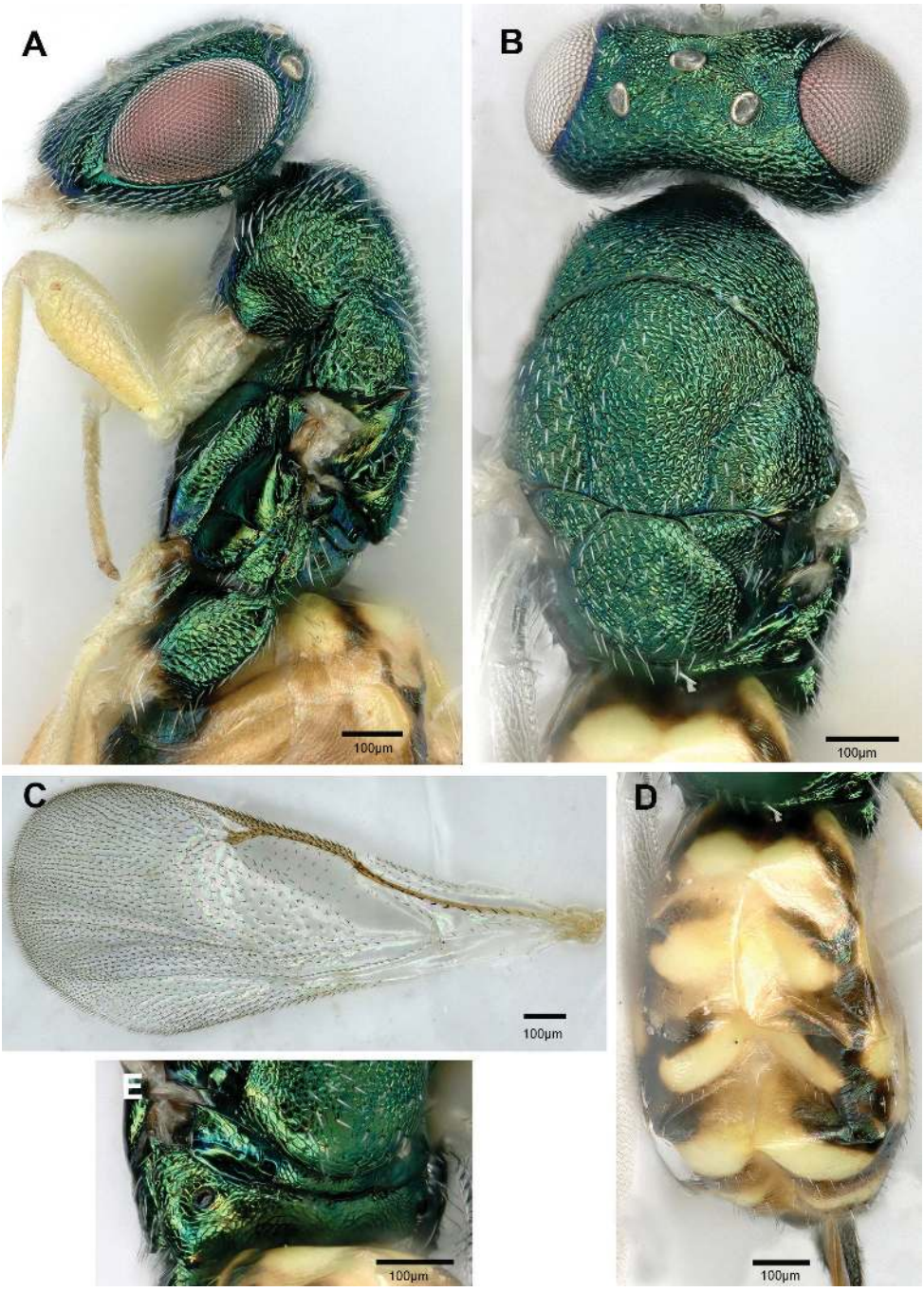


Figure 5. *Microdontomerus iriphagus*, female **A** mesosoma, lateral view **B** mesosoma, dorsal view **C** fore wing **D** metasoma, dorsal view **E** propodeum, dorsal view.

sculpture (Fig. 5E). Propodeum delicately reticulate, without median carina (Fig. 5E). Profemur 3.6× as long as broad. Metacoxa reticulate, covered by setae dorsally and ventrally, 2.3× as long as broad; metafemur 2.8× as long as broad, without any tooth; metatibia 4.68× as long as broad; metatarsus long, as long as metatibia (Fig. 3A). Fore wing 2.25× as long as wide, hyaline, with densely setose on disc; speculum reaching end of marginal vein; costal cell dorsally with 1–2 rows of short setae along anterior margin, and 3–4 rows at end of cell, basal and cubital cell bare; basal and cubital line of setae complete; marginal vein 1.93× as long as postmarginal vein and 2.7× as long as stigmal vein; venation pale brown (Fig. 5C).

Metasoma (Fig. 5D) 1.3× as long as mesosoma, with superficially alutaceous sculpture dorsally and lateraly. Petiole very short. Gt_1 incised medially, Gt_2–Gt_3 distinctly emarginate medially, Gt_4–Gt_5 slightly emarginate medially. Tip of hypopygium almost reaching near to apex of gaster (Fig. 3A). OI 2.3.

Male (Fig. 3B). Length of body 1.68 mm (1.6–2.2 mm). Similar to females except following: metasoma concolor of mesosoma except brownish-yellow sub-basal band, laterally extending from Gt_1 to proximal part of Gt_3. Funicular segments less transverse than in the female. Fu_2–fu_7 about 0.60–0.71× as long as broad, with first flagellomere shortest; clava 1.86× as long as broad (Fig. 4B). Pro- and metafemur distinctly swollen, respectively 2.94 and 2.27× as long as broad, the latter distinctly serrate posteriorly.

Distribution. Palaearctic: Iran.

Biological association. This species represents an association with an uncommon host for Erimerinae, the mantids ootheca of *Iris oratoria* (Linneaus, 1758) (Mantodea), as well as another species of the genus *Microdontomerus* in the Mediterranean basin, *Microdontomerus iridis* (Picard 1930) (Janšta et al. 2016).

Microdontomerus quadrimaculatus Lotfalizadeh & Rasplus, sp. nov.

https://zoobank.org/1560E7D1-6B8B-4A3B-BDC8-D6C23CB4F23D

Figs 6–7

Material examined. ***Holotype*****:** Iran • ♀; South-Khorasan province, Khoosf (32°77'N, 58°85'E, 1300 m), 5.iv.2018, galls on *Haloxylon ammodendron*; Tavakkoli-Korghond, G. leg. (deposited in HMIM). ***Paratypes*****:** Iran • same as holotype, 1♀ (deposited in HMIM).

Etymology. A reference to the four pale-yellow oval spots on the gastral tergites that is characteristic of this species.

Diagnosis. Head about 1.18× as broad as high and 1.66–1.72× as broad as long. Anterior margin of clypeus straight and slightly protruded relative to corners of oral fossa. Scrobes bare and finely sculptured relative to the rest of face. Toruli inserted distinctly above ventral level of eye. POL about 3.05× as long as OOL and OOL about 0.72× as long as LOL. Antenna with scape not reaching anterior ocellus; flagellum

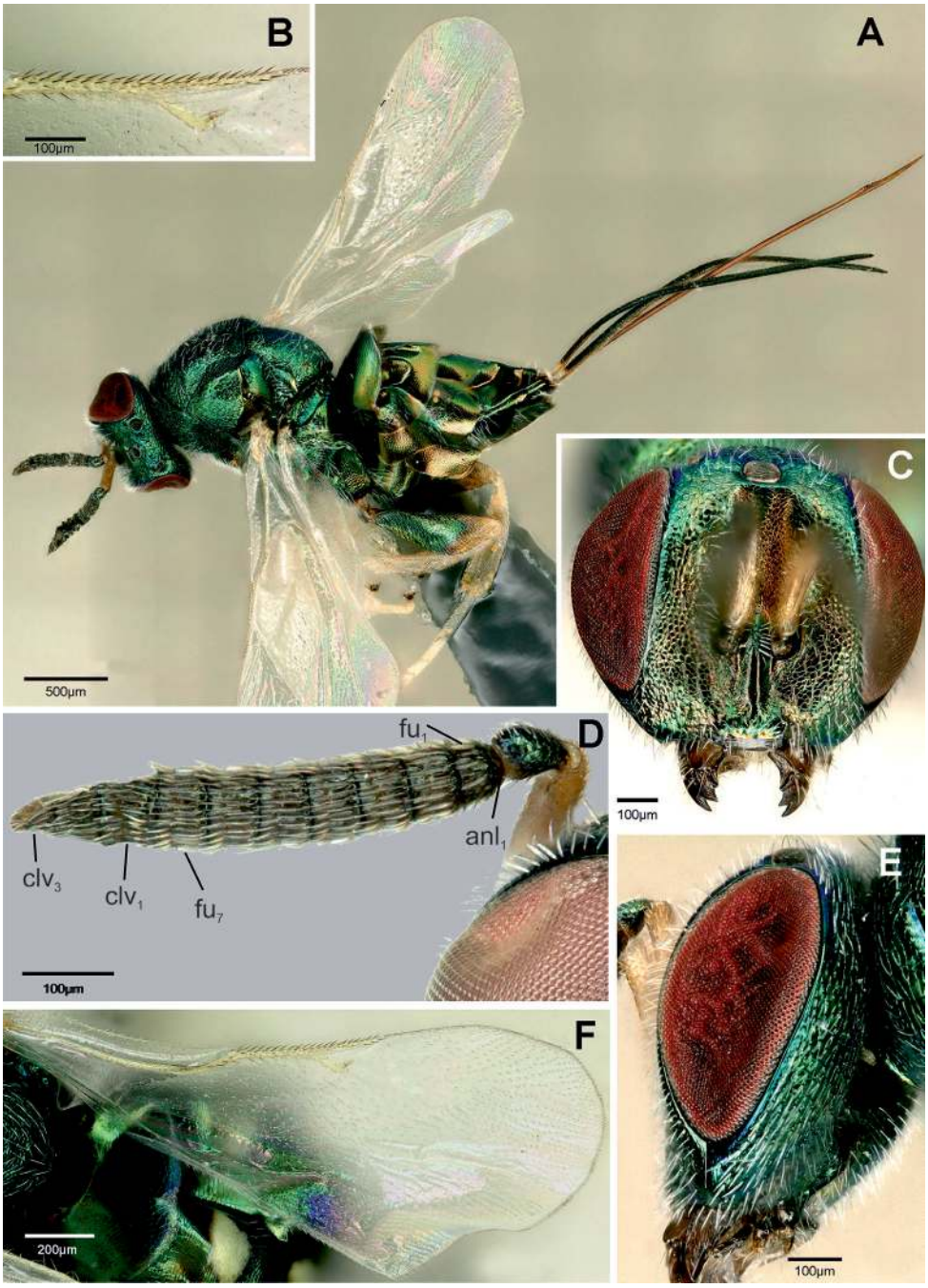


Figure 6. *Microdontomerus quadrimaculatus*, female **A** female habitus, lateral view **B** fore wing venation **C** head, frontal view **D** female antenna, lateral view **E** head, lateral view **F** fore wing (anl_1 – anellus 1; $clv_{1,3}$ – clavomere 1, 3; $fu_{1,7}$ – funicular 1, 7).

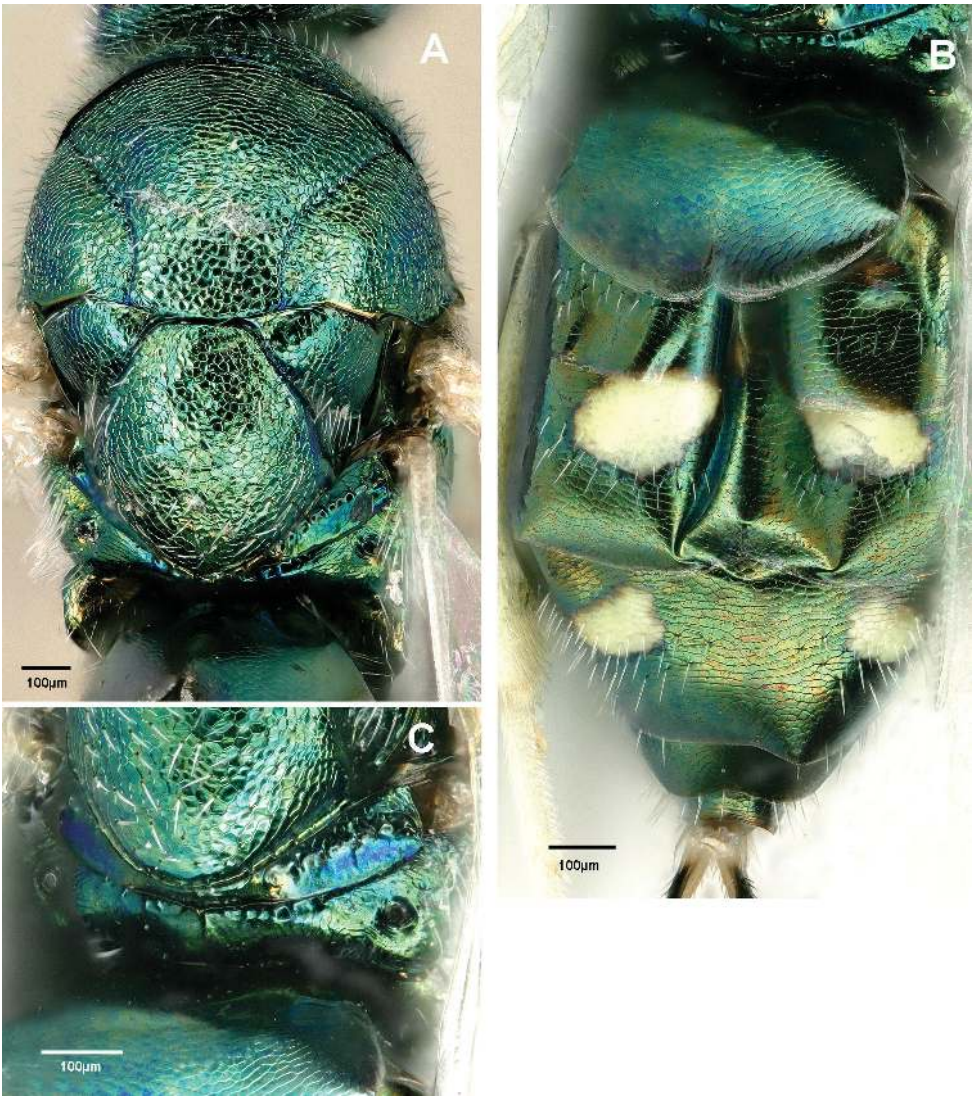


Figure 7. *Microdontomerus quadrimaculatus*, female **A** mesosoma, dorsal view **B** metasoma, dorsal view **C** propodeum, dorsal view.

with one anellus and seven funicular segments, all funicular segments transverse. Mesonotum entirely reticulate. Fore wing with speculum reaching end of marginal vein; costal cell dorsally with three rows of setae along anterior margin, cubital cell without setae and basal cell at most with few setae along anterior margin; basal and cubital line of setae complete; marginal vein 1.33× as long as postmarginal vein and 2.66× as long as stigmal vein. All tarsi slightly longer than tibiae, metafemur simple, without any tooth. Metasoma with hypopygium reaching almost end of gaster; Gt_1 incised medi-

ally, Gt_2 –Gt_3 distinctly emarginate medially, Gt_3–Gt_4 with a pair of whitish spots, Gt_4 –Gt_5 slightly emarginate. Ovipositor 0.95× as long as body; OI 3.75.

Description. Female (Fig. 6A): Body length including ovipositor 5.25 mm; length of ovipositor 2.5 mm.

Colour. Head, mesosoma, meso- and metacoxa and metasoma metallic blue-green with coppery reflection (Fig. 6A). Gt_3–Gt_4 with a pair of pale-yellow oval spots. Pedicel concolorous with body with metallic green reflection, flagellum dark-brown with slight metallic reflection. Scape, tegula, all femur distally, metatibia and tarsi pale yellow. Pro- and metacoxa concolorous with body, mesocoxa brown. Fore wing hyaline, wing venation pale yellow, setae brown.

Head (Fig. 6C). Head 1.18× as broad as high; 1.66× as broad as long in dorsal view and 1.74× in lateral view (Fig. 6E); 1.04× as broad as mesonotum at its widest part in dorsal view. Head reticulate with thin, short, silvery setae on face, vertex and temple which are slightly longer than two meshes of the reticulation; scrobe more finely reticulate, without setae. Eyes separated by 0.82× their own height, eye 1.88× as high as long. Clypeus with anterior margin distinctly straight and slightly protruded relative to corners of oral fossa; ventral part of clypeus smooth (Fig. 6C). Malar space 0.29× as long as eye height. Occipital carina absent. POL 3.05× OOL, OOL 0.72× LOL.

Antenna (Fig. 6D). Scape 5.33× as long as broad, not reaching ventral margin of anterior ocellus; pedicel 1.16× as long as broad; torulus inserted distinctly above ventral level of eye. Combined length of pedicel and flagellum 0.70× as long as breadth of head. Flagellum with one ring-like anellus; remaining flagellomeres distinctly transverse, with fu_1 the smallest, 0.57× as long as broad, wider than pedicel, and bearing only few MPS; fu_2–fu_7 of about same dimensions, 0.58–0.65× as long as broad.

Mesosoma (Fig. 7A). Mesosoma 1.3× as long as broad. Pronotum 0.81× as broad as mesoscutum. Pronotum and mesoscutum entirely reticulate, and covered with thin, short, silvery setae. Notaulus complete and distinctly impressed. Mesoscutellum as long as broad, without frenal area. Mesoscutellum and axilla more sparsely covered with setae. Propodeum mainly smooth, slightly reticulate laterally, with incomplete and barely visible median carina in basal part (Fig. 7C). Hind leg with coxa reticulated, covered by setae dorsally and ventrally, 1.8× as long as broad; metafemur 3.20× as long as broad, without any tooth; metatibia 4× as long as broad; metatarsus long, 1.16× as long as metatibia. Fore wing 2.4× as long as wide, hyaline, densely setose on disc; speculum reaching end of marginal vein; costal cell dorsally with three rows of setae along anterior margin, basal and cubital cell bare; basal and cubital line of setae complete; marginal vein 1.33× as long as postmarginal vein and 2.66× as long as stigmal vein; venation pale yellow (Figs 6A, F).

Metasoma (Fig. 6B). Metasoma 1.23× as long as mesosoma (but somewhat collapsed), with very shallow alutaceous sculpture. Petiole very short, strongly transverse. Gt_1 incised medially, Gt_2–Gt_3 distinctly emarginate medially, Gt_4–Gt_5 slightly emarginate medially. Tip of hypopygium almost reaching apex of gaster. OI 3.75.

Distribution. Palaearctic: Iran.

Biological association. This species was reared from galls of *Stefaniola similata* Mamaev, 1972 (Diptera: Cecidomyiidae) on *Haloxylon ammodendron* C.A. Mey in the eastern Iran.

Key to the species of the genus *Microdontomerus* in Iran (females)

1 Metasoma brownish-yellow with a pair of pale-yellow oval spots on every tergite (Fig. 5D) ..... ***M. iriphagus* sp. nov.**
– Metasoma concolorous with mesosoma and with distinct metallic reflection (Fig. 6A) **2**
2 Ovipositor sheaths short, as long as metasoma or slightly (about 1.3 times) longer than metasoma..... ***M. albipes* (Giraud, 1870)**
– Ovipositor sheaths long, as long as the combined length of meso- and metasoma (Fig. 6A) **3**
3 $Gt_{3–4}$ with a pair of whitish spots (Fig. 7B); marginal vein 1.33× and 2.66× as long as postmarginal and stigmal vein, respectively (Fig. 6B) .... ***M. quadrimaculatus* sp. nov.**
– All gastral tergites metallic green without contrasted spots; marginal vein about 2.14× and 4.0× as long as postmarginal and stigmal vein, respectively. ....***M. annulatus* (Spinola, 1808)**

Discussion

Previously, the genus *Oopristus* Steffan, 1968 (Hymenoptera: Torymidae) was originally described from Iran (Steffan 1968; Lotfalizadeh and Gharali 2005). *Perserimerus* Lotfalizadeh & Rasplus, gen. nov., is the second genus found for the first time in Iran. Considering Iran's significant diversity of ecological and bioclimatic conditions, the presence of further undescribed taxa are awaiting discovery.

Among the described taxa, *M. quadrimaculatus*, sp. nov., was reared from galls of *Stefaniola similata* on saxaul shrubs, *Haloxylon ammodendron*. Saxaul shrubs are distributed in the Central and Eastern deserts and arid environments of Iran, where it is mostly used for wind control and sandy soil maintenance. The first attempt to study the pests and their associated parasitoids of saxauls was carried out by Lotfalizadeh et al. (2019). These shrubs are seriously endangered by a few pest insects including the mealybug *Anophococcus abaii* (Danzig, 1990) (Hemiptera: Eriococcidae) and *S. similata*. Our knowledge on the natural enemies of these pests is still limited. *Microdontomerus quadrimaculatus* may potentially play a role in a control of *S. similata*, as it was discovered for example for *Mesopolobus quadrimaculatus* Dzhanokmen (Hymenoptera: Pteromalidae), a parasitoid of *Stefaniola* spp. on *Haloxylon* spp., in China (Li et al. 2018). However, further investigation of efficiency of *M. quadrimaculatus* as a natural enemy of *S. similata* is needed.

About 27 species of chalcidoid species worldwide have been reported from Mantodea ootheca (Janšta et al. 2016; Noyes 2019; Mirzaee et al. 2021). Most of these species belongs to the subfamily Podagrioninae (Torymidae), highly specialized mantids´ parasitoids, where many species are still awaiting their description (Janšta, pers. observ.). However, association of *M. iriphagus* Lotfalizadeh & Janšta, sp. nov., as well as *M. iridis* (Janšta et al. 2016) (both Erimerinae) represent rather biological exceptions within their own clade, their morphology does not show any special adaptations to the hosts, and we do not expect that many species remain to be discovered.

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