

**TURKISH SPECIES OF *MICRODONTOMERUS*  
CRAWFORD, 1907 WITH DESCRIPTIONS OF NEW SPECIES  
(HYMENOPTERA: TORYIDAE: MICRODONTOMERINI),**

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**ABSTRACT:** Turkish species of *Microdontomerus* Crawford, 1907 (Hymenoptera: Torymidae), collected from several parts, were studied in the last 20 years. In order to find and identify the parasitoid species, an identification key for the 4 known species, *Microdontomerus annulata* Spinola, *M. guncukoyensis* Doğanlar, *M. direklinensis* Doğanlar, *M. altinekinesis* Doğanlar and for the 8 new species found by this work, *M. maculosacus* sp. nov., *M. kocakeri* sp. nov., *M. balikesirensis* sp. nov., *M. yigiti* sp. nov., *M. sivasensis* sp. nov., *M. ulukislanensis* sp. nov., *M. kayserinensis* sp. nov., and *M. erzurumensis* sp. nov. was provided. The new species were described, their diagnostic characters were illustrated and compared with the similar species of the genus.

**KEY WORDS:** *Microdontomerus* spp., Hymenoptera, Torymidae, Turkey

The genus *Microdontomerus* was described by Crawford (1907) having type species *Torymus anthonomi* Crawford (orig. desig. and monotypy). Grissell (1995) gave the synonyms of genus, and recorded 8 species all over the world, 4 of them as Nearctic, 2 as Palearctic, and 2 are Afrotropical species. Later, Grissell (2005) revised the Nearctic species, and described 15 new species and Doğanlar (20016) revised the Turkish species, and described 3 new species and the known species, *M. annulata* Spinola. Diagnostic characters, host records and distributions of the known species were given by Grissell (1995, 2005), Noyes (2015) and Doğanlar (2016 a,b).

By this work 8 more new species were found, described and a new identification key for the Turkish species was provided.

### **MATERIAL AND METHOD**

This study is based upon examination and identification of the specimens collected from some parts of Turkey in the last 20 years. The examined specimens and types of the new species were deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Specimens were collected by sweeping net and putting the whole contents of the swept materials directly in 96 % ethanol. After sorting the material, individuals were mounted on cards for further morphological studies. The species were identified by following the keys of Grissell (1995; 2005), Zerova & Seryogina (1991, 1999) and Doğanlar (2016b). Wings and antennae of holotypes of the new species were slide-mounted in Canada balsam. Photographs of diagnostic characters of the genera were taken by using of Leica DM 500 microscopes with a digital Leica ICC 50 camera attached to it.

Terminology and abbreviations

Morphological terminology follows Gibson (1997), and terminology of hypopygia was taken from Doğanlar (2016). Abbreviations used in the key and

descriptions are: OOL= shorter distance between ocello-ocular line, POL= distance between posterior ocelli, F1-6 = funicular segments.

## RESULTS AND DISCUSSION

### Key to the Turkish species of *Microdontomerus* (female)

- 1- Ovipositor sheaths (Fig. 1a) 2.62x length of metasoma, and 1.2x as long as body; Antenna (Fig. 1c) with pedicel plus flagellum 2.74x length of scape, the latter equal to pedicel plus anellus and F1+F3; pedicel 1.33x longer than wide; anellus almost 2.5x as wide as long; flagellum filiform, funicular segments in equal size, 1.33x as wide as long, club 1.5x wider than F7, and 1.58x as long as wide. Body (Fig. 1a) blue-violet, with green reflexion; scape and pedicel blue, flagellum brown; coxae and femora concolorous with body, excepts apical tip of hind femora, tibiae, and tarsi yellow, hind tibiae with testaceous flack medially, in 2/5 length of tibiae. Mesonotum (Fig. 1d) finely reticulated, parapsidal groves deep; propodeum (Fig. 1e) with fine carina, finely reticulated; forewing (Fig. 1f) with marginal vein 2.03x as long as post marginal vein, and 4.06x stigmal vein; post marginal vein 2x as long as stigmal vein. Hind femora (Fig. 1b) without tooth at the apex, 3.0x as long as width. Ovipositor index: 3.63.....*M. maculosacus* sp. nov.  
 -- Ovipositor sheaths at most 2x length of metasoma.....2
- 2- Ovipositor sheaths 2x length of metasoma (Figs. 2, 3a).....3  
 -- Ovipositor sheaths at most 1.7x as long as metasoma (Figs. 4-6a).....4
- 3- Antenna (Fig. 2c) with pedicel plus flagellum 2.8x length of scape; with scape equal to pedicel plus anellus and F1+F2; pedicel 1.5x longer than wide; anellus almost 3x as wide as long; funicular segments F1-F2 distinctly quadrate, F3-F7 almost quadrate, towards apex slightly broader and shorter, F7 1.1x as wide as F1; club 1.7x as long as wide. Body (Fig. 2a) blue-violet; scape and pedicel blue, coxae, femora and fore and mid tibiae dark blue-green, hind tibiae in basal half and tarsi pale yellow; Mesonotum (Fig. 2d) finely reticulated, parapsidal groves shallow; propodeum with fine carina, finely reticulated; forewing (Fig. 2f) with marginal vein 2.33x as long as post marginal vein, and 4.7x stigmal vein; post marginal vein 2x as long as stigmal vein. Hind femora with indistinct tooth at the apex, 3.64-3.75x as long as width. Ovipositor sheaths (Fig. 2a) 2x length of metasoma, and almost equal (0.96x) to the length of the body; Ovipositor index: 3.33-3.43.....*M. annulata* Spinola  
 -- Antenna (Fig. 3c) pedicel plus flagellum 2.3x length of scape; with scape equal to pedicel plus first 4 flagellar segments; pedicel slightly longer than wide (7:6); anellus slightly transverse (5:3); funicular segments distinctly transverse, gradually widening apically, F7 1.3x as wide as F1; club 1.4x as long as wide. Body (Fig. 3a) blue-green, scape blue, basally yellow and pedicel blue, coxae and femora dark blue-green, tibiae and tarsi pale yellow; Mesonotum (Fig. 3d) transversally striated, parapsidal groves deep; propodeum (Fig. 3e) without median carinae, smooth; forewing (Fig. 3f) with marginal vein 3.1x as long as post marginal vein, and 7.7x stigmal vein; post marginal vein 1.5x as long as stigmal vein; Hind femora (Fig. 3b) 3.14x as long as width. Ovipositor sheaths (Fig. 3a) 2x length of metasoma, and almost equal to the length of the mesosoma and metasoma combined. Ovipositor index: 3.34.....*M. kocakeri* sp. nov.
- 4- Ovipositor sheaths (Figs. 4, 5a) equal 1.7x as long as metasoma, femora and tibiae metallic blue, tarsi yellow.....5  
 -- Ovipositor sheaths at most equal 1.12x length of metasoma (Fig. 6, 7a); color of femora and tibiae variable.....6
- 5- Ovipositor sheaths (Fig. 4a) equal to total length of the metasoma and half of mesosoma, and equal 1.7x as long as metasoma. Scape, pedicel, tibiae metallic blue, tarsi yellow. Antenna (Fig. 4c) with scape equal to pedicel plus anellus and first 2 flagellar segments; pedicel 1.6x as long as width; anellus 2.33x as wide as long; funicular segments distinctly transverse, with sparse longitudinal sensillae (2-5); gradually widening apically, F7 1.54x as wide as F1; F1-F7 in same length, distinctly transverse; F1 1.57; F2 2x; F3-F5 2.33x; F6 2.66x

as wide as long; F7 2.83x as wide as long; club 1.23x as wide as F7, 1.66x as long as wide; Forewing (Fig. 4f) with marginal vein 3.57x as long as post marginal vein, and 6.25x stigmal vein; post marginal vein 1.75x as long as stigmal vein. Ovipositor index 3.45.....

.....*M. yigiti* sp. nov.

-- Ovipositor sheaths (Fig. 5a) equal to total length of the metasoma and mesosoma, and equal 1.7x as long as metasoma. Scape, pedicel, femora and tibiae metallic blue, tarsi yellow. Antenna (Fig. 5c) with scape equal to pedicel plus anellus and F1+F2 and 2/3 F3; pedicel 2x as long as width; anellus 1.66x as wide as long; funicular segments with F1 quadrate, F2-F7 in same length, slightly transverse with sparse longitudinal sensillae (2-5); gradually and slightly widening apically, F7 1.43x as wide as F1; and as wide as long; club as wide as F7, 2x as long as wide; Forewing (Fig. 5f) with marginal vein 1.9x as long as post marginal vein, and 3.4x stigmal vein; post marginal vein 1.8x as long as stigmal vein. Ovipositor index 3.8.....

.....*M. balikesirensis* sp. nov.

6- Ovipositor sheaths (Figs. 6-8a) about as long as metasoma.....7

-- Ovipositor sheaths (Figs. 9-12a) at most 0.8x length of metasoma.....9

7- Scape (Fig. 6c) equal to pedicel plus anellus and F1+F2 combined; ovipositor (Fig. 3a) almost equal to lengths of metasoma (0.95x), Ovipositor index: 1.55. Forewing (Fig. 6f) with marginal vein 7.2x stigmal vein 3.6x as long as post marginal vein; the latter 2x as long as stigmal vein. Antenna (Fig. 6c) pedicel plus flagellum 3.0x length of scape; pedicel 1.5x longer than wide; anellus about 1.67x wider than long; funicular segments distinctly transverse, slightly widening towards tip, F7 1.36x as wide as F1; club 2.7x as long as wide; Body (Fig. 6a) blue-green, antenna and legs concolorous with body, except tarsi yellow. Hind femora (Fig. 6 b) 3.9x as long as wide.....

.....*M. sivasensis* sp. nov.

-- Scape equal to pedicel plus anellus and F1+F3 combined; ovipositor sheaths (Fig. 7a) about 1.12x length of metasoma.....8

8- Ovipositor sheaths (Fig. 7a) about 1.12x length of metasoma, ovipositor index 2.04. Fore wing (Fig. 7e) with marginal vein about 6.14x stigmal vein, 3.1x post marginal vein; the latter 2x as long as stigmal vein. Stigmal vein (Fig. 4e) very long, stigma broad; antenna (Fig. 7c) pedicel plus flagellum 2.75x length of scape; pedicel 1.3x longer than wide; anellus about 2.0x wider than long; F1 as long as F2, 1.71x as wide as long; funicular segments transverse, about twice as wide as long; distinctly widening towards tip, F7 1.64x as wide as F1; club 1.6x as long as wide; Mesosoma (Fig. 7d) finely wrinkled, scutellum with deep pits, propodeum (Fig. 7e) with fine striae. Head and mesosoma black, with greenish reflexion; scape and pedicel and legs concolorous with body, except both tips of femora and tibiae and tarsi yellow; metasoma brown, except ovipositor sheaths testaceous; fore wing veins yellow. hind femora (Fig. 7b) 4.1x as long as width.....

.....*M. ulukislanensis* sp. nov.

-- Ovipositor sheaths (Fig. 8a) about 1.12x length of metasoma, ovipositor index 1.66.; forewing (Fig. 8e) with marginal vein about 2.33x stigmal vein, 1.25x post marginal vein; the latter 1.5x as long as stigmal vein. Stigmal vein very long, stigma small; antenna (Fig. 8c) with pedicel plus flagellum 2.66x length of scape; pedicel 2.3x longer than wide; anellus about 3.0x wider than long; F1 distinctly shorter than F2, 1.75x as wide as long; funicular segments transverse, about twice as wide as long; filiform, F7 1.2x as wide as F1; club 1.6x as long as wide; Body (Fig. 8a) with head and mesosoma black, with greenish reflexion; antenna yellow; coxae concolorous with body, femora yellow, except dorsally brown with greenish reflexion; tibiae and tarsi yellow; metasoma brown, except basally testaceous; fore wing veins yellow. Mesosoma (Fig. 8d) finely reticulated, hind femora (Fig. 8f) 3.0x as long as width.....

.....*M. gureukoyensis* Doğanlar

9- Ovipositor sheaths (Fig. 9a) 0.42x as long as metasoma, ovipositor index 1.3; forewing (Fig. 9f) with costal cell 1.8x marginal vein; marginal vein about 3x stigmal vein, 1.44x post marginal vein; stigmal vein almost fused with stigma; scutellum (Fig. 9e) finely reticulated, with sparse punctures; antenna (Fig. 9c) attached at level of ventral edge of eyes; pedicel plus flagellum 2.95x length of scape; F1 equal size to F2; hind femora 3.0x as long as width.....

.....*M. direklinensis* Doğanlar

-- Ovipositor sheaths at least equal 0.64x lengths of metasoma. (Fig. 10-12a).....10

10- Ovipositor sheaths (Fig. 10a) equal 0.64x lengths of metasoma. Ovipositor index: 1.2. Mesonotum (Fig. 10d) finely wrinkled, between them with fine reticulation; with parapsidal groove deep; propodeum (Fig. 10e) without carina, finely, longitudinally reticulated basally with shallow foveae; spicula wide apart from metanotum by half diameter of speculum. Forewing (Fig. 10f) with marginal vein 2.53x as long as post marginal vein, and 5.33x stigmal vein; post marginal vein 2.1x as long as stigmal vein, the latter long, stigma broad, with long spicula. Body (Fig. 10a) green with golden reflection, scape, pedicel concolorous with body, flagellum brown; legs concolorous with body, except tips of tibiae, and tarsi yellow. Antenna (Fig. 10c) pedicel plus flagellum 3x length of scape; with scape slightly shorter than pedicel plus anellus and F1+F3 combined; pedicel 2x longer than wide; anellus 2x wider than long; funicular segments distinctly transverse, F1 1.5x, F2 1.57x; F3-F7 slightly widening towards tip, F7 2.28x as wide as long ; F7 1.67x as wide as F1; club 1.13x wider than F7, 1.65x as long as wide; hind femora (Fig. 10b) 4.1x as long as width.....

.....*M. kayserinensis* sp. nov.  
-- Ovipositor sheaths about equal 0.75-0.77x length of metasoma (Figs. 10-11a).....11

11-- Ovipositor sheaths (Fig. 10a) about equal 0.75x lengths of metasoma; ovipositor index 1.53. Forewing (Fig. 11e) with marginal vein 3.6x post marginal vein, and 5.0x stigmal vein; post marginal vein 2.7x as long as stigmal vein. Antenna (Fig. 11b) with pedicel plus flagellum 2.5x length of scape; the latter equal to pedicel plus anellus and F1-F3 combined; pedicel 1.7x longer than wide; anellus 1.5x wider than long; F1 almost equal size to F7; club 1.7x as long as wide; Body (Fig. 11a) black, with coppery-green reflexion, antenna yellow, Mesonotum finely reticulated, and scutellum (Fig. 11d) with dense, deep punctures; propodeum smooth; hind femora (Fig. 11f) 2.7x as long as width.....

.....*M. altinekensis* Doğanlar  
-- Ovipositor sheaths (Fig. 12a) about equal 0.77x lengths of metasoma; ovipositor index 1.45. Forewing (Fig. 12f) with marginal vein 1.82x post marginal vein, and 2.6x stigmal vein; post marginal vein 1.43x as long as stigmal vein. Antenna (Fig. 12c) with pedicel plus flagellum 3.33x length of scape; the latter equal to pedicel plus anellus and F1-F2 combined; pedicel 1.57x longer than wide; anellus 2x wider than long; F1 slightly transverse (8/7); F2-F4 almost in equal size, 1.43x, and F5-F7 almost in equal size, 1.57x as wide as long; club distinctly wider than F7, 1.22x as wide as F7, and 1.7x as long as wide; Body (Fig. 12a) black, with coppery-green reflexion, antenna with scape and pedicel bronze green, flagellum dark brown. Mesonotum and scutellum (Fig. 12d) finely, transversally reticulated; propodeum (Fig. 12e) with short median and submedian carinae, finely reticulated; hind femora (Fig. 12b) 4.8x as long as width.....*M. erzurumensis* sp. nov.

### ***Microdontomerus maculosacus* sp. nov.**

(Figs. 1a-g)

**Etymology.** The name is derived from the name of host plant from which the holotype was collected.

**Diagnosis.** Ovipositor sheaths 2.62x length of metasoma, and 1.2x as long as body. Antenna with pedicel plus flagellum 2.74x length of scape, the latter equal to pedicel plus anellus and F1+F3; pedicel 1.33x longer than wide; anellus almost 2.5x as wide as long; flagellum filiform, funicular segments in equal size, 1.33x as wide as long, club 1.5x wider than F7, and 1.58x as long as wide. Body blue-violet, with green reflexion; scape and pedicel blue, flagellum brown; coxae and femora concolorous with body, excepts apical tip of hind femora, tibiae, and tarsi yellow, hind tibiae with testaceous flack medially, in 2/5 length of tibiae. Mesonotum finely reticulated, parapsidal groves deep; propodeum with fine carina, finely reticulated; forewing with marginal vein 2.03x as long as post marginal vein, and 4.06x stigmal vein; post marginal vein 2x as long as stigmal vein. Hind femora without tooth at the apex, 3.0x as long as width.. Ovipositor index: 3.63.

#### **Description:**

**Female.** Body (Fig. 1a) blue-violet, with green reflexion; scape and pedicel blue, flagellum brown; coxae and femora concolorous with body, excepts apical tip of

hind femora, tibiae, and tarsi yellow, hind tibiae with testaceous flack medially, in 2/5 length of tibiae; wings hyaline, veins yellow. Ovipositor testaceous. Length 3.25 mm + ovipositor 3.75 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 57:20; POL 4.25 OOL; OOL equal diameter lateral ocellus. Head in frontal view slightly wider than high in ratio 57:52; dorsal margin of torulus at level of lower orbit; malar space consists 0.3x high of eye. Face with fine reticulation. Antenna (Fig. 1c) with pedicel plus flagellum 2.74x length of scape, the latter equal to pedicel plus anellus and F1+F3; pedicel 1.33x longer than wide; anellus almost 2.5x as wide as long; flagellum filiform, funicular segments in equal size, having two rows of dense linear sensillae, 1.33x as wide as long, club 1.5x wider than F7, and 1.58x as long as wide.

**Mesosoma** (Fig. 1a) slightly bulged in profile, propodeum slightly visible dorsally; Mesonotum finely reticulated, parapsidal groves deep; propodeum with fine carina, finely reticulated; forewing with marginal vein 2.03x as long as post marginal vein, and 4.06x stigmal vein; post marginal vein 2x as long as stigmal vein. Hind femora without tooth at the apex, 3.0x as long as width.

**Metasoma** (Fig. 1a) excluding ovipositor slightly shorter than rest of body; tergites with posterior margin distinctly incised medially; tip of hypopygium at 0.65 metasoma length. Ovipositor sheaths 2.62x length of metasoma, and 1.2x as long as body. Ovipositor index: 3.63.

**Male.** Similar to female except antenna (Fig. 1g) long dense setae; with pedicel plus flagellum 4.24x length of scape, the latter equal to pedicel plus anellus and F1+1/3 F2; pedicel 1.2x longer than wide; anellus almost 5x as wide as long; flagellum filiform, funicular segments in equal size, almost quadrate, club as wide as F7, and 2.06x as long as wide.

**Material examined: Holotype** ♀, Turkey: Tokat, Fidanlık, 25.8.1989, reared from seed capsules of *Centauria maculosa* L. leg. H. Çam. **Paratype:** Tokat, Gümenek, 14.vi. 1989, swept from pasture, leg. H. Çam,. All of the types were deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Tokat.

**Host:** Reared from seed capsules of *Centauria maculosa* L.

**Comments:** Female: *Microdontomerus maculosacus* sp. nov. is similar to *M. annulata* (Spinola) and *M. kocakeri* sp. nov. in having long ovipositor sheaths. But it differs from both of them in having ovipositor sheaths 2.62x length of metasoma, and longer than body (1.2x) (in both species ovipositor sheaths shorter than body, and at most 2x as long as metasoma).

### ***Microdontomerus annulata* (Spinola, 1808)**

(Figs. 2a-g)

*Diplolepis annulata* Spinola, 1808: 215. Neotype female, designated by Graham (1994: 99), Lago di Bolsena, Italy, (BMNH).

**Synonyms, hosts and distribution:** given by Noyes (2015).

**Taxonomy.** The generic placement of this species was discussed by Grissell (1995), and Graham (1994) discussed its taxonomy and synonyms. Zerova & Seryogina (1999) redescribed and figured the species from several parts of Ukraine and Russia. Doğanlar (2016) gave its diagnostic characters from Turkish specimens, and its distribution in Turkey, such as Erzurum, Gaziantep, Oğuzeli, Sekili.

**Diagnosis.** Female. Antenna (Fig. 2c) pedicel plus flagellum 2.8x length of scape; with scape equal to pedicel plus anellus and F1-F3; pedicel 1.5x longer than

wide; anellus almost 3x as wide as long; funicular segments F1-F2 distinctly quadrate, F3-F7 almost quadrate, towards apex slightly broader and shorter, F7 1.1x as wide as F1; club 1.7x as long as wide. Body (Fig. 2a) blue-violet; scape and pedicel blue, coxae, femora and fore and mid tibiae dark blue-green, hind tibiae in basal half and tarsi pale yellow; Mesonotum (Fig. 2d) finely reticulated, parapsidal groves shallow; propodeum (Fig. 2e) with fine carina, finely reticulated; forewing (Fig. 2f) with marginal vein 2.2x as long as post marginal vein, and 4.1x stigmal vein; post marginal vein 1.9x as long as stigmal vein. Hind femora with indistinct tooth at the apex, 3.64-3.75x as long as width Ovipositor sheaths (Fig. 2a) 2x length of metasoma, and almost equal (0.96x) to the length of the body. Ovipositor index: 3.33-3.43.

#### **Description:**

**Male.** Similar to female, excepts antenna (Fig. 2g) pedicel plus flagellum 2.55x length of scape; pedicel 1.22x longer than wide; anellus almost 2x as wide as long; funicular segments almost in equal size, F1-F7 distinctly transverse, 1.33-1.44x as wide as long, club 2x as long as wide.

**Material examined:** Turkey: Erzurum, 20.vi.1973, leg. M. Doğanlar, 1 ♀; Erzurum, 25.ix.1979, reared from seed capsules of *Carthamus* sp., leg. M. Doğanlar, 3 ♀♀; Tokat, 11.v.1986, leg. H. Çam, 1 ♂; 4.vi.1986, leg. H. Çam, 1 ♀; 25.vii.1986, leg. H. Çam, 1 ♀; 29.viii.1986, leg. H. Çam, 1 ♀; 15.ix.1986, leg. H. Çam, 1 ♀; Tokat, Taşçıflık, 02.v.1989, leg. H. Çam, 1 ♀; 28.vii.1989, leg. H. Çam, 2 ♂♂; 24.viii.1989, leg. H. Çam, 1 ♀; Tokat, Fidanlık, 16.viii.1989, reared from seed capsules of *Centauria* sp., leg. H. Çam, 1 ♀, 1 ♂; Tokat, Zile, 26.v.1989, leg. H. Çam, 1 ♀; Tokat, Necip, 11.v.1989, leg. H. Çam, 1 ♀, 1 ♂; Sivas, Çermik, 06.vi.1992, Leg. L. Gençer, 1 ♂; İzmir, Seferihisar, 21.v.1987, leg. H. Çam, 1 ♀; Burdur, 10.viii.1993, leg. M. Doğanlar, 1 ♂; Antalya, Saklıkent, 21.v.1989, leg. M. Doğanlar, 1♀, 1♂; Hatay, Antakya, MKÜ Campus, 05-09.vii.2004, reared from head of *Echinops* sp., leg. M. Doğanlar, 5 ♂♂; Hatay, Belen, Kömürçukuru, 24.iv.2008, reared from cecidomyiid gall on stems of *Ferula communis* L., leg. M. Doğanlar, 1♀, 1♂; Hatay, Reyhanlı, Atçana, 5.v. 2005, swept from pasture, leg. M. Doğanlar, 1 ♀; Şanlıurfa, Akçakale, Bakacak, 26.iv.2008, swept from pasture, leg. M. Doğanlar, 1 ♂; Gaziantep, Oğuzeli, Sekili, 02.v.2010, swept from pasture, leg. M. Doğanlar, 1 ♀; Keçikuyusu, 13.v.2011, swept from pasture, leg. M. Doğanlar, 1 ♀; Ağrı, Tutak, 17.viii.2010, swept from pasture, leg. M. Doğanlar, 1 ♀; Adana, Aladağ, 16.vii.2001, swept from pasture, leg. M. Doğanlar, 1 ♂. All of the specimens were deposited in IMBC.

**Distribution:** Turkey: Erzurum, Tokat, Sivas, İzmir, Burdur, Antalya, Hatay, Şanlıurfa, Gaziantep, Ağrı, Adana.

**Host:** Reared from cecidomyiid gall on stems of *Ferula communis* L.; reared from head of *Echinops* sp.; reared from seed capsules of *Centauria* sp.; reared from seed capsules of *Carthamus* sp.

#### ***Microdontomerus kocakeri* sp. nov.**

(Figs. 3 a-g)

**Etymology.** The name is derived from the name of my friend, Mr. Seyit Koçaker who helped me during collection of the specimens.

**Diagnosis.** Body blue-green with violet reflexion, scape blue, basally yellow, tibiae and tarsi pale yellow, coxae and femora dark blue-green, tibiae and tarsi yellow; Mesonotum with Parapsidal groves deep; Propodeum without median

carinae; antenna with scape equal to pedicel plus first four flagellar segments; pedicel slightly longer than wide (7:6); anellus slightly transverse (5:3); funicular segments distinctly transverse, gradually widening apically, F7 1.3x as wide as F1; club broad, 1.4x as long as wide; forewing with marginal vein 3.1x as long as post marginal vein, and 7.7x stigmal vein; post marginal vein 1.5x as long as stigmal vein. Ovipositor equal 1.8x to the length of the metasoma. Ovipositor index: 3.34. Hind femora with indistinct tooth at the apex.

**Description:**

**Female.** Body (Fig. 3a) blue-green with violet reflexion, scape blue, basally yellow, tibiae and tarsi pale yellow, coxae and femora (Fig. 3b) dark blue-green, tibiae and tarsi yellow; wings hyaline, veins yellow. Ovipositor dark brown. Length 2.12 mm + ovipositor 1.8 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 36:15; POL 2.8 OOL; OOL 1.5x diameter lateral ocellus. Head in frontal view slightly wider than high in ratio 58:53; dorsal margin of torulus at level of lower orbit; malar space consists 0.5x height of eye. Face with fine reticulation. Antenna (Fig. 3c) with scape equal to pedicel plus first four flagellar segments; pedicel slightly longer than wide (7:6); anellus slightly transverse (5:3); funicular segments distinctly transverse, gradually widening apically, F7 1.3x as wide as F1; club broad, 1.4x as long as wide.

**Mesosoma** (Fig. 3a) bulged in profile, propodeum slightly visible dorsally; sculpture of mesoscutum and scutellum (Fig. 3d) horizontally striated; pronotum 0.24x as long as mesoscutum; propodeum (Fig. 3e) with long, fine striae, with anteriorly 3 deep foveae, spiracle touching metasoma. All coxae reticulated. Forewing (Fig. 3f) with marginal vein 3.1x as long as post marginal vein, and 7.7x stigmal vein; post marginal vein 1.5x as long as stigmal vein. Hind femora 3.14x as long as width.

**Metasoma** (Fig. 3a) excluding ovipositor slightly shorter than rest of body; basal 3 tergites with posterior margin distinctly incised medially; tip of hypopygium at 0.7 metasoma length. Ovipositor equal 1.8x to the length of the metasoma. Ovipositor index: 3.34.

**Male.** Unknown.

**Material examined: Holotype** ♀, Turkey: Tokat, Gürcüköy, 27.8.1986, swept from pasture, leg. H. Çam. **Paratypes:** Niğde, Ulukışla, Maden, 11.vi. 2006, leg. M. Doğanlar, swept from leaves of *Prunus cerasi* L. 1 ♀; Adana, Yumurtalık, 21.viii. 1982, swept from *Centauria siberica* L., leg. M. Doğanlar, 1 ♀. All of the types were deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Adana, Tokat, Sivas, Niğde.

**Host:** Swept from *Centauria siberica* L.; swept from leaves of *Prunus cerasi* L.

**Comments:** Female: *Microdontomerus kocakeri* sp. nov. is similar to *M. annulata* (Spinola) in having ovipositor sheaths 2x length of metasoma. But it differs from *M. annulata* in having Antenna with scape equal to pedicel plus first 4 flagellar segments; pedicel slightly longer than wide (7:6); anellus slightly transverse (5:3); funicular segments distinctly transverse, gradually widening apically, F7 1.3x as wide as F1; club 1.4x as long as wide. Legs with tibiae pale yellow; Mesonotum transversally striated, parapsidal grooves deep; propodeum without median carinae, smooth; forewing with marginal vein 3.1x as long as post marginal vein, and 7.7x stigmal vein; post marginal vein 1.5x as long as stigmal vein. (in *M. annulata* antenna with scape equal to pedicel plus first 3 flagellar segments; pedicel 1.5x longer than wide; anellus almost 3x as wide as long; funicular segments F1-F2 distinctly quadrate, F3-F7 almost quadrate, towards

apex slightly broader and shorter, F7 1.1x as wide as F1; club 1.7x as long as wide. Legs with hind tibiae in basal half pale yellow; Mesonotum finely reticulated, parapsidal groves shallow; propodeum with fine carina, finely reticulated; forewing with marginal vein 2.2x as long as post marginal vein, and 4.1x stigmal vein; post marginal vein 1.9x as long as stigmal vein).

***Microdontomerus yigiti* sp. nov.**

(Figs. 4a-f)

**Etymology.** The name is derived from the name of my friend, Prof. Dr. Abdurrahman Yiğit who help me during my collection.

**Diagnosis.** Hind femora without tooth; scape, pedicel, tibiae metallic blue, tarsi yellow; hind coxa without dorsal sensillae; POL 2.3x OOL. Antenna with scape equal to pedicel plus anellus and first 2 flagellar segments; pedicel 1.6x as long as width; anellus 2.33x as wide as long; funicular segments distinctly transverse, with sparse longitudinal sensillae (2-5); gradually widening apically, F7 1.54x as wide as F1; F1-F7 in same length, distinctly transverse; F1 1.57; F2 2x; F3-F5 2.33x; F6 2.66x as wide as long; F7 2.83x as wide as long; club 1.23x as wide as F7, 1.66x as long as wide; Forewing with marginal vein 3.57x as long as post marginal vein, and 6.25x stigmal vein; post marginal vein 1.75x as long as stigmal vein. Ovipositor index 3.45.

**Description:**

**Female.** Body (Fig. 4a) blue-green with metallic reflexion, scape, pedicel, tibiae metallic blue, coxae and femora (Fig. 4b) dark blue-green, tarsi yellow; wings hyaline, veins yellow. Ovipositor yellow. Length 1.62 mm + ovipositor 1.12 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 55:15; POL 2.3 OOL; OOL 1.66x diameter lateral ocellus. Head in frontal view slightly wider than high in ratio 55:53; dorsal margin of torulus at level of lower orbit; malar space consists 0.3x high of eye. Face with fine reticulation. Antenna (Fig. 4c) with scape equal to pedicel plus anellus and first 2 flagellar segments; pedicel 1.6x as long as width; anellus 2.33x as wide as long; funicular segments distinctly transverse, with sparse longitudinal sensillae (2-5); gradually widening apically, F7 1.54x as wide as F1; F1-F7 in same length, distinctly transverse; F1 1.57; F2 2x; F3-F5 2.33x; F6 2.66x as wide as long; F7 2.83x as wide as long; club 1.23x as wide as F7, 1.66x as long as wide.

**Mesosoma** (Fig. 4a) slightly bulged in profile, propodeum distinctly visible dorsally; mesoscutum and scutellum (Fig. 4d) finely striated with fine reticulation. All coxae reticulated. Forewing (Fig. 4e) with marginal vein 3.57x as long as post marginal vein, and 6.25x stigmal vein; post marginal vein 1.75x as long as stigmal vein.

**Metasoma** (Fig. 4a) excluding ovipositor 0.65x as long as rest of body; basal 3 tergites with posterior margin distinctly incised medially; tip of hypopygium at 0.82 metasoma length. Hind femora without tooth at the apex, 3.33x as long as width. ovipositor sheaths equal to total length of the metasoma and half of mesosoma, and equal 1.67x as long as metasoma. Ovipositor index: 3.45.

**Male.** Similar to female excepts as follows: antenna (Fig. 4 g) with scape equal to pedicel plus anellus and F1+1/3 F2; pedicel 1.4x as long as width; gradually widening apically, F7 1.36x as wide as F1; F1-F7 in same length, distinctly transverse; F1 1.37; F2-F5 1.5x; F6-F7 1.75x as wide as long; club 1.29x as wide as F7, 1.66x as long as wide.

**Material examined:** **Holotype** ♀, Turkey: Sivas, Kampus 12.v.1992,

**Paratypes:** 7 ♂♂, same data as holotype; Sivas, Tuzlugöl, 13.viii. 1992, leg. L.



Gençer, 1 ♀. All of the types deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Sivas.

**Host:** Unknown.

**Comments:** Female: *Microdontomerus yigiti* sp. nov. is similar to *M. balikesirensis* sp. nov. in having ovipositor sheaths equal to 1.7x as long as metasoma. But it differs from *M. balikesirensis* sp. nov. by having malar space consists 0.3x height of eye; antenna with scape equal to pedicel plus anellus and first 2 flagellar segments; pedicel 1.6x as long as width; anellus 2.33x as wide as long; funicular segments distinctly transverse, with sparse longitudinal sensillae (2-5); gradually widening apically, F7 1.54x as wide as F1; F1-F7 in same length, distinctly transverse; F1 1.57; F2 2x; F3-F5 2.33x; F6 2.66x as wide as long; F7 2.83x as wide as long; club 1.23x as wide as F7, 1.66x as long as wide; forewing with marginal vein 3.57x as long as post marginal vein, and 6.25x stigmal vein; post marginal vein 1.75x as long as stigmal vein (in *M. balikesirensis* sp. nov. malar space consists 0.57x height of eye; antenna with scape equal to pedicel plus anellus and F1+F2 and 2/3 F3; pedicel 2x as long as width; anellus 1.66x as wide as long; funicular segments with F1 quadrate, F2-F7 in same length, slightly transverse with sparse longitudinal sensillae (2-5); gradually and slightly widening apically, F7 1.43x as wide as F1; and as wide as long; club as wide as F7, 2x as long as wide; forewing with marginal vein 1.9x as long as post marginal vein, and 3.4x stigmal vein; post marginal vein 1.8x as long as stigmal vein).

### *Microdontomerus balikesirensis* sp. nov.

(Figs. 5a-f)

**Etymology.** The name is derived from the name of the place from which the holotype was collected.

**Diagnosis.** Ovipositor sheaths equal to total length of the metasoma and mesosoma, and equal 1.7x as long as metasoma. Scape, pedicel, femora and tibiae metallic blue, tarsi yellow; antenna with scape equal to pedicel plus anellus and F1+F2 and 2/3 F3; pedicel 2x as long as width; anellus 1.66x as wide as long; funicular segments with F1 quadrate, F2-F7 in same length, slightly transverse with sparse longitudinal sensillae (2-5); gradually and slightly widening apically, F7 1.43x as wide as F1; and as wide as long; club as wide as F7, 2x as long as wide; Forewing with marginal vein 1.9x as long as post marginal vein, and 3.4x stigmal vein; post marginal vein 1.8x as long as stigmal vein. Ovipositor index 3.8.

#### **Description:**

**Female.** Body (Fig. 5a) bronze with metallic blue reflection, scape, pedicel metallic blue, coxae and femora (Fig. 5b) concolorous with body, tarsi yellow; wings hyaline, veins yellow. Ovipositor brown. Length 4.58 mm + ovipositor 3.12 mm.

**Head** in dorsal view slightly wider than mesoscutum, width to length 65:34; POL 2.8 OOL; OOL equal diameter lateral ocellus. Head in frontal view slightly wider than high in ratio 65:60; dorsal margin of torulus above level of lower orbit; malar space consists 0.57x height of eye. Face with fine reticulation. Antenna (Fig. 5c) with scape equal to pedicel plus anellus and F1+F2 and 2/3 F3; pedicel 2x as long as width; anellus 1.66x as wide as long; funicular segments with F1 quadrate, F2-F7 in same length, slightly transverse with sparse longitudinal sensillae (2-5); gradually and slightly widening apically, F7 1.43x as wide as F1; and as wide as long; club as wide as F7, 2x as long as wide.

**Mesosoma** (Fig. 4a) distinctly bulged in profile, propodeum slightly visible dorsally; mesoscutum and scutellum (Fig. 5d) with fine reticulation. All coxae

reticulated. Forewing (Fig. 5f) with marginal vein 1.9x as long as post marginal vein, and 3.4x stigmal vein; post marginal vein 1.8x as long as stigmal vein.

**Metasoma** (Fig. 5a) excluding ovipositor as long as rest of body; basal 4 tergites with posterior margin distinctly incised medially; tip of hypopygium at 0.71 metasoma length. Hind femora without tooth at the apex, 3.75x as long as width. Ovipositor sheaths (Fig. 5a) equal to total length of the metasoma and mesosoma, and equal 1.7x as long as metasoma Ovipositor index 3.8.

**Male.** Unknown.

**Material examined: Holotype** ♀, Turkey: Balıkesir, 17.viii.2005, swept from leaves of *Olea europae*, leg. B. Hepdurgun, deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Balıkesir.

**Host:** Unknown.

**Comments:** Female: *Microdontomerus balikesirensis* sp. nov. is similar to *M. yigiti* sp. nov.. The discussion was given above.

### ***Microdontomerus sivasensis* sp. nov.**

(Figs. 6a-f)

**Etymology.** The name is derived from the name of the place from which the holotype was collected.

**Diagnosis.** Ovipositor almost equal to lengths of the metasoma; Antenna with scape equal to pedicel plus anellus and F1+F2 combined; pedicel 1.5x longer than wide; anellus about 1.67x wider than long; funicular segments with one row of dense sensillae (5-9), funicular segments distinctly transverse, slightly widening towards tip, F7 1.36x as wide as F1; club slightly wider than F7, 2.7x as long as wide; mesonotum with distinct fine reticulation; parapsidal groove shallow; propodeum without carina, medially smooth, laterally with fine reticulation, with some striae on anterior border; spiracle touching metanotum. forewing with marginal vein 3.6x as long as post marginal vein, and 7.2x stigmal vein; post marginal vein 2x as long as stigmal vein. Body blue-green. Ovipositor 0.95x as long as metasoma. Ovipositor index: 1.55. Hind femora with indistinct tooth, 3.9x as long as wide.

#### **Description:**

**Female.** Body (Fig. 6a) bronze with metallic green reflection, antennae with scape and pedicel metallic blue, flagellum brown; legs concolorous with body, except basal tip of tibiae, and tarsi yellow, except last segment of tarsi black (Fig. 6b); wing hyaline, veins brown. Length 2.5 mm + ovipositor 1.12 mm.

**Head** in dorsal view 1.16x as wide as mesoscutum, width to length 50:27; POL 2.85x OOL; OOL 1.17x diameter lateral ocellus. Head in frontal view distinctly wider than high in ratio 50:38; dorsal margin of torulus distinctly above level of lower orbit; malar space consists 0.3 height of eye; face with fine sculpture. Antenna (Fig. 6c) with scape equal to pedicel plus anellus and F1+F2; pedicel 1.55x longer than wide; anellus 1.6x wider than long; funicular segments with one row of sensillae, funicular segments distinctly transverse, distinctly widening towards tip, F7 1.12x as wide as F1; club 1.6x as long as wide.

**Mesosoma** (Fig. 6a) bulged in profile, propodeum visible dorsally; mesonotum and scutellum (Fig. 6d) with distinct fine reticulation; with parapsidal groove shallow; propodeum (Fig. 6e) without carina, medially smooth, laterally with fine reticulation, with some striae on anterior border; spiracle touching metanotum. forewing with marginal vein 3.6x as long as post marginal vein, and 7.2x stigmal vein; post marginal vein 2x as long as stigmal vein.

**Metasoma** (Fig. 6a) excluding ovipositor 0.82x rest of body; basal 3 tergite with posterior margin deeply incised medially; tip of hypopygium at 0.9x metasoma length; Ovipositor 0.95x as long as metasoma. Ovipositor index: 1.55. Hind femora with indistinct tooth., 3.9x as long as wide.

**Male.** Unknown.

**Material examined: Holotype**, ♀, Turkey: Sivas, Cumhuriyet Univ. Campus, 26.5.1992, swept from pasture, leg. L. Gençer. Paratypes: 1 ♀, same data as holotype, except 07.ix. 1992; Sivas, Kümbet, 26.vii.1990, swept from pasture, leg. L. Gençer, 1 ♀. All of the types were deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Sivas.

**Host:** Unknown.

**Comments:** Female: *Microdontomerus sivasensis* sp. nov. is similar to *M. ulukislanensis* sp. nov. and *M. gurcukoyensis* Doğanlar in having ovipositor sheaths about as long as metasoma. But it differs from both of them in having scape equal to pedicel plus anellus and F1+F2 combined; ovipositor almost equal to lengths of metasoma (0.95x) (in both species scape equal to pedicel plus anellus and F1+F3 combined; ovipositor sheaths about 1.12x length of metasoma).

### *Microdontomerus ulukislanensis* sp. nov.

(Figs. 7a-f)

**Etymology.** The name is derived from the name of the place from which the holotype was collected.

**Diagnosis.** Ovipositor sheaths about 1.12x length of metasoma, ovipositor index 2.04. Fore wing with marginal vein about 6.14x stigmal vein, 3.1x post marginal vein; the latter 2x as long as stigmal vein. Stigmal vein very long, stigma broad; antenna pedicel plus flagellum 2.75x length of scape; pedicel 1.3x longer than wide; anellus about 2.0x wider than long; F1 as long as F2, 1.71x as wide as long; funicular segments transverse, about twice as wide as long; distinctl widening towards tip, F7 1.64x as wide as F1; club 1.6x as long as wide; Mesosoma finely wrinkled, scutellum with deep pits, propodeum with fine striae. Head and mesosoma black, with greenish reflexion; scape and pedicel and legs concolorous with body, except both tips of femora and tibiae and tarsi yellow; metasoma brown, except ovipositor sheaths testaceous; fore wing veins yellow. hind femora 4.1x as long as width.

#### **Description:**

**Female.** Body (Fig. 7a) with head and mesosoma black, with greenish reflexion; scape and pedicel and legs concolorous with body, except both tips of femora and tibiae and tarsi yellow; metasoma brown, except ovipositor sheaths testaceous; fore wing veins yellow. Length 2.5 mm + ovipositor 1.13 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 55:13; POL 2.2x OOL; OOL 2.0 diameter lateral ocellus. Head in frontal view as wide as high, in ratio 55:53; dorsal margin of torulus distinctly above level of lower orbit; malar space consists 0.37 height of eye. face with fine sculpture. Antenna (Fig. 7c) pedicel plus flagellum 2.75x length of scape; pedicel 1.3x longer than wide; anellus about 2.0x wider than long; F1 as long as F2, 1.71x as wide as long; funicular segments transverse, about twice as wide as long; distinctl widening towards tip, F7 1.64x as wide as F1; club 1.6x as long as wide.

**Mesosoma** (Fig. 7a) slightly bulged in profile, propodeum slightly visible dorsally, Mesosoma (Fig. 7d) finely wrinkled, scutellum with deep pits, with parapsidal groove deep; propodeum (Fig. 7e) without carina, finely, longitudinally reticulated, spiracle touching metanotum. Fore wing (Fig. 7f) with marginal vein

about 6.14x stigmal vein, 3.1x post marginal vein; the latter 2x as long as stigmal vein. Stigmal vein (Fig. 7f) very long, stigma broad.

**Metasoma** (Fig. 7a) excluding ovipositor 0.85x rest of body; tip of hypopygium at 0.83 metasoma length; hind femora (Fig. 7b) 4.6x as long as width. Ovipositor equal 1.12x lengths of metasoma (Fig. 4a). Ovipositor index: 2.04.

**Male.** Unknown.

**Material examined:** Holotype ♀, Turkey: Niğde, Ulukışla, Maden, 11.vi. 2006, swept from leaf of *Prunus cerasi* L. leg. M. Doğanlar. Paratype: same data as the holotype, except 07.vi.2008, 1 ♀. All of the types were deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Niğde, Ulukışla, Maden.

**Host:** Unknown.

**Comments:** *Microdontomerus ulukislanensis* sp. nov. is similar to *M. gurcukoyensis* Doğanlar in having scape equal to pedicel plus anellus and F1+F3 combined; ovipositor sheaths about 1.12x length of metasoma. But it differs from *M. gurcukoyensis* by having ovipositor index 2.04, Fore wing with marginal vein about 6.14x stigmal vein, 3.1x post marginal vein; the latter 2x as long as stigmal vein, antenna with pedicel 1.3x longer than wide; anellus about 2.0x wider than long; F1 as long as F2; funicular segments distinctly widening towards tip, F7 1.64x as wide as F1; Head and mesosoma black, with greenish reflexion; scape and pedicel and legs concolorous with body, except both tips of femora and tibiae and tarsi yellow (in *M. gurcukoyensis* ovipositor index 1.66.; fore wing with marginal vein about 2.33x stigmal vein, 1.25x post marginal vein; the latter 1.5x as long as stigmal vein, antenna pedicel 2.3x longer than wide; anellus about 3.0x wider than long; F1 distinctly shorter than F2.; funicular segments filiform, F7 1.2x as wide as F1; head and mesosoma black, with greenish reflexion; antenna yellow; coxae concolorous with body, femora yellow, except dorsally brown with greenish reflexion; tibiae and tarsi yellow).

### ***Microdontomerus. gurcukoyensis* Doğanlar, 2016**

(Figs. 8a-f)

*Microdontomerus. gurcukoyensis* Doğanlar, 2016b: 509, 510. Holotype ♀, Tokat, Turkey (IMBC).

**Descriptions and distribution:** given by Doğanlar (2016b).

**Diagnosis.** Ovipositor sheaths (Fig. 8a) about 1.12x length of metasoma, ovipositor index 1.66.; forewing (Fig. 8e) with marginal vein about 2.33x stigmal vein, 1.25x post marginal vein; the latter 1.5x as long as stigmal vein. Stigmal vein very long, stigma small; antenna (Fig. 8c) with pedicel plus flagellum 2.66x length of scape; pedicel 2.3x longer than wide; anellus about 3.0x wider than long; F1 distinctly shorter than F2, 1.75x as wide as long; funicular segments transverse, about twice as wide as long; filiform, F7 1.2x as wide as F1; club 1.6x as long as wide; Body (Fig. 8a) with head and mesosoma black, with greenish reflexion; antenna yellow; coxae concolorous with body, femora yellow, except dorsally brown with greenish reflexion; tibiae and tarsi yellow; metasoma brown, except basally testaceous; fore wing veins yellow. Mesosoma (Fig. 8d) finely reticulated. Hind femora (Fig. 8f) 3.0x as long as width.

**Material studied:** Tokat, 15.vii.1986, swept from pasture, leg. H. Çam, 1 ♀, and the holotype.

***Microdontomerus direklinensis* Doğanlar, 2016**

(Figs. 9. a-f)

*Microdontomerus direklinensis* Doğanlar, 2016b: 512, 513. Holotype ♀, Gaziantep, Turkey (IMBC).

**Descriptions and distribution:** given by Doğanlar (2016b).

**Diagnosis.** Ovipositor (Fig. 9a) sheaths 0.42x as long as metasoma, ovipositor index 1.3; forewing (Fig. 9f) with costal cell 1.8x marginal vein; marginal vein about 3x stigmal vein, 1.44x post marginal vein; stigmal vein almost fused with stigma; scutellum (Fig. 9e) finely reticulated, with sparse punctures; antenna (Fig. 9c) attached at level of ventral edge of eyes; pedicel plus flagellum 2.95x length of scape; F1 equal size to F2; hind femora 3.0x as long as width.

**Material studied:** Tokat, holotype.

***Microdontomerus kayserinensis* sp. nov.**

(Figs. 10a-f)

**Etymology.** The name is derived from the name of the place from which the holotype was collected.

**Diagnosis.** Mesonotum finely wrinkled, between them with fine reticulation; with parapsidal groove deep; propodeum without carina, finely, longitudinally reticulated basally with shallow foveae; spicula wide apart from metanotum by half diameter of speculum. Forewing with marginal vein 2.53x as long as post marginal vein, and 5.33x stigmal vein; post marginal vein 2.1x as long as stigmal vein, the latter long, stigma broad, with long spicula. Body green with golden reflection, scape, pedicel concolorous with body, flagellum brown; legs concolorous with body, except tips of tibiae, and tarsi yellow. Antenna with scape slightly shorter than pedicel plus anellus and F1+F3 combined; pedicel 2x longer than wide; anellus 2x wider than long; funicular segments distinctly transverse, F1 1.5x, F2 1.57x; F3-F7 slightly widening towards tip, F7 2.28x as wide as long; F7 1.67x as wide as F1; club 1.13x wider than F7, 1.65x as long as wide; hind femora with distinct tooth, 4.1x as long as width; Ovipositor equal 0.64x lengths of metasoma. Ovipositor index: 1.2.

**Description:**

**Female.** Body (Fig. 10a) green with golden reflection, scape, pedicel concolorous with body, flagellum brown; legs concolorous with body, except tips of tibiae, and tarsi yellow; wing hyaline, veins yellow. Length 2.82 mm + ovipositor 0.65 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 41:20; POL 2.6x OOL; OOL 1.6 diameter lateral ocellus. Head in frontal view 1.3x wider than high in ratio 41:32; dorsal margin of torulus distinctly above level of lower orbit; malar space consists 0.32 height of eye. face with fine sculpture. . Antenna (Fig. 10c) with scape slightly shorter than pedicel plus anellus and F1+F3 combined; pedicel 2x longer than wide; anellus 2x wider than long; funicular segments distinctly transverse, F1 1.5x, F2 1.57x; F3-F7 slightly widening towards tip, F7 2.28x as wide as long; F7 1.67x as wide as F1; club 1.13x wider than F7, 1.65x as long as wide.

**Mesosoma** (Fig. 10a) slightly bulged in profile, propodeum slightly visible dorsally; mesonotum (Fig. 10d) finely wrinkled, between them with fine reticulation; with parapsidal groove deep; propodeum (Fig. 10e) without carina, finely, longitudinally reticulated basally with shallow foveae; spiracle wide apart from metanotum by half diameter of spiracle. Forewing (Fig. 10f) with marginal vein 2.53x as long as post marginal vein, and 5.33x stigmal vein; post marginal vein 2.1x as long as stigmal vein, the latter long, stigma broad, with long spicula.

**Metasoma** (Fig. 10a) excluding ovipositor 0.75x rest of body; basal 3 tergite with posterior margin weakly incised medially; tip of hypopygium at 0.78 metasoma length; hind femora (Fig. 10b) 4.1x as long as width. Ovipositor equal 0.64x lengths of metasoma (Fig. 10a). Ovipositor index: 1.2.

**Male.** Unknown.

**Material examined:** Holotype ♀, Turkey: Kayseri, Akmescit, 08.vi. 2008, swept from *Sinapis* sp., M. Doğanlar, deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Kayseri, Akmescit.

**Host:** Unknown.

**Comments:** *Microdontomerus kayserinensis* sp. nov. is similar to *M. altinekinesis* Doğanlar and *M. erzurumensis* sp. nov. in having antenna with scape slightly shorter than pedicel plus anellus and F1+F3 combined, ovipositor sheaths equal 0.64x lengths of metasoma, and ovipositor index: 1.2. (in both species ovipositor sheaths about equal 0.75-0.77x length of metasoma, and ovipositor index at least 1.45). It also differs from *M. altinekinesis* in having forewing with marginal vein 2.53x as long as post marginal vein, F7 1.67x as wide as F1, hind femora 4.1x as long as width (in *M. altinekinesis* fore wing with marginal vein 3.6x post marginal vein; F7 almost equal size to F1, hind femora 2.7x as long as width), and from *M. erzurumensis* sp. nov. in having scape slightly shorter than pedicel plus anellus and F1+F3 combined, pedicel 2x longer than wide; forewing with marginal vein 2.53x as long as post marginal vein, and 5.33x stigmal vein; post marginal vein 2.1x as long as stigmal vein (in *M. erzurumensis* sp. nov. scape equal to pedicel plus anellus and F1-F2 combined; pedicel 1.57x longer than wide; forewing with marginal vein 1.82x post marginal vein, and 2.6x stigmal vein; post marginal vein 1.43x as long as stigmal vein).

### ***Microdontomerus altinekinesis* Doğanlar, 2016**

(Figs. 11a-f)

*Microdontomerus altinekinesis* Doğanlar, 2016b: 511, 512. Holotype ♀, Konya, Turkey (IMBC).

**Descriptions and distribution:** given by Doğanlar (2016b).

**Diagnosis.** Ovipositor (Fig. 11a) sheaths about equal 0.75x lengths of metasoma; ovipositor index 1.53. Forewing (Fig. 11e) with marginal vein 3.6x post marginal vein, and 5.0x stigmal vein; post marginal vein 2.7x as long as stigmal vein. Antenna (Fig. 11b) with pedicel plus flagellum 2.5x length of scape; the latter equal to pedicel plus anellus and F1-F3 combined; pedicel 1.7x longer than wide; anellus 1.5x wider than long; F1 almost equal size to F7; club 1.7x as long as wide; Body (Fig. 11a) black, with coppery-green reflexion, antenna yellow, Mesonotum finely reticulated, and scutellum (Fig. 11d) with dense, deep punctures; propodeum smooth; hind femora (Fig. 11f) 2.7x as long as width.

**Material studied:** Konya, holotype.

### ***Microdontomerus erzurumensis* sp. nov.**

(Figs. 12a-g)

**Etymology.** The name is derived from the name of the place from which the holotype was collected.

**Diagnosis.** Ovipositor sheaths about equal 0.77x lengths of metasoma; ovipositor index 1.45. Fore wing with marginal vein 1.82x post marginal vein, and 2.6x stigmal vein; post marginal vein 1.43x as long as stigmal vein. Antenna with pedicel plus flagellum 3.33x length of scape; the latter equal to pedicel plus anellus and F1-F2 combined; pedicel 1.57x longer than wide; anellus 2x wider

than long; F1 slightly transverse (8/7); F2-F4 almost in equal size, 1.43x, and F5-F7 almost in equal size, 1.57x as wide as long; club distinctly wider than F7, 1.22x as wide as F7, and 1.7x as long as wide; Body black, with coppery-green reflexion, antenna with scape and pedicel bronze green, flagellum dark brown. Mesonotum and scutellum finely, transversally reticulated; propodeum with short median and submedian carinae, finely reticulated; hind femora 4.8x as long as width.

**Description:**

**Female.** Body (Fig. 12a) black, with coppery-green reflexion, antenna with scape and pedicel bronze green, flagellum dark brown; wing hyaline, veins yellow. Length 2.75 mm + ovipositor 1.05 mm.

**Head** in dorsal view as wide as mesoscutum, width to length 45:15; POL 2.4x OOL; OOL 1.25 diameter lateral ocellus. Head in frontal view 1.3x wider than high in ratio 45:35; dorsal margin of torulus distinctly above level of lower orbit; malar space consists 0.45 height of eye. face with fine sculpture. Antenna (Fig. 12c) with pedicel plus flagellum 3.33x length of scape; the latter equal to pedicel plus anellus and F1-F2 combined; pedicel 1.57x longer than wide; anellus 2x wider than long; F1 slightly transverse (8/7); F2-F4 almost in equal size, 1.43x, and F5-F7 almost in equal size, 1.57x as wide as long; club distinctly wider than F7, 1.22x as wide as F7, and 1.7x as long as wide.

**Mesosoma** (Fig. 12a) almost flat in profile, propodeum distinctly visible dorsally; mesonotum and scutellum (Fig. 12d) finely, transversally reticulated; propodeum (Fig. 12e) with two short median and submedian carinae, finely reticulated; hind femora 4.8x as long as width; spiracle touching metanotum. Forewing (Fig. 12f) with marginal vein 1.82x post marginal vein, and 2.6x stigmal vein; post marginal vein 1.43x as long as stigmal vein, the latter short, stigma broad, with short spicula.

**Metasoma** (Fig. 12a) excluding ovipositor 0.82x rest of body; basal 3 tergite with posterior margin weakly incised medially; tip of hypopygium at 0.73 metasoma length; hind femora (Fig. 12b) 4.1x as long as width. Ovipositor equal 0.77x length of metasoma. Ovipositor index: 1.45.

**Male:** Similar to female except as follows: antenna (Fig. 12g) with pedicel plus flagellum 3.92x length of scape; the latter equal to pedicel plus anellus and F1- 1/3 F2 combined; pedicel 1.43x longer than wide; anellus 3.33x wider than long; F1 almost quadrate; F2-F7 almost in equal size, 1.71x as wide as long; club as wide as F7, and 2x as long as wide.

**Material examined:** Holotype ♀, Turkey: Erzurum, 17.vi. 1986, swept from *Medicago sativa* L. field, Leg. M. Doğanlar. **Paratypes:** 2 ♂♂, same data as the holotype; Erzurum, 18.vi. 1982, swept from *Medicago sativa* L. field, Leg. M. Doğanlar, 1 ♂. All of the types were deposited in the Insect collection of Research Station of Biological Control, Adana (IMBC).

**Distribution:** Turkey: Erzurum.

**Host:** Swept from *Medicago sativa* L. field.

**Comments:** *Microdontomerus erzurumensis* sp. nov. is similar to *M. kayserinensis* sp. nov.. The discussion was given before.

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## LITERATURE CITED

- Crawford, J. C.** 1907. New North American Hymenoptera. *Journal of the New York Entomological Society*, 15: 177-183.
- Doğanlar, M.** 2016a. The morphology of hypopygia and its importance in taxonomy of the genera of Torymidae (Hymenoptera), with review of the genera and species of Turkey. *Entomofauna*, 37: 521-544.
- Doğanlar, M.** 2016b. Species of *Microdontomerus* (Crawford, 1907) and *Eridontomerus* (Crawford, 1907) (Hymenoptera: Torymidae: Microdontomerini) from Turkey, with descriptions of new species. *Entomofauna*, 37: 505-520.
- Graham, M. W. R. de V.** 1994. Recognition of some species of Hymenoptera Chalcidoidea described by M. Spinola (1808), with some synonymy. *Entomologist's Monthly Magazine*, 130: 99-113.
- Gibson, G. A. P.** 1997. Morphology and terminology. pp. 16-44. In: Gibson, G. A. P., Huber, J. T. & Woolley, J. B. (eds), *Annotated keys to the genera of Nearctic Chalcidoidea (Hymenoptera)*. Ottawa, Ontario, National Research Council Research Press.
- Grissell, E. E.** 1995. Toryminae (Hymenoptera: Chalcidoidea: Torymidae) a redefinition, generic classification, and annotated world catalog of species. *Mem. Entomol. Int.*, 2: 1-470.
- Grissell, E. E.** 2005. A review of North American Species of *Microdontomerus* Crawford (Torymidae: Hymenoptera). *J. Hym. Res.*, 14 (1): 22-65.
- Noyes, J. S.** 2015. Universal Chalcidoidea Database. World Wide Web electronic publication. <http://www.nhm.ac.uk/chalcidoids>.
- Spinola, M.** 1808. *Insectorum Liguriae species novae aut rarores, quas in agro ligustico nuper detexit, descripsit, et iconibus illustravit*, 2 (2-4): 215.
- Zerova, M. D. & Serogina, L. Y.** 1999. Torymid chalcidoid wasps (Hymenoptera, Chalcidoidea, Torymidae) of tribes Podagronini and Monodontomerini of the Ukrainian fauna. *Vestn. Zool. Suppl.*, 12: 1-130.





Figure 1-4. *Microdontomerus* spp. 1. *M. maculosus* sp. nov.. Scale bar for a = 2.73 mm; for b = 1.45 mm; for c, g=0.67 mm; for d = 1.03 mm; for e = 0.53 mm.; for f = 1.0 mm.; 2. *M. annulata* Spinola; Scale bar for a= 1.62 mm; for b,d,f= 0.66mm; for c= 0.45 mm; for e= 0.6 mm; 3. *M. kocakeri* sp. nov.. Scale bar for a = 0.83 mm; for b = 0.28 mm; for c, g=0.14 mm; for d = 0.22 mm; for e = 0.38 mm.; 4. *M. yigiti* sp. nov.. Scale bar for a = 1.25 mm; for b = 0.58 mm; for c, d=0.24 mm; for e = 0.19 mm; for f = 0.5 mm; for g = 0.13 mm; a. body; b. hind femora and tibia; c. antenna; d. mesosoma; e. propodeum; f. forewing veins; g. male antenna.

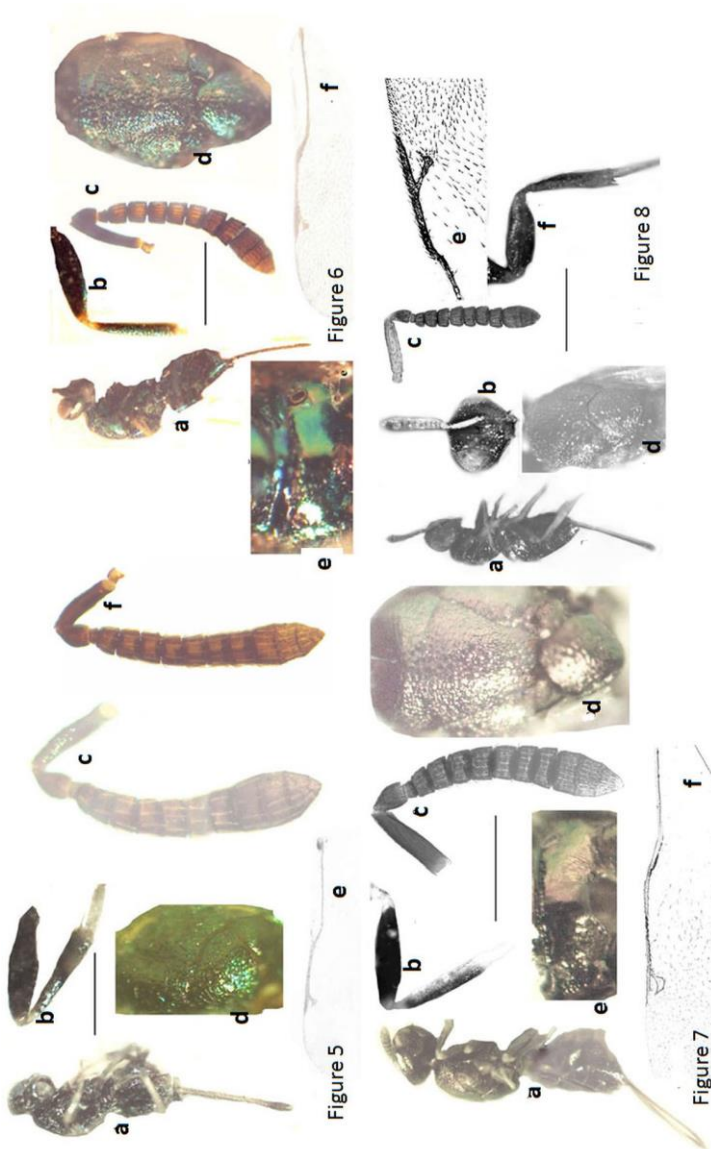


Figure 5-8. *Microdontomerus* spp. 5. *M. balikesirensis* sp. nov.. Scale bare for a = 2.23 mm; for b = 0.96 mm; for c = 0.52 mm; for d,e = 0.76 mm; for f = 0.54 mm; 6. *M. sivasensis* sp. nov. a. body; b. hind femora and tibia; c. antenna; d. mesosoma; e. propodeum; f. forewing veins; g. male antenna. Scale bare for a, d = 1.12 mm; for b = 0.58 mm; for c = 0.31 mm; for e = 0.8 mm; for f = 0.64 mm; 7. *M. ulukislanensis* sp. nov. a. body; b. hind femora and tibia; c. antenna; d. mesosoma; e. propodeum; f. forewing veins; g. male antenna. Scale bare for a = 1.0 mm; for b = 0.34 mm; for c = 0.25 mm; for d- f = 0.50 mm.; 8. *M. gurdakoyensis* Doğanlar. a. body; b. head in frontal view; c. antenna; d. mesosoma; e. forewing veins; f. hind femora and tibia; Scale bar for a= 1.22 mm; for b =0.75 mm; for c =0.35 mm for d,e= 0.42 mm; for f= 0.6 mm.



Figure 9-12. *Microdontomerus* spp. 9. *M. direklinensis* Doğanlar. a. body; b. head in frontal view; c. fem. antenna; d. scutellum; e. hind femora and tibia; f. forewing veins. Scale bar for a= 1.44 mm; for b, c, d = 0.59 mm; for e, f= 0.51 mm; for f = 0.62 mm; 10. *M. kayserinensis* sp. nov. a. body; b. hind femora and tibia; c. antenna; d. mesosoma; e. propodeum; f. forewing veins. Scale bare for a = 1.4 mm; for b = 0.68 mm; for c = 0.36 mm; for d = 0.45 mm; for e = 0.4 mm; f = 0.86 mm.; 11. *M. altinekinesis* Doğanlar. a. body; b. fem. antenna; c. head in frontal view; d. scutellum; e. forewing veins; f. hind femora and tibia; Scale bar for a = 0.72 mm; for b, c, d = 0.4mm; for e, f= 0.56 mm; 12. *M. erzurumensis* sp. nov.. Scale bare for a = 1.64 mm; for b = 0.63 mm; for c = 0.55 mm; for d = 0.56 mm; for e = 0.62mm; for f = 0.35 mm. for g = 0.43 mm. a. body; b. hind femora and tibia; c. antenna; d. mesosoma; e. propodeum; f. forewing veins; g. male antenna.