

TWO NEW SPECIES OF *MACRORRHYNCHA* WINNERTZ  
(DIPTERA: KEROPLATIDAE) FROM TURKEY,  
WITH REDESCRIPTION OF *MACRORRHYNCHA THRACICA*  
BECHEV, STAT. N. AND A KEY TO THE WESTERN  
PALAEARCTIC SPECIES OF THE GENUS

BECHEV, D.

*Department of Zoology, University of Plovdiv  
Tzar Assen 24, BG-4000 Plovdiv, Bulgaria, E-mail: bechev@uni-plovdiv.bg*

*Macrorrhyncha anatolica* sp. n. and *M. muglensis* sp. n. from southwest Asiatic Turkey are described. *Macrorrhyncha geranias thracica* BECHEV is raised to species level. Male terminalia of the new species, *M. geranias* (LOEW) and *M. thracica* are illustrated. A key to the Western Palaearctic species is given.

Key words: Keroplatidae, Orfeliini, *Macrorrhyncha*, new species, Turkey, Eastern Mediterranean

## INTRODUCTION

Tribe Orfeliini (Diptera, Keroplatidae) includes 52 genera (EVENHUIS 2006), only 4 of which have elongated mouthparts: *Antlemon* LOEW, 1871, *Asindulum* LATREILLE, 1805, *Macrorrhyncha* WINNERTZ, 1846 and *Cloeophoromyia* MATILE, 1970. Detailed data on the morphology and diagnoses of these genera are given in MATILE (1975) for *Asindulum* and *Macrorrhyncha*, MATILE (1977) for *Antlemon* and MATILE (1970) for the Afrotropical *Cloeophoromyia*. The adults of the genera *Antlemon*, *Asindulum* and *Macrorrhyncha* are known as flower visitors (BECHEV 2010) and are probably pollinators.

The genus *Macrorrhyncha* is known from one species in the Nearctic, five in the Eastern Palaearctic, sixteen in the Western Palaearctic and one in the Oriental Region, in SE China (EVENHUIS 2006). A key to the western Palaearctic species is given in CHANDLER *et al.* (2005) and to the species in Japan in UETSUGI (2005). In this study two new species from southwest Asiatic Turkey are described and *Macrorrhyncha geranias thracica* BECHEV is raised to species level based on the study of type material. With these actions the number of the Palaearctic species increases to twenty five.

## MATERIAL AND METHODS

The material of the new species was collected by Dr. H. KOÇ, A. KARAMAN and O. ÖZGÜL using an aerial net, preserved in alcohol and deposited in the collections of Hungarian Natural History Museum, Budapest (HNHM) and University of Plovdiv, Bulgaria (UP). Male terminalia were studied in glycerol after maceration in warm 10% potassium hydroxide. The holotype of *Macrorrhyncha geranias thracica* BECHEV from the Slovenian Museum of Natural History, Ljubljana (SMNH) and lectotype of *Macrorrhyncha geranias* LOEW from the Museum of Zoology, Humboldt University, Berlin (ZMHU) were also studied.

Morphological terminology follows SØLI *et al.* (2000). Line drawings were made using CorelDraw software, aided by digital images of the male terminalia.

## SYSTEMATIC PART

***Macrorrhyncha anatolica* sp. n.**

(Figs 1–3)

**Diagnosis.** This species resembles *M. geranias* (LOEW, 1869), *M. muglensis* and *M. thracica* in having a bare mediotergite, proboscis longer than eye height, dorsal process of gonocoxite narrow in lateral view and gonostyle not elongate. *M. anatolica* differs from *M. geranias* in the entirely black coloration and in having a clearly visible fold in the lateral margin of tergite 9 (Fig. 10) in *M. geranias*. The new species differs from *M. muglensis* and *M. thracica* in the absence of having a clearly visible fold in the lateral margin of tergite 9 (Fig. 1).

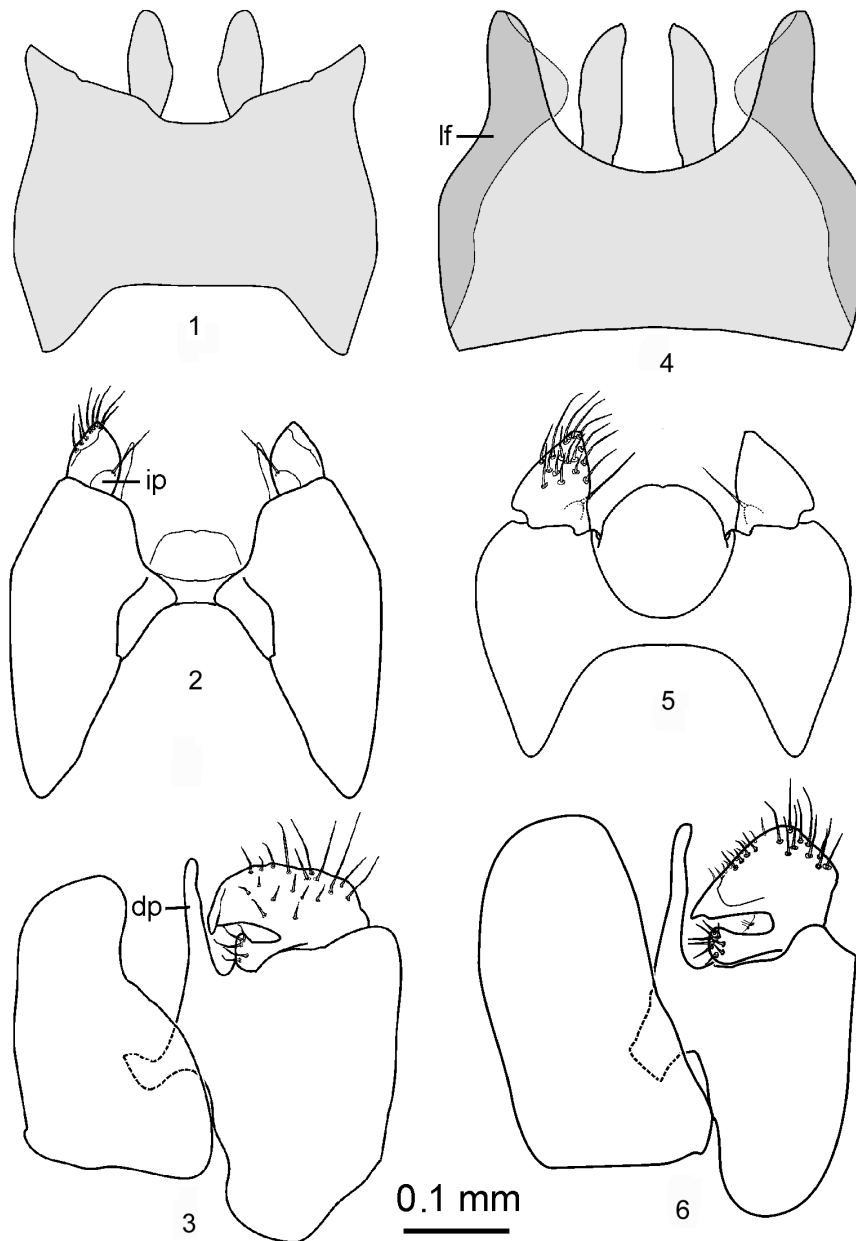
*Description*

Male. Body length 4.9–5.0 mm (n = 2). Wing length 3.6–4.0 mm.

**Coloration** (specimens in alcohol). Head brown, mouthparts brownish yellow. Scape, pedicel and base of first flagellomere yellowish, basal flagellomeres pale brownish and apical yellowish. Mesoscutum yellow, with three fused dark brown stripes. Scutellum yellowish. Mediotergite brown medially, yellow laterally. Anteprenotum yellow brownish; proepisternum yellow. Anepisternum and preepisternum 2 in lower half brown, in upper yellow. Anepimeron yellow. Laterotergite in upper 2/3 yellow, lower 1/3 brown. Wing unmarked, yellowish. Veins brownish. Haltere yellow. Legs yellow, tarsi brownish, spurs brown. Abdominal tergites and sternites brown medially, yellow laterally, with dark bristling; tergite 7 to 8 and sternite 7 to 8 entirely dark brown. Tergite 9 and gonocoxites brown, gonostyles paler.

**Head.** Antenna about as long as thorax. Flagellomeres 2–12 as long as broad. Proboscis as long as height of head. Palpus slender, little longer than proboscis. Lateral ocellus about its own diameter distant from eye margin.

**Thorax.** Strong black setae are situated in dorsocentral and acrostichal stripes, and on sides of mesoscutum. Scutellum with several long black setae. Mediotergite bare. Proepisternum with some



**Figs 1–6.** Male terminalia, setae are shown on gonostyles only: 1 = *Macrorrhyncha anatolica*, form of tergite 9 and cerci, dorsal view; 2 = *M. anatolica*, ventral view; 3 = *M. anatolica*, lateral view; 4 = *M. muglensis*, form of tergite 9 and cerci, dorsal view; 5 = *M. muglensis*, ventral view; 6 = *M. muglensis*, lateral view. Abbreviations: lf = lateral fold of tergite 9, ip = inner process of gonocoxite, dp = dorsal process of gonocoxite

small black setae. Some small posterior prospiracular setulae present. Other pleurae bare, excluding some very small setulae on anepimeron.

*Wing* (holotype). Costa extends about 0.2 distance from  $R_5$  to  $M_1$ . Sc very faint apically but ending in costa beyond base of Rs.  $R_4$  short, ending in costa about twice its length from tip of  $R_1$ .  $CuA_2$  fading before wing margin. Veins setose: C, Sc, frm, stem of  $R_4$ ,  $R_5$ ; bare: Sc, Rs,  $R_4$ , bM-Cu, stem of M and Cu, CuP,  $A_1$ .

*Variation in male paratype*: costa extends to  $R_5$ ,  $R_4$  ends in costa about thrice its length from tip of  $R_1$ , and Sc apically very fine, unclear.

*Legs*. Setae dark. Tibiae with irregular setulae and with short strong setae in irregular series. Ratio basitarsus I : tibia I = 0.8.

*Male terminalia* (Figs 1–3). Lateral margin of tergite 9 without clearly visible fold, distal margin with small emargination (Fig. 1). Gonocoxites joined by a narrow bridge ventrally and with internal process with a long apical seta (Fig. 2). Dorsal process of gonocoxite in lateral view not enlarged distally (Fig. 3). Gonostyle short and broad in lateral view (Fig. 3).

*Female*. Thorax and abdomen much paler in coloration. Pleurae yellow, only anepisternum and preepisternum 2 with brownish fore margin. Mesoscutum without dark stripes. Abdominal tergites yellowish to yellow brownish. Female terminalia yellow.

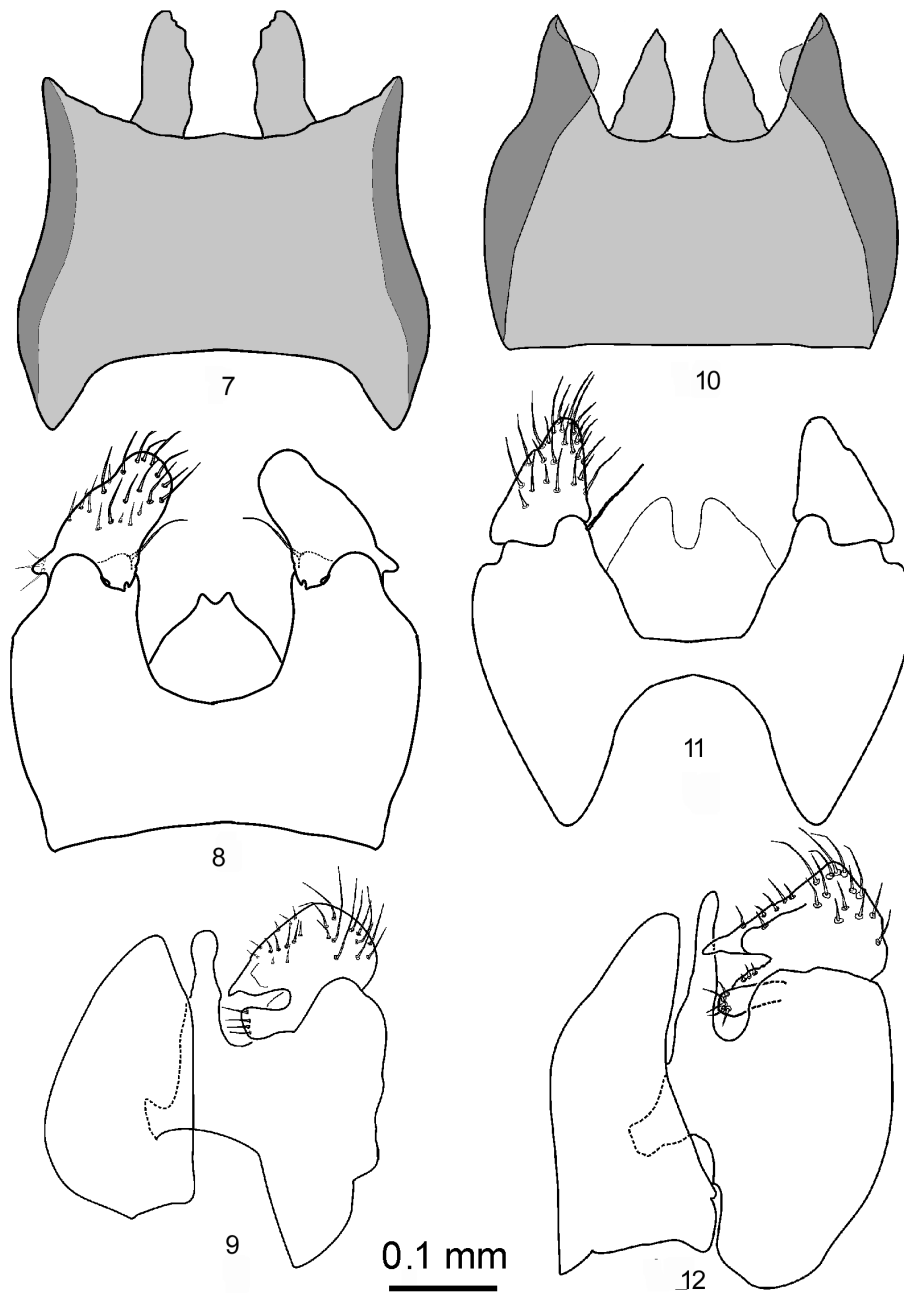
*Etymology*. The name is an adjective referring to its occurrence in Anatolia (Asiatic Turkey).

*Types*. Holotype: Male, Turkey, Aydın, Çine, Eskiçine Village, Çine Stream, 37°31' N/28°04' E, 80 m a.s.l., 21.04.2005, leg. H. KOÇ, A. KARAMAN & O. OZGÜL (in HNHM). The holotype is in good condition. All antennal segments and legs present. Paratypes: 1 male, Turkey: Aydın, Bozdoğan, Yaka Village, 37° 38' N/28° 22' E, 115 m a.s.l., 22.04.2005, leg. H. KOÇ, A. KARAMAN & O. OZGÜL (in UP); 1 female, Turkey: Aydın, Çine, Eskiçine Village, Çine Stream, 37°31' N/28°04' E, 80 m a.s.l., 21.04.2005, leg. H. KOÇ, A. KARAMAN & O. OZGÜL (in UP).

### **Macrorrhyncha muglensis** sp. n.

(Figs 4–6)

*Diagnosis*. This species resembles *M. geranias*, *M. anatolica* and *M. thracica* in having a bare mediotergite, proboscis longer than eye height, dorsal process of gonocoxite narrow in lateral view and gonostyle not elongate. *M. muglensis* differs from *M. geranias* in the entirely black coloration and having distal margin of tergite 9 with a trapezium-shaped emargination (Fig. 10) in *M. geranias*, U-shaped emargination (Fig. 4) in *M. muglensis*. The new species differs from *M. anatolica* in the presence of clear visible fold in the lateral margin of tergite 9 (Fig. 4). Differences from *M. thracica* are the presence of a large fold in the lateral margin and U-shaped emargination in the distal margin of tergite 9 (Fig. 4), joined by a narrow bridge ventrally gonocoxites and gonostyle more or less triangular in ventral view (Fig. 5) in *M. muglensis*.



**Figs 7–12.** Male terminalia, setae are shown on gonostyles only: 7 = *Macrorrhyncha thracica*, form of tergite 9 and cerci, dorsal view; 8 = *M. thracica*, ventral view; 9 = *M. thracica* – lateral view; 10 = *M. geranias*, dorsal view; 11 = *M. geranias*, ventral view; 12 = *M. geranias*, lateral view

### Description

Male. Body length 5.0 mm (n=1). Wing length 3.6 mm.

*Coloration* (specimen in alcohol). Head brown, mouthparts yellowish. Antenna brownish yellow. Mesoscutum brownish yellow, paler on periphery, with three indistinct slightly darkened stripes. Scutellum brownish yellow. Mediotergite brownish yellow. Antepronotum and proepisternum yellow brownish, other pleurae brownish yellow. Unmarked, yellowish. Veins yellowish brown. Haltere yellow. Legs yellow with dark bristling, spurs dark brown. Abdomen yellow brownish, with dark bristling. Tergite 9 and gonocoxites brown, gonostyles paler.

*Head*. Antenna about as long as thorax. Flagellomeres 2–8 a little longer as broad. Proboscis as long as height of head. Palpus little longer than proboscis. Lateral ocellus about its diameter distant from eye margin.

*Thorax*. Mesoscutum with long dark setae situated above base of wing. Strong dorsocentral and acrostichal setae absent. Scutellum with several black setae. Mediotergite bare. Antepronotum and proepisternum with some small black setae. Some small posterior prospiracular setulae present. Other pleurae bare.

*Wing*. Costa extends about 0.3 distance from  $R_5$  to  $M_1$ . Sc apically unclear.  $R_4$  short, ending in costa about twice its length from tip of  $R_1$ .  $R_4$  short, ending in costa about twice its length from tip of  $R_1$ .  $CuA_2$  fading before wing margin. Veins setose: C, Sc, frm, stem of  $R_4$ ,  $R_5$ ; bare: Sc, Rs,  $R_4$ , bM-Cu, stem of M and Cu, CuP,  $A_1$ .

*Legs*. Tibiae with irregular setulae and with short strong setae in irregular series. Ratio basitarsus I : tibia I = 0.75.

*Male terminalia* (Figs 4–6). Lateral margin of tergite 9 with distinct medially directed fold, distal margin with U-shaped emargination (Fig. 4). Gonocoxites joined by a narrow bridge ventrally and with internal process with a long apical seta (Fig. 5). Dorsal process of gonocoxite in lateral view not enlarged distally (Fig. 6). Gonostyle more or less triangular in ventral view (Fig. 5).

*Female*. Unknown.

*Etymology*. The name is an adjective referring to occurrence in the province of Mudla, Turkey.

*Holotype*. Male: Turkey, Muğla, Köycegiz, Yumus Emre O., 36°60' N/ 28°03' E, 65 m a.s.l., 2.05.2003, leg. H. KOÇ, A. KARAMAN & O. OGÜL (in HNHM). The holotype is in good condition. All antennal segments and legs present.

### *Macrorrhyncha thracica* BECHEV, 1997, **stat. n.**

(Figs 7–9)

*Macrorrhyncha geranias thracica* BECHEV, 1997: 105, Figs 1 & 2.

*Diagnosis*. This species resembles *M. geranias*, *M. anatolica* and *M. muglensis* in having a bare mediotergite, proboscis longer than eye height, dorsal process of gonocoxite narrow in lateral view and gonostyle not elongate. *M. traciaca* differs from *M. geranias* in the entirely black coloration and having distal margin of tergite 9 with a trapezium-shaped emargination (Fig. 10) in *M. geranias*. The new species differs from *M. anatolica* in the presence of clear visible fold in the

lateral margin of tergite 9 (Fig 7). Differences from *M. muglensis* are the presence of a not large fold in the lateral margin and absence of U-shaped emargination in the distal margin of tergite 9 (Fig. 7), joined by a broad bridge ventrally gonocoxites (Fig. 8) and gonostyle broad and rounded in ventral view (Fig. 8) in *M. thracica*.

#### *Redescription (holotype)*

Male. Body length 4.9 mm (n = 1). Wing length 3.6 mm.

*Coloration* (specimen in alcohol). Head dark brown, mouthparts brownish yellow. Antenna brownish, with scape, pedicel and base of first flagellomere yellowish. Mesoscutum in great part blackish brown to dark brown (three confluent dark stripes present), yellow on periphery. Scutellum yellowish, with small brown spot. Mediotergite in great part dark brown. Pleurae yellowish to brownish. Wing unmarked, yellowish. Veins brownish. Haltere yellow. Legs brownish yellow to brownish, with dark bristling. Abdomen brown, with sternites 1 to 4 yellowish to brownish and tergites 6 to 8 dark brown. Tergite 9 and gonocoxites brown, gonostyles paler.

*Head*. Flagellomeres 2–10 little longer as broad. Proboscis twice as long as eye height. Lateral ocellus about 1.5 its diameter distant from eye margin.

*Thorax*. Mediotergite bare and pleurae bare.

*Wing*. Costa extends about 0.25 distance from  $R_5$  to  $M_1$ .  $R_4$  short, ending in costa about twice its length from tip of  $R_1$ .

*Male terminalia* (Figs 7–9). Lateral margin of tergite 9 with not large medially directed fold, distal margin with small emargination (Fig. 7). Gonocoxites joined by a broad bridge ventrally and with internal process with a long apical seta (Fig. 8). Dorsal process of gonocoxite in lateral view enlarged distally (Fig. 9). Gonostyle in ventral view broad and rounded distally (Fig. 8).

*Note*. The holotype is in poor condition. Apical antennal flagellomeres absent (1–11 present). Wings adhered to each other and difficult to see. Legs missing except for the fore femora, right fore tibia and right hind leg. Chaetotaxy of mesoscutum and scutellum is unclear.

*Material examined*. Male holotype (in alcohol), Greece, Trakia, NE Sandra, Sapka Mts, 41°07'06'' N/ 25°49'43'' E, 220 m, 24.5.1994, leg. I Sivec, B. Horvan (in SMNH).

#### KEY TO THE WESTERN PALAEARCTIC SPECIES OF *MACRORRHYNCHA* (MALES)

The species *M. italica* (COSTA) described by female only is not included in the key. Females can be determined using the key in CHANDLER *et al.*, 2005. Male, probably *M. italica*, was described and the genitalia illustrated in PAPP (2009).

1	Mediotergite with setae	2
–	Mediotergite without setae	4
2	Body mainly or entirely black with some grey dusting. Haltere black. Proboscis as long as head height. Male terminalia: CHANDLER <i>et al.</i> (2005, Figs 5, 11–12)	<i>M. ibis</i> CHANDLER, BECHEV & CASPES
–	Body at least partly yellow. Haltere yellowish brown	3
3	Hind coxa widely brown at base. Mediotergite dark brown on disc. Abdomen with tergites all dark brown. Male terminalia: MATILE (1975, Figs 13, 18)	<i>M. ancae</i> MATILE
–	Coxae and mediotergite yellow. Abdomen with some brown markings on tergites 2–5, 6–7 all dark brown. Male terminalia: MATILE (1975, Figs 12, 16)	<i>M. flava</i> WINNERTZ
4	Gonocoxite without well developed dorsal process	5
–	Gonocoxite with well developed dorsal process	7
5	Gonostyle in lateral view with well developed basal process. Male terminalia: CHANDLER (1994, Figs 26–28)	<i>M. ardea</i> CHANDLER
–	Gonostyle in lateral view without well developed basal process	6
6	Haltere yellow. Gonostyle in lateral view with ventral lobe more developed. Male terminalia: CHANDLER (1994, Figs 30–33)	<i>M. guichardi</i> CHANDLER
–	Haltere with black knob. Gonostyle in lateral view without ventral lobe developed. Male terminalia: BECHEV, (1992 <i>b</i> , Figs 1–2)	<i>M. veleka</i> BECHEV
7	Dorsal process of gonocoxite with strong setae (e. g. MATILE (1975, Fig. 17))	8
–	Dorsal process of gonocoxite without strong setae	9
8	Dorsal process of gonocoxite with a dense brush of black setae. Male terminalia: MATILE (1975, Figs 15, 17); CHANDLER (1992, Figs 6–8)	<i>M. rostrata</i> (ZETTERSTEDT)
–	Dorsal process of gonocoxite with several strong setae. Male terminalia: CHANDLER <i>et al.</i> (2005, Figs 3, 7–8)	<i>M. brevirostris</i> (LUNDSTRÖM)



9	Proboscis shorter than eye height	10
–	Proboscis longer, about as long as eye height or more	11
10	Proboscis about as long as 1/2 of eye height. Male terminalia with gonostyle broadly rounded in ventral view (CHANDLER & BLASCO-ZUMETA (2001, Figs 2–4))	<i>M. gallica</i> CHANDLER et MATILE
–	Proboscis about as long as 2/3 of eye height. Male terminalia with gonostyle bearing an elongate slender posterior process (BECHEV (1992a, Figs 4–5))	<i>M. collarti</i> (TOLLET)
11	Gonostyle with narrow elongate processes (CHANDLER <i>et al.</i> (2005, Figs 1, 13))	<i>M. laconica</i> CHANDLER, BECHEV et CASPES
–	Gonostyle without narrow elongate processes	12
12	Dorsal process of gonocoxite broad in lateral view (e.g. MATILE (1975, Fig. 19))	13
–	Dorsal process of gonocoxite narrow in lateral view (e.g. Figs 3, 6)	14
13	Dorsal process of gonocoxite short in lateral view, not extending beyond apex of gonostyle. Male terminalia: MATILE (1975, Figs 14, 19)	<i>M. hispanica</i> (STROBL)
–	Dorsal process of gonocoxite long in lateral view, extending beyond apex of gonostyle. Male terminalia: KURINA (2004, Figs 1–3)	<i>M. atticae</i> KURINA
14	Dorsal process of gonocoxite in lateral view pointed apically, gonostyle in ventral view elongate. Male terminalia: CHANDLER <i>et al.</i> (2005, Figs 6, 15–16)	<i>M. pelargos</i> CHANDLER, BECHEV et CASPES
–	Dorsal process of gonocoxite in lateral view rounded apically, gonostyle in ventral view not elongate	15
15	Mesoscutum and abdomen uniformly black. Haltere with black knob. Male terminalia (Figs 10–12)	<i>M. geranias</i> (LOEW)
–	Mesoscutum dark on disc but side margins yellow or brownish, abdomen not uniformly black. Haltere yellow	16
16	Lateral margin of tergite 9 without clearly visible fold (Fig. 1). Gonostyle short and broad in lateral view (Fig. 3)	<b><i>M. anatolica</i></b> sp. n.

- Lateral margin of tergite 9 with clearly visible fold (Figs 4, 7). Gonostyle in lateral view not short and broad (Figs 6, 9) 17
- 17 Lateral margin of tergite 9 with distinct medially directed fold, distal margin with U-shaped emargination (Fig. 4). Gonocoxites joined by a narrow bridge ventrally (Fig. 5). Gonostyle more or less triangular in ventral view (Fig. 5) **M. muglensis** sp. n.
- Lateral margin of tergite 9 with not large medially directed fold, distal margin with small emargination (Fig. 7). Gonocoxites joined by a broad bridge ventrally (Fig. 8). Gonostyle in ventral view broad and rounded distally (Fig. 8) *M. thracica* BECHEV, **stat. n.**

## DISCUSSION

Currently, *Macrorrhyncha* shows a disjunct distribution in the Palaearctic with two centres: eastern Asia (5 species) and western Palaearctic (Europe and the Mediterranean – 19 species, including *Macrorrhyncha anatolica*, *M. muglensis* and *M. thracica*). The eastern Mediterranean Region appears to be a centre of *Macrorrhyncha* endemism. Of the 19 Western Palaearctic species, 11 are distributed here, and 10 of them have never been recorded outside of this region.

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*Acknowledgements* – I thank Dr. H. KOÇ (Mudla University, Turkey) for the material of the new species, Dr. J. ZIEGLER (Zoologisches Museum der Humboldt Universität, Berlin) for loan of the lectotype of *Macrorrhyncha geranias*, Dr. I. SIVEC (Slovenian Museum of Natural History, Ljubljana) for the holotype of *Macrorrhyncha geranias thracica* and Dr. P. KERR for some notes on the manuscript.

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Revised version received April 29, 2010, accepted June 18, 2010, published December 17, 2010