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Species of *Macroglenes* WESTWOOD, 1832 (Hymenoptera: Pteromalidae, Spalangiinae) from Turkey, with description of a new species

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Abstract

The species of *Macroglenes* WESTWOOD, 1832 (Hymenoptera: Pteromalidae, Pireninae) from Turkey were studied. From Turkey 5 species of *Macroglenes*, one of them as new species, *Macroglenes fidanlinensis* nov.sp., was described, 4 species, *M. gramineus* (HALIDAY,1833), *M. microcerus* HALIDAY, 1844, *M. chalybeus*, (HALIDAY,1833), *M. varicornis* HALIDAY,1833, the first three species as new record for Turkey, were recorded from several parts of Turkey. An identification key was provided for the Turkish species.

Key words: *Macroglenes* spp., Hymenoptera, Pteromalidae, Turkey.

Zusammenfassung

Vorliegende Studie behandelt das Vorkommen der Gattung *Macroglenes* WESTWOOD, 1832 (Hymenoptera: Pteromalidae, Pireninae) in der Türkei. Von den fünf nachgewiesenen Arten ist eine neu für die Wissenschaft, drei Arten Erstnachweise für die Türkei. Ein Bestimmungsschlüssel ermöglicht die Trennung der Arten.

Introduction

The genus *Macroglenes* was described by WESTWOOD (1832) having type species *M. oculatus*, WESTWOOD by monotypy. MITROIU (2010) and NOYES (2016) recorded *Macroglenes* as valid genus in the subfamily Pireninae (Pteromalidae), and recorded 21 species, from Palearctic region. The first revision and an identification key of the world species of *Macroglenes* was provided by GRAHAM (1969).

Up to now only one species, *Macroglenes varicornis* HALIDAY was recorded from Turkey (DOĞANLAR 1985, ÖNCÜER 1991). The host records of the species of *Macroglenes* have been given by MITROIU (2010) and NOYES (2016). In this paper morphological characters of the *Macroglenes* species from Turkey were studied and the

new species was described and compared with the similar species and an identification key was provided for the Turkish species.

Material and methods

This study is based upon examination and identification of the specimens collected from several parts of Turkey. 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, and, whole body or antenna and/or forewings of some species were slide mounted in Canada Balsam for further morphological studies.

The species were identified by following the keys of MITROIU (2010) and GRAHAM (1969). 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 MITROIU (2010). Abbreviations used in the key and descriptions are: F1-7 = funicular segments.

Results and discussion

***Macroglenes* WESTWOOD, 1832**

Macroglenes WESTWOOD, 1832:127; type species *M. oculatus*, WESTWOOD by monotypy. The synonyms were given by MITROIU (2010) and NOYES (2016).

D i a g n o s t i c c h a r a c t e r s : Body black or with metallic luster, smooth, with at most engraved reticulation. Head with antennae inserted low, much nearer to clypeal margin than vertex. Antenna short, clavate, 12-segmented, though appearing 10-segmented due to normally highly reduced anelli, and with at most 3 large funicular segments provided with sensilla, the rest of them anelliform and sometimes closely compacted together. Clypeal margin more or less produced, usually entire or sometimes incised medially (Fig. 32 of MITROIU 2010). Mesosoma flattened or more or less convex, mesoscutum with notauli complete, propodeum transverse and shiny. Fore wing with marginal cilia, long marginal vein and short stigmal and postmarginal veins. Gaster sessile, ovipositor sheaths short, dorsally barely visible or up to slightly longer than hind tibia. Hind tibia usually with a more or less regular row of hairs on inner side (= pecten). Males sometimes with inflated antennal scape or enlarged eyes (MITROIU 2010).

Up to now 21 Palearctic species were listed by MITROIU (2010) and NOYES (2016).

Key to species of *Macroglenes* of Turkey (based on the key of MITROIU 2010)

- 1 In male eye very large, touching or almost touching posterior ocellus; scape normal, at least 3.3x as long as broad; pecten occupying virtually whole length of hind tibia 2

- In male eye normal size, separated from posterior ocellus by a distance greater than diameter of ocellus; scape strongly swollen, at most 2.3x as long as broad; hind tibial pecten less developed, sometimes absent..... 4
- 2 Tip of hypopygium level with or very close to tip of gaster; F1-F3 more compacted together; mesosoma moderately arched dorsally; body black; hind tibial pecten complete..... *Macroglenes fidanlinensis* nov.sp.
- Tip of hypopygium more distinctly removed from tip of gaster (female of *M. microcerus* not known)..... 3
- 3 F1-F3 distinctly separated from each other; mesosoma moderately arched dorsally; Body black, without metallic reflections; antenna with only F5 large, with sensilla; hind tibial pecten complete; forewing as in *M. gramineus* *M. microcerus* HALIDAY
- F1-F3 more compacted together, usually almost fused; mesosoma flattened, scutellum and propodeum in about same plane; Hind tibia with pecten regular and occupying about 2/3 its length; metallic reflections weaker, bronze; at least mid and hind knees not or hardly pale *M. gramineus* (HALIDAY)
- 4 F5 clearly larger than F4, with at least one sensillum; in male F1-F3 more compacted together, usually almost fused; in female tip of hypopygium level with or very close to tip of gaster; F1-F3 less compacted together; mesosoma flattened, scutellum and propodeum in about same plane; forewing with dense pilosity on dorsal surface, especially between R and apical margin without a clear bare area.....
..... *M. chalybeus* (HALIDAY)
- F5 at most slightly larger than F4, without sensilla; in female funicle with segments anelliform and without sensilla; mesosoma flattened dorsally; ovipositor sheaths exerted for a length equal to about 2/3 length of hind tibia, tip of hypopygium not reaching tip of gaster..... *M. varicornis* (HALIDAY)

***Macroglenes fidanlinensis* nov.sp. (Figs. 1a-d, 2a-b)**

E t y m o l o g y . The name is derived from the name of Fidanlı, Samandağ from which the types were collected.

D i a g n o s i s . In male eye very large, touching or almost touching posterior ocellus; scape normal, at least 3.3x as long as broad; pecten occupying virtually whole length of hind tibia; In female tip of hypopygium level with or very close to tip of gaster; F1-F3 more compacted together; mesosoma moderately arched dorsally; body black; hind tibial pecten complete.

D e s c r i p t i o n . Female: Body length. 1.43-1.55 mm.

Color. Body black, mandible light brown. antenna and legs almost same color except tarsi pale-brown. Wings weakly developed, hyaline, with pale venation and setae.

Head. In frontal view about as broad as high. Eye about 2.0x as long as width. Malar space about 1/2.5 eye height. Antenna (Fig. 1 d) with scape distinctly less than eye height, about 4.4x as long as width; pedicel in lateral view about 1.6x as long as width; F1-F4 transverse, anelliform, without sensilla, F1 longer than F2–F4, twice as wide as long; F2 slightly shorter and narrower than F3, both about 3.75x as wide as long; F4 about 4.0x as long as width, combined length of F1-F4 0.7x as long as pedicel; F1-F3 more less compacted together; F5 large, with sensilla, about 1.7x as wide as long; clava 0.87x as long as pedicel plus funicle together, about 2.3x as long as width.

Mesosoma. In profile distinctly arched dorsally, length about 1.5x height. Mesoscutum and scutellum with very fine, engraved sculpture. Forewing (Fig. 2 a) about 2.13x as long as wide; costal cell with a few hairs distally on upper surface; speculum broad, basal cell glabrous, basal vein with 5-6 hairs; marginal vein about 7.14x as long as stigmal vein, which is about 0.73x to postmarginal vein; petiole of stigmal vein long, almost as long as length of stigma, the latter broad, sub triangular; disc beyond R with a clearly defined bare area. Hind tibia with pecten regular, extending about whole length of hind tibia (Fig. 1 c).

Metasoma. Ovipositor sheaths short, laterally compressed, length about 3.75x width, exerted for about half length of hind tibia. Hypopygium large, its tip at about same level as tip of gaster or slightly beyond it.

M a l e : similar to female except as follows:

Body length. 1.3-1.45 mm.

Head. In frontal view (Fig. 1 a) about 1.16x as broad as high. Eye of male very large, touching or almost touching posterior ocellus; about 2.3x as long as width. Antenna (Fig. 1b) with scape broader, length about 3.75x width; pedicel about 1.56x as long as width; F1-F3 closely compacted; F4 as long as F2+F3, and 0.40x as long as F5; F5 1.67x as wide as length; clava almost twice as long as width.

Mesosoma 1.66x as long as height. Forewing (Fig. 2 b) with postmarginal vein almost 0.6-2x as long as stigmal vein, which has short petiole, about 1/3 length of stigma, the stigma broad, almost globular to 1.7x as long as width. Hind tibia with pecten more developed and regular, occupying at least about 4/5 of the tibia (Fig. 1 c).

Gaster. 0.76x as long as head plus mesosoma combined, length about twice width, slightly compressed laterally.

M a t e r i a l s s t u d i e d : Holotype ♀, Turkey:Hatay, Samandağ, Fidanlı, 15.iv.2006, right antenna in slide, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Paratypes: 1 ♀, 20 ♂♂ on card, 5 ♂♂ in slide; same data as the holotype.

C o m m e n t s : *Macroglenes fidanlinensis* nov.sp. is similar to *Macroglenes gramineus* (HALIDAY) and *Macroglenes microcerus* HALIDAY in having eye of male very large, touching or almost touching posterior ocellus; scape normal, at least 3.75x as long as broad; pecten occupying virtually whole length of hind tibia, but it differs from *M. gramineus* in having tip of hypopygium level with or very close to tip of gaster; mesosoma moderately arched dorsally; fore wing with stigmal vein about 0.73x to postmarginal vein; petiole of stigmal vein long, almost as long as length of stigma, the latter broad, sub triangular (in *M. gramineus* tip of hypopygium more distinctly removed from tip of gaster; mesosoma flattened, scutellum and propodeum in about same plane; forewing (Fig. 2c) with stigmal vein about as long as postmarginal vein; petiole of stigmal vein short, almost 1/3 as long as length of stigma, the latter broad, almost quadrangular). The new species differs from *M. microcerus* in having F1-F3 more compacted together in male, and stigmal vein with long petiole in both sexes (in *M. microcerus* F1-F3 distinctly separated from each other in male; stigmal vein with short petiole in both sexes).

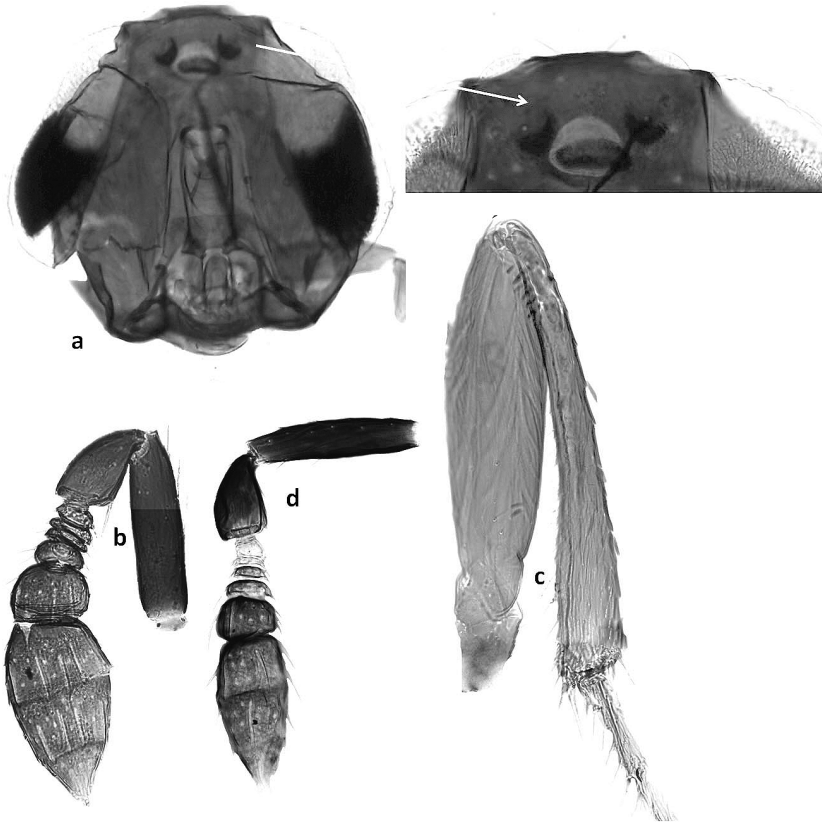


Fig. 1: *Macroglenes fidanlinensis* nov.sp.: a-c male: (a) head, in frontal view; (b) antenna; (c) hind tibiae; (d) female antenna. (Scale bar for a= 0.17 mm; for b= 0.11 mm; for c= 0.15 mm; for d= 0.16 mm).

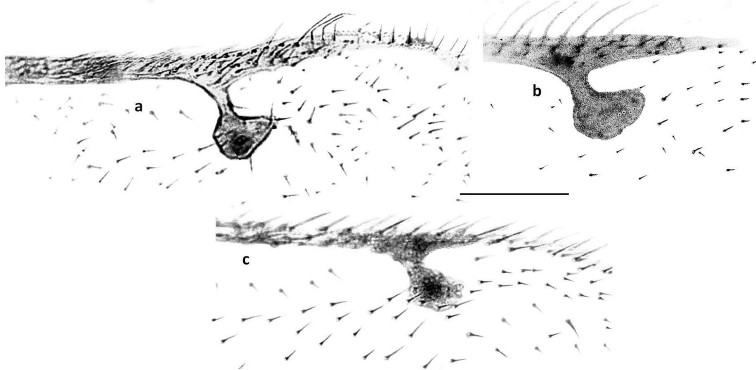


Fig. 2: *Macroglenes* spp.: a-b: *M. fidanlinensis* nov.sp.. forewing stigma and postmarginal area: (a) female, (b) male; (c) *M. gramineus* (HALIDAY). c. female, forewing stigma and postmarginal area. (Scale bar for a, b = 0.30 mm; for c= 0.32 mm).

***Macroglenes microcerus* HALIDAY, 1844**

Macroglenes microcerus HALIDAY, 1844: 295. Lectotype ♀ (BMNH). designated by GRAHAM (1969). Type materials, the synonyms, description, distribution and hosts were given by MITROIU (2010) and GRAHAM (1969).

Diagnostic characters: In male eye very large, touching or almost touching posterior ocellus; scape normal, at least 3.3x as long as broad; pecten occupying virtually whole length of hind tibia; F1-F3 distinctly separated from each other; Body black, without metallic reflections; antenna with only F5 large, with sensilla, eyes greatly enlarged; tibial pecten complete; forewing as in *M. gramineus*.

Materials studied: Turkey, 1♂, Erzin, 14.iv.2008, swept from pasture by M. Doğanlar (New record for Turkey).

***Macroglenes gramineus* (HALIDAY, 1833)**

Pirene graminea HALIDAY, 1833: 338; lectotype ♀ (BMNH). designated by GRAHAM (1969).

The synonyms, description, distribution and hosts were given by MITROIU (2010) and GRAHAM (1969).

Diagnostic characters: In male eye very large, touching or almost touching posterior ocellus; scape normal, at least 3.3x as long as broad; pecten occupying virtually whole length of hind tibia; In female tip of hypopygium more distinctly removed from tip of gaster; F1-F3 more compacted together, usually almost fused; mesosoma flattened, scutellum and propodeum in about same plane; Hind tibia with pecten regular and occupying about 2/3 its length; metallic reflections weaker, bronze; at least mid and hind knees not or hardly pale.

Materials studied: Turkey, 2♀♀; 11♂♂, Hatay, Dörtyol, Altınçağ, 14.iv.2008, swept from pasture, M. Doğanlar. (New record for Turkey).

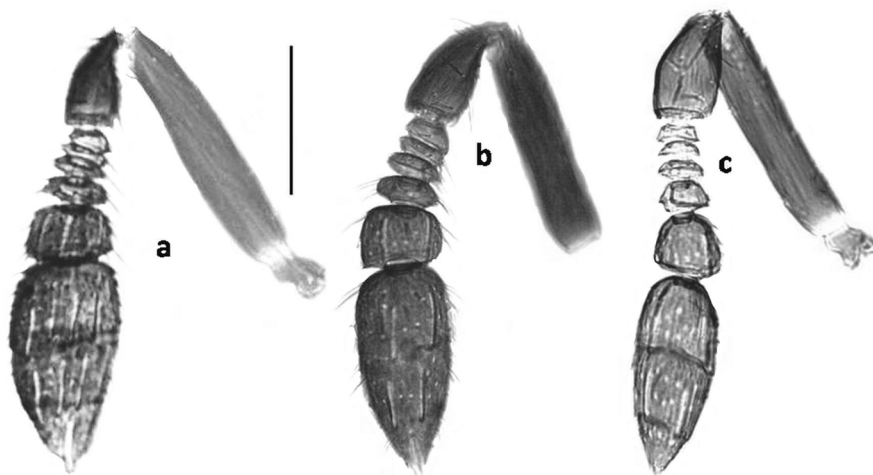


Fig. 3: *Macroglenes* spp. a-b: *M. gramineus* (HALIDAY): (a) female antenna; (b) male antenna; (c) *M. microcerus* HALIDAY, male antenna. (Scale bar for a= 0.11 mm; for b, c = 0.15 mm). 0.11 mm.

***Macroglenes chalybeus* (HALIDAY, 1833)**

Pirene chalybea HALIDAY, 1833: 338. Lectotype ♂ (BMNH), designated by GRAHAM (1969).

Type materials, the synonyms, description, distribution and hosts were given by MITROIU (2010) and GRAHAM (1969).

Diagnostic characters: In male eye normal size, separated from posterior ocellus by a distance greater than diameter of ocellus; scape strongly swollen, at most 2.3x as long as broad; hind tibial pecten less developed, sometimes absent; F5 clearly larger than F4, with at least one sensillum; in female tip of hypopygium level with or very close to tip of gaster; F1-F3 less compacted together; mesosoma flattened, scutellum and propodeum in about same plane; forewing with dense pilosity on dorsal surface, especially between R and apical margin without a clear bare area.

Materials studied: Turkey, 1♀, Şanlıurfa, Eyyübiye Campus of Harran University, 16.iv.2008; 1♀, Birecik, 09.v.2007; Hatay, 1♀, Antakya, Campus of Mustafa Kemal University, 26.iv.2012, All of them were swept from pasture by M. Doğanlar; 3♂♂, Niğde, Ulukışla, Gümüş, 16.vi.2006, 1♀, same locality, 27.vi.2006, swept from *Astragallus* sp., M. Doğanlar (New record for Turkey).

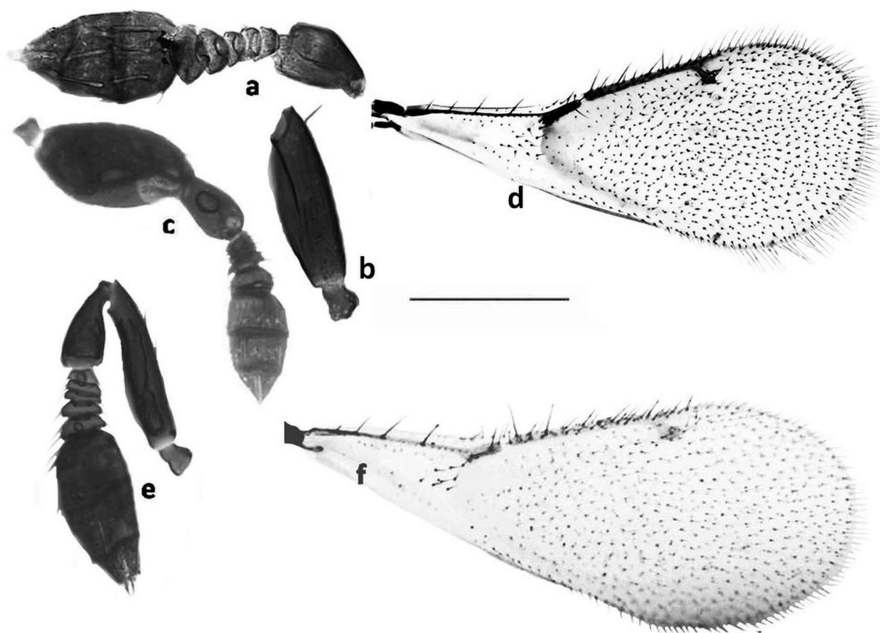


Fig. 4: *Macroglenes* spp. a-d. *M. chalybeus* (HALIDAY): (a, b) female antenna; (c) male antenna; (d) forewing; (e, f) *M. varicornis* (Haliday). (e) female antenna; (f) forewing. (Scale bar for a, b = 0.12 mm; for c = 0.18 mm; for d = 0.37 mm; for e = 0.21 mm; for f = 0.26 mm).

***Macroglenes varicornis* (HALIDAY, 1833)**

Pirene varicornis HALIDAY, 1833: 337; Lectotype ♀ (BMNH). Type materials, the synonyms, description, distribution and hosts were given by MITROIU (2010) and GRAHAM (1969).

D i a g n o s t i c c h a r a c t e r s : In male eye normal size, separated from posterior ocellus by a distance greater than diameter of ocellus; scape strongly swollen, at most 2.3x as long as broad; hind tibial pecten less developed. F5 at most slightly larger than F4, without sensilla; in female funicle with segments anelliform and without sensilla; mesosoma flattened dorsally; ovipositor sheaths exerted for a length equal to about 2/3 length of hind tibia, tip of hypopygium not reaching tip of gaster.

M a t e r i a l s s t u d i e d : Turkey: 3 ♀♀, Kars, Kağızman, 28.vi.-20.vii.1980, reared from eggs of *Yponomeuta malinella*, M. Doğanlar; 1 ♀, Adıyaman, Atatürk Damp, 25.iv.2007, swept from Canola field, having *Sinapis* sp., M. Doğanlar.

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