

## A New *Mycetochara* Species (Coleoptera: Tenebrionidae: Alleculinae) from Turkey

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### ABSTRACT

In a study of old hollow oaks in southern Turkey, a new species from genus *Mycetochara* (subgenus *Ernocharis*) was found. The species *Mycetochara mersinica* Novák sp. nov., are presently described, illustrated and compared with other species from the region.

**Key words:** Coleoptera, Tenebrionidae, Alleculinae, *Mycetochara*, *Ernocharis*.

### INTRODUCTION

Old oaks (*Quercus* spp) are exceptionally species-rich in Europe and Turkey (Palm, 1959; Jansson and Coskun, 2006), but the habitat has declined substantially (and many species are threatened (McLean and Speight 1993; Hannah *et al.*, 1995; Nieto and Alexander, 2010). The reason is lack of suitable trees or successors as a result of an extended period of inappropriate management, old tree removal or entire habitat conversion (Nilsson, 1997; Kirby and Watkins, 1998). During the period 2005-2010, a study of the saproxylic beetle fauna on old oaks was conducted in southern Turkey. The aim with this study, primarily, was to describe the saproxylic beetle fauna in Turkey and later compare the results with the neighbouring countries.

One group of beetles often found in our studies was the Darkling beetle family (Coleoptera: Tenebrionidae) and one of the genera from this family was *Mycetochara* Berthold, 1827. The genus was described by Berthold (1827) with *Cistela* (now *Mycetochara*) *linearis* Illiger, 1794 as a type species. Representatives of this genus are widely distributed in Europe, Asia, North Africa and North America. Borchmann

(1910) knew 55 species from whole world; Mader (1928) listed 41 species and Novák and Pettersson (2008) 52 species from Palaearctic region. Almost Most of them belong to the subgenus *Ernocharis* C. G. Thomson, 1859. The genus was defined by Berthold on species of the subgenus *Mycetochara* Berthold, 1827 mainly by anterior coxae separated by a distinct apophysis of the prosternum, while species of the genus *Mycetochara* ss. Have anterior coxae close to each other. Nearly 20 species of *Mycetochara* are distributed across the territory of Turkey and adjacent regions. Most of them possess uniformly-coloured elytra while the remaining species, with dark elytra with yellow or red spots are *Mycetochara angustifrons* Reitter, 1899 from southern territory of Russia, *M. excelsa* Reitter, 1884 from Azerbaijan, Georgia, southern territory of Russia, Caucasus and Iran, *M. gracilis* (Faldermann, 1837) from Armenia, Georgia, southern territory of Russia and Caucasus, *M. ocularis* Reitter, 1884 from Azerbaijan and Caucasus, *M. quadrimaculata* (Latreille, 1804) widely distributed in Europe and Turkey and *Mycetochara seidlitzii* Reitter, 1899 from southern territory of Russia.

This paper presents a description of the new species *Mycetochara mersinica* Novák sp. nov. from Turkey, which is also illustrated and compared with the other known bicoloured species of Turkey and adjacent regions.

## MATERIAL AND METHODS

Nine stands with old hollow oaks, spread across five areas, were studied in southern Turkey (Fig. 1). In total, 90 hollow oaks were surveyed. The oak species studied were *Quercus cerris* L., *Q. Infectoria* Olivier, *Q. Trojana* Webb, *Q. Libanii* Olivier, *Q. Pubescens* Willd., *Q. Ithaburensis* Decaisne and *Q. Vulcanica* Willd.



Fig. 1. The position of the studied areas in Turkey. 1. Gölhisar, 2. Isparta, 3. Gülnar, 4. Erdemli and 5. Kozan.

At each site, 10-20 trees were sampled for beetles by using two different trap types: window traps on the tree trunk and pitfall traps in the wood mould inside the trunk cavities. The traps were set in position for the period from mid-April to mid-September over one season per area from 2005 to 2010. The studied areas are all situated 50-150 km from the southern Mediterranean coast at altitudes between 1100 and 1500 m except one at 400 m. Individual trees used for trapping were randomly selected from

*A New Mycetochara Species (Coleoptera: Tenebrionidae: Alleculinae) from Turkey*

the pool of suitable oaks found. The window traps (W-trap) consisted of a 30 x 60 cm wide transparent plastic plate with a tray underneath (Jansson and Lundberg 2000). They were placed near the trunk (<1 m), beside or in front of the cavity entrance (Fig. 2a). Their positions were 1.5-5 m from the ground, depending on where the cavity entrance was situated on the studied tree. The pitfall traps (P-trap) were plastic cups with a top diameter of 6.5 cm. They were placed in the wood mould at the bottom of the cavity, with their openings on level with the wood mould surface (Fig. 2b).

Two important morphometric characteristics are used for the descriptions of the species from the subfamily Alleculinae: i) the dorsal 'ocular index' (Campbell and Marshall 1964), calculated by measuring the minimum distance between the eyes and dividing this value by the maximum dorsal width across eyes (the quotient resulting from this division is converted into an index by multiplying by 100); and ii) the 'pronotal index' (Campbell, 1965) expressing the ratio of the length of the pronotum along the midline to the width at the basal angles (this ratio is multiplied by 100 for convenience in handling). Both indices are used in this paper.

The following codes are used in the paper:

ISIT Collection of Insect Museum at Suleyman Demirel University in Isparta, Turkey;

NMSS Collection of Natural Historical Museum in Stockholm, Sweden;

NJLS Private collection of Nicklas Jansson, Linköping, Sweden;

VNPC Private collection of Vladimír Novák, Prague, Czech Republic.

Measurements were made with Olympus SZ 40 stereoscopic microscope with continuous magnification and with soft imaging system analysis. Measurements of body parts and the corresponding abbreviations used in text are as follows:

AL total antennal length

BL maximum body length

EL maximum elytral length

EW maximum elytral width

HL maximum length of head (visible part)

HW maximum width of head

OI ocular index (dorsal)

PI pronotal index (dorsal)

PL maximum pronotal length

PW pronotal width at base

RLA ratios of relative lengths of antennomeres 1-11 from base to apex (3=1.00)

RL/WA ratios of length / maximum width of antennomeres 1-11 from base to apex

RLT ratios of relative lengths of tarsomeres 1-5 respectively 1-4 from base to apex (1=1.00)



Fig. 2. a) Mounting a window trap, b) a pit-fall trap inside a hollow oak, c) working with the traps on an old oak.

## RESULTS

### Taxonomy

#### *Mycetochara (Ernocharis) mersinica* Novák sp. nov. (Figs. 3-4)

**Type locality:** Turkey, Mersin, 40km NW Gülnar, N 36°30'22"; E 33°07'43", Köseçobanlı - Taşdüştü.

**Type material:** Holotype Turkey, Mersin, 40km NW Gülnar, N 36°30'22"; E 33°07'43", Köseçobanlı - Taşdüştü, W-trap 13, Hollow Quercus 24.VI.2006, 1♂, Nicklas Jansson and Mustafa Coskun, (ISIT); Paratypes: same data as holotype 3♂♂, but P-trap 8, (ISIT); same data as holotype, 2♂♂, but W-trap 18, (VNPC); same data as holotype, 1♂, but W-trap 3, (NJLS); same data as holotype, 1♂, but W-trap 9, (NMSS); same data as holotype, 1♂, but W-trap 13, (ISIT); same data as holotype, 1♂, W-trap 16, (ISIT); 26.VII.2006 as holotype, 1♀, W-trap 16. The types are provided with a red printed label: *Mycetochara (Ernocharis) mersinica* sp. nov. HOLOTYPUS [resp. PARATYPUS] V. Novák det. 2011.

### Description of holotype

**Male:** Habitus as in Fig. 3, body elongate, narrow, parallel, from yellow to blackish-brown, slightly shiny, BL 5.08 mm. Widest near middle of elytra; BL/EW 3.18.

Head (Fig. 4a), relatively large and broad, HW 0.93 mm; HW/PW 0.76. HL (visible part) 0.73 mm, blackish-brown, anterior part paler, with dense, deep and coarse, large punctuation. Eyes large, transverse, distinctly excised, space between eyes relatively narrow, distinctly narrower than width of both eyes together. Behind eyes few dark setae, clypeus with pale brown setation. OI equal to 43.73.

*A New Mycetochara Species (Coleoptera: Tenebrionidae: Alleculinae) from Turkey*

Antennae (4b), short, with microgranulation, dull, AL 1.66 mm, AL/BL 0.33. Antennomeres 1-3 pale brown with longer pale brown setation, antennomeres 4-11 slightly darker with longer brown setation. Antennomere 2 shortest, antennomere 4 longest, antennomeres 4-10 distinctly broadest on apex. Ultimate antennomere rounded. RLA (1-11): 0.62: 0.59: 1.00: 1.07: 0.84: 0.93: 0.92: 0.95: 0.91: 0.88: 0.87. RL/WA (1-11): 1.32: 1.33: 1.85: 1.76: 1.44: 1.57: 1.48: 1.43: 1.31: 1.25: 1.39.

Maxillary palpus, pale yellowish-brown, slightly shiny, with pale brown setation. Palpomeres 2-4 distinctly narrowest at base and broadest at apex. Ultimate palpomere axe-shaped.

Pronotum (Fig. 4a), brown, transverse, shiny, with large, deep and coarse punctuation, punctures not so closed as at head. Setation near sides dark, inside pale brown. PL 0.74 mm; PW 1.22 mm. PI equal to 60.46. Border lines narrow, complete only in sides and at base, anterior margin indistinct. Posterior angles rounded, distinctly obtuse, anterior angles rounded, indistinct.

Ventral side of body, brown, with punctuation. Prosternal process distinctly divides anterior coxae. Abdomen pale brown with sparse, pale brown setation, very fine microgranulation and sparse punctuation, punctures small and shallow, shiny. Setation of ultimate abdominal sternite distinctly denser.

Elytron, long, elongate, narrow, parallel, brown, with dense brown setation and punctuation, shiny. Base of elytron near side with short and narrow longitudinal yellow spot. EL 3.61 mm. Broadest near elytral two half, EW 1.60 mm. EL/EW 2.26. Elytral striae with indistinct rows of punctures. Elytral intervals with fine microgranulation.

Scutellum, triangular, brown, shiny, with deep and coarse punctuation.

Elytral epipleura, well-developed, pale brown, regularly narrowing towards abdominal ventrite 1. Anterior part with two rows of distinct punctures.

Legs, one-coloured yellow, narrow, with dense yellow setation. Tibia and tarsi narrow, tibia distinctly dilated at inner side. RLT: protarsus: 1.00: 0.60: 0.53: 0.48: 1.16; mesotarsus: 1.00: 0.58: 0.46: 0.42: 0.88; metatarsus: 1.00: 0.42: 0.24: 0.46.

Both anterior tarsal claws with 6 visible teeth.

Aedeagus (Figs. 4c, 4d), pale brown, slightly shiny. Basal piece rounded laterally and almost parallel dorsally. Apical piece triangular dorsally, beak-shaped laterally. Ratio of length of apical piece to length of basal piece 1: 2.68.

**Female:** Distinctly broader than male, elytra only 1.92 times longer than wide (elytra of male 2.26 times longer than wide. Space between eyes distinctly broader than those in male; OI approximately 64.06.

**Variation:** Measurements: mean (minimum - maximum). Males (n=9). BL 4.88 mm (4.35-5.62 mm); HL 0.68 mm (0.53-0.84 mm); HW 0.92 mm (0.85-1.02 mm); OI 41.70 (36.41-44.37), PL 0.73 mm (0.64-0.88 mm); PW 1.19 mm (1.03-1.34 mm); PI 61.31 (56.65-65.97); EL 3.47 mm (3.05-3.90 mm); EW 1.55 mm (1.43-1.75 mm). Females (n=2) BL 4.56 mm (4.11-5.01 mm); HL 0.69 mm (0.63-0.75 mm); HW 0.94 mm (0.86-1.02 mm); OI 64.06 (63.60-64.52), PL 0.82 mm (0.72-0.92 mm); PW 1.27

mm (1.04-1.49 mm); PI 65.59 (61.95-69.23); EL 3.05 mm (2.76-3.34 mm); EW 1.59 mm (1.40-1.78 mm).

**Differential diagnoses:** *Mycetochara (Ernocharis) mersinica* sp. nov. distinctly differs from the other Turkish bicoloured *Mycetochara* species mainly by having very narrow, yellow longitudinal spot on each elytron near base and very short antennae (reaching only to the elytral base), while, in contrast, other known Turkish bicoloured species, *Mycetochara 4-maculata*, has a broad red spot or broad red stripe near elytral base and antennae (Fig. 6b) that clearly exceed the elytral base.



Fig. 3. *Mycetochara (Ernocharis) mersinica* sp. nov.: Habitus of male holotype.

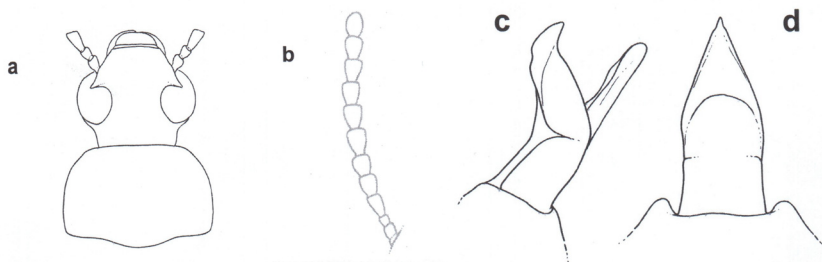


Fig. 4. *Mycetochara (Ernocharis) mersinica* sp. nov.: a) Head and pronotum of male holotype; b) Antennae; c) Aedeagus, lateral view; d) Aedeagus, dorsal view.

**Etymology:** Patronymic, after the Turkish province and town Mersin.

**Distribution :** Turkey.

### *Mycetochara quadrimaculata* (Latreille, 1804) (Figs. 5-6)

**Material examined:** Turkey, Isparta: Eğirdir, Yukangökdere, Yukangökdere, N 37°42'96"; E 30°49'89", Kasnak forest W-trap Hollow Quercus, 29, 17.V.2007, 1 ♂, Nicklas Jansson and Mustafa Avci. Turkey, Antalya: Gölhisar, N 36°57'40"; E 29°27'53", 28.VI.2009, 1 ♂; Altinyayla, W-trap 9, Hollow Quercus, 28.VI.2009, 1 ♂, Nicklas Jansson and Mustafa Avci; same data as penultimate, but W-trap 3; (1 spec.): same data as penultimate, but W-trap 13, 1 ♂; same data as penultimate, but W-trap 15; (2 spec.): same data as penultimate, but W-trap 22; (1 spec.): same data as penultimate, but W-trap 22.



**Remarks:** Some specimens from Altinyayla locality had only two basal spots on elytra (Fig. 5a). All other measurements were approximately the same as with typical specimens with four spots (Fig. 5b). BL 4.76; HL 0.58; HW 0.92; OI 61.11; PL 0.92; PW 1.40; PI 66.01; EL 3.28; EW 1.69; RLA (1-11): 0.38: 0.38: 1.00: 1.04: 0.99: 1.06: 1.09: 1.16: 1.05: 1.05: 1.18.



Fig. 5. *Mycetochara quadrimaculata* Latreille, 1804: a) Habitus of male with two elytral spots; b) Habitus of typical male with four elytral spots.

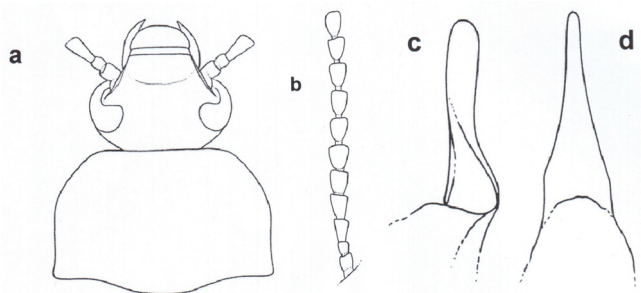


Fig. 6. *Mycetochara quadrimaculata* (Latreille, 1804): a) Head and pronotum of male; b) Antennae; c) Aedeagus, lateral view; d) Aedeagus, dorsal view.

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