

A new *Agriotes* species (Coleoptera: Elateridae) from Turkey

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Received: 11.11.2008

Abstract: A new Elateridae species, *Agriotes platiai* n. sp., is described from Ankara and Yozgat provinces in Turkey. Photographs of the entire body and aedeagus, drawings of the antenna and aedeagus, and differential diagnosis are given.

Key words: Coleoptera, Elateridae, *Agriotes*, new species, Turkey

Türkiye'den yeni bir *Agriotes* türü (Coleoptera: Elateridae)

Özet: Bu çalışmada, yeni bir Elateridae türü olan *Agriotes platiai* n. sp. Türkiye'nin Ankara ve Yozgat illerinden tanımlanmıştır. Toplam vücut, aedeagus fotoğrafları, anten ve aedeagus çizimleri ve karşılaştırmalı tanısı verilmiştir.

Anahtar sözcükler: Coleoptera, Elateridae, *Agriotes*, yeni tür, Türkiye

Introduction

According to Löbl and Smetana (2007) there are 145 species belonging to the genus *Agriotes* Eschscholtz, 1829 in the Palaearctic region. In addition, the European fauna of the genus *Agriotes* has 35 species (www.faunaeur.org). It could be said that the Turkish fauna is very rich compared to the European fauna. There are 69 species (Mertlik and Platia, 2008), which is approximately 47% of Palaearctic fauna. Since 1985, many studies have been conducted on the genus *Agriotes* by various authors in Turkey and 30 new species have been described (Guglielmi and Platia, 1985; Cate and Platia, 1997; Platia and Gudenzi, 1998a, 1998b, 2000; Platia, 1989, 2003, 2004a, 2004b; Platia and Schimmel, 1992, 1993). These studies showed that, in the future, many new species could be discovered through comprehensive research.

Materials and methods

Specimens of the new species were collected from Ankara and Yozgat provinces. The habitat of male is grasslands located in the transitional area between the Central Anatolian and Middle Black Sea regions. Photographs of the body of male and female specimens and aedeagus were taken using a Leica MZ 16A stereoscopic microscope system. The aedeagus structure of *A. platiai* n.sp. was removed using the standard methods. The antenna and aedeagus of male and female specimens of *A. platiai* n.sp. were drawn in detail using a Nikon SMZ-U stereoscopic binocular microscope. Body lengths of specimens were measured along the midline from the anterior margin of the frons to the apex of the elytra, and widths of specimens were measured across the broadest part of the elytra. General morphology of the new species was compared with that of *A. lundbergi* Platia, 1989,

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which is a closely related species according to general appearance, and differential diagnosis was given. A picture of the entire body of *A. lundbergi* is given for morphological comparison from www.elateridae.com. Aedeagus structures of the new species and *A. lundbergi*, *A. audisioi* Platia & Schimmel, 1992, and *A. adlbaueri* Platia & Schimmel, 1992 are compared in the Table. The aedeagus drawings of *A. audisioi* and *A. adlbaueri* were scanned from Platia and Schimmel 1992 and the aedeagus drawing of *A. lundbergi* was scanned from Platia 1989. Species number of the genus *Agriotes* in Europe was obtained from www.faunaeur.org and the picture of *Agriotes lundbergi* was obtained from www.elateridae.com.

Results

Pictures and drawings of the examined specimens are given in Figures 1-3.

Agriotes platiai n. sp.

Type Locality: Holotype, 1 ♂ Yozgat province, Sorgun, Yaylalık village, Gezbel plateau (40°4'27.48"N 35°14'41.58"E), 1442 m, 05.V.2006 leg. M. Kabalak; Paratype, 1 ♀, Ankara, 05.V.1960 Rec. S. Breuning.

Specimens are preserved in Mahmut KABALAK's personal collection.

Holotype (Figure 1a and 2a): Male, length 9.62 mm; width 2.71 mm; body slightly shiny black, antenna, legs and posterior part of anal sternite reddish yellow, body covered with golden yellow sparse hairs (Figure 1a). Frons flat, supra-antennal carinae reaching anterior margin, head with dense and umbilicate punctures, fronto-clypeal carinae straight. Antennae short, not reaching apices of posterior angles of pronotum by 2-2.5 segments, second and third segments subcylindrical, second segment 1.15× longer than third segment and second segment as wide as third segment, second and third taken together 1.9× longer than fourth, fourth-tenth segments subtriangular and longer than wide, eleventh segment ellipsoidal and 1.4× longer than penultimate (Figure 2a). Pronotum 1.2× longer than wide, convex, widest at base, with short and distinct mid-longitudinal furrow, lateral sides parallel from base to distal and distinctly narrowing from distal through apex, lateral suture extending to below eyes continuously except its medial, pronotal disc with sparse and feebly umbilicate punctures, rest of

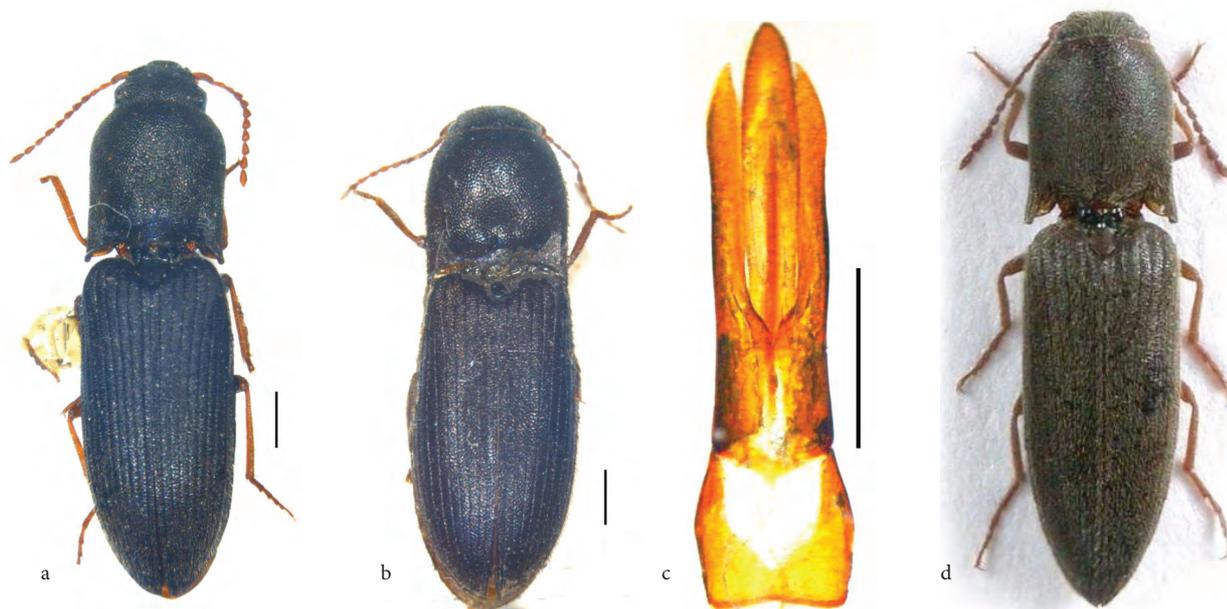


Figure 1. *Agriotes platiai* n. sp. habitus a. male, b. female (scale = 1 mm) c. aedeagus (scale = 0.5 mm), d. *Agriotes lundbergi* (www.elateridae.com).

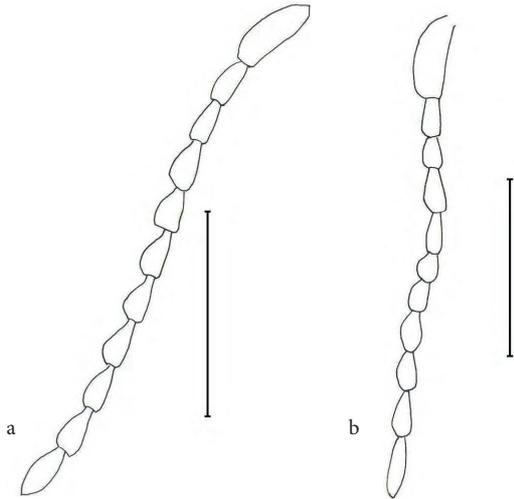


Figure 2. *Agriotes platiai* n.sp. a. Antenna (♂), b. antenna (♀), (scale = 1 mm).

pronotum with dense and umbilicate punctures. Scutellum flat and tongue-shaped, covered with dense punctures. Elytra as wide as base of pronotum, elytra 2.1× longer than it, lateral sides of elytra arcuate until proximal, nearly parallel from proximal to medio-distal, clearly narrowing towards apical, elytral striae distinct, interstriae feebly convex and rugose. Prosternal suture deepens towards anterior margin.

Paratype (Figure 1b and 2b): Female, length 9.15 mm; width 3 mm, color of body same as holotype (Figure 1b), second antennal segment 1.2× longer than third, total length of second and third segments 1.6× longer than fourth (Figure 2b); pronotum 1.1× longer than wide, widest at medial, lateral sides almost parallel from base to medial and clearly narrowing from medial to apex.

Structure of Aedeagus (dorsal view) (Figure 1c and 3a) (length 1.63 mm): Lateral of basal part

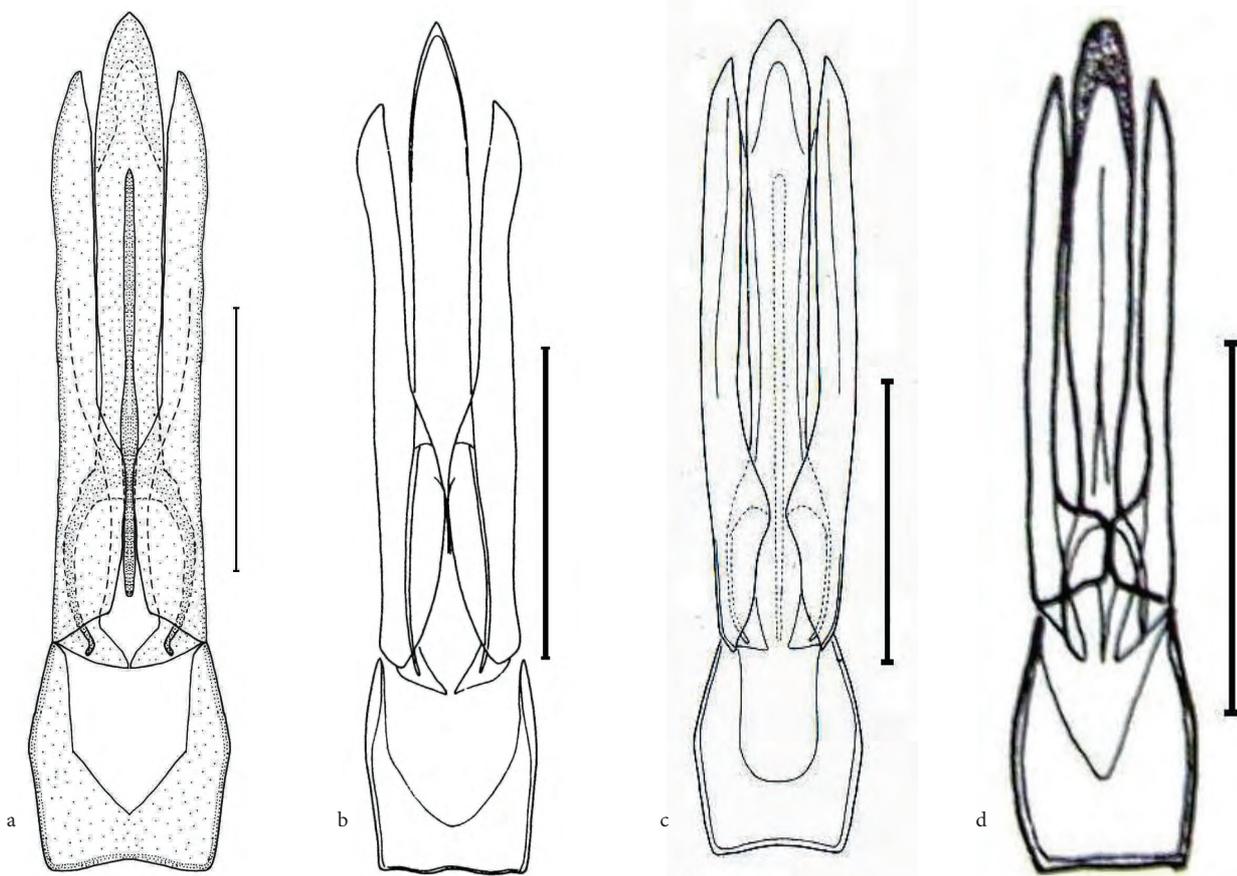


Figure 3. Aedeagus drawings of species (in dorsal view) a. *A. platiai* n. sp., b. *A. lundbergi*, c. *A. adlbaueri*, d. *A. audisioi* (scale = 0.5 mm).

widest at medial, convexly angled at medial, posterior margin roof-like, anterior margin parallel sided until medial, from medial to posterior margin 'V' shaped, apex of arms of basal part rounded, sides strongly, rest slightly chitinized; median lobe clearly longer than parameres, feebly chitinized except medially extending strongly chitinized narrow line, median lobe slightly narrowing at medio-proximal, distinctly narrowing between distal and apical, apex of median lobe pointed, arms of median lobe bow shaped, narrowed towards apex and curved at apex; parameres parallel sided from base through distal, narrowing from distal to apical, apex slightly pointed, parameres without distal teeth.

Etymology: The new species is named after the Elateridae specialist, Giuseppe Platia. He contributed to the Elateridae fauna of Turkey by describing many new species.

Ecological notes: ♂ specimen was collected under a stone on grassland; collection type of ♀ specimen is unknown.

Differential diagnosis

In the present study, a new species of the genus *Agriotes* is described. *Agriotes platiai* n. sp. belongs to the *A. turcicus* Candèze, 1863 group with absence of distal denticles on parameres of the aedeagus, is closely related to *A. lundbergi* (Figure 1d) because of similarities, which are in general morphology, especially the pronotum and aedeagus. It can be separated by the combinations of the following characters: ratio of elytra/pronotum lengths of *A. platiai* n. sp. is smaller than that of *A. lundbergi*; posterior pronotal angles are divergent in *A. lundbergi* whereas they are subparallel in the new species. Aedeagus morphology of the new species was compared with that of 3 species because according to general morphology *A. lundbergi* is closely related to the new species; in contrast, depending on their aedeagus morphologies, they show less similarity. Differential comparisons of aedeagus morphologies for *A. platiai* n. sp., *A. lundbergi*, *A. audisioi*, and *A. adlbaueri* are given in the Table.

Table. Differential comparisons of aedeagus structure of 3 species with the new species.

	<i>A. platiai</i> n. sp. (Figure 3a)	<i>A. lundbergi</i> (Figure 3b)	<i>A. adlbaueri</i> (Figure 3c)	<i>A. audisioi</i> (Figure 3d)
Posterior margin of basal part	Clearly roof-like	Feebly sinuate	Feebly arcuate	Straight
Lateral margins of basal part	Clearly roof-like	From anterior to proximal feebly arcuate, proximal to basal parallel sided	Clearly roof-like	Clearly arcuate
Anterior margin of basal part	From anterior to medial parallel sided, medial to posterior 'V' shaped	Slightly 'V' shaped	'U' shaped	'V' shaped
Lateral margins of parameres	Parallel	From basal to distal parallel, distal to apical slightly divergent	Not parallel, angled at medial	Parallel
Median lobe	Slightly narrow at medio-proximal	Parallel at medio-proximal	Slightly narrow from proximal to distal	Clearly narrow at medio-proximal
Apex of median lobe	Feebly pointed	Feebly pointed	Slightly projecting	Feebly truncated
Arms of median lobe	Long, arcuate, curved at apex	Long, arcuate, not curved at apex	Long, arcuate, not curved at apex	Short, arcuate, not curved at apex

Acknowledgements

We would like to thank the Scientific and Technological Research Council of Turkey (TÜBİTAK) for supporting this research through a project, 'Systematical Researches on the Family Elateridae (Coleoptera) in Central Anatolian and

Middle Black Sea Region' Project number: 104T312; Biologist Fatih ERGAN for his help during fieldwork; and Dr. Giuseppe PLATIA for kindly helping with the confirmation of the new species and providing a female specimen.

References

- Cate, P. and Platia, G. 1997. A new species of *Agriotes* Eschscholtz (Coleoptera, Elateridae) from Greece, Turkey and Syria. *Z. Arb. Gem. Öst. Ent.* 49: 109-113.
- Guglielmi, A. and Platia, G. 1985. Contributo alla conoscenza degli Elateridi di Grecia e Turchia (Coleoptera). *Fragm. Entomol.* 18: 169-224.
- Löbl, I. and Smetana, A. 2007. Catalogue of Palearctic Coleoptera Vol. 4: Elateroidea, Derodontoidea, Bostrichoidea, Lymexyloidea, Cleroidea and Cucujoidea. Apollo Books. 935 p.
- Mertlik, J. and Platia, G. 2008. Catalogue of the family Cebrionidae, Elateridae, Lissomidae, Melasidae and Throscidae (Coleoptera) from Turkey. *Elateridarium* 2: 1-40.
- Platia, G. 1989. Descrizione di nuove specie di Elateridi della Grecia e Turchia (Coleoptera, Elateridae). *Lavori Soc. Ven. Sc. Nat.* 14: 79-86.
- Platia, G. 2003. Descrizione di otto nuove di *Agriotes* del gruppo nuceus Fairmaire della Turchia con chiave di determinazione all specie note (Insecta, Coleoptera, Elateridae). *Il Naturalista Valtellinese - Atti Mus. Civ. Stor. Nat. Morbegno.* 14: 13-28.
- Platia, G. 2004a. Nuovi Elateridi d'Europa, Turchia e Qatar con note tassonomiche e genemiche su alcune specie (Coleoptera: Elateridae). *Bol. S.E.A.* 35: 39-45.
- Platia, G. 2004b. Descrizione di nuovi Elateridi della regione Palearctica con note geonemiche e sinonimiche. (Coleoptera, Elateridae). *Lambillionea.* 104: 98-108.
- Platia, G. and Gudenzi, I. 1998a. Note tassonomiche e faunistiche su Elateridi del Vicino Oriente (Coleoptera, Elateridae). *Bollettino dell'Associazione Romana di Entomologia.* 53: 49-62.
- Platia, G. and Gudenzi, I. 1998b. Descrizione di nuovi Elateridi di Grecia e Turchia con note e chiave di determinazione per gli *Agriotes* del gruppo gurgistanus Faldermann. (Coleoptera, Elateridae). *Lambillionea,* 98, 629-640.
- Platia, G. and Gudenzi, I. 2000. Descrizione di un nuovo genere e tredici nuove specie di Elateridi della regione palearctica con note geonemiche (Insecta Coleoptera Elateridae). *Quad. Studi Nat. Romagna.* 13, suppl.: 65-83.
- Platia, G. and Schimmel, R. 1992. Descrizione Di Nuove Specie Di Elateridi Di Grecia E Turchia (Coleoptera, Elateridae). *Lavori-Soc. Ven. Sc. Nat.* 17: 87-95.
- Platia, G. and Schimmel, R. 1993. Descrizione di nuove specie di Elateridi di Grecia e Turchia con note su alcuni *Agriotes* Eschscholtz (Coleoptera, Elateridae). *Lavori Soc. Ven. Sc. Nat.* 18: 51-57.
- www.elateridae.com
- www.faunaeur.org