

1-1-2005

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### Recommended Citation

DOĞANLAR, MİKDAT and ÇAM, HALİT (2005) "Morphology and Systematics of Turkish Species of *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae), with Description of a New Species from Eastern Anatolia," *Turkish Journal of Zoology*. Vol. 29: No. 3, Article 8. Available at: <https://journals.tubitak.gov.tr/zoology/vol29/iss3/8>

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# Morphology and Systematics of Turkish Species of *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae), with Description of a New Species from Eastern Anatolia

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Received: 14.11.2003

**Abstract:** A new species of *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae) from Eastern Anatolia is described. Morphologies and systematics of 2 Turkish species, *E. anatolica* Çam, 1998 from Tokat and *E. kebanensis* n.sp. from Keban, Elazığ, and from Ömerli, Mardin were studied. Their diagnostic characteristics were photographed using a scanning electron microscope and some of them are illustrated as seen under a stereoscopic microscope by camera lucida. An identification key for the species of *Exeurytoma* is provided.

**Key Words:** *Exeurytoma* spp., *E. kebanensis* n.sp., Hymenoptera, Eurytomidae, Turkey

## Doğu Anadolu'dan *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae) Cinsinden Yeni Bir Tür ile Diğer Türkiye Türünün Tanımları ve Morfolojileri

**Özet:** Doğu Anadolu'dan *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae) cinsine giren ve Keban, Elazığ ile Ömerli, Mardin'den toplanan yeni bir tür, *E. kebanensis* n.sp., ile Tokat'ta bulunan diğer tür, *E. anatolica* Çam, 1998'in morfolojik özellikleri çalışılmış ve tanımları yapılmıştır. Bu türlerin ayırt edici özellikleri SEM'dan çekilen fotoğraflar ve stereoskopik mikroskoptan kamera-lucida yardımıyla çizilen resimlerle gösterilmiştir. Cinsin türleri için bir tanı anahtarı da hazırlanmıştır.

**Anahtar Sözcükler:** *Exeurytoma* spp., *E. kebanensis* n.sp., Hymenoptera, Eurytomidae, Türkiye

## Introduction

The genus *Exeurytoma* Burks, 1971 (Hymenoptera, Eurytomidae) and its type species *E. caraganae* were described by Burks (1971) and morphologies of the genus and the species were studied. Burks (1971) discussed the status of the genus in the family Eurytomidae. Zerova (1979) and Zerova and Seregina (1994) studied the morphology of the genus and redescribed it and its type species *E. caraganae* Burks, 1971 by including some new specimens from Turkmenia. Zerova (1979) stated that the genus should be placed in Eurytominae. Zerova and Seregina (1994) again described *E. caraganae* as a seed-eating chalcid wasp of the Palaearctics. Çam (1998) found the second species, *E. anatolica* Çam, 1998, from Tokat, Turkey, and described

and compared it with the paratype of *E. caraganae* from Central Asia.

Recently, the specimens collected by Halil Bolu from Keban, Elazığ, and from Ömerli, Mardin, were identified and a new species was described.

## Materials and Methods

The specimens of the new species were collected from the leaves of *Amygdalus communis* L. (Rosaceae) by Halil Bolu from Keban, Elazığ, and from Ömerli, Mardin, and *E. anatolica* specimens were reared by the second author from seed cones of *Astragalus lagurus* Willd. (Fabaceae) in the Tokat region. The specimens were card-mounted for collection. For SEM studies, body parts were mounted in

the right positions. The diagnostic characteristics were photographed using SEM. After investigation, the formerly separated parts of the specimen of the new species were remounted on card. Wings and antennae were illustrated as seen under a stereoscopic microscope using a camera lucida.

## Results and Discussion

*Exeurytoma kebanensis* Doğanlar, n. sp.

(Figures 1a-h, 2a,b)

**Etymology:** The name derives from the town of Keban, from where the specimens of the new species were collected.

**Description:** Female: 2.0-3.3 mm, body black, except for mandibulae, scapus, half of fore femora, apices of mid and hind femora, tibiae and tarsi testaceous, ventral part of gaster brown; wings hyaline, venation pale yellow.

Head in dorsal view slightly broader than pronotum, its width from in front 1.32 times its height (Figure 1a); yes convex, bare; longitudinal eye diameter 1.77 times malar space; genae with distinct suture, broadened on sides, posterior margin of genae with weakly developed carina; lower margin of clypeus distinctly emarginated; surface of clypeus smooth, other parts of face densely sculptured, low carinae fanning out along the margins of face from the clypeus (Figure 1b); antennal fovea shallow, lower part weakly marginated; antennae inserted distinctly above level of lower margin of eyes; antenna (Figure 2a) with long scapus, about 3.0-3.7 times the length of the pedicellus; flagellum 5-segmented, gradually widening towards club, 1<sup>st</sup> segment 1.16 times longer than pedicellus and slightly longer than 2<sup>nd</sup>; 2<sup>nd</sup>-4<sup>th</sup> almost 1.6 times longer than broad, 5<sup>th</sup> broader than others, about 1.33 times as long as broad; club 3-segmented, distinctly broader than 1<sup>st</sup> and slightly broader than last segment of flagellum, almost 3 times longer than broad. Antennal segments in following ratios (length:width): 26:6; 7:5; 10:5; 8:5; 9:5; 8:5; 8:6; 20 (8; 6; 6):7.

Mesosoma (Figures 1c-f) convex, humped; width of pronotum 2.35 times its length on the sides, anterior margin of propodeum prominent; propodeum with

widely placed piliferous punctures, areas between the punctures with pitted reticulation (Figure 1e), mesoscutum with dense punctures almost in rows, scutellum (Figure 1f) with punctures on sides, its basal half smooth, without punctures; prepectus narrow; lower margin of mesepisternum without projections; propodeum sharply inclined, at an angle of 90° to the line of the dorsal surface of scutellum, weakly impressed in the middle, sculptures finely rugose, uniform. Disc of fore wings bare basally, otherwise covered with very fine, short sparse hairs; marginal vein shortest, stigmal vein 1.37 times marginal vein; postmarginal vein 2.0-2.2 times stigmal vein (Figure 2b).

Metasoma (Figures 1g-h) with short transverse petiole; as long as broad and as long as length of thorax (holotype) and equal to the combined length of head and thorax in paratype, strongly compressed laterally; 2<sup>nd</sup>-6<sup>th</sup> terga slightly differing in length, 7<sup>th</sup> concealed by 6<sup>th</sup> (Figure 1h). Ovipositor 0.27-0.30 times as long as metasoma.

**Male:** Unknown

**Material examined:** Holotype female: Turkey, Elazığ, Keban, 24.VI.2002, leg. H. Bolu, collected from leaves of *A. communis*, deposited in the museum of the Plant Protection Department, Agriculture Faculty, Mustafa Kemal University, Antakya, Hatay, Turkey. Paratypes: 1 female, Turkey, Mardin, Ömerli, 2. IV. 2002, leg. H. Bolu, the other data same as for the holotype.

**Diagnosis:** The new species is closer to the Turkish species *Exeurytoma anatolica* Çam than it is to the Central Asian species *Exeurytoma caraganae* Burks. The propodeum of the Turkish species lies at a right angle to the longitudinal axis of scutellum as stated for *E. anatolica* by Çam (1998) (in *E. caraganae* this is 45°); *E. kebanensis* n.sp. differs from *E. anatolica* in having a pronotum with wide apart piliferous punctures, the space between them 0.74 the diameter of the punctures (Figure 1e) (in *E. anatolica* piliferous punctures are close to each other, the space between them 0.34 the diameter of the punctures (Figure 3d); fore wing with marginal vein shorter than stigmal vein (13: 18) in *E. kebanensis* (Figure 2b) (in *E. anatolica* and *E. caraganae* marginal vein equal to stigmal vein); antennae with club distinctly wider than flagellum, 2.0-2.2 times as wide as 1<sup>st</sup> funicular segment (Figure 2a) (in *E. anatolica* and *E. caraganae* club almost as wide as flagellum (Zerova, 1979; Çam, 1998)).

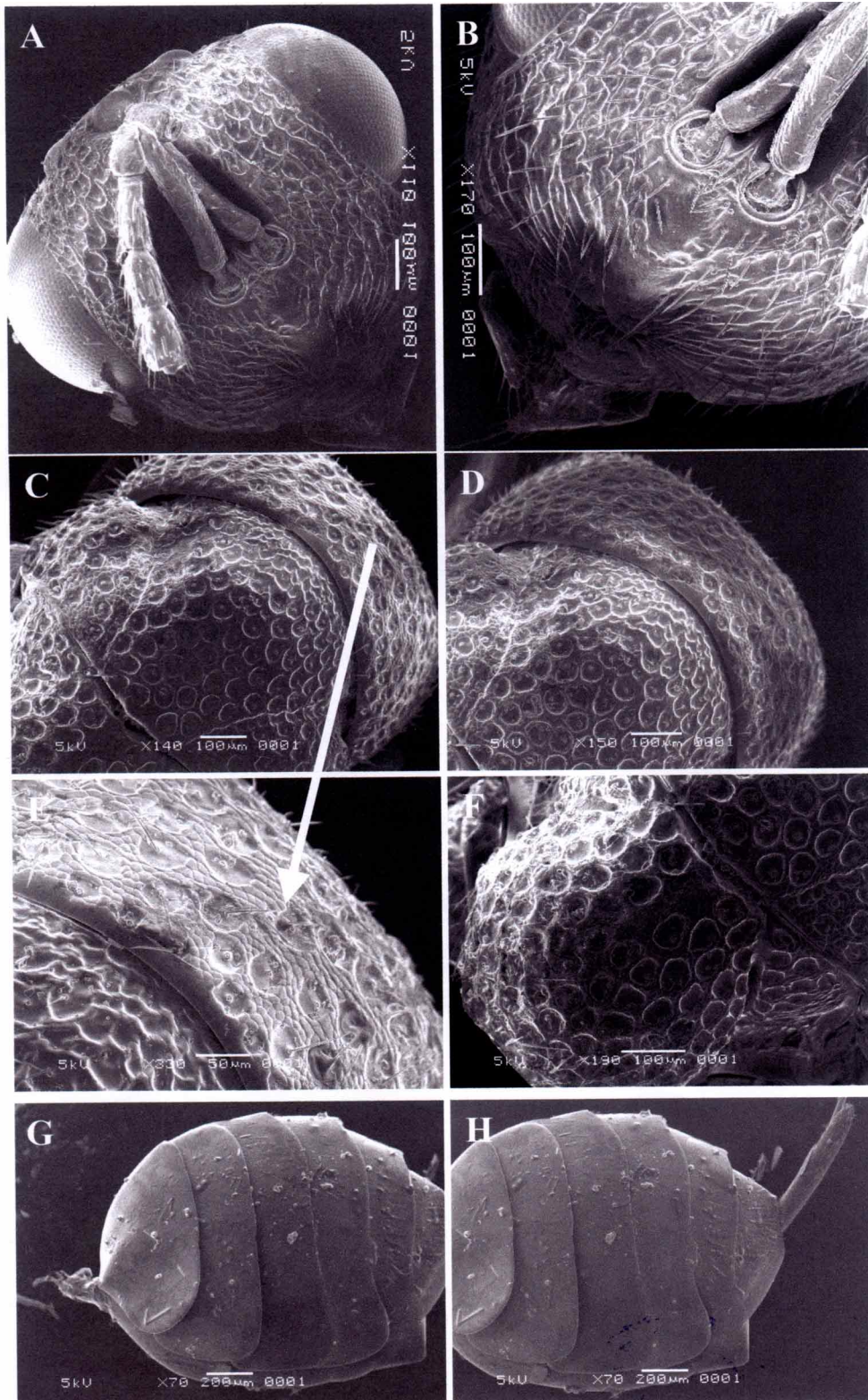


Figure 1. *Exeurytoma kebanensis* n.sp.: A. head, in frontal view; B. face; C. pronotum; D. mesonotum; E. ultrastructure of pronotum; F. scutellum; G. gaster with petiole; H. gaster with ovipositor.



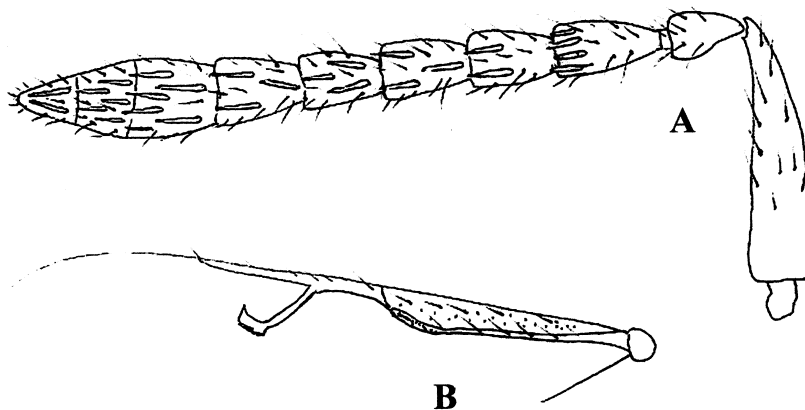


Figure 2. *Exeurytoma kebanensis* n.sp.: A. antenna; B. fore wing venation.

*Exeurytoma anatolica* Çam, 1998  
(Figures 3a-f)

*Exeurytoma anatolica* Çam, 1998: Tr. J. of Zoology, TÜBİTAK, 22: 191-193.

Çam (1998) described and illustrated the diagnostic characteristics of the female and male specimens of *E. anatolica* and compared these with the paratype of *E. caraganae* (Çam, 1998). He reared the specimens of *E. anatolica* from seed cones of *A. lagurus* Willd. (Fabaceae) in Tokat province and stated that the species is probably phytophagous in the seeds of *A. lagurus*. This is the only record on the biology of the genus.

In this work the ultrastructure of the body of the species was studied using SEM. As seen in Figures 3a-f the head and thorax have piliferous umbilicate punctures and the areas between them are minutely pitted.

**Diagnosis:** The sculpture on the pronotum of *E. kebanensis* n.sp. (Figure 1e) distinguishes it from *E. anatolica* (Figures 3b,d). The shapes of the metasomae (Figures 1g, 3e,f) are also different in the Turkish species. The first segment of metasoma of *E. kebanensis* (Figure 1g) is smaller than that of *E. anatolica* (Figure 3e) and the last segment is concealed by the 6<sup>th</sup> tergite in the new species (Figure 1h) and placed on the bottom of the ovipositor in *E. anatolica* (Figure 3f).

**Material examined:** Paratypes: 4 females, 28.VI.-27.VII.1992, Turkey, Tokat, Taşlıçiftlik, 630 m; Syntypes: same locality as the paratypes, 1 female,

22.II.1993, reared from seed cone of *A. lagurus*; 1 female, 8.VII.1997, captured from a window glass.

#### Key to the species of *Exeurytoma* Burks

- 1- Propodeum lies at a 45° angle to the longitudinal axis of scutellum ..... *E. caraganae* Burks
- Propodeum lies at a right angle to the longitudinal axis of scutellum ..... 2
- 2- Pronotum with wide apart piliferous punctures, the space between them 0.74 the diameter of punctures (Figure 1e); forewing with marginal vein shorter than stigmal vein (13:18) (Figure 2b); antennae with club distinctly wider than flagellum, 2.0-2.2 times as wide as that of 1<sup>st</sup> funicular segment (Figure 2a) .....  
..... *E. kebanensis* n.sp.
- Pronotum with piliferous punctures close to each other, the space between them 0.34 the diameter of punctures (Figure 1d); fore wing with marginal vein equal to stigmal vein; antennae with club almost as wide as flagellum ..... *E. anatolica* Çam

#### Acknowledgements

The authors are grateful to Asist. Prof. Halil Bolu (Department of Plant Protection, Faculty of Agriculture, Dicle University, Diyarbakır) for collecting and sending the specimens of the new species, and to Dr. E.E. Grissell (Systematic Entomology Laboratory, USDA, c/o US National Museum, Washington, D.C., USA) for the loan of the paratype of *E. caraganae*.

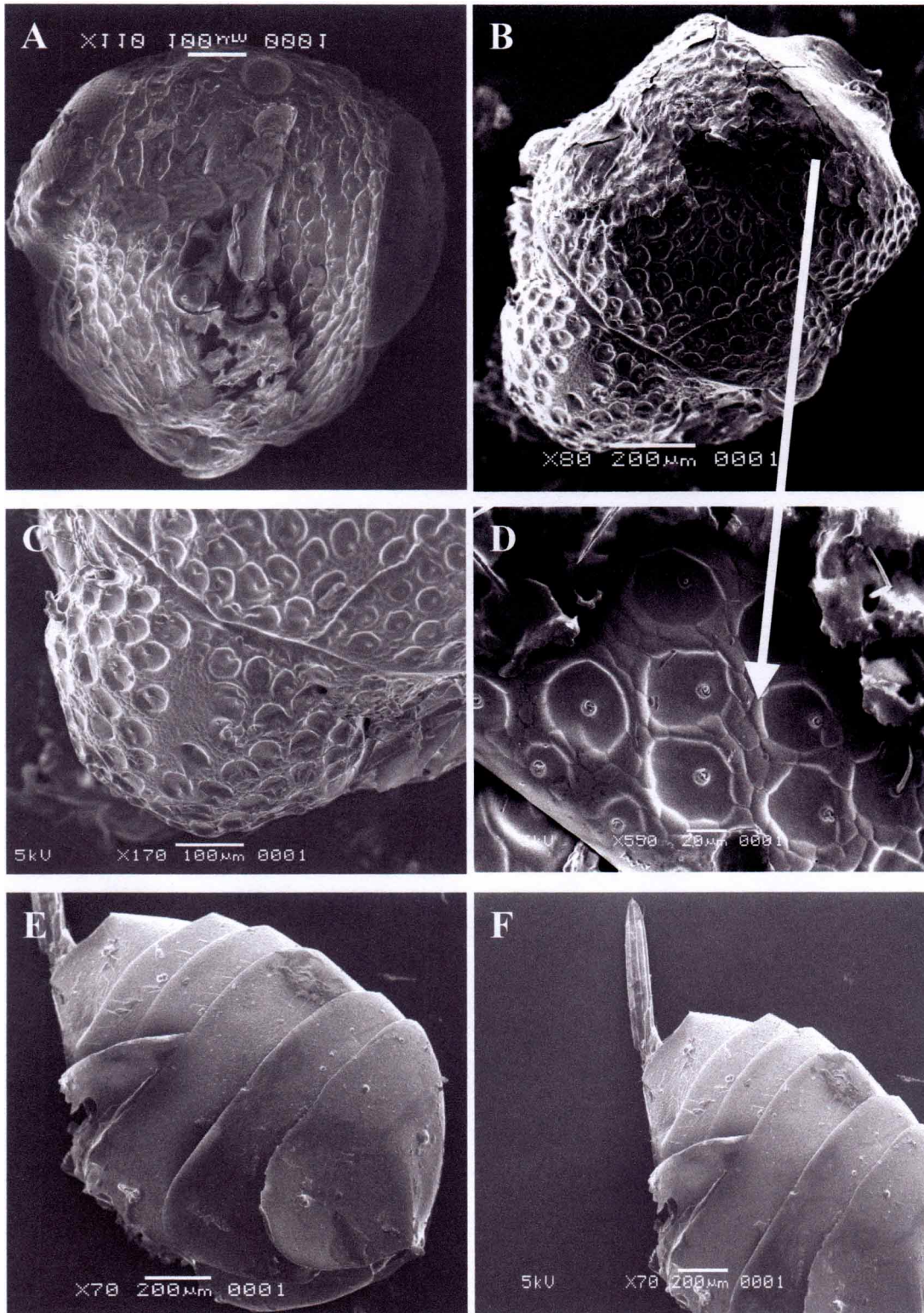


Figure 3. *Exeurytoma anatolica* Çam: A. head, in frontal view; B. thorax, in dorsal view; C. scutellum; D. ultrastructure of pronotum; E. gaster; F. gaster with ovipositor.

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