



THE FIRST RECORD OF *EXEURYTOMA ANATOLICA* CAM (HYMENOPTERA,
CHALCIDOIDEA, EURYTOMIDAE) IN IRAN

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The species *Exeurytoma anatolica* Cam (Hymenoptera, Chalcidoidea, Eurytomidae), formerly known only from Turkey, was reared from seeds of *Astragalus angustiflorus* (C.Koch) (Fabaceae) in Iran for the first time. It is a firstly record of *A. angustiflorus* as a new host plant for *Ex. anatolica*. The species *Ex. anatolica* and *Ex. caraganae* are phytophagous and develop in seeds of legume plants (Fabaceae). Redescription of *Ex. anatolica* is provided. Identification key to species of *Exeurytoma* is given. The species *Ex. anatolica* is differentiated by the ovipositor's length which is about 1/3 as long as gaster and the length of first funicular segment which is in 1,2 times longer than pedicel. Material is deposited in the collection of I.I. Schmalhausen Institute of Zoology of National Academy of Sciences of Ukraine (Kyiv).

Key words: *Exeurytoma*, Eurytomidae, chalcid wasps, *Astragalus*, Iran.

Перша знахідка виду *Exeurytoma anatolica* Cam (Hymenoptera, Chalcidoidea, Eurytomidae) в Ірані

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Вид *Exeurytoma anatolica* Cam, який раніше був відомий з Туреччини, вперше виявлений нами в матеріалах з Ірану, де він був вперше виведений з насіння астрагалу – *Astragalus angustiflorus* (C. Koch) (Fabaceae). Вперше відмечено від *A. angustiflorus* як нову трофічну рослину *Ex. anatolica*. Види *Ex. anatolica* і *Ex. caraganae* є фітофагами в насінні бобових рослин. Складено ключ для визначення видів роду *Exeurytoma*. Матеріал зберігається в колекції Інституту зоології ім. І.І. Шмальгаузена Національної Академії наук України (Київ).

Ключові слова: *Exeurytoma*, Eurytomidae, Chalcidoidea, *Astragalus*, Іран.

Первая находка вида *Exeurytoma anatolica* Cam (Hymenoptera, Chalcidoidea, Eurytomidae) в Иране

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Вид *Exeurytoma anatolica* Cam, ранее известный из Турции, впервые обнаружен нами в материалах из Ирана, где был выведен из семян астрагала – *Astragalus angustiflorus* (C. Koch) (Fabaceae). Впервые вид *A. angustiflorus* указывается как новое трофическое растение для *Ex. anatolica*. *Ex. anatolica* и *Ex. caraganae* Burks являются фитофагами в семенах растений из семейства бобовых. Составлен определительный ключ для видов рода *Exeurytoma*. Материал находится в коллекции Института зоологии им. И.И. Шмальгаузена Национальной Академии наук Украины (Киев).

Ключевые слова: *Exeurytoma*, Eurytomidae, Chalcidoidea, *Astragalus*, Иран.

Introduction. The genus *Exeurytoma* was described with one species – *Ex. caraganae* (Burks, 1971). This species was reared from seeds of *Caragana* sp. (Fabaceae) in Tehran, Iran. Later this species was found in Turkmenistan (Zerova, 1995) where it was collected on flowers of *Ferula*. Two another species of *Exeurytoma* were described from Turkey, including *Ex. anatolica*, reared from the seed pods of *Astragalus lagurus* Willd. (Fabaceae) (Cam, 1998), and *Ex. kebanensis*, collected on leaves of *Amygdalus communis* (Doganlar, Cam, 2005). The species *Ex. anatolica* is differentiated from *Ex. caraganae* by the length of shorter ovipositor sheets and different host plant. Only one species, *Ex. caraganae*, was recorded for Iran (Saghaei et al., 2018).

Now we found the species of *Ex. anatolica* (2♀, 1♂) in the material from Iran for the first time. It's recorded that the species was reared for the first time from seeds of a new host plant – *Astragalus angustiflorus* (C.Koch).

Genus *Exeurytoma* Burks, 1971

Burks, 1971: 47–48. – Zerova, 1979: 143; 1995: 247

Diagnosis. The genus is differentiated from all other Palearctic genera of Eurytomidae by long ovipositor. Body black, female's antenna with 5 funicle segments and 3-segmented club, male antenna with 4 funicle segments and 3-segmented club; marginal vein much shorter than postmarginal. Genus *Exeurytoma* is similar to *Bruchophagus* in having short marginal vein, propodeum without median furrow, and absence of post-genal carina.

The genus includes three species: *Ex. caraganae* Burks, *Ex. anatolica* Cam and *Ex. kebanensis* Doganlar (Burks, 1971; Cam, 1998; Doganlar, Cam, 2005). Species *Ex. caraganae* Burks and *Ex. anatolica* Cam are phytophagous in seeds of legumes (Fabaceae). Taxonomic position and identity of *Ex. kebanensis* is unclear and can be solved only after the study of original type material.

Exeurytoma anatolica Cam, 1998

Cam, 1998: 191–193.

Studied material. 2 ♀, 1 ♂, Iran, Isfahan, Fereyduh Shahr region, seeds of *Astragalus angustiflorus*, 1.07.2010 (coll. Ali Reza Haghshenas).

Re-description is given according to the comparison with original description (Cam, 1998) with some additions concerning morphology of head, lateral part of pronotum and structure of coxae.

Female (Table 1, Fig. 1, 3, 5). Body length (without ovipositor) about 3.0 mm, extended part of ovipositor equal to one third of abdomen. Mostly black: head, mesosoma and metasoma black, all coxae black, femora darken basally, yellow apically, hind tibiae in middle brown, mid and fore tibiae yellow; tarsi light yellow; ovipositor brown. Antennae with scapus and flagellum light brown; wings hyaline, venation light yellow.

Head (dorsally) not broader as pronotum, twice as broad as long; temples not curved; POL longer than OOL (16,2 : 7); post-genal carina absent. Head in frontal view roundish, a little wider than high (26 : 22); eyes bare malar space shorter than longitudinal eye diameter (7 : 13); external side of clypeus with a little cut out; lower face with short radiating striation, the last part with distinct umbilicate punctuation and short white pubescence; face cavity isn't carinated. Antenna is inserted slightly lower than middle part of face, scape long and thin, reaching the middle ocellus; pedicel in 1,7 times as long as wide, flagellum with five segments and 3-segmented club; 1-st flagellar segment the longest, longer than its width (19 : 6), last funicular segments slightly shorter, equal in length; club 3-segmented, not winder than funicle; flagellar pubescence long but sparse.

Mesosoma (lateral view) gibbous; pronotum much shorter than mesoscutum, 2,5 times as wide as long, with short sharp carina on anterior margin from each side, surface of prepectus with minute punctures; thoracic dorsum umbilicate punctate; tegulae slightly reticulated. Anterior margin of fore coxa with not deep depression which fits the margin of gena when head is compressed; mid and hind

coxae without lamella. Mesosternal keel absent; propodeum broadly concave, almost flat, without median carina; sculpture consists of minute irregular holes; surface of propodeum is located at a 90° angle with longitudinal axis of thorax.

Forewing reaches the apex of abdomen; with very short, poorly visible, white pubescence on hind 2/3 part of wing disk; post-marginal vein much longer than marginal (10 : 6,5); radial vein as long as marginal.

Metasoma with short petiole, which is much wider than long; abdomen partly compressed, about 1,5 times as long as mesosoma (lateral view) or a little longer; first and third abdominal tergites the longest, twice as long as the second; top of ovipositor uplifted, length of ovipositor about 0,3 times as long as abdomen; abdominal tergites without pubescence, only on sixth and seventh segments with some short hairs.

Male (Table 1, Fig. 2, 4, 6). Body length about 2,5 mm. Coloration same as in female. Antenna with 4 flagellar segments and 3-segmented club. The first flagellar segment the longest, ratio of length to width as 19:4; pubescence thin and short, length of hairs slightly longer than width of flagellar

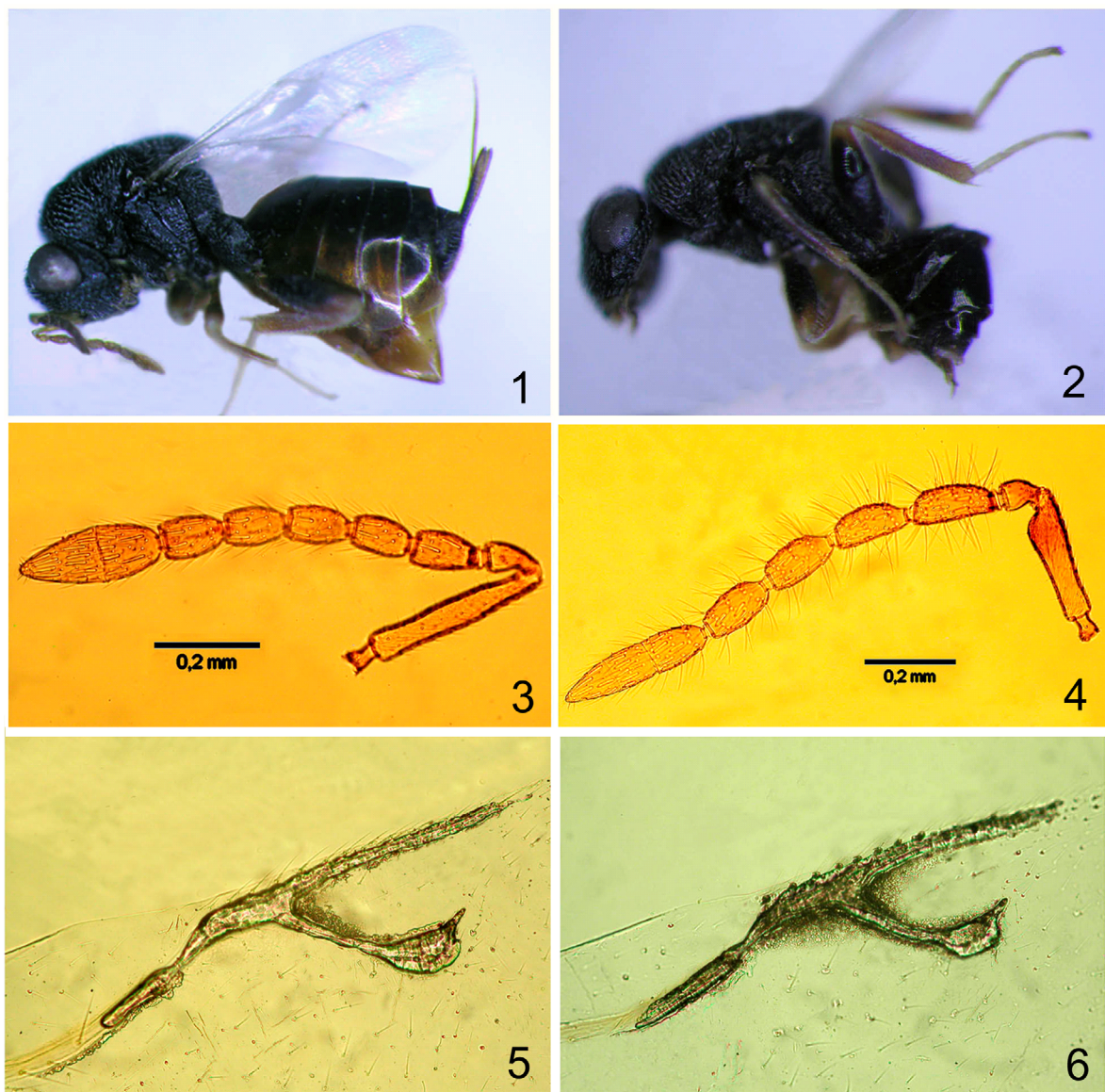


Fig 1. *Exeurytoma anatolica* Cam: 1, 3, 5 – female; 2, 4, 6 – male; 1, 2 – adult; 3, 4 – antenna; 5, 6 – veins of fore wing.

segments. Petiole of metasoma about 1,7 times as long as wide, slightly shorter than hind coxa and slightly reticulated. Abdomen roundish.

Biology. The species *Ex. anatolica* was previously recorded from seeds of *Astragalus lagurus* (Fabaceae) in Turkey, and now it was reared from seeds of another species, *A. angustiflorus* in Iran.

Key to *Exeurytoma* species

- 1(2). Ovipositor's length is about 1/3 as long as gaster; first funicular segment in 1,2 times longer than pedicel. In seeds of *Astragalus angustiflorus* and *A. lagurus* (Fabaceae). Iran (Fereydun Shahr region), Turkey ***Ex. anatolica*** Cam
- 2(1). Ovipositor's length is about half as long as gaster; first funicular segment is equal in length as pedicel. In seeds of *Caragana* sp. (Fabaceae). Iran (Tehran), Turkmenistan (Badhys) ***Ex. caraganae*** Burks

Literature

- Burks, B.D., 1971. A synopsis of the Genera of the Family Eurytomidae (Hymenoptera: Chalcidoidea). Trans. Amer. Ent. Soc. 97: 1–89.
- Cam, H.A., 1998. New Species of *Exeurytoma* Burks, 1971 from Turkey (Hymenoptera: Chalcidoidea, Eurytomidae). Turk. J. Zoology. 22: 191–193.
- Doganlar, M., Cam, H., 2005. Morphology and systematics of Turkish species of *Exeurytoma* Burks, 1971 (Hymenoptera, Chalcidoidea, Eurytomidae), with description of a new species from Eastern Anatolia. – Turk. J. Zool. 29: 243–248.
- Saghaei, N., Fallahzadeh, M., Lotfalizadeh, H., 2018. Annotated catalog of Eurytomidae (Hymenoptera: Chalcidoidea) from Iran. Trans. Amer. Ent. Soc. 144: 263–293.
- Zerova, M.D., 1979. The Genus *Exeurytoma* Burks (Hymenoptera: Chalcidoidea, Eurytomidae) New for the USSR. Entomological Review. 58(1): 143–146. (In Russian: Зерова, М.Д. *Exeurytoma* Burks – новый для фауны СССР род сем. Eurytomidae (Hymenoptera, Chalcidoidea)
- Zerova, M.D., 1995. Parasitic Hymenoptera – Eurytominae and Eudecatominae of Palaearctics. Kiev: Naukova Dumka. 459 p. (In Russian: Зерова, М.Д. Паразитические перепончатокрылые – Эвритомины и Эвдекатомины Палеарктики).

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