



**REVIEW OF *PISTACIAE* SPECIES GROUP OF THE GENUS *EURYTOMA*  
(HYMENOPTERA, CHALCIDOIDEA, EURYTOMIDAE) WITH DESCRIPTION  
OF ONE NEW SPECIES FROM ARID REGIONS OF UZBEKISTAN**

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The new species, *Eurytoma samarkandae* sp.n., is described from arid regions near Samarkand (Uzbekistan). The new species belongs to *pistaciae* species group and it is close to *E. trjapitzini* Zerova et Klymenko, 2018. *E. samarkandae* sp.n. differs from *E. trjapitzini* in upturned metasoma (elongate in *E. trjapitzini*), longer funicular segments of female, and yellow antenna, mesosoma and legs. Material was reared from small galls of Cynipidae (Hymenoptera) in flower heads of knapweed *Rhaponticum* sp. (Asteraceae). Review of *pistaciae* species group is given, as well as the key to all species of this group.

**Key words:** Eurytomidae, Chalcidoidea, *Eurytoma*, chalcid wasps, new species, Uzbekistan.

**Огляд видів групи *pistaciae* роду *Eurytoma* (Hymenoptera, Chalcidoidea, Eurytomidae) з описом нового виду із аридних регіонів Узбекистану**

**Зерова М.Д., Фурсов В.М.**

Описано новий вид – *Eurytoma samarkandae* sp.n. з аридних регіонів поблизу м. Самарканд (Узбекистан). Новий вид віднесено до групи видів *pistaciae*, в межах якої він морфологічно найбільш близький до *E. trjapitzini* Zerova et Klymenko, 2018. Подано огляд видів групи *pistaciae*, а також таблицю для визначення видів цієї видової групи.

**Ключові слова:** Eurytomidae, Chalcidoidea, *Eurytoma*, новий вид, Узбекистан.

**Обзор видов группы *pistaciae* рода *Eurytoma* (Hymenoptera, Chalcidoidea, Eurytomidae) с описанием нового вида из аридных регионов Узбекистана**

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Описан новый вид – *Eurytoma samarkandae* sp.n. из аридных регионов в окрестностях г. Самарканда (Узбекистан). Новый вид относится к группе видов *pistaciae* и морфологически наиболее близок к виду *E. trjapitzini* Zerova et Klymenko, 2018. Приведен обзор видов группы *pistaciae* и таблица для определения видов этой видовой группы.

**Ключевые слова:** Eurytomidae, Chalcidoidea, *Eurytoma*, новый вид, Узбекистан.

### **Introduction**

The family Eurytomidae consists of over 1400 valid species, which include parasitic and phytophagous species in 88 genera (Noyes, 2019). About 500 species of 17 genera of Eurytomidae are recorded in the Palaearctic region (Zerova, 1976, 1978, 1988, 2010). In the Palaearctics the largest genus *Eurytoma* consists of 230 Palaearctic species, belonging to 14 species groups (Zerova, 1995, 2010). The genus *Eurytoma* is characterized by the following set of characters: posterogena carina strong; mesosoma with finely meshed sculpture; female antenna with 5-segmented funiculum and 3-segmented clava (rarely with 6-segmented funiculum and 2-segmented clava); males antenna with 5-segmented funiculum and 2-segmented clava (rarely with 7-segmented funiculum and without clava) (Zerova, 1988, 1995, 2010). The species of the genus *Eurytoma* are recorded as parasitoids of insects from 7 orders (Hymenoptera (mostly Cynipidae), Diptera (especially Tephritidae), Coleoptera, Lepidoptera, Orthoptera, Homoptera, Blattoptera), and as phytophagous seed-feeding

insects, developing inside seeds of Rosaceae, Pinaceae, Ephedraceae, Euphorbiaceae, Brassicaceae, Anacardiaceae, Scrophulariaceae, and Fabaceae, and in stems of Poaceae and Campanulaceae (Zeroва, 2010; Zeroва and Seryogina, 1994).

The new species, *Eurytoma samarkandae* sp.n., belongs to pistaciae species group currently revised by Zeroва and Seryogina (2009) and Zeroва (2010). The species of this group have hind tibia with several (more than 2) long setae, as long or longer than the width of tibia. Sometimes some species have these setae a little shorter than tibia width (*E. trjapitzini* Zeroва et Klymenko, 2018 and *E. samarkandae* sp.n.). In this case hind tibia has 10–15 setae. Besides, the species of this group have relatively short postmarginal vein, except for the new species, where postmarginal vein is relatively long. Postmarginal keel is well visible, but not high; female mesosoma is sessile, with short petiolus, female funicle has five segments, and 3-segmented club, male funicle is 5-segmented, rarely 4-segmented with 2 or 3-segmented club, correspondingly. Body length is near 2.0–3.0 mm, rarely (some specimens of *E. pistaciae* and *E. ochraceipes*) up to 4,0 mm.

The most preferred hosts of species from *pistaciae* group are the gall-forming Cynipidae species (Hymenoptera). Other primary hosts are grass crickets (Oecanthidae, Orthoptera) and gall-mining flies (Cecidomyiidae, Diptera), and secondary host is *Megastigmus* sp. (Torymidae, Hymenoptera). The species of *pistaciae* group are predominantly distributed in Palaearctic region (Table 1).

### Material and methods

Comparative collection of the genus *Eurytoma* deposited at the I.I. Schmalhausen Institute of Zoology of National Academy of Sciences of Ukraine (SIZU, Kyiv, Ukraine) was studied. Original microphotographs of *E. samarkandae* sp.n. were taken using a Leica Z16 APO stereomicroscope equipped with a Leica DFC 450 camera and processed with LAS V3.8 software. Material (holotype and paratype) is deposited in the collection of SIZU (Kyiv, Ukraine).

### Description of a new species

#### *Eurytoma samarkandae* Zeroва et Fursov, sp.n.

(Figs 1–2)

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**Material.** Holotype, female: Uzbekistan, Samarkand, ex small Cynipid galls of in flower heads of knapweed *Rhaponticum* sp. (Asteraceae), 27.IX.1964 (coll. Khaydarova).

Paratype, male, with the same label, but 1.VII. 1964 (coll. Khaydarova).

**Female** (Fig. 1). Body length 2.0 mm. Head and mesosoma black, metasoma with brown very short petiolus and yellow mesosoma, tip of ovipositor light yellow; fore coxa black, middle and hind coxae yellow, all femora and tibiae and tarsi yellow, venation light yellow, forewing hyaline; antennae light yellow.

Head from above much wider than pronotum (6.6 : 5.3), wider than long in ratio 33 : 20; POL wider than OOL in ratio 5 : 2; head in frontal view wider than high in ratio 8.5 : 7.8; ratio of malar space to eye length 2.12 : 2.70; face and vertex with very fine sculpture and short, white sparse pubescence; in contrast, lower face and ventral side of check with longer pubescence; postgenal keel distinct but very thin; external margin of clypeus straight, eye bare, without border around eye orbit. Antenna inserted in the middle of face height, scape reaches middle ocellus, long and narrow, five times longer than broad; pedicel almost round, anellus flattened, all funicle segments long, the first funicle segment is the longest, its length/width ratio 15 : 7, by fifth segment length/width ratio 12 : 8, club long, 3-segmented, somewhat wider than flagellum, all funicle segments with very short pubescence.

Mesosoma not bulging, prothorax shorter than head (from above) in ratio 5,3 : 6,6, wider than long in ratio 5.3 : 2.1; mesoscutum as long as scutellum, dorsal surface of thorax with fine sculpture. Mesosternal keel absent. Coxae without distinct sculpture. Propodeum without median furrow, with distinct punctuation; hind tibia with many (12–15) long setae, which are almost as long, as the width of tibia; hind femora with sparse pubescence. Fore wings hyaline, with very short white pubescence on distal two-thirds of wing disc, marginal, postmarginal and radial veins in length ratio 13 : 15 : 13.

Metasoma: Metasomal petiolus very short, metasoma rounded with upturned tip, somewhat longer than mesosoma (45 : 58, in profile); all tergites flat, without any sculpture and pubescence, only the 6th tergite with sparse and very short hairs.



**Fig. 1.** Female of *Eurytoma samarkandae* sp.n.: *a* – lateral view; *b* – metasoma and hind leg; *c* – head and mesothorax, lateral view; *d* – head and thorax, dorsal view; *e* – antenna.

**Male** (Fig. 2). Body length 1.75 mm, head and mesosoma black, coxae brown, femora, tibiae and tarsi yellow, metasomal petiolus and metasoma yellow, the long setae on hind tibia white. Antenna dark yellow with roundish scape, flagellum with 5 flagellar segments and 2-segmented club, the first funicular segment is the longest, 2–5th funicular segments gibbous except of 5th, 2–4th funicular segments somewhat longer than wide (10 : 7). Metasomal petiolus a little longer than hind coxa (in profile), mesosoma shorter than metasoma in ratio 23 : 40 (in profile).

**Comments.** *Eurytoma samarkandae* sp.n. belongs to *pistaciae* species group (Zerova, 1995, 2010), and it is close to *E. trjapitzini* Zerova et Klymenko, 2018. *Eurytoma samarkandae* sp.n. differs from this species in upturned metasoma (elongate in *E. trjapitzini*), longer funicular segments of female, and yellow antenna, mesosoma and legs.

**Etymology.** The species is named after Samarkand city, which is close to type locality.



**Fig. 2.** Male of *Eurytoma samarkandae* sp.n.: a – lateral view; b – metasoma and hind leg; c – fore and hind wings; d – dorsal view; e – head, front view, and antenna.

Table 1

Tropical associations and distribution of species in *pistaciae* species group  
of the genus *Eurytoma* Illiger

№	Species	Host	Distribution
1	<i>E. arabica</i> Risbec	Reared from pods of <i>Acacia arabica</i> , <i>A. seyal</i> , <i>Indigofera</i> sp., but host insect is unknown	Africa (Senegal), Yemen
2	<i>E. doganlari</i> Zerova	Reared from stem of <i>Echinops ritro</i> , infested by eggs of stems crickets ( <i>Oecanthus</i> sp., Oecanthidae, Orthoptera), but association with crickets is not established	South-East of Ukraine (Donetsk Region)
3	<i>E. narendrani</i> Zerova	Reared from galls of <i>Neuroterus</i> sp. (Cynipidae) on leaves of <i>Quercus mongolica</i>	Far East of Russia
4	<i>E. ochraceipes</i> Kalina	Reared from galls of Cecidomyiidae (Diptera) on <i>Ceratoides papposa</i> (Chenopodiaceae) in Kazakhstan	South of Palaeartic region, Vietnam, Yemen
5	<i>E. pistaciae</i> Rondani	Common host: <i>Diplolepis mayri</i> (Cynipidae); also reared from larvae of <i>Megastigmus pistaciae</i> (Torymidae, Hymenoptera) in fruits of <i>Pistacia mutica</i>	South of Palaeartic region
6	<i>E. samarkandae</i> sp.n.	In small Cynipid galls in flower heads of knapweed <i>Rhaponticum</i> sp. (Asteraceae)	Uzbekistan
7	<i>E. spinipes</i> Kalina	Reared from galls of Cynipidae on oak, more often from <i>Biorhizza pallida</i> (Cynipidae)	Southern and Middle Europe
8	<i>E. tibiaspinae</i> Zerova	Host unknown	Yemen
9	<i>E. tokatensis</i> Doganlar	Host unknown	South East of Ukraine, Turkey.
10	<i>E. trjapizini</i> Zerova, Klymenko	In galls of <i>Lipostenes glechomae</i> (Cynipidae) on <i>Nepeta hederacea</i> L. (Lamiaceae)	Ukraine

### Key to species of *pistaciae* group of the genus *Eurytoma* Illiger

- 1 (16). Hind tibia with 2–3, rarely 4 long setae.
- 2 (3). Female 4th metasomal tergite rounded and widened (lateral view) with deep and thick punctuation; mesosoma rounded. Hind tibia with two long setae. Funicular segments of female square. [Postmarginal vein 1.24 × as long as radial vein.] ..... *E. arabica* Risbec, 1951
- 3 (2). Female 4th metasomal tergite non-widened (lateral view), metasomal tergites either smooth or with fine and shallow punctuation mainly on 4th tergite. Hind tibia and funicular segments other.
- 4 (7) Female antenna with all funicle segments conspicuously longer than wide. Legs except coxae yellow. [Male antenna with 5-segmented funicle.]
- 5 (6). Female metasoma elongate, longer than mesosoma (lateral view). Propodeum finely-meshed without medial furrow. Hind tibia with four moderately robust setae at most as long as tibia width. Male funicle 5-segmented; segments with long and very light pubescence ..... *E. doganlari* Zerova, 2009
- 6 (5). Female metasoma rounded, narrowed only to apex (lateral view), not longer than or inconspicuously longer than mesosoma. Propodeum with medial furrow. Hind tibia with 3, or rarely 2 setae. Male funicle 5-segmented; segments with short pubescence. Collected on xerophytic grassy associations ..... *E. ochraceipes* Kalina, 1970
- 7 (4). Only first funicle segment of female antenna longer than wide; segments 2–5 either quadrate or transverse. Legs dark brown. [Male antenna with 4 or 5-segmented funicle].

- 8 (9). Mesonotum almost flat dorsally. Mesothoracal pleura ventrally with small denticle anterior of mid coxae. Metasoma oval (lateral view). Hind tibia with 3 long setae, some of them on distal part longer than two proximal. Male antenna as in *E. pistaciae* ..... *E. tokatensis* Doğanlar, 1991
- 9 (8). Mesonotum not flattened dorsally. Other characters variable.
- 10 (11). Hind tibia with one long and 2–3 shorter setae. Female antenna with first funicle segment slightly longer than wide, and segments 4–5 transverse. Metasoma slightly longer than mesosoma .....  
..... *E. tibiaspinae* Zerova, 2008
- 11 (10). Hind tibia with 2–3 setae. Other characters variable.
- 12 (13). Female metasoma S-shaped, curved, slightly longer than mesosoma, up curved at apex, slightly compressed laterally; VII-th metasomal tergite of female longer than high (lateral view). Male antenna 4-segmented. Hind tibia with 2, rarely 3 setae ..... *E. pistaciae* Rondani, 1877
- 13 (12). Female metasoma neither S-shaped, curved, nor up curved at apex, VII-th metasomal tergite of female as long as or shorter than high (lateral view). Other characters variable.
- 14 (15). Female antenna with square 5th funicular segment. Fore coxa with conspicuous excavation in ventral one-third at lateral margin. Male antenna 4-segmented ..... *E. spinipes* Kalina, 1970
- 15 (14). Female antenna with all segments somewhat longer than wide. Fore coxa not excavated at anterior margin. Male antenna 5-segmented .....  
..... *E. narendrani* Zerova, 2009 (in: Zerova and Seryogina, 2009).
- 16 (1). Hind tibia with several (more than 2) long setae, as long as or longer than tibia width. Hind tibia with 12–15 long setae, including 5 longer setae on its proximal part.
- 17 (18). Tip of metasoma upturned; only head and mesosoma black, metasoma and legs yellow. Antennae yellow, tip of ovipositor yellow ..... *E. samarkandae* Zerova et Fursov, sp.n.
- 18 (19). Tip of metasoma not upturned; metasoma elongate. Head, mesosoma and metasoma black. Antennae and legs black ..... *E. trjapitzini* Zerova et Klymenko, 2018

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