

UDC 595.792(55)

NEW SPECIES OF THE CHALCIDOID WASPS OF THE FAMILIES EURYTOMIDAE AND TORYMIDAE (HYMENOPTERA, CHALCIDOIDEA) FROM IRAN

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Accepted 3 March 2008

New Species of the Chalcidoid Wasps of the Families Eurytomidae and Torymidae (Hymenoptera, Chalcidoidea) from Iran. Zerova M. D., Seryogina L. Ya., Karimpour Yu. — Three new species of the Family Eurytomidae (*Eurytoma lactucae* Zerova, sp. n.; *Bruchophagus trjapitzini* Zerova, sp. n.; *Nikanoria shohadae* Zerova, sp. n.) and two species of Family Torymidae (*Glyphomerus flavabdomen* Zerova, sp. n.; *Cryptopristus salviae* Zerova, sp. n.) are described from Iran; ten palearctic species from the same Families are indicated for Iranian fauna for the first time (*Eurytoma abdita* Zerova, *E. calicotomae* Zerova, *Eurytoma robusta* Mayr, *Bruchophagus astragali* Fedoseeva, *Adontomerus impolitus* Askew et Nieves, *Exopristoides hypecoi* Zerova et Stojanova, *Exopristus trigonomerus* Ruschka, *Idiomacromerus papaveris* (Förster), *Glyphomerus aylax* Stojanova, *Pseudotorymus militarsis* (Boheman).

Key words: Hymenoptera, Eurytomidae, Torymidae, new species, Iran.

Новые виды хальцидонидных наездников семейств Eurytomidae и Torymidae (Hymenoptera, Chalcidoidea) из Ирана. Зерова М. Д., Серогина Л. Я., Каримпур Ю. — Описаны три новых вида хальцид из семейства Eurytomidae (*Eurytoma lactucae* Zerova, sp. n.; *Bruchophagus trjapitzini* Zerova, sp. n.; *Nikanoria shohadae* Zerova, sp. n.) и два новых вида из семейства Torymidae (*Glyphomerus flavabdomen* Zerova, sp. n.; *Cryptopristus salviae* Zerova, sp. n.) из Ирана; десять палеарктических видов из этих же семейств впервые указаны для фауны Ирана (*Eurytoma abdita* Zerova, *E. calicotomae* Zerova, *Eurytoma robusta* Mayr, *Bruchophagus astragali* Fedoseeva, *Adontomerus impolitus* Askew et Nieves, *Exopristoides hypecoi* Zerova et Stojanova, *Exopristus trigonomerus* Ruschka, *Idiomacromerus papaveris* (Förster), *Glyphomerus aylax* Stojanova, *Pseudotorymus militarsis* (Boheman).

Ключевые слова: Hymenoptera, Eurytomidae, Torymidae, новые виды, Иран.

This article continues the series of publication dealing with Iranian fauna of chalcid wasps of the families Eurytomidae and Torymidae (Zerova et al., 2004; Zerova et al., 2005; Zerova, 2007; Zerova, Seryogina, 2008; Zerova, Seryogina (in print)). Five new species are described, mainly from the northern part of Iran. The material was collected by Yu. Karimpour (Department of Plant Protection, Faculty of Agriculture Urmia University) and received from G. Melika (Systematic Parasitoid Laboratory, Department of Plant Protection, Ministry of Agriculture, Hungary), who collected phytophagous and parasitoid wasps in Iran. All parasitoid wasps were reared from hosts. The holotypes and paratypes of new species are deposited in the collection of the Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine (Kyiv).

Eurytoma lactucae Zerova, sp. n.

Material. Holotype ♀: Iran, Lorestan Prov., Zalian, Ghelaei, Albors-lar, ex stem galls of *Timaspis* sp. (Cynipidae, Hymenoptera) on *Lactuca orientalis* (Asteraceae), summer 2003 (Tavakoli). Paratypes: 9 ♀, with same labels as holotype.

Description. Female (fig. 1, 1–4). Body length 3.1–4.0 mm, holotype 3.9 mm. Body black, coxae black, femora, tibiae and tarsi bright yellow; scape and pedicel yellow; flagellum brown, the tip of ovipositor brown; forewings hyaline, veins yellow.

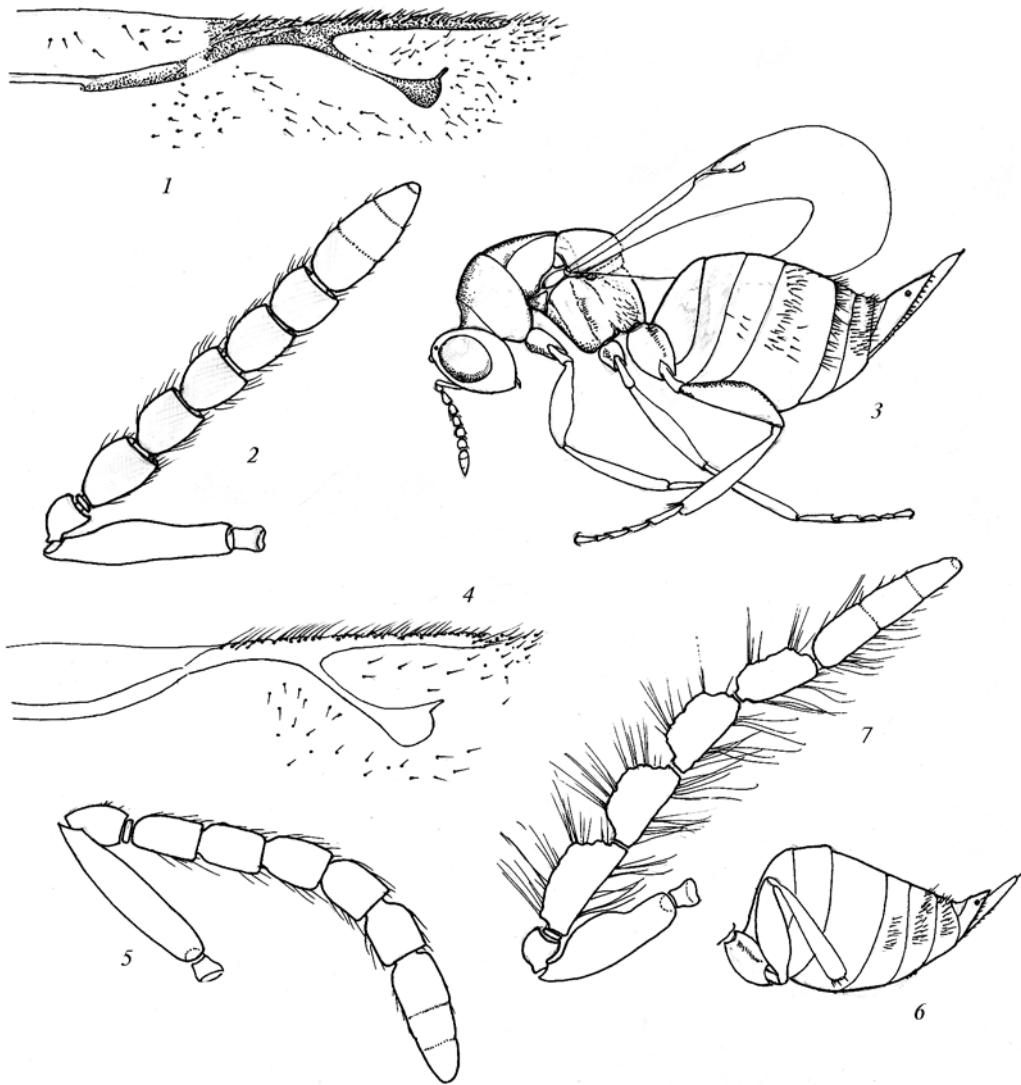


Fig. 1. *Eurytoma lactucae* sp. n. (1–3) and *Bruchophagus trjapitzini* sp. n. (4–7): 1, 4 — fore wing venation; 2, 5 — female antenna; 3 — female, lateral view; 6 — female abdomen; 7 — male antenna.

Рис. 1. *Eurytoma lactucae* sp. n. (1–3) и *Bruchophagus trjapitzini* sp. n. (4–7): 1, 4 — жилкование передних крыльев; 2, 5 — усики самок; 3 — самка, вид сбоку; 6 — брюшко самки, вид сбоку; 7 — усик самца.

Head from above wider than pronotum, about 2 times as wide as long (77 : 34), POL almost twice as long as OOL (20 : 8). Ratio of width to height of head (in frontal view) 71 : 55; ratio of malar space to eye length 25 : 28; eye bare, without border around eye orbit; postgenal keel distinct but not very high; external margin of clypeus partly prominent, almost straight; lower part of face with some fine umbilicate punctuation; punctuate sculpture of frontal part and vertex smaller than on mesothorax, vertex sculptured even more finely.

Lower part of face from clypeus to antenna base with flattened longitudinal projection. Postgenal keel sharp, but not high. Antenna inserted in the middle of face, scrobal depression narrow, visibly extended and banded only in ventral part near the joint of antenna. Scape nearly extended to middle ocellus level, long, slightly prominent at middle; pedicel very small, twice as short as 1st funicular segment, anellus very flatten; 1st funicular segment the longest, 1.7 times as long as wide (14 : 8); 2–5th funicular segments slight-

ly elongated; club 3-segmented, not wider than flagellum; funicular pubescence rare, slightly visible.

Mesosoma elongated, slightly prominent (in lateral view), prothorax nearly 2 times as wide as long (in dorsal view); mesoscutum slightly longer than scutellum; scutellum with more distinct punctated sculpture than prothorax and mesoscutum. Mesepisternum slightly punctated, with thin longitudinal keel, mesepimeron with obscure sculpture, nearly smooth. Propodeum very inclined, with oval fine-punctated area in the center and large irregularly shaped cells on the sides. Mesosternal keel absent. All coxae with very thin punctation; hind coxae without vertical suture.

Forewing discus nearly bare only in the basal part limited by the basal vein; other part of discus with dense, light, very short pubescence; ratio marginal: postmarginal: radial veins as 15 : 25 : 16.

Metasoma with S-shaped and curved abdomen; 1st abdominal tergite smooth, shining; 2–4th tergites with fine surface punctated sculpture, 5–6th tergites with larger sculpture, 4th tergite with separate setae, 5–6th tergites relatively densely ciliated; 7th tergite with indistinct punctation, nearly without pubescence, almost 3 times as long as 6th tergite (in lateral view).

Male unknown.

Comments. *Eurytoma lactucae* sp. n. is similar to *E. jaceae* Mayr by the features of venation and antennal structure, but distinctly differs by the S-shaped and curved abdomen with long 7th tergite. Biology of two species is also similar: *E. jaceae* feeds on cynipid wasps in the stems of Asteraceae, and *E. lactucae* sp. n. parasitizes the larvae of cynipid wasp *Timaspis* sp. (Hymenoptera, Cynipidae) in the galls on stems of *Lactuca orientalis* (Boiss.) Boiss. (Asteraceae).

Etymology. Named after the host-plant of the gall-inducing wasp (Cynipidae) — the insect host of *Eurytoma*.

***Bruchophagus trjapitzini* Zerova, sp. n.**

Material. Holotype ♀: Iran, Urmia, Band, ex seeds of *Astragalus* sp. (№ 1), date of emergence 4–10.08.2007 (Karimpour). Paratypes: 42 ♀, 10 ♂, with the same labels as holotype.

Description. Female (fig. 1, 5–7). Body length 2.4–4.7 mm, holotype 3.8 mm. Body dark with black head and mesosoma, dorsal surface of abdomen black, lateral sides brown, by some specimens brownish-yellow; coxae black, femora and hind tibia mostly yellow, but some darkening in the middle, fore and middle tibia and tarsi yellow; scape and pedicel yellow, flagellum brown; fore wing hyaline, veins yellow.

Head from above stout, massive, somewhat broader than pronotum, wider than long in ratio 75 : 40; POL longer than OOL in ratio 18 : 9. Head in frontal view wider than high in ratio 75 : 50, eye bare, malar space in proportion to length of eye as 18 : 30; clypeus external margin straight; post-genal keel very thin; lower face with some short radiating striae extending about 2/3 way to lower margin of eye; last part of face and occiput with fine umbilicate sculpture and dense pubescence.

Antenna inserted at middle of face; scrobal depression short, not reaching mid ocellus; scape long, 7 times as long as broad (37 : 5); anellus strongly transverse, pedicel some longer than its distal width; all flagellar segments elongated, first three flagellar segments some longer than 4th and 5th, club not wider than flagellum, flagellar pubescens short.

Mesosoma not bulging in profile, pronotum (from above) massive, almost three times as broad as long, mid lobe of mesoscutum some longer than scutellum, dorsal surface of thorax with distinct but shallow umbilicate sculpture; mesepisternum and mesepimeron with thin punctation; propodeum at middle with some longitudinal area and umbilicate punctures on sides. Hind coxa with strong punctation; basal 1/3 of forewing discus bare, last part with very short white sparse pubescence; veins yellow, almost white; marginal, postmarginal and radial veins length ratio 15 : 20 : 7.

Metasoma long and slender, 7th tergite (epipygium) some turned up; first tergite smooth, polished, 2–6th with thin punctation, third and fourth tergites equal in length, 4–7th tergites with white sparse pubescence; external part of ovipositor as long as 7th tergite or some longer (in profile).

Male. Length 2.5–3.8 mm. Differing from female in colour: head, mesosoma and metasoma partly yellow; upper side of head, dorsal surface of thorax and abdomen black. Colour very variable, with yellow parts of body large to very small. Abdominal petiolus some shorter than hind coxa. Scape stout, flagellum 4-segmented, first segment the longest, club 3-segmented; all flagellar segments elongate with short, sparse pubescence.

Comments. *Bruchophagus trjapitzini* sp. n. is similar to *B. macronycis* Fedoseeva, but differs in having shorter flagellar segments and shorter epipygium which is as long as external part of ovipositor in the new species, and is much longer in *B. macronycis* Fedoseeva.

Etymology. Named after famous chalcidologist Vladimir Trjapitzin in honour of his jubilee.

Nikanoria shohadae Zerova, sp. n.

Material. Holotype ♀: Iran, Urmia, Shohada (Glasmloo Valley, h = 1400 m, ex galls on the leaves of *Astragalus caryolotus* Bunge, middle May 2007 (Karimpour). Paratypes: 17 ♀, 22 ♂, with the same labels as holotype.

Description. Female (fig. 2, 1–5). Body length 1.7–2.2 mm, holotype 2.1 mm. Body dark green, almost black with green and brass bronze reflection; pronotum with little yellow spots; coxae dark green, hind femora and tibia yellow with some brown strip in the middle, fore and middle femora and tibia yellow, tarsi yellow; scape, pedicel and flagellum brown, wings hyaline, venation yellow, almost pale, stigma enlarged, yellow; the tip of ovipositor brown.

Head with thin reticulation with sparse punctures; the sculpture on lower face is more distinct than on front and vertex; white short pubescence sparse. Head from above slightly wider than pronotum; width to length in ratio 46 : 23; POL longer than OOL as 11 : 3. Head in frontal view: width to height 46 : 33; malar space eye length ratio 13 : 20; external margin of clypeus straight. Antenna inserted at middle of face, scape not reaching median ocellus, pedicel almost as long as first flagellar segment; first segment of flagellum slightly longer than wide, 2–5 flagellar segments transverse, anellus short; club long and stout, as long, as three preceding segments combined.

Mesosoma slightly bulging in profile, pronotum, mesoscutum and scutellum reticulate with sparse shallow umbilicate punctures; pronotum much wider than long (40 : 15), mid lobe of mesoscutum some longer than scutellum. Propodeum at middle with oval punctated area. Fore wing with marginal, postmarginal and radial veins in proportions 20 : 28 : 25; stigma bare, prominent, enlarged (length to height 8 : 10), with thin long petiolus. Basal 1/3 of forewing discus almost bare, remaining part with very short white pubescence, hind femur some thickened.

Metasoma: petiolus short, not visible from above; abdominal tergites without distinct sculpture. Fourth tergite is the longest; gaster some longer than mesosoma (43 : 32) in some specimens almost as long as mesosoma (in profile).

Male. Length of body 1.0–1.5 mm. Colour as in female, funicle 4-segmented, club 3 segmented; scape long without prominent bulging; first funicular segment slightly longer than 2–4. Abdominal petiolus as long as hind coxa.

Biology. *Nikanoria shohadae* sp. n. is gall inducing species on leaves of *Astragalus caryolobus* Bunge.

Comments. *Nikanoria shohadae* sp. n. resembles *N. metallica* (Erdős) (fig. 2, 6–8), but differs in large stigma and shorter funicular segments in both sex. Both species *N. metal-*

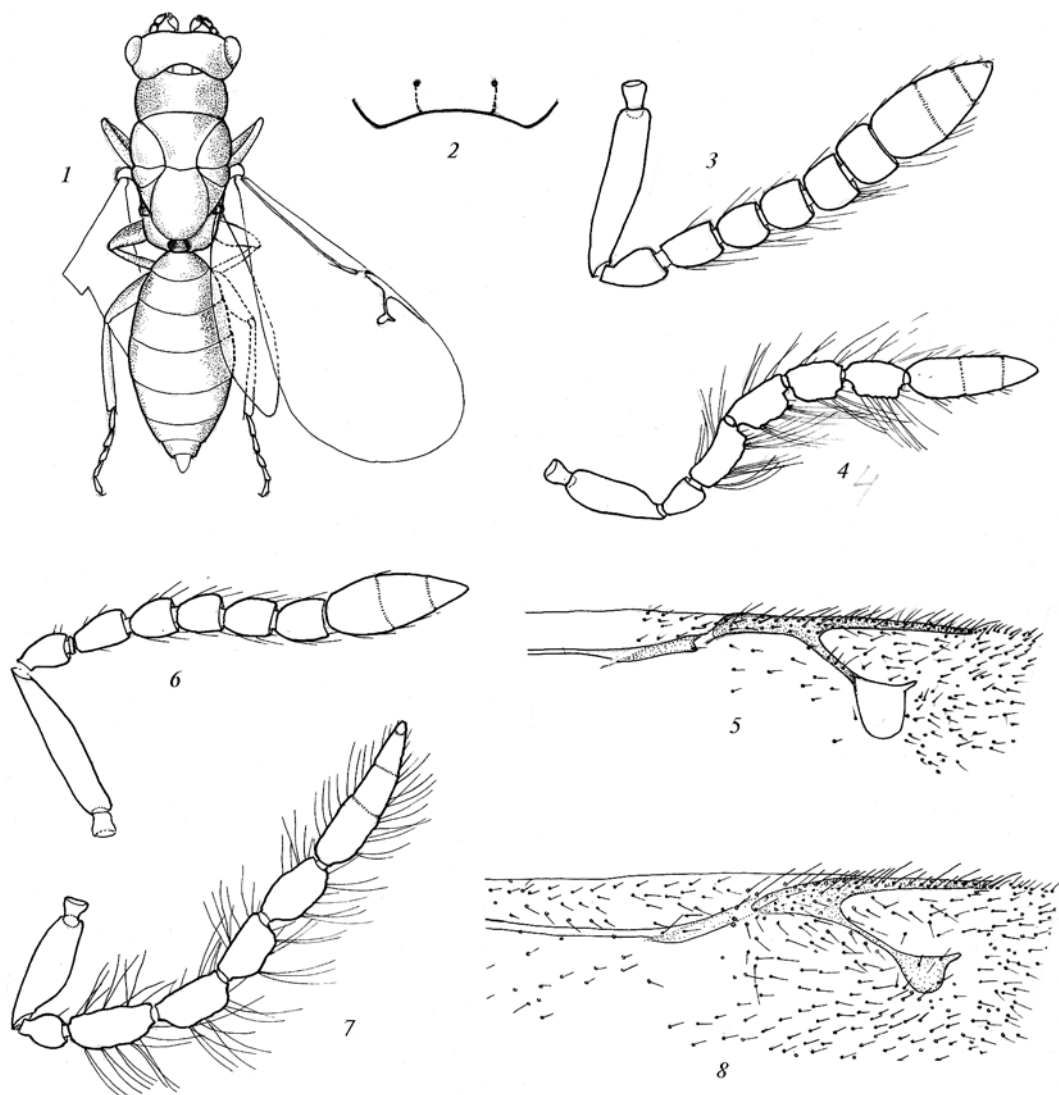


Fig. 2. *Nikanoria shohadae* sp. n. (1–5) and *Nikanoria metallica* (6–8): 1 – female, from above; 2 – clypeus; 3, 6 – female antenna; 4, 7 – male antenna; 5, 8 – fore wing venation.

Рис. 2. *Nikanoria shohadae* sp. n. (1–5) и *Nikanoria metallica* (6–8): 1 – самка, вид сверху; 2 – наличник; 3, 6 – усики самок; 4, 7 – усики самцов; 5, 8 – жилкование передних крыльев.

lica and *N. shohadae* sp. n. are phytophagous in galls on *Astragalus*, but the hosts are different: *A. caryolobus* Bunge for new species and *A. glycyphyllos* L. for *N. metallica*.

Etymology. The species is named for its type locality.

***Glyphomerus flavabdomen* Zerova, sp. n.**

Material. Holotype ♀: Iran, Urmia, Seer Mountain, h = 1400 m, ex galls on stems of *Salvia* sp. (Lamiaceae) induced by *Hedickiana levantina* (Hedicke) (Cynipidae), emergence: 11–18 July 2007 (Karimpour). Paratypes: 31 ♀, 26 ♂, with the labels as holotype.

Description. Female (fig. 3, 1–4). Body length 2.3–3.4 mm, holotype 2.5 mm (without ovipositor), ovipositor sheaths a little longer than metasoma length (2 : 1.7) (in profile). Head and mesosoma dark green with bronze shine, all coxa dark green, femora brown, tibia variable from yellowish-brown to yellow, tarsi yellow. Basal part of gasteral tergites yellow, especially 1–2 tergites also yellow, last tergites brown with dark

green reflection; colour of gaster very variable, first two tergites in most specimens yellow or dark yellow but some specimens with 1–2 brown tergites even dark brown, ovipositor brown. Fore wing with dark spot below the stigma, veins and pubescence on wing disc dark brown.

Head from above slightly wider than pronotum, twice broader than long (65 : 33); temple short, not bulging with converging sides, POL almost three times longer than OOL (17 : 6). Head in frontal view: width to height ratio 65 : 49; malar space eye length ratio as 17 : 34; anterior margin of clypeus straight, eye with sparse short hairs. Head with finely reticulate surface and dense pubescence. Antenna inserted slightly below face middle; scrobal depression reaching median ocellus; scape almost reaching median ocellus; scape long, 5 times as long as broad (26 : 5); anellus strongly transverse, first flagellar segment some elongate, second a little elongate, 5–7th transverse; club thin, 3-segmented. Flagellum closed with short white adpressed hairs.

Mesosoma: distinctly bulging in profile, dorsal surface of thorax reticulate and shining with short, white pubescence; pronotum (from above) three times as broad as long, tegulae green. Propodeum finely reticulated. Fore wing in basal third bare, only costal cell (from above) with some very short hairs; the last part of wing discus with sparse brown hairs; one elongated brown spot under stigmal vein and other little spot under distal part of parastigma; marginal, postmarginal and stigmal vein as 20 : 22 : 5; radial vein shortly petiolate. Hind coxa punctated, hind femora thickened. Mesepisternum with fine punctation, mesepimeron without distinct sculpture.

Metasoma: gaster some longer than mesosoma (7 : 4) with distinct punctured surface and long thick pubescence on 2–6 tergites. Ovipositor longer than gaster, ovipositor index (ratio length of ovipositor to length of hind tibia) 2.2 (20 : 9).

Male. Body length 1.5–3.0 mm, differs from female by stouter funicle. Colour of abdomen is variable as in female from yellow to almost green dorsally with yellow colour of ventral side.

Comments. *Glyphomerus flavabdomen* sp. n. is similar to *G. aylax* Stojanova, but differs by some longer ovipositor, longer scape and wholly (or partly) yellow gaster.

Etymology. Named after peculiarity of colour of abdomen.

***Cryptopristus salviae* Zerova, sp. n.**

Material. Holotype ♂: Iran, E. Azerbaijan, ex galls of *Hedickiana levantina* (Cynipidae) on stems of *Salvia syriaca*, em. 23.08.2002 (Sadeghi).

Description. Male (fig. 3, 5–7). Length 2 mm. Body dark green with golden reflection; all coxa dark green, femora green yellowish knees except, tibia and tarsi yellow. Fore wing with infumate light brown macula around stigma and dark pit at distal end of parastigma.

Head from above round, width to length 60 : 26; temples slightly rounded on sides, POL almost two times longer than OOL (16 : 7); lower face not bulging in profile. Head in frontal view: width to height in ratio 60 : 45; malar space in proportion to length of eye as 12 : 25; eyes with sparse short hairs; occipital carina distinctive, external margin of clypeus straight; face and vertex with very fine reticulation and white, sparse and short piliation. Antenna inserted at middle of face; scrobal depression high, reaching middle ocellus; scape flat by sides, almost reaching middle ocellus, longer than wide in ratio 20 : 8; pedicel short, almost round; anellus strongly transverse; first funicle segment slightly elongate, 1.3 times as long as broad, 2–4 funicle segments subquadrate, 5–7 slightly transverse, club 2.4 times as long as broad. Flagellum thickly covered with short brown setae. Hind coxa punctated; hind femora on external margin with distinct depression with two distinct teeth on basal part of depression and with two small teeth inside.

Mesosoma with dorsally reticulate and shining surface; pubescence consisting of dense short and slightly raised hairs on pronotum and mesoscutum and slightly longer and raised on the tip of scutellum. Mesosoma a little longer than abdomen (10 : 8). Propodeum with

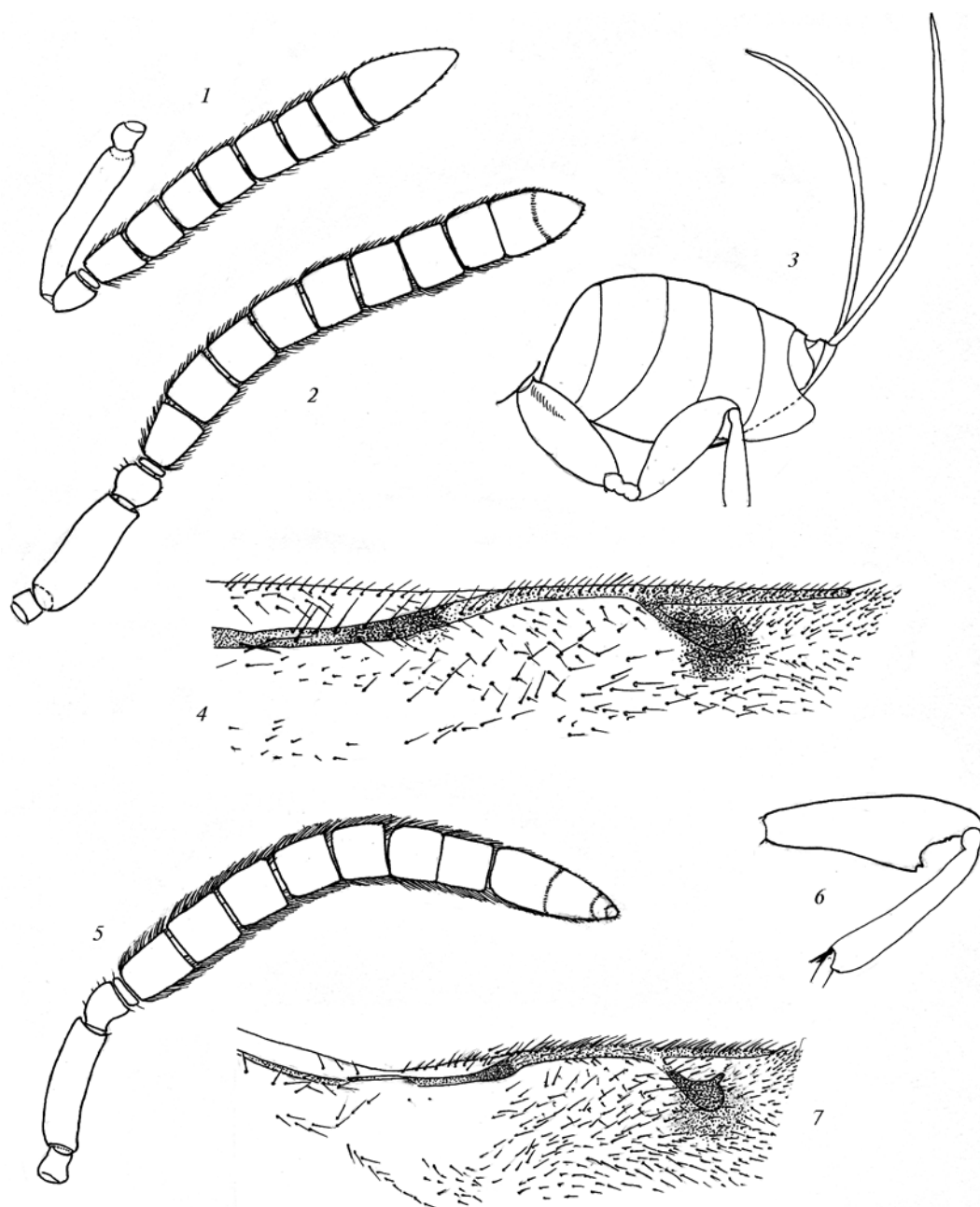


Fig. 3. *Glyphomerus flavabdomen* sp. n. (1-4) and *Cryptopristus salviae* (5-7): 1 — female antenna; 2, 5 — male antenna; 3 — female abdomen; 4, 7 — fore wing venation; 6 — hind femur.

Рис. 3. *Glyphomerus flavabdomen* sp. n. (1-4) и *Cryptopristus salviae* (5-7): 1 — усик самки; 2, 5 — усики самцов; 3 — брюшко самки, вид сбоку; 4, 7 — жилкование передних крыльев; 6 — заднее бедро и голень.

thin reticulation and distinct median keel. Mesopleuron with episternum punctated and epimeron shining without sculpture. Forewing discus almost bare at basal part, last part with brown dense pubescence; veins brown with light brown cloud around and under stigma and small dark pit at distal end of parastigma.

Gaster with fine puncture surface; pubescence well developed on tergites 2-7 but denser at apex of gaster.

Comments. According to E. Grissell (1995) there are two species in the genus *Cryptopristus* Förster in the world fauna: *C. harrisii* (Fitch), Nearctic and *C. caliginosus* (Walker), Palearctic. In material from Iran we found the third *Cryptopristus* species, which differs from the previously known by the structure of the hind femur with deep depression and two teeth on the basal part of this depression and with two little teeth inside.

Etymology. Named after the host plant of the gall-inducing wasp, the insect host of *Cryptopristus*.

Palearctic species of the families Eurytomidae and Torymidae recorded for the first time in Iranian fauna

Eurytomidae

Eurytoma abdita Zerova: 3 ♀, Iran, Urmia, Nazloo, ex galls on seed pods of *Hypecoum imberbe* (Papaveraceae) induced by *Aylax hypecoi* Trotter (Cynipidae), emergence 20–28.06.2007 (Karimpour).

Eurytoma calicotomae Zerova: 8 ♀, 5 ♂, Iran, Urmia, Band, h = 1325 m, ex seeds of *Hedysarum* sp. (Fabaceae), em. 14–22.08.07 (Karimpour); 2 ♀, Iran, Urmia, Band, h = 1325 m, ex seeds of *Onobrychis viciaefolia* (Fabaceae), em. 14–22.08.07 (Karimpour).

Eurytoma robusta Mayr: ♀, Iran, Urmia, Band, h = 1325 m, ex pods of *Onobrychis viciaefolia* (Fabaceae), em. 14–22.08.07 (Karimpour); ♀, Iran, Urmia, Nazloo, ex seed heads of *Centaurea salonitana* (Asteraceae), em. 2–20.07.2007 (Karimpour).

Bruchophagus astragali Fedoseyeva: 8 ♀, ♂, Iran, Urmia, Shohada (Ghasemloo) Valley, ex seed of *Astragalus chrysostachys* (Fabaceae), 8–14.07.08 (Karimpour).

Torymidae

Adontomerus impolitus Askew et Nieves: 13 ♀, Iran, Urmia, Shohada (Ghasemloo) Valley, h = 1400 m, ex galls at the base of flowers and receptacles of *Tragopogon* sp. induced by *Aulacidea* sp. (Cynipidae), em. 8–18.07.08 (Karimpour).

Exopristoides hypecoi Zerova et Stojanova: 8 ♀, ♂, Iran, Urmia, Nazloo, h = 1310 m, ex galls on seed pods of *Hypecoum imberbe* (Papaveraceae), em. 20–28.06.2007 (Karimpour).

Exopristus trigonomerus Ruschka: ♀, Iran, Urmia, Nazloo, ex seed heads of *Centaurea salonitana* (Asteraceae), em. 2–20.07.2007 (Karimpour).

Glyphomerus aylax Stojanova: 8 ♀, ♂, Iran, Urmia, Nazloo, h = 1310 m, ex galls on seed pods of *Hypecoum imberbe* (Papaveraceae) induced by *Aylax hypecoi* Trotter (Cynipidae), em. 20–28.06.2007 (Karimpour).

Idiomacromerus papaveris (Förster): ♀, Iran, Urmia, Band, h = 1325 m, ex seeds of *Hedysarum* sp. (Fabaceae), em. 14–22.08.2007 (Karimpour); ♀, Iran, Urmia, Band, ex pods of *Astragalus* sp. (Fabaceae), em. 4–10.08.2007 (Karimpour).

Pseudotorymus militarsis (Boheman): ♀, Iran, Urmia, Band, h = 1325 m, ex seeds of *Hedysarum* sp. (Fabaceae), em. 14–22.08.2007 (Karimpour).

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