

Review of Kazakhstan species of the genus *Trichomalus* Thomson, with description of a new species (Hymenoptera: Chalcidoidea: Pteromalidae)

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Ten species of *Trichomalus* are reported from Kazakhstan. A description of *T. tamaricola* sp. n., reared from galls of *Amblypalpis tamaricella* Danil. (Gelechiidae) on *Tamarix ramosissima* Ledeb., and a redescription of *T. inops* (Walker, 1835), reared from galls of *Catapion gemulum* (Faust) (Curculionidae) on root neck of *Astragalus campylorrhynchus* Fisch. & Mey., are given.

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Introduction

Trichomalus Thomson, 1878 is rather common in the Holarctic Region. The genus was revised by Graham (1969) who provided a key to 33 European species. Our material on the genus from Kazakhstan includes 10 species, one of which is described as new here. Nevertheless, it is clear that the total of *Trichomalus* species in the region is at least 20. *Trichomalus inops* (Walker, 1835) is redescribed here. Host data are known mainly for several European species. Their hosts are Diptera (Chloropidae) and Coleoptera (Curculionidae) (Graham, 1969; Bouček & Rasplus, 1991). Biological records and data on distribution of *Trichomalus* species in Kazakhstan are brought for the first time.

The material examined, including the holotype and paratypes of the new species, is deposited at Institute of Zoology, Almaty, Kazakhstan. All specimens, except as otherwise noted, are collected by the author of the paper.

Trichomalus tamaricola sp. n. (Figs 1-4)

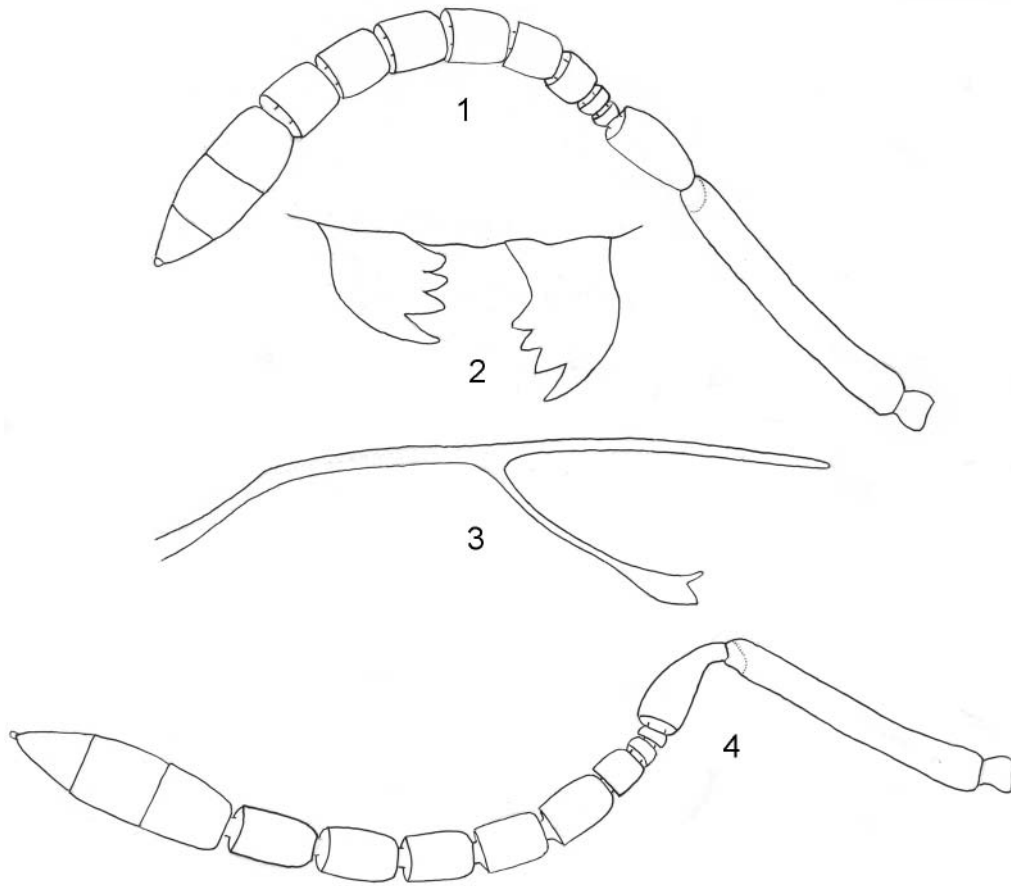
Holotype. ♀, **Kazakhstan**, Almaty Prov., middle Ili R. valley, 25 km N of Kapchagay, reared from galls of *Amblypalpis tamaricella* Danil. (Gelechiidae) on *Tamarix ramosissima* Ledeb., 25.IV.2002.

Paratypes. **Kazakhstan**: Almaty Prov.: 2 ♀, 1♂, same data as holotype; 9 ♀, 1♂, lower Ili R. valley, near Karaagash village, on *T. ramosissima*, 15, 31.V., 12, 15. VIII.2003, 7, 9.VI.2004; 5 ♀, 1♂, Masak, Chilik R. flood

lands, on *T. ramosissima* in gallery forest, 16.VII.2005, 14.VI., 3.VII.2006; 3 ♀, 1♂, 30 km SE of Chilik, Zhingilsu R. flood lands, 4, 9.VI.2005; 21 ♀, 2♂, Koktuma village, southern shore of Alakol' lake, on *T. ramosissima*, 11.VII.2007.

Description. Female (holotype). Head about 2.4 times as broad as long, in front view rather broader than high. POL = 1.9 OOL. Eyes large, shortly oval. Major diameter of eye 1.4 times the minor diameter and 2.8 times the height of gena. Antennae inserted slightly above level of ventral edge of eyes. Antennal formula 11263 (Fig. 1). Flagellum very weakly clavate. Pedicellus nearly as long as anelli and first funicular segment together. Both anelli strongly transverse. First funicular segment slightly transverse, often shorter and narrower than second; funicular segments 2-6 quadrate or slightly longer than broad. Flagellum with short and virtually decumbent hairs. Funicle with sensilla arranged in one row on each segment. Clypeus with reticulate sculpture, its anterior margin slightly emarginate. Each mandible with four teeth (Fig. 2). Maxillary palpi 4-segmented; labial palpi 3-segmented. Head with fine reticulation; its front always conspicuously shinier and with very fine sculpture.

Pronotum very short, clearly narrower than mesoscutum; its anterior edge very finely and regularly margined. Notauli incomplete. Mesoscutum finely reticulate. Scutellum twice as long as propodeum, moderately convex, with weak frenal furrow, more finely reticulate than mesoscutum. Propodeum with plicae and convex reticulate nucha; median carina feeble or absent.



Figs 1-4. *Trichomalus tamaricicola* sp. n. 1, antenna, female; 2, lower part of head (anterior margin of clypeus and mandibles), female; 3, fore wing venation, female; 4, antenna, male.

Panels of median area of propodeum strongly reticulate. Spiracles separated by about their major diameter from hind margin of metanotum. Mesepimeron with smooth triangular area (*mesepimeron superior*) below base of hind wings. Fore wing: basal cell and basal vein bare, lower surface of costal cell with a complete row of hairs and some additional ones scattered over distal third. Speculum open below, on upper surface of wing extending below marginal vein almost to base of stigmal vein. Marginal vein almost as long as stigmal vein; postmarginal vein 1.4 times as long as stigmal vein (Fig. 3). Surface beyond speculum rather densely pilose. Apical margin of fore wing ciliate throughout; fringe moderately long. Legs slender.

Metasoma short ovate, pointed apically, 1.6 times as long as broad and nearly as long as head plus mesosoma.

Body black with bronze reflections. Scape and pedicellus testaceous; flagellum fulvous, in ventral view lighter. Coxae brown without metallic gloss;

trochanters testaceous; femora and tibiae mainly brownish with their bases and tips testaceous; tarsi testaceous with their tips brownish. Length 2 mm.

Male similar to female, but differing in the funicular segments 2-6 distinctly longer than broad (Fig. 4). Flagellum with longer and less decumbent hairs; funicle brown dorsally, testaceous ventrally; scape and pedicellus testaceous. Coxae brown; trochanters, femora, tibiae and tarsi, except their tips, testaceous. Metasoma short ovate with its proximal half yellow orange, except for brownish extreme sides of basal tergum; distal half of metasoma brown.

Comparison. In the Natural History Museum (London), I have seen the type male of *Pteromalus irus* (Walker, 1839), which was synonymized with *Trichomalus rufinus* (Walker, 1835) by Graham (1956). The new species is probably close to *T. rufinus*. The male of *T. tamaricicola* closely resembles the male of *T. irus*, especially in the shape and colour of metasoma, but differs in the

dorsal surface of hind coxae, propodeal callus, and sides of basal tergite of metasoma slightly pilose (densely pilose in *T. rufinus*). The new species develops in galls of *Amblypalpus tamaricella* (Gelechiidae) on *Tamarix ramosissima*. *T. rufinus* is known from NW Europe. It was reared in England under the name *T. irus* as a parasite of *Apion loti* Kirby by Richards (1935).

Etymology. All specimens used for this study were collected by me from *Tamarix*. The species is associated with galls of *Amblypalpis tamaricella* Danil. (Gelechiidae). The species name is derived from the generic name *Tamarix* and the Latin word *cola*, meaning inhabitant of *Tamarix*.

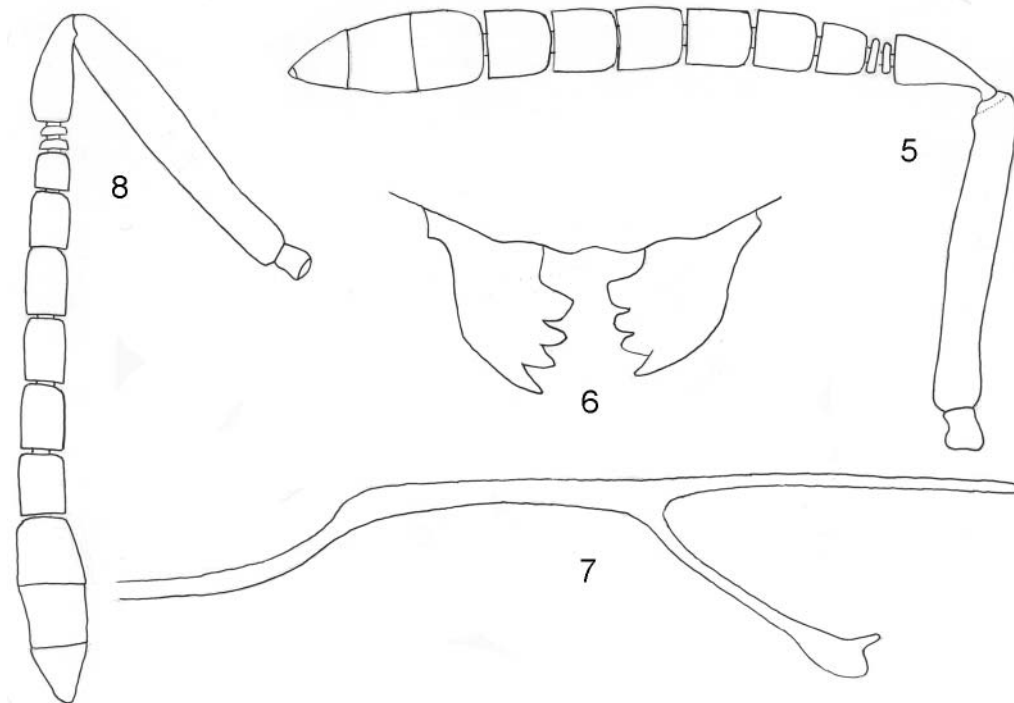
***Trichomalus inops* (Walker, 1835)**
(Figs 5-8)

Material examined. **Kazakhstan, South Kazakhstan Prov.:** 64 ♀, 47 ♂, 50 km W of Koxsu, reared from galls of *Catapion gemulum* (Faust) (Curculionidae) on root neck of *Astragalus campylorrhynchus* Fisch. & Mey., 15-25.V.1992; **Zhambyl Prov.:** 1 ♀, 1 ♂, near Karatau town, multiherbaceous meadow, 30.V., 3.VI.2000; 1 ♀, 5 ♂, 20 km E of Karatau town, near Biylikol Lake, on *Tamarix* sp., 19, 30.V.2002; **Almaty Prov.:** 4 ♂, 17 km NE of Ayakkalkan (near Singing Dune), on *Tamarix* sp., 16.VI.1971; 1 ♂, 17 km NW of Bakanas, Ili R. flood lands, multiherbaceous meadows, 14.VII.1970; 2 ♂, middle Ili R. valley, Masak village, Chilik R. flood lands, on *Tamarix ramosissima* in gallery forest, 30.V.2004, 3.VI.2005; 1 ♂, 70 km N of

Almaty, on *Elaeagnus oxycarpa* Schlecht., 7.VI.2006; 1 ♂, 65 km N of Almaty, on *E. oxycarpa*, 31.V.2006; 2 ♂, 10 km S of Kaskelen town, northern foothills of Trans-Ili Alatau Mts., on *Atraphaxis* sp., 3, 11.IX.1970.

Redescription. Female. Head about 2.3 times as broad as long, in front view 1.2 times as broad as high. POL = 1.3 OOL. Eyes shortly oval. Major diameter of eye 1.3 times the minor diameter and 1.7 times the height of gena. Antennae inserted slightly above level of ventral edge of eyes. Antennal formula 11263 (Fig. 5). Flagellum very weakly clavate. Pedicellus nearly as long as anelli and first funicular segment combined. First funicular segment subquadrate, slightly shorter and narrower than second; funicular segments 2-4 slightly longer than broad; 5-6 subquadrate. Flagellum with short and virtually decumbent hairs. Funicle with sensilla arranged in one row on each segment. Clypeus reticulate with striation; its anterior margin slightly emarginate. Each mandible with four teeth (Fig. 6). Maxillary palpi 4-segmented; labial palpi 3-segmented.

Mesosoma moderately convex. Pronotum short, clearly narrower than mesoscutum; its anterior edge very finely and regularly margined. Mesoscutum reticulate. Scutellum 1.9 times as long as propodeum, finely reticulate, without frenal furrow. Propodeum with plicae, median carina, moderately large nucha. Panels of median area of propodeum with strongly smoothed



Figs 5-8. *Trichomalus inops* (Walker). **5,** antenna, female; **6,** lower part of head (anterior margin of clypeus and mandibles), female; **7,** fore wing venation, female; **8,** antenna, male.

reticulate sculpture. Spiracles oval, separated by about their major diameter from hind margin of metanotum. Mesepimeron with smooth triangular area (*mesepimeron superior*) below base of hind wings. Fore wing: basal cell and basal vein bare, lower surface of costal cell with a complete row of hairs and some additional ones scattered over distal third. Speculum open below, on upper surface of wing extending below marginal vein for about half the length of the latter. Marginal vein slightly shorter than postmarginal vein and 1.3 times as long as stigmal vein (Fig. 7). Surface beyond speculum rather densely pilose. Apical margin of fore wing ciliate throughout; fringe moderately long. Legs slender.

Metasoma oval, pointed apically, twice as long as broad. Last tergum slightly shorter than its basal breadth. Pygostylar bristles short, equal in length. Ovipositor sheaths slightly exerted.

Head and mesosoma black-green, metasoma dark brown. Flagellum brownish, lighter ventrally; scape testaceous. External aspect of coxae dark brown with slight metallic reflections, medially testaceous; trochanters, femora, tibiae and tarsi brownish testaceous. Wings hyaline, venation brownish testaceous. Propodeal callus, dorsal surface of hind coxae and sides of basal tergum rather thickly pilose. Length 2 mm.

Male similar to female, but differing in the head and mesosoma green with metallic tinge. Scape, pedicellus, anelli and sixth funicular segment yellowish. Funicular segments 1-5 and clava slightly darkened. Coxae more or less brownish, sometimes partly yellowish; trochanters, femora, tibiae and tarsi, except their tips, light yellow. Metasoma nearly always oblong, with its proximal half yellow completely and with its distal half brownish dorsally. Antennae slenderer than those in female (Fig. 8). First funicular segment slightly longer than broad; funicular segments 2-6 considerably longer than broad.

***Trichomalus althaeae* (Erdős, 1953)**

Material examined. Kazakhstan, West Kazakhstan Prov.: 116 ♀, 49 ♂, Peremetnoe village, bank of Derkul R., reared from *Pseudapion fulvirostre* (Gyllenhal) in fruits of *Althaea officinalis* L., 20.VIII-9.IX.1987; *Zhambyl Prov.:* 57 ♀, 19 ♂, near Zhambyl town (Dzhalpaktyube), reared from *P. fulvirostre* in fruits of *Althaea nudiflora* Lindl., 21.VII-7.VIII.1986; *Almaty Prov.:* 18 ♀, 4 ♂, Masak, middle Ili R. valley, Chilik R. flood lands, reared from stems and fruits of *Althaea officinalis* L. together with *P. fulvirostre* and *Aspidapion validum* (Germar), 26-31.VII.2006.

***Trichomalus gynetelus* (Walker, 1835)**

Material examined. Kazakhstan, Almaty Prov.: 2 ♀, near Talgar town, Trans-Ili Alatau Mts., Right Talgar gorge, 2500 m, multiherbaceous meadow, 31.VIII.1993.

***Trichomalus helvipes* (Walker, 1834)**

Material examined. Kazakhstan: West Kazakhstan Prov.: 3 ♀, 5 km N of Peremetnoe village, multiherbaceous meadow, 24.VIII.1987; 3 ♀, Peremetnoe village, bank of Derkul R., on herbaceous plants, 29.VIII.1987; *South Kazakhstan Prov.:* 9 ♀, 32 ♂, Karatau Mountain Range, 12 km NE of Ashchisay village, on *Spiraea hypericifolia* L., 23.V.1992; *Zhambyl Prov.:* 8 ♀, 2 ♂, near Karatau town, multiherbaceous meadow, 28.V-5.VI.2000; 6 ♂, 20 km E of Karatau town, near Biylikol Lake, on *Tamarix* sp., 19.V.2002; *Almaty Prov.:* 2 ♀, southern part of Taukum desert, reared from Curculionidae on *Astragalus leiophysa* Bge., 11.VI.1977, leg. I.S. Kumachov; 4 ♀, 22 ♂, lower Ili R. flood lands, in gallery forest, near Karaagash village, on *Berberis iliensis* M. Pop., 21-29.V.2003; 4 ♀, 7 ♂, same locality, on *T. ramosissima*, 5-9.VI.2004; 10 ♀, 11 ♂, Masak, Chilik R. flood lands, on *T. ramosissima* in gallery forest, 24-30.V.2004, 3.VI.2005; 4 ♀, 1 ♂, 30 km SE of Chilik, Zhingilsu R. flood lands, on *T. ramosissima*, 4.VI.2005; 11 ♂, 65 km N of Almaty, on *B. iliensis*, 31.V-7.VI.2006; 1 ♀, 1 ♂, 19 km NW of Ushtobe, Karatal R. valley, on *T. ramosissima*, 18.VI.2005; 3 ♀, 10 km S of Kaskelen town, northern foothills of Trans-Ili Alatau Mts., on *Atraphaxis* sp., 11.IX.1970; *East Kazakhstan Prov.:* 1 ♀, 1 ♂, 25 km S of Karaaul village, Chingiztau Mts., Karaaulozek R. flood land, on *Salix* sp., 26.VI.1978.

***Trichomalus lepidus* (Förster, 1841)**

Material examined. Kazakhstan: Almaty Prov.: 1 ♀, near Talgar town, northern foothills of Trans-Ili Alatau Mts., on *Atraphaxis* sp., 1.VI.1998; 1 ♀, 10 km S of Kaskelen town, northern foothills of Trans-Ili Alatau Mts., on *Atraphaxis* sp., 3.IX.1970.

***Trichomalus nanus* (Walker, 1836)**

Material examined. Kazakhstan: Almaty Prov.: 2 ♀, 17 km SE of Bakanas village, Ili R. flood land, on mixed herbaceous plants, 10, 19.VII.1970.

***Trichomalus pexatus* (Walker, 1835)**

Material examined. Kazakhstan: West Kazakhstan Prov.: 1 ♂, near Daryinsk village, swept from sand-dune vegetation, 29.VI.1977; 2 ♀, 23 ♂, same locality, bank of Ural R., on *Lythrum salicaria* L., 8, 10.VIII.1977; 2 ♀, same locality, Ural R. flood lands, on *L. salicaria*, 19.VIII.1977; 1 ♀, 5 km N of Peremetnoe village, on herbaceous plants, 24.VIII.1987; *Zhambyl Prov.:* 1 ♂, near Karatau town, multiherbaceous meadow, 30.V.2000; 1 ♂, 20 km E of Karatau town, near Biylikol Lake, on *Tamarix* sp., 30.V.2002; *Almaty Prov.:* 2 ♂, 20 km NE of Ayakkalkan (near Singing Dune), on *Tamarix* sp., 4.VI.1971; 2 ♂, Masak, Chilik R. flood lands, on *T. ramosissima* in gallery forest, 3.VI.2005.

***Trichomalus pherospilus* Dzhanokmen, 1975**

Material examined. Kazakhstan: South Kazakhstan Prov.: 1 ♀, 50 km W of Koku village, sands, swept from sand-dune vegetation, 9.V.1992; 1 ♀, 30 km W of Bairkum village, Karaktau Mt., swept from herbaceous vegetation, 17.V.1992; 1 ♀, 50 km NW of Bairkum village, swept from herbaceous vegetation, 14.V.1992; 2 ♀, 6 km NE of Ashchisay village, swept from herbaceous plants, 22.V.1992; 1 ♀,

15 km of NE of Ashchisay village, swept from herbaceous plants, 23.V.1992; *Zhambyl Prov.*: 1 ♀, near Karatau town, multiherbaceous meadow, 1.VI.2000; *Almaty Prov.*: 1 ♀, 75 km NW of Almaty, swept from herbaceous vegetation, 17.V.2000; 1 ♀, Masak, Chilik R. flood lands, middle Ili R. valley, on *Tamarix ramosissima*, 22.V.2004.

***Trichomalus posticus* (Walker, 1834)**

Material examined. Kazakhstan: *Almaty Prov.*: 1 ♀, 26 km SW of Almaty, multiherbaceous meadow, 9.VII.1996; 2 ♀, pre-mountain plane along northern slopes of Trans-Ili Alatau Mts., near Kaynazarka village, multiherbaceous meadow, 1.VI.2000; 2 ♀, Trans-Ili Alatau Mts., Right Talgar gorge, 1600 m, multiherbaceous meadow, 7.IX.1993.

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