

A REVIEW OF THE GENUS *CHEILOTOMA* CHEVROLAT, 1837 (COLEOPTERA: CHRYSOMELIDAE: CLYTRINAE) IN TURKEY WITH A NEW RECORD, *CHEILOTOMA ERYTHROSTOMA* FALDERMANN, 1837

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ABSTRACT: With this study, the distributional status of all existing taxa of Turkish *Cheilotoma* Chevrolat, 1837 is determined. *Cheilotoma erythrostoma* Faldermann, 1837 is given for the first time to Turkey. For each taxon, the paper includes zoogeographical remarks and chorotype information. A short key of Turkish species is also given.

KEY WORDS: *Cheilotoma*, *C. erythrostoma*, new record, Chrysomelidae, Turkey

The genus *Cheilotoma* Chevrolat, 1837 was represented by seven species and one subspecies which occur only in palearctic region until Medvedev's work (2004). He proposed a revision of the genus *Cheilotoma*, and described three new subspecies of *Cheilotoma musciformis* (Goeze, 1777) and also removed *Cheilotoma turcomanica* Medvedev, 1971 and *Cheilotoma italica* Leoni, 1906 from synonymy to subspecies status in his study. However his work contains writing errors for *Cheilotoma rotroi*. This species was written two times unnecessarily (as *C. rotroi* and *C. retroui*) in Medvedev (2004). So the palearctic genus *Cheilotoma* Chevrolat, 1837, for the present time, includes seven species and five subspecies belong to two subgenus, the nominotypical subgenus *Cheilotoma* Chevrolat, 1837 and *Exaesiognatha* Jacobson, 1923. Furthermore, for the species *Cheilotoma rotroi*, Medvedev (2004) stated "*species differs sharply from typical Cheilotoma and very possibly belong to other genus*". *C. rotroi* was placed by Warchalowski (2003) in the genus *Otiocephala* Lefevre, 1872 and he attributed Pic, 1934 as author wrongly. Warchalowski (pers. comm. in 2007) also mentioned "*in my opinion O. rotroi Kocher belong rather to Otiocephala (strong puncturation of upper side, pronotum very short and broad, pale spots at apex of elytra). But the holotype is not present in the part of collection Kocher in Rabat (perhaps in other part, in Paris)*". We think that the approach of Warchalowski (2003) is more acceptable. Consequently, we accept that the genus *Cheilotoma* has six species and five subspecies in palearctic region.

All existing *Cheilotoma* taxa in palearctic region are presented into a list as follows:

***Cheilotoma* Chevrolat, 1837**

Type sp.: *Chrysomela musciformis* Goeze, 1777

Subgen. *Exaesiognatha* Jacobson, 1923

Type sp.: *Cheilotoma ivanovi* Jacobson, 1923

***Cheilotoma ivanovi* Jacobson, 1923**

***Cheilotoma ivanovi ivanovi* Jacobson, 1923** (Uzbekistan, Tadzhikistan)

***Cheilotoma ivanovi turcomanica* Medvedev, 1971** (South west Turkmenia)

Subgen. *Cheilotoma* Chevrolat, 1837

Type sp.: *Chrysomela musciformis* Goeze, 1777

***Cheilotoma fulvicollis* Sahlberg, 1913** (Syria)

***Cheilotoma voriseki* Medvedev & Kantner, 2003** (Turkey)

***Cheilotoma beldei* Kasap, 1984** (Turkey, Jordan)

***Cheilotoma musciformis* (Goeze, 1777)**

***Cheilotoma musciformis musciformis* (Goeze, 1777)** (Ukraine, Crimea, European part of Russia, North Kazakhstan, Altai, South Siberia to Baikal, North Caucasus, Moldavia, South and Middle Europe (Poland, Czechia, Slovakia, Hungary, Romania, Bulgaria, Yugoslavia, Bosnia-Herzegovina, Croatia, extreme Northeast Italy: Triest region, Slovenia, Germany, Austria, Switzerland, France, Belgium), absent in Transcaucasus (Georgia, Armenia, Azerbaijan) and Greece)

***Cheilotoma musciformis hispanica* Medvedev, 2004** (Spain)

***Cheilotoma musciformis apennina* Medvedev, 2004** (South Italy)

***Cheilotoma musciformis iranica* Medvedev, 2004** (Iran)

***Cheilotoma erythrostoma* Faldermann, 1837**

***Cheilotoma erythrostoma erythrostoma* Faldermann, 1837** (European part of Russia, Northwest Kazakhstan, South Ukraine, Crimea, North Caucasus, Armenia, Georgia, Azerbaijan, Turkey, Romania, Bulgaria, possibly Hungary)

***Cheilotoma erythrostoma italica* Leoni, 1906** (Italy, Spain)

According to the list, except undescribed new species, five species, *Cheilotoma fulvicollis* Sahlberg, 1913; *Cheilotoma voriseki* Medvedev & Kantner, 2003; *Cheilotoma beldei* Kasap, 1984; *Cheilotoma musciformis* (Goeze, 1777) and *Cheilotoma erythrostoma* Faldermann, 1837 may be occur in Turkey.

However, Turkish *Cheilotoma* Chevrolat, 1837 has been represented by three species as *C. beldei* Kasap, 1984 (original description from Ankara, Eskişehir, Nevşehir and Sivas provinces in Central Anatolian region of Turkey), *C. musciformis* (Goeze, 1777) (recently recorded to Turkey by Aslan & Özbek, 2000 from Erzurum and Isparta provinces) and *C. voriseki* Medvedev & Kantner, 2003 (recently described from Adıyaman province in Turkey) until now. Nevertheless, it is impossible to say that the fauna of Turkey completely investigated. Since Turkey appears a continental property changeable in very short distances in terms of climatical features and field structures. Besides as seen above, the number of studies on Turkish *Cheilotoma* Chevrolat, 1837 is not enough. As known, only a few studies carried out related with Turkish *Cheilotoma*.

In the present text, *Cheilotoma erythrostoma* Faldermann, 1837 is given as first record for Turkey. So Turkish *Cheilotoma* Chevrolat, 1837 includes four species at the present. With this paper, new data is also presented for Turkish *Cheilotoma* species.

Information in the present text is given in following order:

The data, Names, Material examined, Records in Turkey, Range, Remarks and Chorotype under the title for each species is given.

Names. In these parts, as possible as the whole other names including all infraspecific names are provided.

Material examined. Material examined covers the original records for Turkey. The material is deposited in Gazi University and Nazife Tuatay Plant Protection Museum of Ministry of Agriculture (Ankara).

Records in Turkey. These parts include previous records that have been given by various authors in different literatures. The whole records are evaluated as only concerning province and locality in related reference. Each record is accompanied by the author's name and publication date of related reference.

Range. In these parts, the whole distribution area in the world is provided for each taxon.

Remarks. In these parts, general distribution range is given in Turkey chiefly.

Chorotype. The present zoogeographical characterization is based on the chorotype classification of Anatolian fauna, recently proposed by Vigna Taglianti et al. (1999). In the text, one chorotype description identified for each taxon.

Maps. The maps are given in the plate I. For each taxon, a map showing distribution patterns in the provinces of Turkey is used. The maps were prepared by used ArcView GIS Version 3.1.

Photos. All photos in the plate II were captured by using a Leica type MZ-16 stereomicroscope.

Cheilotoma Chevrolat, 1837

Type species: *Chrysomela musciformis* Goeze, 1777

***Cheilotoma (s.str.) beldei* Kasap, 1984**

Material examined: Ankara prov.: Kızılcahamam, Güvem, 1100m, 28.05.1997, leg. H. Özdikmen, 1 specimen; Kızılcahamam, Aköz Village, 1150m, 28.05.1997, leg. H. Özdikmen, 5 specimens; Kızılcahamam, Soğuksu National Park, 1350m, 07.06.1997, leg. H. Özdikmen, 18 specimens; Kızılcahamam, Yukarı Çanlı, 1540m, 14.06.1997, leg. H. Özdikmen, 3 specimens; Kızılcahamam, Güvem, 1100m, 14.06.1997, leg. H. Özdikmen, 2 specimens; Kızılcahamam, Yenimahalle, 1100m, 05.07.1997, leg. H. Özdikmen, 1 specimen; Kızılcahamam, Karagöl (Işık Mountain), 1650m, 11.07.1997, leg. H. Özdikmen, 2 specimens; **Bolu:** Gerede, 14.06.1994, leg. A. Kalkandelen, 1 specimen; **Eskişehir:** Seyitgazi, 14.06.1973, leg. G. Altınayar, 1 specimen.

Records in Turkey: Type loc.: Ankara prov.: Kızılcahamam (Soğuksu National Park) and Eskişehir prov.: Çifteler Harası, Nevşehir prov.: Kozaklı, Sivas prov.: Yıldızeli (Kasap, 1984); Isparta prov.: Between Yenişarbademli and Yakaköy (Gök, 2003).

Range: Turkey, Jordan (Warchalowski, 2003); Turkey (Kasap, 1984) (Gök, 2003); Turkey, Jordan (Medvedev, 2004); Turkey, Jordan (Borowiec, 2006).

Remarks: New to Bolu province. It distributes in Central Turkey and near. Apparently, the examined female specimens indicate that spermatheca has variations of cornus.

Chorotype: This species has the SW-Asiatic chorotype.

***Cheilotoma (s.str.) erythrostroma* Faldermann, 1837**

***Cheilotoma erythrostroma erythrostroma* Faldermann, 1837**

Names: ssp. *erythrostroma* Faldermann, 1837; *erythrostroma* Chevrolat, 1837 (nomen nudum); *erythrostroma* [sic!] Faldermann, 1837 (error typogr.); ssp. *italica* Leoni, 1906; var. *baudii* Leoni, 1906.

Material examined: Ankara prov.: Kızılcahamam, Yukarı Çanlı, 1250m, 28.05.1997, leg. H. Özdikmen, 2 specimens; Kızılcahamam, Salin Village, 1300m, 14.06.1997, leg. H. Özdikmen, 2 specimens; **Bolu prov.:** Bolu–Gerede road, Susuz Kınık village, 720 m, leg. H. Özdikmen, 1 specimen; between Gerede–Kızılcahamam, 1200m, 17.05.2003, leg. H. Özdikmen, 2 specimens; Yeniçağa–Mengen, Çamlık village, 20.05.2004, leg. H. Özdikmen, 4 specimens; Yeniçağa–Mengen, 20.05.2004, leg. H. Özdikmen, 2 specimens; **Kahramanmaraş prov.:** Göksun–Kahramanmaraş road, near Püren pass, 1600m, 28.05.2003, 37 35 N 36 35 E, leg. A. Y. Okutaner, 1 specimen; **Kastamonu prov.:** Kastamonu–İnebolu, 17.05.2004, leg. H. Özdikmen, 2 specimens; **Samsun prov.:** Alaçam, Kapaklı village, 620m, 16.06.2004, leg. H. Özdikmen, 1 specimen.

Records in Turkey: no record.

Range: Transsylvania, European Russia, Caucasus (Winkler, 1924-1932); Distributed in Italy, Bulgaria, Romania, Crimea, S Russia and Caucasian countries, reported also from Spain (Warchalowski, 2003); See the list for Medvedev, 2004; Bulgaria, Czech Republic, Italian mainland, ?Russia South, Slovakia, ?Spanish mainland, Ukraine, Near East (Audisio, 2005); Italy, Bulgaria, Romania, Crimea, S Russia, Caucasus (Borowiec, 2006).

Remarks: New to Turkey. It has two subspecies in the World. There are two distinct subspecies in the world. It is represented by the nominotypical subspecies in Turkey. Known

other subspecies, *C. erythrostroma italica* Leoni, 1906 occurs in Italy and Spain. The presented records indicate that it may be rather widely distributed in Turkey.

Chorotype: This species has the Turano-European chorotype.

***Cheilotoma* (s.str.) *musciformis* (Goeze, 1777)**
***Cheilotoma musciformis musciformis* (Goeze, 1777)**

Names: ssp. *musciformis* Goeze, 1777 (*Chrysomela*); *bucephala* Schaller, 1783 (*Chrysomela*); *muscoides* Fourcroy, 1785 (*Chrysomela*); ab. *siegae* Müller, 1820; ab. *leosinii* Leoni, 1906; ssp. *ammanica* Lopatin, 1995.

Records in Turkey: Erzurum prov.: Dikyar, Uzundere; Isparta prov.: Yılanlıdağ (Aslan & Özbek, 2000).

Range: Europe (Winkler, 1924-1932); European part of Russia, Altai, Southern Siberia up to Baikal, Kazakhstan, Southern and Central Europe (Lopatin, 1977); South and Central Europe, European part of the USSR, Altai, Southern Siberia, Kazakhstan (Aslan & Özbek, 2000); Distributed from E France and N Italy to Bulgaria, S Ukraine and Caucasian countries (Warchalowski, 2003); See the list for Medvedev, 2004; Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Luxembourg, Moldova, Poland, Romania, Russia Central, Slovakia, Slovenia, Switzerland, Ukraine, Yugoslavia (Incl. Serbia, Kosovo, Voivodina, Montenegro), Near East (Audisio, 2005); Europe from E France to S Ukraine, north to C Poland, Caucasus (Borowiec, 2006).

Remarks: The first record of this species in Turkey was given by Aslan & Özbek (2000). There are two distinct subspecies in the world. It is represented by the nominotypical subspecies in Turkey. Known other subspecies, *C. musciformis ammanica* Lopatin, 1995 occurs only in Amman.

Chorotype: This species has the Sibero-European chorotype.

***Cheilotoma* (s.str.) *voriseki* Medvedev & Kantner, 2003**

Records in Turkey: Type loc.: Adiyaman prov.: Nemrut Mountain (Medvedev & Kantner, 2003).

Range: Turkey (Medvedev, 2004).

Remarks: Endemic to Turkey.

Chorotype: This species has the Anatolian chorotype.

A short key for the separation of Turkish *Cheilotoma* species

1. Head quadrate. Scutellum evenly convex (Subgen. *Cheilotoma* Chevrolat).....**2**
--- Head elongate. Scutellum concave (Subgen. *Exaesiognatha* Jacobson)..... **C Asian sp.**
2. Pronotum entirely fulvous. Claw segment thin and very long, produced from lobes of 3rd segment for $\frac{3}{4}$ of its length.....**3**
--- Pronotum with central spot. Claw segment more thick, produced from lobes of 3rd segment for $\frac{3}{4}$ of its length.....**4**
3. Emargination of clypeus in male strictly quadrangular, its teeth curved outside.....*C. fulvicollis* Sahlberg
--- Emargination of clypeus in male feebly trapeziform, widened to apex, its teeth straight.....*C. voriseki* Medvedev & Kantner
4. Emargination of clypeus in male deltoidal, lateral teeth finger-shaped and convergent apically.*C. beldei* Kasap

--- Emargination of clypeus in male moderately deep, quadrangular or slightly widened to apex.....*C. musciformis* Goeze

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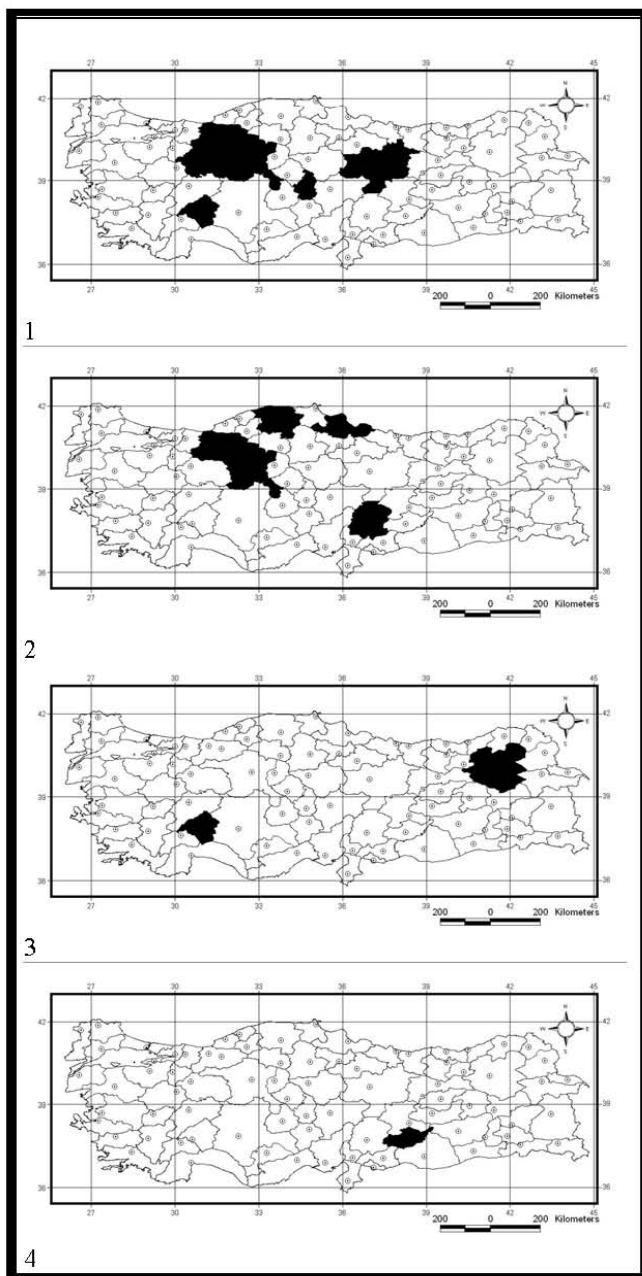


Plate I. Maps 1-4. Distribution patterns in Turkey of (1) *Cheilotoma beldei* Kasap, 1984 (2) *Cheilotoma erythrostroma* Faldermann, 1837 (3) *Cheilotoma musciformis* (Goeze, 1777) (4) *Cheilotoma voriseki* Medvedev & Kantner, 2003.

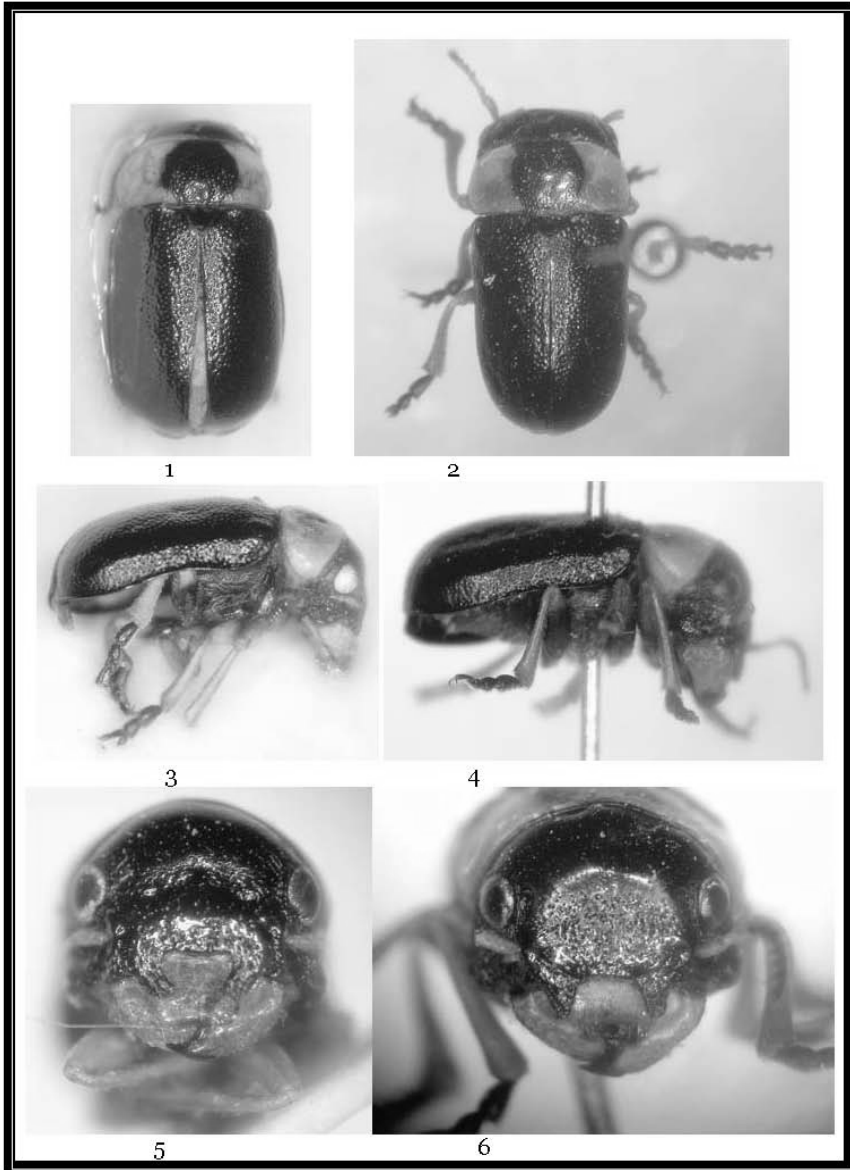


Plate II. Figures 1-6. (1) Dorsal view of *Cheilotoma beldei* Kasap, 1984 (2) Dorsal view of *Cheilotoma erythrostroma* Faldermann, 1837 (3) Lateral view of *Cheilotoma beldei* Kasap, 1984 (4) Lateral view of *Cheilotoma erythrostroma* Faldermann, 1837 (5) Clypeal structure of *Cheilotoma beldei* Kasap, 1984 (6) Clypeal structure of *Cheilotoma erythrostroma* Faldermann, 1837.

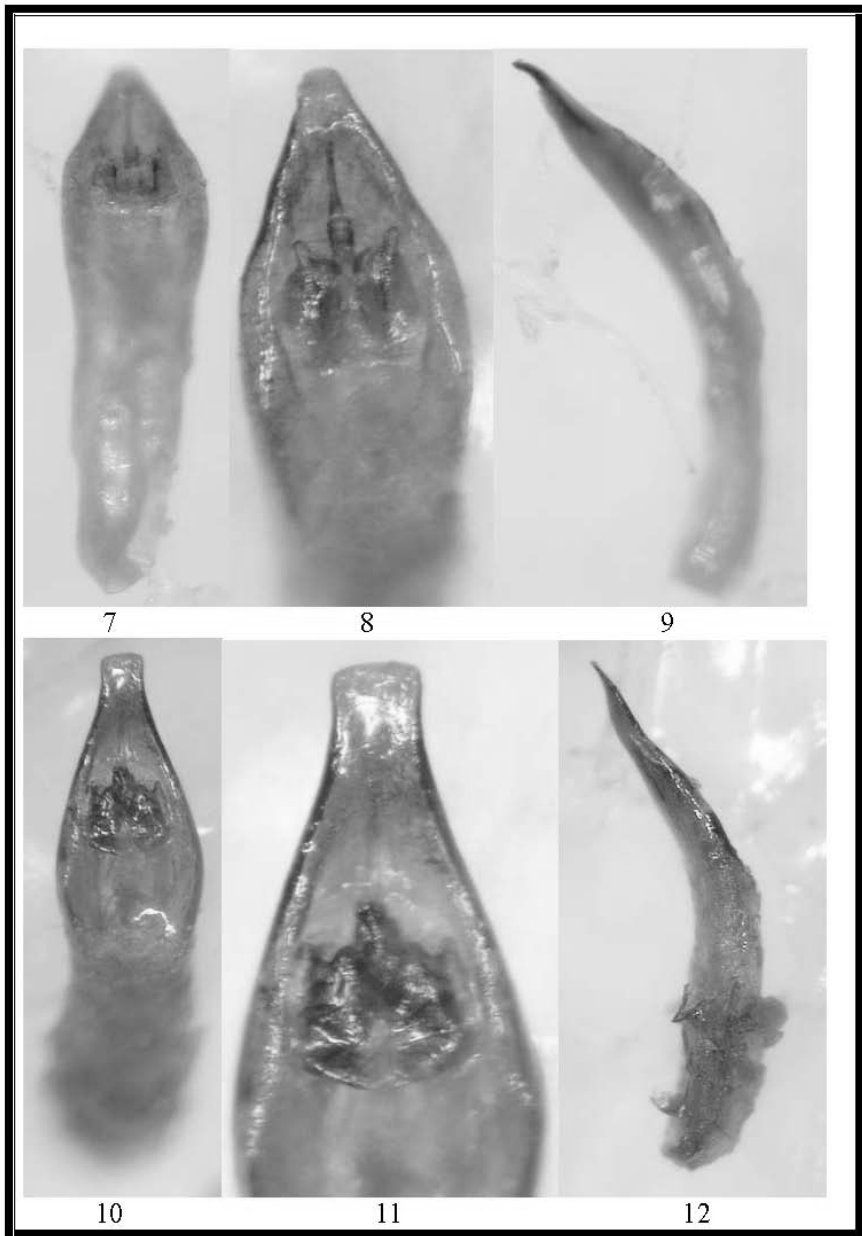


Plate III. Figures 7-12. (7) Dorsal view of aedeagus of *Cheilotoma beldei* Kasap, 1984 (8) Apex of aedeagus of *Cheilotoma beldei* Kasap, 1984 (9) Lateral view of aedeagus of *Cheilotoma beldei* Kasap, 1984 (10) Dorsal view of aedeagus of *Cheilotoma erythrostoma* Faldermann, 1837 (11) Apex of aedeagus of *Cheilotoma erythrostoma* Faldermann, 1837 (12) Lateral view of aedeagus of *Cheilotoma erythrostoma* Faldermann, 1837.