A SYNOPSIS OF TURKISH CERTALLINI FAIRMAIRE, 1864 WITH A CYTOGENETIC OBSERVATION (COLEOPTERA: CERAMBYCIDAE: CERAMBYCINAE)

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ABSTRACT: All taxa of the tribe Certallini fairmaire, 1864 in Turkey and the world fauna are evaluated. Some new faunistical data and some cytogenetic observations of *C. ebulinum* are given in the text.

KEY WORDS: *Certallum,* Certallini, cytogenetic observation, Cerambycinae, Cerambycidae.

Certallini Fairmaire, 1864 is a tribe of the subfamily Cerambycinae. In the tribe, the eyes have fine facets. The first abdominal segment is very long, almost so a length as all remaining together. The anterior cotyloid cavities closed, whereas the middle ones are opened towards the external part. The prosternal process is slightly wide. The tarsi are robust, with the femurs claviform.

The tribal name was regarded as Cartallini Fairmaire, 1864 by some authors (e.g. Villiers, 1978) on the base of the type genus *Cartallum* Serville, 1834. *Cartallum,* however, was an unjustified emendation of *Certallum* Dejean, 1821. So now commonly accepted (e.g. Vives, 2000; Bousquet et al., 2009; Löbl & Smetana, 2010) that the valid tribal name should be Certallini Fairmaire, 1864 (from Cartallites Fairmaire, 1864). Anyway, Bousquet et al. (2009) stated that "*As far as we know, Villiers (1979: 292) acted as First Reviser and chose Certallini as the valid name for this taxon*".

Subfamily Cerambycinae Latreille, 1802
Tribe Certallini Fairmaire, 1864

Cartallites Fairmaire, 1864 ["31 December"]: 149.
Type genus: *Cartallum* Audinet-Serville, 1834 (unjustified emendation of *Certallum* Dejean, 1821 not in prevailing usage).
Pytheitae Thomson, 1864 ["31 December"]: 153.
Type genus: *Pytheus* Newman, 1840 [Type sp.: *Pytheus jugosus* Newman, 1840 by monotypy.
Erionispites Chapuis, 1875: 301 (based on *Erionispa* Chapuis, 1875). (Nomen nudum).

The members of tribe are distributed in Palaearctic, Madagascar and Australian regions in the whole world. It is represented only by 1 genus, *Certallum* Dejean, 1821, in Palaearctic region.

Genus *CERTALLUM* Dejean, 1821

Cartallum Serville, 1834: 94 [unjustified emendation of *Certallum* Dejean, 1821]. Type sp.: *Saperda ruficollis* Fabricius, 1787: 150.
Type species: *Saperda ruficollis* Fabricius, 1787 = *Cerambyx ebulinus* Linnaeus, 1767.

The Palaearctic genus has only 3 species as *C. ebulinum* (Linnaeus, 1767), *C. martini* Sama, 1990 that occurs only in North Africa (Algeria and Tunisia), and *C. thoracicum* (Sharp, 1880). Two species, except *C. martini,* occur in Turkey.

Certallum ebulinum (Linnaeus, 1767)

Original combination. *Cerambyx ebulinus* Linnaeus, 1767.

Synonyms. *Saperda ruficollis* Fabricius, 1787; *Cerambyx monspeliense* Gmelin, 1790; *Certallum tricolor* Chevrolat, 1882; *Cartallum nigricolle* Pic, 1891.

Material examined. Kırşehir prov.: Kırşehir, 29.V.2008, 1 specimen; Ankara prov.: Ayaş, Ayaş-Beypazarı road, exit of Ayaş, 30.V.2008, 1 specimen; Ankara prov.: Beypazarı, İnözü Valley, 21.V.2009, 3 specimens (Fig. 1).

Records from Turkey. Adana prov.: Toros Mts. (Pozantı, Bolkar Mts.) (Villiers, 1959); İstanbul prov.: Polonez village / Alem Mt. / Beykoz / Anadoluhisarı / Çengelköy, İzmir prov.: Central env. / Kemalpaşa / Efes / Bergama, Antalya prov.: Central env. / Belkıs (Aspendos, Cumali) / Antitoros Mts. (Bey Mts., Korkuteli) / Alanya and near, Isparta prov.: Eğirdir and near (Demelt & Alkan, 1962); Bursa prov.: İznik, Amasya prov., ?Yozgat prov.: Sırıklı, Ankara prov.: Çubuk (Villiers, 1967); Osmaniye prov.: Central / Toprakkale, Hatay prov.: Arsuz / Yenişehir / Antakya (Reyhanlı), Osmaniye prov.: Bahçe, Adana prov.: Ceyhan (Yumurtalık, Misis), Erzincan prov.: Central as *Certallum ebulinum ruficolle* (Fuchs et Breuning, 1971); Amasya prov., Balıkesir prov.: Gönen, Çanakkale prov.: Biga (Gfeller, 1972); Adana prov.: Pozantı, İçel prov.: Bolkar Mts. (Namrun, Çamlıyayla) / Tarsus, Ankara prov., Konya prov.: Akşehir (Tuatay et al., 1972); İzmir prov.: Bornova (Gül-Zümreoğlu, 1972); İzmir prov.: Çeşme / Menemen / Bornova / Kemalpaşa / Karabağlar, Aydın prov.: Kuyucak / Kızıldere / Germencik, between İzmir-Balıkesir provinces, Denizli prov.: Sarayköy, Manisa prov.: Keçiliköy / Alaşehir (Gül-Zümreoğlu, 1975); Sinop prov.: Dranaz Mt. (Sama, 1982); Konya prov., Osmaniye prov.: Nurdağı pass (Adlbauer, 1988); European Turkey (Althoff & Danilevsky, 1997; Sama, 2002); Bilecik prov., Bursa prov., Adana prov., Ankara prov., Hatay prov.: Antakya, Antalya prov., Manisa prov., İzmir prov., Aydın prov., Denizli prov., Isparta prov. (Lodos, 1998); Adıyaman prov.: Karadut village as *Certallum ebulinum ruficolle* (Rejzek & Hoskovec, 1999); Adana prov.: Balcalı, Antalya prov.: Side, Diyarbakır prov.: Silvan, Hatay prov.: Dörtyol (İcadiye) / Kuzuculu / Erzin / İskenderun (Sarımazı), İçel prov.: Tarsus (Çamlıyayla), İzmir prov.: Selçuk (Efes), Muğla prov.: Gökova (Tozlu et al., 2002); İzmir prov.: Kemalpaşa (Armutlu) (Tezcan & Rejzek, 2002); İçel prov.: Bulgar Mt. (Namrun), Adana prov.: Toroslar (Pozantı), Konya prov.: Akşehir / Gözlü, Ankara prov.: Central / Elmadağ / Polatlı / Yenimahalle / Ayaş, Şanlıurfa prov.: Ceylanpınar, Gaziantep prov.: Nizip / Islahiye, İçel prov.: Silifke, Trabzon prov.: Meryemana, Manisa prov.: Salihli, Aydın prov., Osmaniye prov., İzmir prov.: Menemen, Nevşehir prov.: Avanos, Çankırı prov.: Eldivan (Özdikmen et al., 2005); Aksaray prov.: Hasan Mt. (Aşağı Dikmen) / Ağzıkarahan / entry of Nevşehir-Aksaray / exit of Ankara (Ekecik stream) / entry of Nevşehir / Belisırma, Nevşehir prov.: Göre, Ankara prov.: Şereflikoçhisar / Şereflikoçhisar-Ankara road, Niğde prov.: Bor-Altunhisar / exit of Ulukışla-Adana / entry of Kayseri-Niğde, İçel prov.: Mut-Karaman road (Karabağ, Hatıra forest), Konya prov.: Ereğli-Ulukışla road (Özdikmen, 2006); Kahramanmaraş prov.: Kahramanmaraş-Andırın road (Körsülü bridge env. / Karbasan village env.) / Türkoğlu (Şekeroba env.) / Pazarcık (Özdikmen & Okutaner, 2006); Ankara

prov.: Kayaş, Kızılcahamam (Işık Mt.), Şereflikoçhisar (Özdikmen et al., 2009); Antalya prov.: Gündoğmuş-Akseki road, Konya prov.: Seydişehir (Çavuş village) (Turgut & Özdikmen, 2010); Gaziantep prov.: Nurdağı (Exit of İslahiye), Hatay prov.: İskenderun-Arsuz / Erzin (Gökdere village) / Belen / Akbez (Güzeluşağı village) / Arsuz (Akçalı) / Erzin (Erzin İçmeler district), Osmaniye prov.: Kesmeburun village (Castabala (Hierapolis)) / Karagedik village / between Kumarlı-Kazmaca villages / Fakıuşağı village / Sarpınağzı village / Çardak village / Bahçe / Osmaniye-Gaziantep road / Akyar village / Zorkun road (Çiftmazı) / Kuşcubeli pass / entry of Yarpuz (Özdikmen et al., 2010) (Map 1).

Range. Europe (Portugal, Spain, France, Malta, Greece, Bulgaria, European Turkey, Ukraine, European Russia), Caucasus (Azerbaijan, Armenia, Georgia), Turkey, Iran, Iraq, Israel, Jordan, Lebanon, Syria, Cyprus, North Africa (Algeria, Egypt, Libya, Morocco, Tunisia).

Chorotype. Turano-Europeo-Mediterranean.

Remarks. It distributes widely in Turkey. The species is recorded for the first time for Kırşehir province in Turkey.

Cytogenetics. Diploid number of chromosomes of members of long-horned beetles is changed between 10 and 36. Sex-chromosome system in this group is parachute type (Xy_p). Most of the diploid chromosomes number is 2n = 20 (18AA + Xy_p) (Smith & Virkki, 1978).

As seen above, the specimens were collected from Kırşehir and Ankara provinces of Turkey in 2008-2009 and were deposited in Gazi University, Ankara, Turkey.

The chromosomes are obtained according to Rozek (2004) with some alterations. The method is presented as follows:

The specimens were placed in killing-jar with ethyl acetate to anaesthetize. Abdomens of the specimens were cut and abdominal contents (especially testicle tissue in males, and middle-gut tissue in males and females) were transferred in petri dishes with distilled water. So the tissues were sustained on hold for 10-15 minutes in the hypotonic solution. They were transferred cryotubes with 0.05 % cholcicine solution and were maintained for 45-60 minutes in room temperature and then, fixed in 3:1 fresh ethanol-acetic acid solution for at least 1 hour. Small pieces from the treated tissues were taken and mounted on a clear lam. On tissue pieces were dropped 45 % acetic acid and were dissected with using dissection pins and bisturi. Then, tissue pieces were mounted and pressed directly between lam and lamel or lam and lam. These preparates were submerged into liquid nitrogen. Lam and lamel or lam and lam were uncoupled and left for drying. Later, the dry preparates were stained by 4 % Giemsa Phosphate Buffer (pH = 6.8) for 10 minutes and were washed with distilled water. After drying the preparates were examined under stereo microscope (Leica DMLB). The observed plaques were photographed zoom in (10X).(100X).

First of all, we must to state that observation density of chromosomes is low due to a low of mitotic and meiotic activations in the examined material. In the present work, cytogenetic researches carried out on the adult.

Observed chromosomes of long-horned beetles are small. Centromere regions and length of arms of the chromosomes are not clear. The chromosomes, therefore, evaluated only on account of the number.

With regard to the present study, diploid number of chromosomes was determined as 2n = 22 in mitotic metaphase from testicle tissue of male (Fig. 2).

Certallum thoracicum (Sharp, 1880)

Original combination. *Cartallum thoracicum* Sharp, 1880.

Synonyms. *Cartallum laevicolle* Pic, 1895; *Cartallum diversipes* Pic, 1928.

Records from Turkey. Mesopotamia as *C. thoracicum* ssp. *laevicolle* Pic, 1895 (Winkler, 1924-1932); Gaziantep prov., İzmir prov.: Kemalpaşa, on *Spartium junceum* (Demelt, 1963); South-East Turkey (Lodos, 1998) (Map 2).

Range. Turkey, Iran, Iraq, Israel, Jordan, Lebanon, Syria.

Chorotype. SW-Asiatic.

Remarks. Probably, it distributes only in South Turkey.

A short key for *Certallum* species from Sama (2002)

1. Antennal segments black (only 3rd and 4th sometimes brownish); pronotum with very dense punctuation.....***C. martini* Sama, 1990**
- Antennal segments mostly or entirely red, rarely antennae black (*C. thoracicum* ab. *nigripes* Plavilstshikov); if so then pronotum sparsely punctate.....**2**

2. Pronotum sparsely punctuate; antennae distinctly shorter.....
.....***C. thoracicum* (Sharp, 1880)**
- Pronotum very densely punctuate; antennae longer, with slender and longer segments.....***C. ebulinum* (Linnaeus, 1767)**

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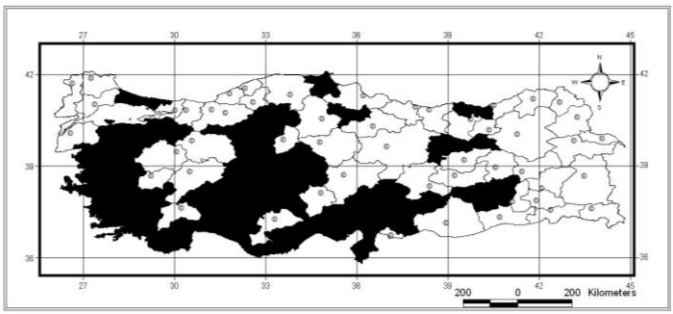
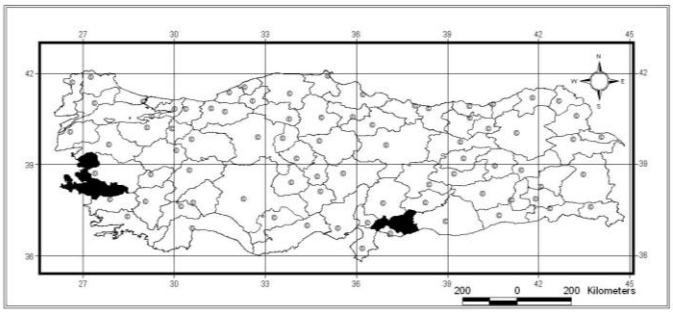
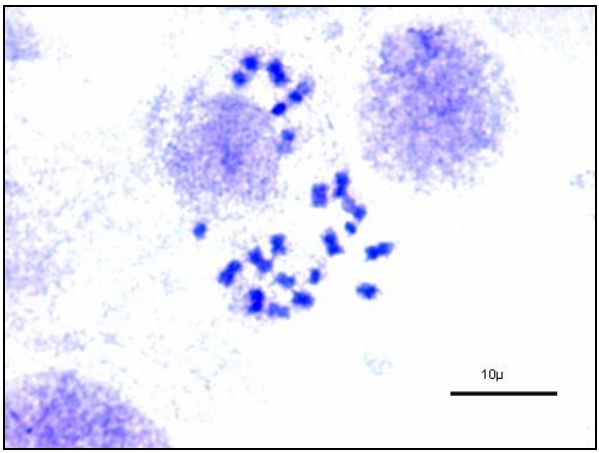
Figure 1. Habitus of *C. ebulinum*.



Map 1. Distribution in Turkey of *C. ebulinum* (in respect to provinces).



Map 2. Distribution in Turkey of *C. thoracicum* (in respect to provinces).



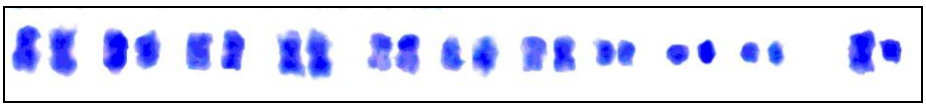


Figure 2. Mitotic metaphase plaque from testicle tissue and karyogram of *C. ebulinum* (2n = 22).

Figure 3. Male genitalia of *C. ebulinum* (aedeagus).