

**THE ORB-WEB WEAVERS SPIDERS FAUNA OF THE
CENTRAL ANATOLIAN REGION IN TURKEY WITH
THREE NEW RECORDS FOR TURKEY
(ARANEAE: ARANEIDAE)**

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ABSTRACT: In this study, twenty seven species from Araneidae were collected in Central Anatolia and investigated. Distribution in the world was given. Three species, *Araniella inconspicua* (Simon 1874), *Araniella alpica* (Koch, 1869), *Zygiella x-notata* (Clerck, 1757) were recorded for the first time in Turkey. Morphology of samples were exactly identified. Moreover, bulbus which is copulatory organ in male, and epigynum which is external genitalia in female were investigated and illustrated. The characteristic features are not different from those of European specimens.

KEY WORDS: Araneidae, Araneae, Arachnida, Fauna, Central Anatolia Region, Turkey.

Members of the family Araneidae include the largest and most imposing of the orb weavers. They occupy grassland, shrubs, tree tops, buildings, fences, and bridges (Dondale, 2003). The family Araneidae is one of the most diverse of all spiders in the world. In Araneidae, 2841 species belonging to 166 genera have been described all over the world (Platnick, 2007). So far, 36 species of Araneidae belonging to 13 genera have been recorded in Turkey (Brignoli, 1978; Bayram, 2002; Topçu et al., 2005; Türkes and Mergen, 2005).

MATERIALS AND METHODS

The materials were collected between 2003 and 2005. The specimens were preserved in 70% ethanol. The identifications and drawings were carried out by means of a Nikon SMZ-U stereomicroscope with a camera lucida. For the identification, the keys given by Heimer and Nentwig (1991) and Roberts (1995) and Locket & Millidge (1953) were used. The specimens were deposited in the Arachnology Museum of Niğde University (NUAM). All measurements are in millimeters. In the text, general distribution are given from Platnick (2007).

RESULTS AND DISCUSSION

Aculepeira ceropegia (Walckenaer 1802)

Material examined: 20 ♀♀, 12 ♂♂, Niğde province, Altunhisar district, 27.VI.2004; 1♀, Çankırı province, Ilgaz district, 21.VII.2004; 1♀, 1♂, Aksaray province, Ihlara district, 28.VI.2004; 8 ♀♀, 1♂, Sivas province, Boğazören district, 19.VII.2003; 1♀, 1♂, Ankara province, Kızılcahamam district, 29.VII.2005; 2 ♀♀, Kayseri province, Develi district, 23.VI.2005; 2 ♀♀ Kırşehir province, Akpınar district, 21.VI.2005.

General distribution: Palearctic.

Agalenatea redii (Scopoli 1763)

Material examined: 3 ♀♀, Ankara province, Elmadağ district, 15.V.2003; 1♀, Çankırı province, Çerkeş district, 17.VI.2003; 1♀, Niğde province, Ulukışla district, 07.IV.2001; 1♀, Ankara province, Kızılcahamam district, 21.V.2003; 6 ♀♀ Ankara province, Beypazarı district, 11.V.2003; 1♂ Yozgat province, Saraykent district, 18.VII.2003; 1♀ Konya province Seydişehir district, 15.V.2005.

General distribution: Palearctic.

Araneus angulatus Clerck 1757

Material examined: 1♀, Ankara province, Evren district, 28.V.2003; 2 ♀♀ Ankara province, Gölbaşı district, 10.V.2003; 1♀ Kayseri province, Yeşilhisar district, 24.VI.2001; 1♀ Niğde province, Bor district, 18.VII.1996; 1♀, Ankara province, Elmadağ district, 15.V.2003, 3 ♀♀, Çankırı province, Çerkeş district, 27.VII.2005; 5 ♀♀, Çankırı province, Korgun district, 28.VII.2005.

General distribution: Palearctic.

Araneus diadematus Clerck 1757

Material examined: 2 ♀♀, Ankara province, Çamlıdere district, 11.IX.2003; 1♀, Ankara province, Kızılcahamam district, 04.X.2003; 1♀, Kayseri province, Kocasinan district, 13.VII.2001; 1♂, Yozgat province, Sorgun district, 18.VIII.2001; 2 ♀♀, Çankırı province, Ilgaz district, 28.VII.2005; 2 ♀♀, 1♂, Çankırı province, Korgun district, 28.VII.2005; 1♂Sivas province, Doğanşar district, 21.VII.2005; 3 ♀♀, Çankırı, province, Ilgaz district, 28.VII.2005

General distribution: Holarctic.

Araneus quadratus Clerck 1757

Material examined: 5 ♀♀, Çankırı province, Çerkeş district, 21.VII.2004; 3 ♀♀, Çankırı province, Çerkeş district, 27.VII.2005; 5 ♀♀, Çankırı province, Korgun district, 28.VII.2005.

General distribution: Palearctic.

Araneus marmoreus Clerck 1757

Material examined: 2 ♂♂, Yozgat province, Sorgun district, 18.VIII.2001; 3 ♀♀, Çankırı province, Ilgaz district, 28.VII.2005.

General distribution: Holarctic.

Araneus sturmi (Hahn 1831)

Material examined: 1♀, Niğde province, Ulukışla district, 18.05.2003.

General distribution: Palearctic.

***Araniella cucurbitina* (Clerck 1757)**

Material examined: 4 ♀♀, Ankara province, Ayaş district, 20.VI.2003; 4 ♀♀, Çankırı province, Korgun district, 22.VII.2004; 2 ♀♀, 1 ♂, Çankırı province, Çerkeş district, 21.VII.2004; 3 ♀♀, 3 ♂♂, Ankara province, Beypazarı district, 07.VI.2003; 1 ♀, 1 ♂, Ankara province, Kızılcahamam district, 17.VI.2003; 5 ♀♀, 3 ♂♂, Ankara province, Nallıhan district, 23.VI.2003; 2 ♀♀, Ankara province, Kalecik district, 23.VII.2003; 1 ♀, Aksaray province, Ortaköy district, 16.VI.2005; 1 ♀, Sivas province, Doğanşar district, 21.VII.2005; 2 ♀♀, Yozgat province, Aydıncık district, 22.VII.2005; 3 ♀♀, Çankırı province, Ilgaz district, 28.VII.2005; 2 ♀♀, Kayseri province, Yeşilhisar district, 22.VI.2005.

General distribution: Palearctic.

***Araniella opisthographa* (Kulczynski 1905)**

Material examined: 2 ♀♀, 3 ♂♂, Ankara province, Beypazarı district, 07.VI.2003; 4 ♂♂, Ankara province, Akyurt district, 30.V.2003; 1 ♂, Kırşehir province, Çiçekdağ district, 25.VI.2004; 1 ♀, Aksaray province, İhlara district, 28.VI.2004; 3 ♀♀, 1 ♂, Ankara province, Ayaş district, 20.VI.2003; 1 ♂, Çankırı province, Çerkeş district, 21.VII.2004; 1 ♂, Ankara province, Evren district, 28.V.2003; 1 ♀, 1 ♂, Sivas province, Boğazören district, 19.VII.2003; 1 ♀, 4 ♂♂, Ankara province, Elmadağ district, 08.VI.2003; 1 ♀, Ankara province, Kızılcahamam district, 17.VI.2003; 1 ♀, 1 ♂, Niğde province, Ulukışla district, 17.VI.2005; 1 ♀, Sivas province, Suşehri district, 21.VII.2005; 1 ♀, Nevşehir province Ürgüp district, 22.VI.2005; 1 ♂, 4 ♀♀, Yozgat province, Akdağmadeni district, 20.VI.2005; 1 ♀, Aksaray province, Güzelyurt district, 18.VI.2005; 1 ♂ Sivas province, Doğanşar district, 21.VII.2005; 2 ♀♀, 1 ♂, Niğde province, Ulukışla district, 17.VI.2005; 3 ♀♀, Çankırı province, Bayramören district, 27.VII.2005; 1 ♀, Sivas province, Suşehri district, 21.VII.2005; 7 ♀♀, Çankırı province, Ilgaz district, 28.VII.2005; 4 ♀♀, Kayseri province, Pınarbaşı district, 23.VI.2005; 1 ♂, Konya province, Çumra district, 27.V.2005.

General distribution: Europe, Middle Asia.

***Argiope bruennichi* (Scopoli 1772)**

Material examined: 1 ♂, Ankara province, Akyurt district, 23.VII.2003; 3 ♀♀, Ankara province, Kalecik district, 23.VII.2003; 2 ♀♀, Ankara province, Çubuk district, 16.07.2003; 2 ♀♀, Çankırı province, Şabanözü district, 29.VII.2005; 1 ♀, Sivas province, Koyulhisar district, 21.VII.2005; 2 ♀♀, Çankırı province, Çerkeş district, 27.VII.2005; 7 ♀♀, Niğde province, Ulukışla district, 17.VI.2005; 1 ♀, Yozgat province, Akdağmadeni district, 20.VII.2005; 2 ♂♂, Çankırı province, Ilgaz district, 27.VII.2005; 1 ♂, Sivas province, Yıldızeli district, 22.07.2005.

General distribution: Palearctic.

***Argiope lobata* (Pallas 1772)**

Material examined: 1 ♀, 1 ♂, Ankara province, Kalecik district, 23.VII.2003; 2 ♀♀, Kayseri province, Yahyalı district, 14.VII.2001, 21.VII.2003; 2 ♀♀, Ankara province, Elmadağ district, 31.VII.2001; 2 ♀♀, 1 ♂, Ankara province, Gündül district, 30.VII.2001, 09.VII.2003; 1 ♂, Ankara province, Kızılcahamam district, 10.VII.2003; 1 ♀, Kayseri province, Melikgazi district, 13.VII.2001; 1 ♀, Niğde province, Çiftlik district, 12.VIII.2001; 2 ♀♀, Yozgat province, Sorgun district, 18.VIII.2001.

General distribution: South Europe, Central Europe, Israel.

***Cyclosa conica* (Pallas 1772)**

Material examined: 3 ♀♀, Kırşehir province, Akpınar district, 25.VII.2004; 4 ♀♀, Niğde province, Çiftlik district, 27.VI.2004; 6 ♀♀, 1 ♂, Ankara province, Elmadağ district, 15.V.2003; 4 ♀♀, Kayseri province, Pınarbaşı district, 20.VII.2003; 3 ♀♀, Ankara province, Gölbaşı district, 10.V.2003; 3 ♀♀, Ankara province, Çubuk district, 29.V.2003; 1 ♀, Ankara province, Evren district, 28.V.2003; 1 ♀, Ankara province, Kızılcahamam district, 17.VI.2003; 10 ♀♀, Ankara province, Güdül district, 21.V.2003; 1 ♂, Ankara province, Ayaş district, 30.V.2004; 1 ♀, 2 ♂♂, Konya province, Bozkır district, 15.V.2005; 7 ♀♀, 2 ♂♂, Niğde province, Ulukışla district, 17.VI.2005; 2 ♀♀, Nevşehir province, Ürgüp district, 22.V.2005; 1 ♀, Çankırı province, Korgun district, 28.VII.2005; 3 ♀♀, Çankırı province, Ilgaz district, 28.VII.2005; 3 ♀♀, Konya province, Çumra district, 15.V.2005.

General distribution: Holarctic.

***Gibbaranea bituberculata* (Walckenaer 1802)**

Material examined: 9 ♀♀, Niğde province, Şekerpınar district, 18.V.2003; 1 ♀, Ankara province, Kızılcahamam district, 21.V.2003; 1 ♀, 3 ♂♂, Ankara province, Gölbaşı district, 10.V.2003, 09.V.2003; 2 ♀♀ Niğde province, Ulukışla district, 07.IV.2001; 1 ♀, Ankara province, Evren district, 28.V.2003; 2 ♀♀, Konya province, Hüyük district, 14.V.2005. **General distribution:** Palearctic.

***Gibbaranea ullrichi* (Hahn 1835)**

Material examined: 1 ♀, Ankara province, Şereflikoçhisar district, 09.V.2003; 1 ♀, Ankara province, Gölbaşı district, 20.V.2003; 1 ♀, Niğde province, Ulukışla district, 07.IV.2001; 1 ♀, Ankara province, Evren district, 28.V.2003; 1 ♀, Ankara province, Haymana district, 25.V.2003; 2 ♀♀, Sivas province (Koyulhisar district), 21.07.2005, 21.07.2005; 1 ♀, Konya province, Hüyük district, 14.V.2005.

General distribution: Europe, Russia, Central Asia.

***Hipsosinga albovittata* (Westring 1851)**

Material examined: 11 ♀♀, Niğde province, Ulukışla district, 07.VII.2002, 18.V.2003; 1 ♀, Konya province, Beyşehir district, 14.V.2005.

General distribution: Europe, West Africa, Russia, Ukraina .

***Hipsosinga pygmaea* (Sundevall 1831)**

Material examined: 1 ♀, Ankara province, Ayaş district, 14.V.2003; 2 ♀♀, Ankara province, Şereflikoçhisar district, 09.V.2003; 3 ♀, Ankara province, Nallıhan district, 16.III.2003, 23.VI.2003, 17.VII.2003; 1 ♀, Ankara province, Güdül district, 24.V.2003; 3 ♀♀, Ankara province, Polatlı district, 18.VI.2003; 1 ♀, Ankara province, Elmadağ district, 15.V.2003; 3 ♂♂, Ankara province, Beypazarı district, 11.V.2003; 1 ♀, Sivas province, Koyulhisar district, 21.VII.2005.

General distribution: Holarctic.

***Hipsosinga sanguinea* (C. L. Koch 1844)**

Material examined: 1 ♀, Niğde province, Ulukışla district, 18.V.2003; 4 ♀♀, Ankara province, Nallıhan district, 17.VII.2003, 14.V.2003; 1 ♀, Ankara province, Elmadağ district, 15.V.2003.

General distribution: Palearctic.

***Larinioides cornutus* (Clerck 1757)**

Material examined: 4 ♀♀, 2 ♂♂, Ankara province, Haymana district, 20.V.2003; 1 ♀, 2 ♂♂, Ankara province, Nallıhan district, 14.V.2003; 3 ♀♀, 2 ♂♂, Ankara province, Kızılcahamam district, 17.VI.2003; 7 ♀♀, 1 ♂, Niğde province, Çiftlik district, 27.VI.2004; 2 ♀♀, Nevşehir province, Gülşehir district, 26.VI.2004; 1 ♀, Eskişehir province, Çifteler district, 14.VII.2004; 1 ♀, Kırşehir province, Mucur district, 26.VI.2004; 5 ♀♀, 1 ♂, Çankırı province, Çerkeş district, 21.VII.2004; 1 ♀, Eskişehir province, Sivrihisar district, 14.VII.2004; 1 ♂, Konya province, Cihanbeyli district, 13.V.2005; 3 ♀♀, 5 ♂♂, Konya province, Hüyük district, 14.V.2005; 1 ♀, Nevşehir province, Ürgüp district, 22.VI.2005; 2 ♀, 1 ♂, Çankırı province, Korgun district, 28.VII.2005; 3 ♀♀, Yozgat province, Akdağmadeni district, 20.VII.2005; 2 ♀♀, Sivas province, Yıldızeli district, 22.VII.2005.

General distribution: Holarctic.

***Mangora acalypha* (Walckenaer 1802)**

Material examined: 2 ♀♀, Ankara province, Evren district, 29.V.2004; 8 ♀♀, 4 ♂♂, Ankara province, Nallıhan district, 14.V.2003; 2 ♀♀, Niğde province, Çamardı district, 27.VI.2004; 9 ♀♀, 1 ♂, Çankırı province, Çerkeş district, 17.VI.2003; 1 ♀, Eskişehir province, Çaylım district, 13.VII.2004; 3 ♀♀, 1 ♂, Aksaray province, İhlara district, 28.VI.2004; 3 ♀♀, Kırşehir province, Mucur district, 26.VI.2004; 1 ♀, Nevşehir province, Ürgüp district, 26.VI.2004; 3 ♀♀, Karaman province, Bucakışla district, 28.V.2005; 2 ♀♀, 1 ♂, Konya province, Çumra district, 15.V.2005; 1 ♀, Sivas province, Şarkışla district, 20.VII.2005; 1 ♀, Yozgat province, Akdağmadeni district, 20.VII.2005; 3 ♀♀, 1 ♂, Konya province, Derebucak district, 15.V.2005; 2 ♀♀, Kırşehir province, Kaman district, 21.VI.2005.

General distribution: Palearctic.

***Neoscona adianta* (Walckenaer 1802)**

Material examined: 1 ♀, Kırıkkale province, Keskin district, 31.VII.2001; 6 ♀♀, 1 ♂, Ankara province, Elmadağ district, 23.VII.2003; 8 ♀♀, 4 ♂♂, Ankara province, Çubuk district, 16.VII.2003; 1 ♀, Çankırı province, Çerkeş district, 21.VII.2004; 2 ♀♀, Kırşehir province, Çiçekdağ district, 25.VI.2004; 1 ♀, 1 ♂, Ankara province, Polatlı district, 18.VI.2003; 6 ♀♀, 4 ♂♂, Kırşehir province, Mucur district, 26.VI.2004; 4 ♀♀, 2 ♂♂, Sivas province, Zara district, 19.VII.2003; 2 ♀♀, 1 ♂, Kayseri province, Pınarbaşı district, 20.VII.2003; 1 ♀, Yozgat province, Saraykent district, 18.VII.2003; 3 ♀♀, 1 ♂, Sivas province, Boğazören district, 19.VII.2003; 1 ♀, Çankırı province, Şabanözü district, 29.VII.2005; 5 ♀♀, Kırşehir province, Akpınar district, 21.VI.2005; 2 ♀♀, Yozgat province, Akdağmadeni district, 20.VII.2005; 2 ♂♂, Yozgat province, Aydıncık district, 22.VII.2005; 1 ♀, Sivas province, Yıldızeli district, 22.VII.2005; 2 ♀♀, Nevşehir province, Kozaklı district, 24.VI.2005; 4 ♀♀, Karaman province, Bucakışla district, 28.05.2005.

General distribution: Palearctic.

***Nuctenea umbratica* (Clerck 1757)**

Material examined: 4 ♀♀, 1 ♂, Ankara province, Kızılcahamam district, 17.VI.2003; 1 ♀, Eskişehir province, Eski Mihalcık district, 13.VII.2004; 3 ♀♀, Ankara province, Çamlıdere district, 11.IX.2003; 1 ♀, Çankırı province, Ilgaz district, 22.VII.2004.

General distribution: Europe, Asia, Azerbaijan.

***Singa hamata* (Clerck 1757)**

Material examined: 2 ♀♀, Ankara province, Kazan district, 16.VI.2003; 2 ♀♀, Ankara province, Polatlı district, 18.VI.2003; 3 ♀♀, Konya province, Hüyük district, 14.V.2005.

General distribution: General distribution: Palearctic.

***Singa nitidula* C. L. Koch 1844**

Material examined: 4 ♀♀, Ankara province, Nallıhan district, 23.VI.2003.

General distribution: General distribution: Palearctic.

***Zilla diodia* (Walckenaer 1802)**

Material examined: 1 ♀, Ankara province, Evren district, 28.V.2003; 1 ♀, Ankara province, Nallıhan district, 14.V.2003; 5 ♀♀, Ankara province, Güdül district, 21.V.2003; 1 ♀, Ankara province, Çubuk district, 16.V.2003; 1 ♀, Nevşehir province, Mustafapaşa district, 26.VI.2004; 1 ♀, Ankara province, Beypazarı district, 07.VI.2003; 1 ♀, Ankara province, Polatlı district, 18.06.2003.

General distribution: Europe, Azerbaijan.

***Araniella alpica* (L. Koch 1869)**

Material examined: 2 ♀♀, Çankırı province, Ilgaz district, 21.07.2004; 1 ♂, Ankara province, Güdül district, 24.05.2003.

Description: Body length: female 6.0-8.0 mm, male 4.5-5.5 mm. Prosoma, sternum and legs brown. Opisthosoma yellowish-green, dorsally egiht black mark. Ventrally green, with a conspicuous square shape four yellowish patch midway between spinners and epigastric fold. Epigyne (see Fig. 1). Male palp (see Fig. 2).

General distribution: Europe, Azerbaijan.

***Araniella inconspicua* (Simon 1874)**

Material examined: 1 ♀, Niğde province, Çiftehan district, 18.V.1996; 2 ♀♀, Kayseri province, Pınarbaşı district, 20.VII.2003; 1 ♀, Niğde province, Ulukışla district, 10.VI.2001; 1 ♀, Çankırı province, Ilgaz district, 28.VII.2005.

Description: Body length: female 5.0-7.0 mm; prosoma and sternum brown; legs light brown; opisthosoma uniformly greenish-yellow; Epigyne (see Fig. 3).

General distribution: Palearctic.

***Zygiella x-notata* (Clerck 1757)**

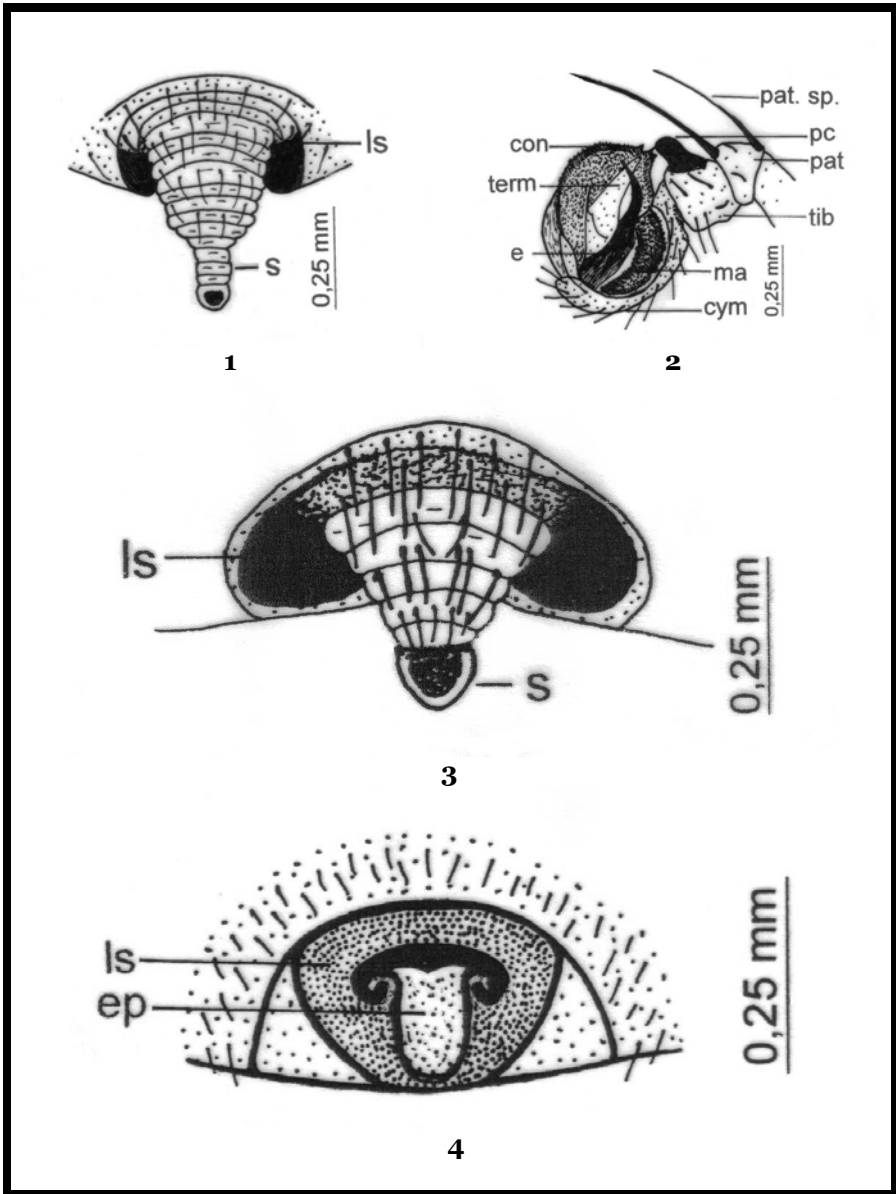
Material examined: 1 ♀, Yozgat province, Sorgun district, 8.VIII.2001; 2 ♀♀, Yozgat province, Akdağmadeni district, 20.VI.2005.

Description: Body length: female 6-7 mm; prosoma light yellow, medial longitudinal band dark brown; sternum and legs light yellow; opisthosoma yellowish-green, folium grey and black brown design, ventrally grey marks; Epigyne (see Fig. 4).

General distribution: Holarctic, Neotropical.

LITERATURE CITED

- Bayram, A.** 2002. Distributions of Turkish Spiders. In: Demirsoy, A., Ed. Zoogeography of Turkey. Meteksan Pub., Ankara, 1005 pp.
- Rignoli, P. M.** 1978. Ragni di Turchia V. Specie nuove o interessanti, cavernicole ed epigee, di varie famiglie (Araneae). *Revue suisse zool.* 85 (3): 461-541 p.
- Dondale, C. D.** 2003. Orb-Weaving Spiders of Canada and Alaska. National Research Council of Canada NRC Research press, 377 pp.
- Heimer, S. & Nentwig, W.** 1991. Sipinnen Mitteleuropas. Ein Bestimmungsbuch. Verlag Paul Parey, Berlin, 543 pp.
- Locket, G. H. & Millidge, A. F.** 1953. British Spiders. Vol. II. The Ray Society, London, 137: vi + 449 p.
- Platnick, N. I.** 2000. The world spider catalog. American Museum of Natural History (online) <http://research.amnh.org/entomology/spiders/catalog81-87/COUNTS.html>.
- Roberts, M. S.** 1995. Spiders of Britain and Northern Europe. Harper Collins, London, 682 p.
- Topçu A., Demir, H. & Seyyar, O.** 2005. A Checklist of the spiders of Turkey. – *Serket*, 9 (4): 109-140.
- Türkeş, T. & Mergen, O.** 2005. Records of spiders (Araneae: Theridiidae and Araneidae) new for the Turkish fauna. *Zoology in the Middle East*, 36: 119-120.



Figs. 1-4. 1- *Araniella alpica* (L. Koch 1869): epigyne, ventral view. 2- male palp, retrolateral view. 3- *Araniella inconspicua* (Simon 1874): epigyne, ventral view. 4- *Zygiella x-notata* (Clerck 1757): epigyne, ventral view. **ls:** lateral sclerit; **s:** scapus; **ep:** epigyne pit; **con:** conductor; **ma:** median apophysis; **cym:** cymbium; **pc:** paracymbium; **term:** terminal apophysis; **e:** embolus; **pat:** patella; **tib:** tibia.