

Three new species of caddisflies (Trichoptera: Hydroptilidae, Leptoceridae) from Turkey and faunistic list for the Seyhan and Ceyhan rivers

Tres nuevas especies de tricópteros (Trichoptera: Hydroptilidae, Leptoceridae) de Turquía y lista faunística de los ríos Seyhan y Ceyhan

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Abstract

The following new species of Trichoptera are described and figured: *Hydroptila saimbeyli* sp. n. (Hydroptilidae), *Adicella turcica* sp. n. (Leptoceridae) and *Adicella yalvac* sp. n. The faunistic list of Trichoptera for the Seyhan and Ceyhan rivers in southeastern Turkey is given.

Keywords: *Hydroptila*, *Adicella*, new species, caddisflies, systematics, faunistic list, Turkey.

Resumen

Se describen e ilustran las siguientes nuevas especies: *Hydroptila saimbeyli* sp. n. (Hydroptilidae), *Adicella turcica* sp. n. (Leptoceridae) y *Adicella yalvac* sp. n. Se incluye una lista faunística de los Trichoptera de los ríos Seyhan y Ceyhan del sudeste de Turquía.

Palabras clave: *Hydroptila*, *Adicella*, nuevas especies, tricópteros, sistemática, lista faunística, Turquía.

INTRODUCTION

The specimen, which was previously collected from Adana province in southeastern Turkey and reported as *Hydroptila rhodica* Jacquemart, 1973, is considered in this study as a new species. Both *H. rhodica* and *H. saimbeyli* sp. n. belong to the *occulta* species group, which is represented in Turkey by eight species; many of them are endemic to Turkey (SIPAHILER, 1989, 1994, 1996, 2003). In the *occulta* species group, there are several species that have bifurcated parameres. The new species *Hydroptila saimbeyli* sp. n. is unique in the group

as it possesses bifurcated lateral prolongations of segment IX.

The genus *Adicella* McLachlan, 1877 is represented by twelve species in Turkey, including the new species described below. Among them, six species have a scale area on the inner surface of the male scapus while six species do not. The new species *Adicella turcica* sp. n. is the second species found in northeastern Turkey and has a scale area on the scapus, while *Adicella yalvac* sp. n. occurs on the southern slopes of the Sultan Mountains in southwestern Turkey and has no scale area on the scapus.

MATERIALS AND METHODS

The adult males and females were collected by hand net and light trap with a blacklight tube (6 W) set up near rivers and streams, preserved in alcohol (80%), and deposited in the author’s collection at Hacettepe University (Beytepe, Ankara, Turkey). The male pupae are also included in the study. The genital terminology for *Hydroptila* species follows MARSHALL (1979). The figures were drawn using a Zeiss Stemi SV 6 microscope.

DESCRIPTIONS

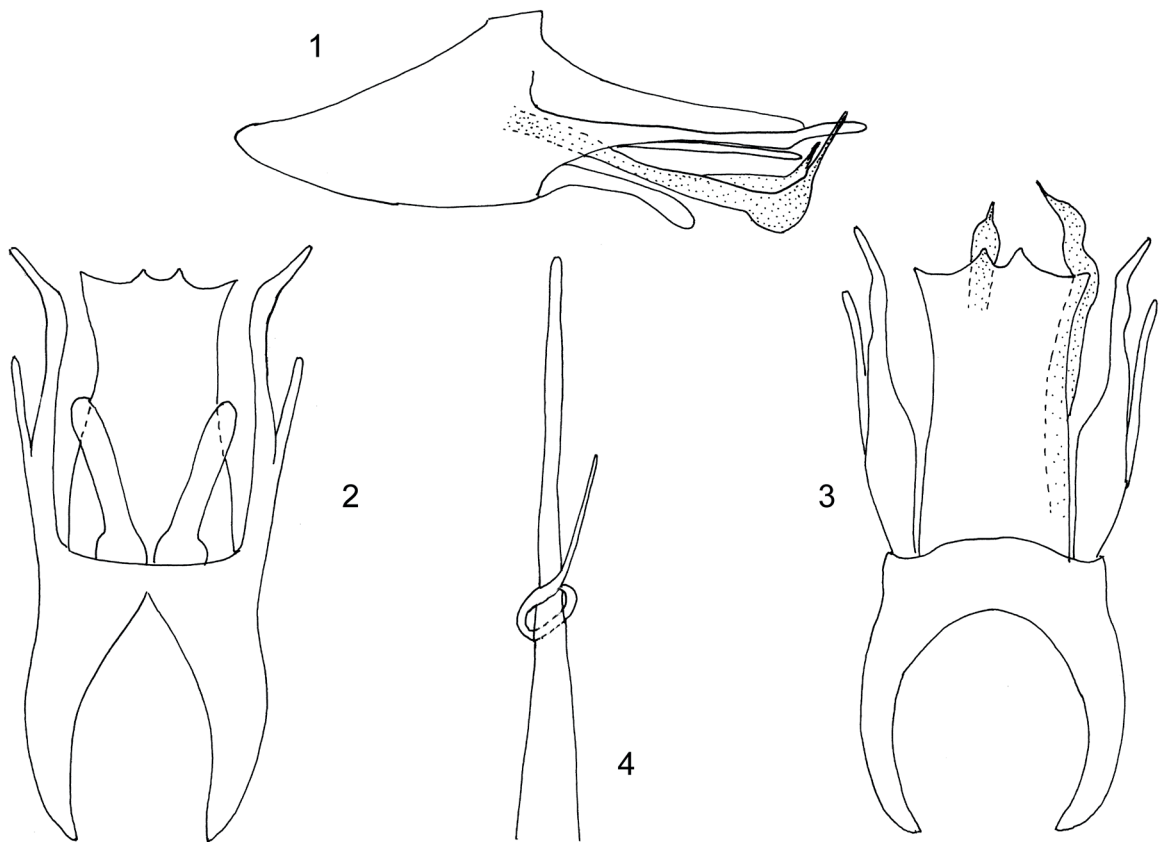
***Hydroptila saimbeyli* sp. n.** (Figs. 1-4)

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14E59B2D-AF5A-4C2C-8FB0-582B89E41EE9

Material. Holotype male: Turkey, Adana, 11 km south of Saimbeyli, Feke direction, Göksu River, 1000 m, 37°51’N, 35°59’E, 4.7.1990, leg. and coll. Sipahiler.

Antennae and wings are brown, legs paler; the length of the anterior wing of male 2 mm.

Male genitalia (Figs. 1-4). Segment IX in lateral view narrowed towards anterior, nearly triangular; the ventral edge is slightly and roundly dilated; the lateral prolongations longer than segment X, and composed of two long branches, the main branch is broad at the base narrowing towards the apex, and nearly one third of its length becoming bifurcated; the lower branch is thinner and shorter than the upper branch; in dorsal view, the subdistal parts are directed on the sides. Segment X is long; the apical margin is triangular on the sides and each side of the median portion. The parameres are asymmetric, the right paramere is narrow and long, becoming suddenly broader on the ventral margin and curving towards dorsal, the apex is pointed. The left paramere is as broad as the right one but shorter than it. The preanal appendages are rather narrow, in ventral view the sides are almost parallel to each other, rounded at the tips.



Figures 1-4: *Hydroptila saimbeyli* sp. n., male genitalia. 1, lateral; 2, dorsal; 3, ventral; 4, aedeagus, lateral.
Figuras 1-4: *Hydroptila saimbeyli* sp. n., genitalia masculina. 1, lateral; 2, dorsal; 3, ventral; 4, edeago, lateral.

Remarks. *Hydroptila saimbeyli* sp. n. belongs to the *occulta* species group and is closely related to *H. rhodica* Jacquemart, 1973 in having very long lateral prolongations of segment IX, which are curved distally on the sides (MALICKY, 2004). The following differences are seen in the male genitalia: in *H. rhodica* the lateral prolongations are simple, while in the new species they are bifurcated, the ventral branch is shorter and thinner; the parameres of *H. rhodica* are longer, almost equal in breadth, symmetrical and curved two times in lateral view, whereas the parameres of *H. saimbeyli* sp. n. are shorter and asymmetrical, the left one is longer and laterally dilated on the subdistal portion and becoming suddenly very narrow, pointed at the tip. In dorsal view, the sides of the apical margin of segment X of *H. rhodica* are shorter than the median part, while the sides and the median part of segment X are almost at the same level in *H. saimbeyli* sp. n.

***Adicella turcica* sp. n.** (Figs. 5-12)

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70340D4B-A439-40A8-8ADF-431B41088EB8

Material. Holotype male: Turkey, Ordu, Mesudiye, 25 km south of Gölköy, Bayırköy, 955 m, 40°34'N, 37°40'E, 5.7.2007; paratypes: Mesudiye, Baldıran Stream, 1460 m, 40°23'N, 37°47'E, 6.7.2007, 1 female; Gümüşhane, Bayburt direction, 25 km south of Gümüşhane, 1600 m, 12.7.2008, 1 male; Giresun, Alucra, Bayburt direction, Çamoluk, 40°07'N, 38°44'E, 7.7.2007, 3 males, 1 female; same place, 7 km east of Çamoluk, 40°08'N, 38°48'E, 9.7.2008, 2 males, 3 females, leg. and coll. Sipahiler.

Antennae, maxillary palps yellowish, without scales; on the inner surface of the male scapus with an oval area of scales (Figure 5); wings pale brown yellowish, legs pale yellow; head thorax and abdomen dorsally pale brown yellowish; the length of the anterior wing of males is 6.5-7 mm, of females 7-7.5 mm.

Male genitalia (Figs. 6-9). Segment IX in dorsal view roundly dilated in the middle, the sides with small rounded lobes. The preanal appendages are large, in lateral view dilated on the ventral margin; in dorsal view, segment X with a median lobe that is long and broad; in lateral view the ventral margin is nearly straight, the apical

margin broadly rounded and slightly shorter than the upper lobe. In ventral view, the distal parts of the inferior appendages are small, gradually rounded, ventral parts are broad.

Female genitalia (Figs. 10-12). The median part of segment IX is triangular, the sides are roundly dilated. The preanal appendages are largely oval. Segment X is broad, dorsally the apical edge nearly straight; in lateral view, apical edge is almost rounded; the side lobes of the ventral portion of segment X is composed of two parts, the base of the dorsal lobe is concave, the apical portion is broad, almost equal in breadth with the ventral lobe.

Remarks. *Adicella turcica* sp. n. is closely related to *Adicella kayserica* Sipahiler, 2014 (SIPAHILER, 2014), but the following differences are seen in the male genitalia: in *A. kayserica* the median part of segment IX is long and triangular, the dorsal lobe of segment X is really long, in lateral view longer than the ventral part of segment X, which is nearly triangular, the inferior appendages on the distal portion almost oval and long, while in *A. turcica* sp. n. the median part of segment IX is short, the dorsal lobe of segment X is shorter, almost as long as the ventral part, which is roundly dilated in lateral view, and the distal portion of the inferior appendage is short and somewhat rounded. The main differences in the female genitalia are as follows: the median part of segment IX of *A. kayserica* is long and triangular, the small side lobes are also triangular, while in the female of the new species the median part is not long and the sides are nearly rounded; in *A. kayserica* both lobes of the ventral part of segment X are equal in breadth and length, in *A. turcica* sp. n. the dorsal lobe is clearly shorter than the ventral lobe.

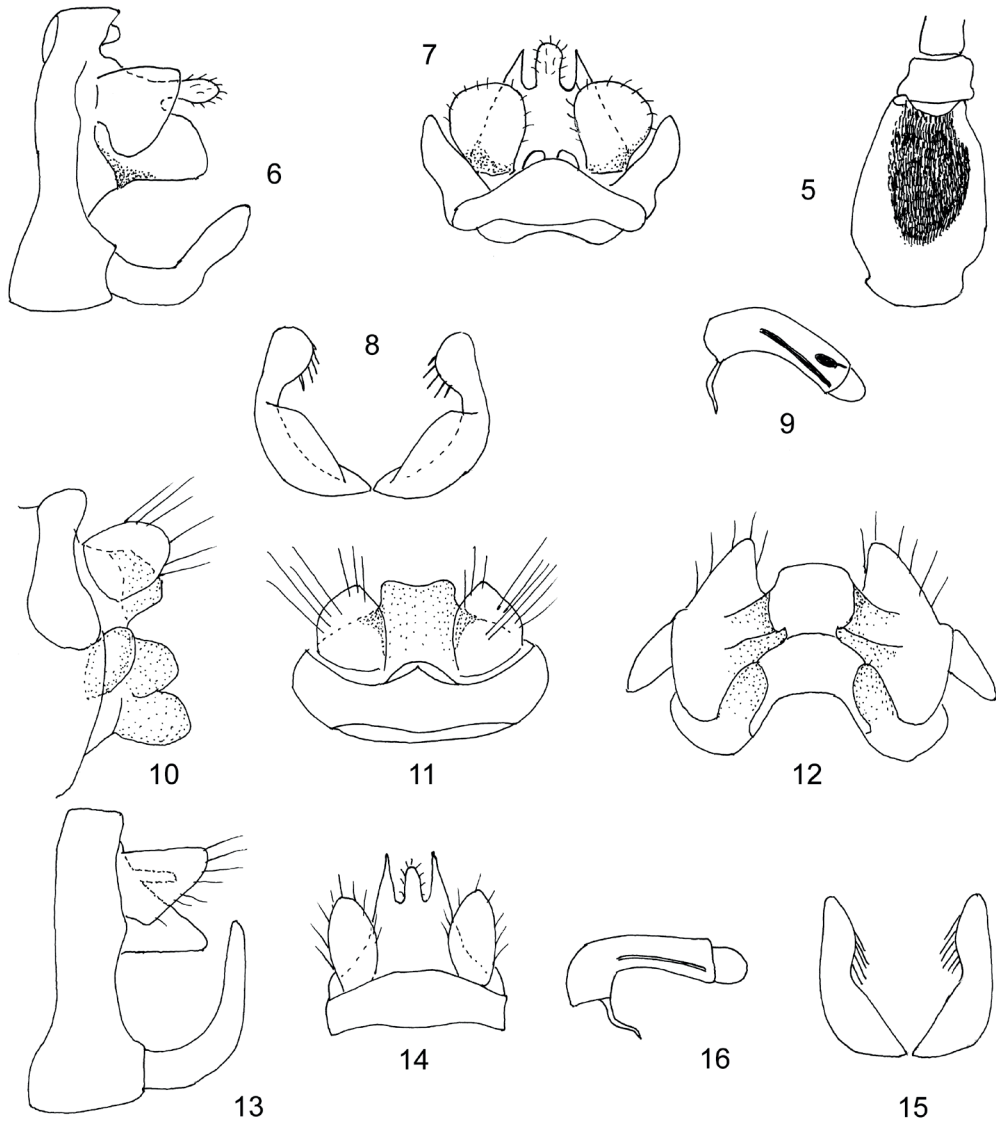
***Adicella yalvac* sp. n.** (Figs. 13-16)

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9D6A9C22-F71F-4738-9733-F3B20587EF9F

Material: Holotype male, Turkey, Isparta, 9 km northeast of Yalvaç, Beldibi, 1200 m, 38°18'N, 31°12'E, Sultan Mountains, 12.6.1994, leg. and coll. Sipahiler.

Antennae, maxillary palps, and legs are pale yellowish, scapus without scale area, wings are



Figures 5-16. 5-9: *Adicella turcica* sp. n., male, 5: right scapus, inside; 6, male genitalia, lateral; 7, dorsal; 8, inferior appendages, ventral; 9, phallic apparatus, lateral. 10-12: *Adicella turcica* sp. n., female genitalia: 10, lateral; 11, dorsal; 12, ventral. 13-16: *Adicella yalvac* sp. n., male genitalia: 13, lateral; 14, dorsal; 15, inferior appendages, ventral; 16, phallic apparatus lateral. **Figuras 5-16.** 5-9: *Adicella turcica* sp. n., macho, 5: escapo derecho, cara interna; 6, genitalia masculina, lateral; 7, dorsal; 8, apéndices inferiores, ventral; 9, aparato fálico, lateral. 10-12: *Adicella turcica* sp. n., genitalia femenina: 10, lateral; 11, dorsal; 12, ventral. 13-16: *Adicella yalvac* sp. n., genitalia masculina: 13, lateral; 14, dorsal; 15, apéndices inferiores, ventral; 16, aparato fálico, lateral.

pale brown, and the length of the anterior wing of male is 7 mm.

Male genitalia (Figs. 13-16). Segment IX broad, nearly rounded on the dorsal part; the preanal appendages are oval and long; segment X with a dorsal projection, the ventral part of segment X in lateral view is almost triangular. The inferior appendage in lateral view is long and directed dorsally; in ventral view, the distal part is long,

somewhat dilated in the middle and almost oval, bearing setae on the inner edge.

The female is unknown.

Remarks. *Adicella yalvac* sp. n. is closely related to *A. hadimensis* Sipahiler, 2014 (SIPAHILER, 2014); the scapus of both species is without a scale area. The following differences are seen in the male genitalia. In *A. hadimensis* segment IX is large, the preanal appendages are rather short

and rounded, the dorsal lobe of segment X is broad and the inferior appendages are short, the distal parts are short and broad, while in *A. yalvac* sp. n. segment IX is narrower than in the related species, the preanal appendages are long and oval, the dorsal lobe of segment X is thinner than that of *A. hadimensis* and the inferior appendages are longer and the distal parts are narrower.

Table I. Trichoptera fauna of the Seyhan and Ceyhan rivers in southern Turkey (*for localities see Annex 1).

Tabla I. Fauna de tricópteros de los ríos Seyhan y Ceyhan en el sudeste de Turquía (*para las localidades ver el Anexo 1)

TRICHOPTERA FAUNA OF THE SEYHAN AND CEYHAN RIVERS IN SOUTHERN TURKEY

The Seyhan and Ceyhan rivers, which are 560 km and 509 km long, respectively, are the longest and second longest rivers in Turkey, flowing to the Mediterranean Sea. A faunistic list of the Trichoptera fauna for these rivers is given (Table I), which is composed of 53 species, 12 of which are endemic to Turkey (23%), belonging to 14 families. The list includes the literature records and unpublished data.

Families/Species	Localities*
Family Rhyacophilidae	
<i>Rhyacophila nubila</i> ZETTERSTEDT, 1840	3, 12, 13
<i>Rhyacophila subovata</i> MARTYNOV, 1913	13
Family Glossosomatidae	
<i>Agapetus caucasicus</i> MARTYNOV, 1913	1, 2, 27, 29
<i>Glossosoma baclava</i> MALICKY, 1972	1, 2, 13, 27
Family Hydroptilidae	
<i>Allotrichia teldanica</i> BOTOSANEANU, 1974	22
<i>Hydroptila aegyptia</i> ULMER, 1963	1
<i>Hydroptila angustata</i> MOSELY, 1939	6, 21, 22, 23
<i>Hydroptila armathai</i> SCHMID, 1959	1, 2
<i>Hydroptila cornuta</i> MOSELY, 1922	22
<i>Hydroptila manavgatensis</i> MALICKY & ÇAKIN, 1983	14
<i>Hydroptila occulta</i> (EATON, 1873)	22
<i>Hydroptila saimbeyli</i> sp. n.	24
<i>Hydroptila simulans</i> MOSELY, 1920	18
<i>Hydroptila sparsa</i> CURTIS, 1834	4
<i>Hydroptila taurica</i> MARTYNOV, 1934	1
<i>Oxyethira falcata</i> MORTON, 1893	20, 22
Family Philopotamidae	
<i>Philopotamus achemenus</i> SCHMID, 1959	14
Family Psychomyiidae	
<i>Psychomyia dadayensis</i> SİPAHİLER, 2006	4, 24
<i>Psychomyia pusilla</i> (FABRICIUS, 1781)	22
<i>Tinodes nehirae</i> SİPAHİLER, 1992	13, 27, 28
<i>Tinodes valvatus</i> MARTYNOV, 1913	24, 27
Family Hydropsychidae	
<i>Cheumatopsyche lepida</i> (PICTET, 1834)	6, 24
<i>Cheumatopsyche processuata</i> MARTYNOV, 1927	25
<i>Hydropsyche bitlis</i> MALICKY, 1986	24
<i>Hydropsyche bulbifera</i> MCLACHLAN, 1878	17, 32
<i>Hydroptila cornuta</i> MOSELY, 1922	33
<i>Hydropsyche delamarei</i> JACQUEMART, 1965	9
<i>Hydropsyche instabilis</i> (CURTIS, 1834)	13
<i>Hydropsyche kebab</i> MALICKY, 1974	1, 2, 8, 10, 13, 14, 16, 18, 31
<i>Hydropsyche kocaki</i> ÇAKIN, 1982	13, 25
<i>Hydropsyche modesta</i> NAVAS, 1925	20
<i>Hydropsyche saimbeyli</i> SİPAHİLER, 2004	1, 27

Table I. Continuation

Tabla I. Continuación

Family Brachycentridae	
<i>Brachycentrus (O.) maculatus</i> (FOURCROY, 1785)	2, 4 (female and larva), 29
Family Goeridae	
<i>Lithax musaca</i> MALICKY 1972	2
Family Lepidostomatidae	
<i>Dinarthrum chaldyrense</i> (MARTYNOV, 1909)	27
Family Limnephilidae	
<i>Drusus bayburtii</i> ÇAKIN, 1983	31
<i>Limnephilus ponticus</i> MCLACHLAN, 1898	3, 31
<i>Limnephilus affinis</i> CURTIS, 1834	35
<i>Limnephilus flavospinosus</i> (STEIN, 1874)	34
<i>Limnephilus tauricus</i> SCHMID, 1964	35
<i>Micropterna coiffaiti</i> DÉCAMPS, 1962	35
<i>Micropterna malaspina</i> SCHMID, 1957	35
<i>Micropterna taurica</i> MARTYNOV, 1917	35
<i>Stenophylax meridionalis</i> MALICKY, 1980	36
<i>Stenophylax tauricus</i> SCHMID, 1964	37
Family Sericostomatidae	
<i>Sericostoma flavicorne</i> SCHNEIDER, 1845	2, 12, 14
Family Leptoceridae	
<i>Adicella hypseloknossoios</i> MALICKY, 1977	30
<i>Adicella kayserica</i> SİPAHİLER, 2014	2, 5, 7
<i>Athripsodes angriamani</i> SCHMID, 1959	10
<i>Setodes dehensurae</i> ÇAKIN & MALICKY, 1983	24
<i>Ylodes conspersus</i> (RAMBUR, 1842)	4
Family Calamoceratidae	
<i>Calamoceras illiesi</i> MALICKY & KUMANSKI, 1974	30
Family Beraeidae	
<i>Ernodes saltans</i> MARTYNOV, 1913	27, 29

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ANNEX 1. LIST OF LOCALITIES
ANEXO 1. LISTA DE LOCALIDADES

01. Kahramanmaraş, Tekir Yaylası, Döngel Cave Stream, 1000 m, (light), 37°52'N, 36°38'E, 19.6.2008.
02. Kayseri, Pınarbaşı, Elbistan direction, Büyük Gümüşgün Village, 1400 m, 38°43'N, 36°24'E, 16.6.2008.
03. Kayseri, Zamantı Stream, Tufanbeyli, Saray direction, Bakırdağı Village, 1200 m, 38°12'N, 35°51'E, 20.6.2008.
04. Kayseri, Pınarbaşı, 10 km west, Zamantı Stream, 1450 m, 38°46'N, 36°27'E, 16.6.2008.
05. Kahramanmaraş, Nurhak, a tributary of Ceyhan River, Alçiçek Village, 1100 m, 37°53'N, 37°24'E, 18.6.2008.
06. Adıyaman, Gölbaşı, Kapıdere, 800 m, 37°50'N, 37°43'E, 18.6.2008.
07. Kahramanmaraş, 40 km east of Elbistan, Sevdilli Village, Yalak Stream, 1340 m, 38°15'N, 37°31'E, 18.6.2008.
08. Kahramanmaraş, Nurhak, Gölbaşı direction, Kapıdere, 800 m, 37°57'N, 37°54'E, 18.6.2008.
09. Kayseri, Pınarbaşı, 20 km north of Sarız, 1600 m, 38°34'N, 36°31'E, 16.6.2008.
10. Kayseri, Pınarbaşı, Sarız, 1750 m, 38°26'N, 36°28'E, 17.6.2008.
11. Kahramanmaraş, Göksun, 30 km south, Tekir, 1200 m, 37°46'N, 36°31'E, 19.6.2008.
12. Kayseri, Pınarbaşı, Sarız, Elbistan direction, 1550 m, 38°27'N, 36°28'E, 17.6.2008.
13. Kayseri, Yahyalı, Kapuzbaşı Village, 1200 m, 37°45'N, 35°24'E, 29.8.1990.
14. Kayseri, Yahyalı, Şelale Village, 37°47'N, 35°23'E, 26.6.1986.
15. Kayseri, Tufanbeyli, Develi direction, Deresimli Village, source, 1420 m, 38°12'N, 35°54'E, 20.6.2008,
16. Kahramanmaraş, Göksun direction, Fırnız Stream, 37°46'N, 36°42'E, 19.6.2008.
17. Kahramanmaraş, Göksun, Terbüzek Stream, 1200 m, 38°00'N, 36°30'E, 17.6.2008.
18. Adana, Tufanbeyli, Yamanlı Village, 1550 m, 38°13'N, 36°14'E, 20.6.2008.
19. Kahramanmaraş, Göksun, Kızılcık Village, Kızılcık Stream, 1000 m, 37°55'N, 36°30'E, 17.6.2008.
20. Osmaniye, 13 km west, Tecirli, 240 m, 37°08'N, 36°05'E, 22.4.2008.
21. Adana, Kadirli, Camızoğlu Stream, 50 m, 37°09'N, 35°52'E, 21.4.2008.
22. Osmaniye, Düziçi, Sabun Stream, 300 m, 37°17'N, 36°24'E, 22.4.2008.
23. Kahramanmaraş, Nurhak, Alçiçek Village, Göksu Stream, 1100 m, 37°53'N, 37°24'E, 18.6.2008.
24. Adana, Saimbeyli, Feke direction, 11 km south, 37°59'N, 35°58'E, 4.7.1990.
25. Adana, Saimbeyli, 950 m, 37°59'N, 36°05'E, 10.5.1976.
26. Osmaniye, 15 km west, (light), 70 m, 37°03'N, 41°56'E, 22.4.2008.
27. Adana, Saimbeyli, Pağnık (Kızılağaç) Village, 1000 m, 37°51'N, 35°59'E, 4.7.1990.
28. Adana Saimbeyli, Doğanbeyli direction, 28 km west, Çeralan Village, 1375 m, 37°59'N, 36°02'E, 4.7.1990.
29. Adana, Saimbeyli, Feke direction, 20 km north of Feke, Gökmenler Village, 1260 m, 38°00'N, 35°69'E, 3.7.1990.
30. Kayseri, Yahyalı, Şelale Village, Bozarmut mevkii, 37°46'N, 35°24'E, 26.6.1986.
31. Niğde, Çamardı, 1250 m, 37°47'N, 34°58'E, 18.6.1986.
32. Niğde, Çiftahan, Çakıt Stream, 700 m, 37°26'N, 34°56'E, 20.4.2008.
33. Adana, Saimbeyli, Tufanbeyli direction, 1500 m, 3.7.1980, (SİPAHİLER & MALICKY, 1987)
34. Kahramanmaraş, 8 km west, Üngüt, 700 m, 37°34'N, 36°49'E, 8.6.1973 (SİPAHİLER & MALICKY, 1987)
35. Kahramanmaraş, 1000 m, 37°36'N, 36°48'E, 5-10.11.1977 (SİPAHİLER & MALICKY, 1987).
36. Kahramanmaraş, Tekir, 1250 m, 37°50'N, 36°36'E, 20-21.5.1969, (SİPAHİLER & MALICKY, 1987).
37. Kahramanmaraş, 37°36'N, 36°48'E, May.1928 (SİPAHİLER & MALICKY, 1987).