

# Check-list of additional taxa to the supplement flora of Turkey IX

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## ABSTRACT

The ninth of the check-list series entitled "Check-list of additional taxa to the supplement flora of Turkey" includes 159 taxa based on 120 papers published the period between January 2017 and December 2018. These taxa have not been recorded in none of the 11 volumes of the Flora of Turkey nor in the eight previously published supplementary check-lists. With this paper the following are added to the Turkish flora: 117 taxa new to science and 42 taxa new records.

**Keywords:** Additional taxa, Turkish flora, new species, new records

## INTRODUCTION

The diversity of vascular plants of Turkey has been documented in the "Flora of Turkey and the East Aegean Islands" and published in nine volumes between 1965 and 1985. After the publication of this Flora, subsequent studies have greatly increased and many new taxa have been added because of Turkey's rich flowering diversity. The identification of these additional taxa has necessitated the publication of the supplementary volumes to the Flora of Turkey vol. 10 in 1988 (Davis et al. 1988) and vol. 11 in 2000 (Güner et al. 2000) have been published.

After the 11<sup>th</sup> volume (2000) an additional 1353 taxa, either as a new species (1004 taxa) or new records for Turkish flora (349 taxa), have been recorded. These checklists have been published in a series paper by Özhatay et al. as Checklist III, IV, V, VI, VII and VIII (Özhatay and Kültür 2006; Özhatay et al. 2009; 2011; 2013; 2015; 2017) According to these data, for each year about 70 taxa is added to the Turkish flora. The all original publication of these taxa was subsequently drawn together by the authors as a collection housed in the library of the Department of Pharmaceutical Botany, İstanbul University (ISTE Herbarium Library). The aim of this paper is to present all published taxa added to the flora of Turkey during 2017 to 2018 with the missing records (Table 1).

In this paper 159 taxa are listed, 117 of them as new taxa to science (comprising 102 species, 10 subspecies, 2 varieties, 3 hybrids), and further 42 taxa as new record for Turkey (33 species, 7 subspecies and 2 varieties).

*Cardiospermum* L. (Sapindaceae), *Cyclosperrum* Lag. (Umbelliferae), *Diptychocarpus* Trautv. (Cruciferae), *Proboscidea* Schmid. (Martyniaceae) and *Symphotrichum* Nees (Compositae) are the new genera for Turkish flora.

The genus *Phelipanche* Pomel, *P. kelleri* (Novopokr.) Sojak (Orobanchaceae), seems to be a new genus, but it is recorded in the Plant List as syn. of *Orobanche kelleri* Novopokr.

*Aethionema* (with 13 taxa), *Allium* (with 8 taxa), *Taraxacum* (with 6 taxa) and *Dianthus* (with 5 taxa) are the four genera which represented with the most taxa in this study (Figure 1). The locality information is written in the same way as the original references. e= endemic species; \* = new record for Turkish flora; \*\*= new taxon for science; ■ = new genus for Turkish flora.

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| Table 1. Statistical table of summary data of additional taxa for the checklists. (N: new taxa for science, R: new record for Turkey) |                     |    |                      |    |                       |     |                      |    |                     |    |                      |    |                       |    |                        |     |                    |    |
|---|---------------------|----|----------------------|----|-----------------------|-----|----------------------|----|---------------------|----|----------------------|----|-----------------------|----|------------------------|-----|--------------------|----|
|   | Check-list I (1994) |    | Check-list II (1999) |    | Check-list III (2006) |     | Check-list IV (2009) |    | Check-list V (2011) |    | Check-list VI (2013) |    | Check-list VII (2015) |    | Check-list VIII (2017) |     | Check-list IX 2019 |    |
|   | N                   | R  | N                    | R  | N                     | R   | N                    | R  | N                   | R  | N                    | R  | N                     | R  | N                      | R   | N                  | R  |
| Sp.   | 96                  | 36 | 77                   | 42 | 154                   | 75  | 85                   | 40 | 158                 | 53 | 141                  | 32 | 76                    | 19 | 21                     | 110 | 102                | 33 |
| Subsp   | 16                  | 8  | 26                   | 4  | 12                    | 16  | 23                   | 13 | 20                  | 4  | 29                   | 5  | 1                     | 2  | 2                      | 12  | 10                 | 7  |
| Var.  | 11                  | 2  | 5                    | 4  | 15                    | 13  | 9                    | 1  | 9                   | 3  | 8                    | 4  | -                     | -  | -                      | 3   | 2                  | 2  |
| Hyb.  | 1                   | -  | 1                    | 1  | 8                     | 2   | 3                    | -  | 1                   | -  | 8                    | 1  | 1                     | -  | 2                      | 2   | 3                  | -  |
| Total   | 124                 | 46 | 109                  | 51 | 189                   | 106 | 120                  | 54 | 188                 | 60 | 186                  | 42 | 78                    | 21 | 25                     | 127 | 117                | 42 |

*Pinus* L. (1:72)

**e\*\*P. sylvestris** L. var. **elicinii** Kandemir & Mataracı in Resimli Türkiye Florası 2: 338-342, 2018 [Kandemir & Mataracı 2018].

**Type:** Türkiye. A8 Trabzon: Sürmene, Sürmene-Of arası, Çamburnu-Sargona mevkii, 37T 4530669 K, 602442 D, 116 m, 26.xi.2016, A. Kandemir 10878 (holo: NGBB 5770; iso. ANK, GAZI, HUB, ISTE, ISTO).

## DICOTYLEDONES

### AMARANTHACEAE

*Atriplex* L. (2:305)

**e\*\*A. sukhorukovii** Başköse & Yaprak in Phytotaxa 369 (3): 227-235, 2018 [Başköse & Yaprak 2018].

**Type:** Turkey. B9 Erzurum: Karaçoban district, Kırmızı saltworks (Çoban saltworks), salt pools around, 1570 m, 17 August 2013, N 039°17.377' E 042°06.333', Yaprak and Başköse 2236 (holotype and isotype ANK).

*Corispermum* L. (2:318)

**\*C. nitidum** Kit. ex Schult. Oestr. Fl., ed. 2 1: 7 (1814). [Keskin et al. 2017].

**Examined specimens:** Türkiye, İstanbul: Sarıyer, Uskumruköy, Kıztaşı deresi, Arburnu altı, Boğaziçi Üniversitesi kampüs kumulları, 01.viii.2015, 0 m, M.Keskin 5836a; Sarıyer, Boğaziçi üniversitesi, Sarıtepe kampüsü, dere kenarı, orman sınırı, 06.x.2015, M.Koçyiğit Avcı ve T.Avcı (ISTE 115039); Sarıyer, Boğaziçi Üniversitesi, Sarıtepe Kampüsü, iki plaj arası, dere çevresi yeşil alan sınırı, kumullar, 18.ix.2016, 0 m, N 41°14'41,4" ve E 029°00'24,8", M.Keskin 6527, N.Özhatay ve E. Özhatay. Samsun: Kızılırmak deltası, Karaboğaz gölü'nün kuzeyine bitişik kıyı kumulları, kurak kıyı kumulları, 14.x.1994, yaklaşık 5 m, A.J. Byfield B 1373 (ISTE 67614); Terme, Akçay nehrinin ağızı, nemli nehir kenarları, 12.x.1994, yaklaşık 2 m, A.J.Byfield B 1351 (ISTE 67592).

### ANACARDIACEAE

*Rhus* L. (2:543)

**\*R. chinensis** Mill. var. **chinensis**, in Gard. Dict., ed. 8, Rhus no. 7. 1768. [Terzioğlu & Coşkunçelebi 2017].

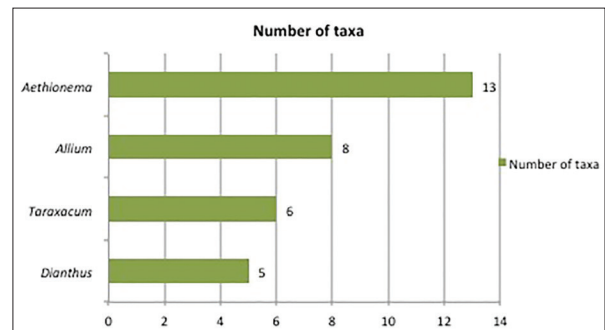


Figure 1. The most species have been added in Check-list IX.

**Examined specimen:** A8 Artvin: Hopa-Kemalpaşa, in a mixed broadleaved forest, UTM: 0711597, 4598023; 10 m, 26.ix.2014, S. Terzioğlu and K. Coşkunçelebi 1209, (KATO: 9857, KTUB); Rize: Hazar Mahallesi, in thickets amongst tea plantations, UTM 0613517, 4539580; 86 m, 14.ix.2014.

## ARISTOLOCHIACEAE

*Aristolochia* L. (7:552)

**e\*\*A. altanii** İlçim & Behçet in Turk J Bot 39: 835-840, 2015 [İlçim et al. 2015].

**Type:** Turkey. C6 Kahramanmaraş: upper parts of Dereboğazi and Hartlap Village, 680–700 m, 03.v.2012, (fl), rocky places, A. İlçim 1819 (Holotype: Mustafa Kemal Univ. Herb., isotype: Bingöl Univ. Herb.).

## BORAGINACEAE

*Alkanna* Tausch (6:414)

**\*A. strigosa** Boiss. & Hohen., Diagn. Pl. Orient. ser. 1, 4: 46. (1844) [Yıldırım et al. 2017].

**Examined specimens:** Türkiye, Gaziantep: iv.1907, Haradjian 1469 (W); iii.1907, Haradjian 831 (W); Dülükbaba, ca. 1330 m, Haradjian 1200 (W). Hatay: Kırıkhan, İncirli Köyü civarı, Perişan mevkii, ceylan koruma sahası yanı, taşlık yamaçlar, 230 m, 18.iv.2016, H. Yıldırım 3776 (EGE). Malatya: 1000-2500 m, v.1932, Jul. v. Ajtai-Kovach (W); in alpine Akdagh, Aucher-Elloy 2358 (syntype of *A. syriaca*: G). Şanlıurfa: Karaköprü, Maşuk Köyü civarı, step, 37°12' 52" K, 38°47' 06" D, 648 m, 24.iv.2015, H. Yıldırım 3194 (EGE); Şanlıurfa-Diyarbakır yolu, Yenice Köyü, step, 37°19' 48.73" K, 38°59' 34.81" D, 619 m, 19.iv.2015, M.M. Balos 4000 (EGE); Diyarbakır yolu sol tarafı, Maşuk Köyü civarı, step, 37°13' 48.12" K, 38°47' 03.68" D, 643 m, 16.v.2015, M.M. Balos 4001 (EGE); Karaköprü Atatürk Ormanı civarı, step, 37°14.404 N, 38°48.519' E, 727 m, 19.v.2016, M.M. Balos 4002 (EGE); Germuş Köyü (Dağ eteği köyü), step, 37°11' 54.89" K, 38°50' 36.23" D, 621 m, 20.v.2016, M.M. Balos 4003 (EGE); Karaköprü Badıllı Köyü tepelikleri, step, 37°12' 49.04" K, 38°48' 58.16" D, 673 m, 15.vi.2016, M.M. Balos 4004 (EGE); Şanlıurfa-Mardin yolu sol tarafı, Göbeklitepe civarı, step, 37°11' 43.52" K, 38°53' 48.77" D, 620 m, 16.vi.2016, M.M. Balos 4005 (EGE).

*Onosma* L. (6:326)

**e\*\*O. erzincanica** Binzet & Eren in Phytotaxa 356(2): 117-130, 2018 [Binzet & Eren 2018].

**Type:** Turkey. B7 Erzincan: Between Kemah and İliç, 25 km after Kemah, on limestone screes, 39°36'44" N, 38°41'15" E, 1570 m, 02.vi.2014, Binzet 201417 (holotype: ANK, isotypes: AYDN, GAZI, Herbarium of Mersin University).

*Paracaryum* (DC.) Boiss. (6:282)

**e\*\*P. leventshikii** Yild., in Ot Sistematik Botanik Dergisi, 25(2): 1-22 (2018). [Yıldırım, 2018b].

**Type:** Turkey. A3 Ankara: Nallıhan, Davutlar köyü berisi, kuş cennetine varmadan, jipizli yamaç ve tepe, 600-625 m, 07.vi.2018, Ş. Yıldırım 44657 (holo.Yıldırım Otluk'u; iso. HUB).

*Solenanthus* Ledeb. (6:303)

**e\*\*S. abayi** Yild. & G. Tuttu, in Ot Sistematik Botanik Dergisi, 24(2): 47-57 (2017) [Yıldırım et al. 2017].

**Type:** Turkey. A5 Kastamonu: Tosya, Yeşilgöl, DSİ Göleti çevresi, yol kıyısı, sarıçam (*Pinus sylvestris*) açıklıkları, 1550 m, 40°51'26 81" N, 34°00'05 75" E, 13.vi.2015, G. Tuttu 2312, fruiting specimen (holo. Hb. Yıldırım; iso. HUB).

## CAMPANULACEAE

*Campanula* L. (6:2)

**e\*\*C. baskilensis** Behçet in Nordic J Bot 36(10): 1-5 (2018) [Behçet & İlçim 2018].

**Holotype:** Turkey. B7 Elazığ: 15 km south of Baskil Town, 38°27'18"N, 38°49'41"E, southeast of Topalkem Village, rocky area, 900–950 m a.s.l., 31.vii.2016, L. Behçet 11860 (holotype: ANK, isotypes: Bingöl Univ. Herb. and Mustafa Kemal Univ. Herb.).

**e\*\*C. leblebicii** Yıldırım in Phytotaxa 376 (2): 114-122 (2018). [Yıldırım, 2018].

**Type:** Turkey. B1 İzmir: Kemalpaşa district, Ovacık Village, top of Çaldede Mountain, phyllite-schist rocks crack, 1385 m, 38 20 N. 27 38 E, 09.vii.2014, H. Yıldırım 3013 (holotype: EGE42445, ANK, HUB, NGBB).

## CAPRIFOLIACEAE

*Cephalaria* Schrad. ex Roem. & Schult. (4:585).

**e\*\*C. cilodaghensis** Ranjbar & Z. Ranjbar in Feddes Repertorium 129: 13–24 (2018) [Ranjbar & Ranjbar 2018].

**Holotype:** Turkey. C9 Hakkari: Cilo Mountain, above Diz deresi, 37°29'55" N 43°57'35" E, 2438.4 m, 7.viii.1954, Davis 23,941,0. Polunin s.n. (E, photo BASU).

## CARYOPHYLLACEAE

*Bolanthus* (Ser.) Reichb. (2:171)

**e\*\*B. sandrasicus** Hamzaoğlu & Koç in Nordic Journal of Botany 35: 563–568 (2017) [Hamzaoğlu et al. 2017a].

**Type:** Turkey. C2 Muğla: Köyceğiz, south of Kartal Lake, 1960 m a.s.l., subalpine serpentine flats, 17.vii.2016, Koç 2343 and Hamzaoğlu (holotype: GAZI, isotypes: GAZI, ANK, Bozok Univ. Herb.).

*Cerastium* L. (2:73)

**\*C. brachypetalum** Pers. subsp. *pindigenum* (Lonsing) P.D.Sell & Whitehead, Feddes Repert. 69:18 (1964) [Keskin, 2018].

**Examined specimen:** İzmir: Kemalpaşa, Nif dağı alpinik zon, 1400 m, 21.v.1980, Ö. Seçmen 2161, L. Bekat (EGE 17534).

**Dianthus** L. (2:99)

**e\*\*D. halisdemirii** Hamzaoğlu & Koç in KSÜ Tarım ve Doğa Derg 21(4): 545-55 (2018) [Hamzaoğlu et al. 2018].

**Type:** Turkey. B2 Kütahya: Gediz, Murat Mountain, road of ski resort, towards summit, serpentine slopes, 2050 m, 02.viii.2015, Hamzaoğlu & Koç 2127 (holo. GAZI, iso. GAZI, ANK)

**e\*\*D. sancarii** Hamzaoğlu & Koç, in Biodicon 11(1): 30-34, (2018) [Hamzaoğlu & Koç, 2018].

**Type:** Turkey. B9 Bitlis: Tatvan, above Koruklu Village, 1990 m a.s.l., *Quercus* openings, damp places, 12.vii.2015, Hamzaoğlu 7038 & Koç (holotype: GAZI; isotypes: GAZI, ANK, HUB).

**e\*\*D. somanus** Oskay in Phytotaxa 347 (4): 263-271 (2018) [Oskay, 2018].

**Type:** Turkey. B1 Soma district, Manisa province, Kocasivri Hill, 39°15'41.4"N, 27°43'20.2"E, 950 m, July 2009, (holotype EGE-42705, isotypes EGE).

**e\*\*D. ucarii** Hamzaoğlu & Koç in Turk J Bot 41: 486-492 (2017) [Hamzaoğlu et al. 2017b].

**Type:** Turkey. A1(E) Kırklareli: Vize to Kıyıköy, ca. 5–6 km, 430 m, 15.vi.2013, *Quercus* forest clearings, Hamzaoğlu 6719, Aksoy & Koç (holotype: GAZI; isotypes: GAZI, ANK).

**e\*\*D. varankii** Hamzaoğlu & Koç in KSÜ Tarım ve Doğa Derg 21(4): 545-55 (2018) [Hamzaoğlu et al. 2018].

**Type:** Turkey. A5 Kastamonu: Hanönü, Küreçayı Village turnout, *Pinus brutia* Ten. and *Quercus pubescens* Willd. openings, 480 m, 13.viii.2016, Hamzaoğlu 7241 & Koç (holo. GAZI, iso. GAZI, ANK).

**Paronychia** Miller (2:250)

**e\*\*P. aksoyii** Budak in Phytotaxa 291 (3): 224–230 (2017) [Budak et al. 2017].

**Type:** Turkey. A8 Erzurum: Tortum, near Tortumkale Village, 1580–1620 m, sandy steppes, 40°20'46"N, 041°29'36"E, 05.vii.2014, Budak & Hamzaoğlu 3060 (holotype GAZI, isotypes KTUB, ANK, Bozok Univ. Biology Dept. Herbarium).

**e\*\*P. davrazensis** Budak in Phytotaxa 291 (3): 224–230 (2017) [Budak et al. 2017].

**Type:** Turkey. C3 Isparta: above Davraz sky center, 1920–1960 m, calcareous rocky places, 37°46'22"N, 030°44'35"E, 10.vii.2014, Budak 3193 & Hamzaoğlu (holotype GAZI, isotypes KTUB, ANK, Bozok Univ. Biology Dept. Herbarium).

**e\*\*P. kocii** Budak in Phytotaxa 291 (3): 224–230 (2017) [Budak et al. 2017].

**Type:** Turkey. B8 Erzincan: between Pülümür and Erzincan, near pass, 1820–1880 m, steppes, 39°11'19"N, 039°52'27"E, 12.vii.2012, Budak & Hamzaoğlu 2685 (holotype GAZI, isotypes KTUB, ANK, Bozok Univ. Biology Dept. Herbarium).

**Silene** L. (2:179)

**e\*\*S. eminentis** Özçelik, in Bio-Science Research Bulletin, 18: 121-129 (2002) [Özçelik, 2002].

**Type:** Turkey. B8 Erzurum: Palandöken Mountains, 30 km to Tekman, alpinic steppe, 2200-2400 m, 19.vii.1993, Özçelik 6114 (holo. Hb. S. Demirel University, Isparta; iso. Hb. Yüzüncü Yıl University, Van).

**e\*\*S. guerbuezii** Özçelik, in Bio-Science Research Bulletin, 18: 121-129 (2002) [Özçelik, 2002].

**Type:** Turkey. C3 Isparta: Aksu, Dedegül Mountain, 8 km to town Yenişarbademli, around Pınargözü excursion spot, *Pinus nigra* forest glades, 1700 m, 2.ix.1996, Özçelik 7681 (Holo: Hb. S. Demirel University, Isparta; iso: Hb. GAZI, Ankara).

**e\*\*S. magenta** Yıld. & Kılıç, in Ot Sistematik Botanik Dergisi, 24 (2): 1-8 (2017) [Yıldırımılı & Kılıç 2017a].

**Type:** Turkey. B8 Bingöl: Kiğı, Karakoçan-Sancak yol ayrımından sonra y. 6. Km, yol kıyısı, yamaç, 1450 m, 24.v.2017, Ş. Yıldırımılı 43367 & Ö. Kılıç (holo. Yıldırımılı Otluk'u; iso. ANK, EGE, GAZI, HUB, PAMUK, Yıldırımılı Otluk'u).

**e\*\*S. nemrutensis** K. Yıldız in Phytotaxa 292 (2): 189-195 (2017) [Yıldız et al. 2017].

**Type:** Turkey. C7 Adıyaman: Nemrut Mountain, around Commagene Kingdom monuments, rocky, stony areas, southern slopes, 2050-2070 m a.s.l., 37°58'583"N, 38°44'260"E, 3.viii.2005, Yıldız, Dodandı et Fırat 073 (holotype CBAH, isotypes MUF, ERCH, VANF)

**Phryna** Pax & Hoff. (2:148)

**e\*\*P. hamzaoglui** Koç & Budak in PhytoKeys 109: 27–32 (2018) [Koç & Budak, 2018].

**Type:** Turkey. B6 Malatya: Between Hekimhan and Hasançelebi Town, 3 km from Hekimhan, 1100 m a.s.l., hillside, 10.x.2015, Koç 2353, Hamzaoğlu & Budak (holotype ANK; isotypes ANK, GAZI, Bozok Univ. Biology Dept. Herbarium).

**COMPOSITAE****Artemisia** L. (5:311)

**e\*\*A. taurica** Willd. var. **vanensis** Kursat & Civelek in Biodicon 11(3): 106-114 (2018) [Kursat et al. 2018].

**Type:** Turkey. B9 Van: 30th km of the highway from Van to Hakkari, slopes around Zerne irrigation dam lake, mountain steppe, 1960 m., 38° 20.872N, 43° 41.867E, 20.ix.2007, S. Civelek & M. Kursat 1056 (holotype FUH).

**Centaurea** L. (5:465)

**e\*\*C. bingoelensis** Behçet & İlçim in Turk J Bot 41: 180-188 (2017) [Behçet et al. 2017].

**Holotype:** Turkey. B8 Bingöl: 25 km west of city of Bingöl, north of Yelesen Village, southern rocky slopes 1900–2050

m, 26.vi.2014, L. Behçet 9648. (Holotype: Mustafa Kemal Univ. Herb., Isotype: ANK, Bingöl Univ. Herb.).

**e\*\*C. goerkii** Yıld., in Ot Sistematiik Botanik Dergisi, 25(2): 1-22 (2018) [Yıldırımli, 2018b].

**Type:** Turkey. B4 Ankara: Sivrihisar'a doğru, Acıkır-Sivrihisar arası, Demirci köyü berisi, jipizli yerler, 880 m, 07.vi.2018, Ş. Yıldırımli, 44613 (holo. Yıldırımli Otluk'u; iso. HUB).

**e\*\*C. kirmacii** Uysal & Armağan in Phytotaxa 362 (2): 233-238 (2018) [Armağan & Uysal 2018].

**Type:** Turkey. C2 Muğla: Kavaklıdere, Mentеше village, 3,5 km southern of Gökçukur plateau, above limestones, 1620 m, 37°19'16"N, 28°22'27.4"E, 27.vii.2017, Armağan 7797 (holotype KNYA)

**e\*\*C. mersinensis** Uysal & Hamzaoğlu in Plant Biosystems 151(5): 813-821 (2017) [Uysal & Hamzaoğlu 2017].

**Type:** Turkey. C4 Mersin, Aydıncık-Yenikaş köyü üstü, Pinus brutia orman açıklıkları, kireçli yamaçlar, 36° 08' 38" N, 33° 15' 18" E, 520 m, 3.vi.2014, Hamzaoğlu 7009 (Holotype: GAZI, isotypes: KNYA, ANK, HUB, GAZI).

**Cirsium** Miller (5:370)

**e\*\*C. bozkirensis** H.Duman, Dirmenci & Tugay in Turk J Bot 41: 375-382 (2017). [Duman et al. 2017a].

**Type:** Turkey. C4 Konya: Bozkır, between Sorkun District and Dikilitaş Yaylası, 1780 m a.s.l., 28.vii.2002, O.Tugay 3060 & Ertuğrul (Holotype: KNYA; Isotypes: GAZI, KNYA).

**Crepis** L. (5:814)

**e\*\*C. palaestina** subsp. **babcockii** Inceer & Aksu Kalmuk, in Bangladesh J. Plant Taxon, 25: 45-49 (2018) [Inceer & Kalmuk, 2018].

**Type:** Turkey. C3 Antalya: Manavgat, 10 m, 24.iv.2015, Inceer 1142 (Holotype: KTUB; Isotype: ANK).

**Gundelia** L. (5:325)

**\*G. armeniaca** Nersesian in Ann. Naturhist. Mus. Wien, B 116: 192 (2014) [Firat, 2018a].

**Examined specimen:** Turkey. Ağrı, the specimen grows in *As-tragalus* sp. steppe and near lowland at c. 1600-1900 m.

**e\*\*G. mesopotamica** Firat in Acta Biologica Turcica 30 (3): 64-69 (2017) [Firat, 2017b].

**Type:** Turkey. C8 Mardin: 2-3 km from Mardin to Nusaybin (Nisêbin), eroded slopes, aride steppe, 807 m, 37°17'36"N, 40°46'20"E, coll. 8.v.2017, M. Firat 33725 (holotype VANF, isotypes ANK, Herb. M. Firat).

**\*G. rosea** Al-Taey & Hossain in Notes Roy. Bot. Gard. Edinburgh 42(1): 41 (1984) [Firat, 2017c].

**Examined specimens:** Turkey. C10 Hakkari: Şemdinli Province, Sad Mountain, Deriyê Kera region, meadows and stony

slopes, 1662 m, 37°16'17" N, 44°20'09" E, coll. 25.v.2011, M. Firat 27393 (Herb. M. Firat); C10 Hakkari: Şemdinli Province, Sad Mountain, Deriyê Kera region, meadows and stony slopes, 1662 m, 37°16'17" N, 44°20'09", coll. 27.vii.2011, M. Firat 27620 (Herb. M. Firat) (in fruit).

**Jurinea** Cass. (5:439)

**e\*\*J. efea** N. Aksoy, in Phytol. Balcan. 24(3): 351-359 (2018) [Aksoy et al. 2018].

Turkey. A3 Düzce, Yiğilca, on in the road between Yoğunpelit and Yaylatepe Villages, 1175 m, in a *Fagus-Quercus* mixed forest and in open limestone rock areas, on southeastern slopes, 40°50'03" N, 031°39'37" E, 19.vi.2016, N. Aksoy 7926 (Holotype: DUOF 7020; isotypes: GAZI, ISTO).

**Lactuca** L. (5:776)

**\*L. leucoclada** Rech.f. & Tuisl in Anz. Österr. Akad. Wiss., Math.-Naturwiss. Kl. 101: 399. 1964 [Güzel et al. 2018].

**Examined specimens:** Turkey. B7 Erzincan, from Erzincan to Refahiye, rocky slopes, 1549 m, 39°51'N, 39°16'E, 17.vii.2014, Coşkunçelebi & Güzel 253 (KTUB); Erzincan, from Erzincan to Refahiye, 08.viii.2014 Kandemir 10629 (KTUB).

**Onopordum** L. (5:356)

**\*O. cinereum** Grossh. in Trudy Tiflissk. Bot. Sada Ser. 2, 1: 38 (1920) [Pinar et al. 2018a].

**Examined specimens:** Turkey. B8 Bingöl: Kığı, Kığı-Yedisu arası, kayalık-taşlık yamaçlar, yol kenarı, 39°21'46" K, 40°20'20" D, 1650 m, 19.vii.2017 M.Pinar 6850, M. Fidan & H.Eroğlu.

**Rhaponticum** Hill. ( 5: 460)

**\*R. pulchrum** Fisch & C.A. Mey in Linnaea 10(Lit.): 101 (1835) [Özbek et al. 2017].

**Examined specimens:** Turkey. A5 Kastamonu: Hanönü, above yukarı Küreçayı Village, *Pinus brutia* openings, rocky slopes, 500-600 m, 11.vi.2016, Koç 2305 & Hamzaoğlu.

**Senecio** L. (5:145)

**e\*\*S. oflasii** Yıld. & Kılıç, in Ot Sistematiik Botanik Dergisi, 25(1): 1-10 (2018) [Yıldırımli & Kılıç, 2018b].

**Type:** Turkey. B7 Tunceli: Ovacık, Yılan Dağı, Cevizlidere köyünden İtyokuşu-Eşek meydanı-Devboğazı-Tapiktepe-Deveboynu-Barasor deresiizleğiyle Karataş köyüne, bozkır, bozuk meşe ormanı, 1550-2250 m, 19.vi.2015, Ş. Yıldırımli 41532 & Ö. Kılıç (holo. YO).

**Solidago** L. (5:116)

**\*S. gigantea** Aiton in Hort. Kew. 3: 211 (1789) [Yılmaz, 2017].

**Examined specimens:** Turkey A2 Bursa: Uludağ; Soğukpınar, Soğukpınar-Aras vadisi, 1160 m, 4003 K-29 08 D, 28.vii.2015, Ö. Yılmaz 118/15-1, S. Karabulut (BULU).

■ *Symphotrichum* Nees

\**S. pilosum* (Willd.) G.L. Nesom var. *pilosum* in Phytologia 77: 289 (1995) [Tunçkol et al. 2017].

**Examined specimens:** Turkey. A3 Zonguldak: Ereğli district at elevation of 10-150 (200) m, at a roadside, field side and abandoned fields, 29.vii.2016, B. Tunçkol 4400 & H. Yaşayacak (DUOF 7023).

*Taraxacum* Wiggers (5:788)

\**T. caudatuliforme* Soest in Proc. Kon. Ned. Akad. Wetensch., Ser. C, Biol. Med. Sci. 69: 467 (1966) [Gürdal et al. 2018].

**Examined specimen:** Turkey. A1(E) Edirne: Pazarkule yolu, 32 m, 23.iv.2015, B. Gürdal, BG-854–22, H. Gürdal, (ISTE 107350, no. det. 31329).

\**T. darbandense* Soest in Koninkl. Nederl. Akad. Wetensch., ser. C, 69: 378 [Gürdal et al. 2018].

**Examined specimen:** Turkey. A5 Çorum: travnate meze mezi policky u Kiziltepe, 15 km Z od Osmancık [grass ridge between fields near Kiziltepe, 15 km W. of Osmancık], 430 m, 28.iv.1997, Z. Kaplan, 4356 (ISTE, PRA, No. det. 31355).

\**T. erythrospermum* Andr. in Enum. Pl.: 75 (1821) [Gürdal et al. 2018].

**Examined specimen:** Turkey. A1(E) Kırklareli: Pınarhisar, İslambeyli-Evciler, 1.5 km from Evciler, wet meadows, 371 m, 23.iv.2014, B. Gürdal, BG-621–39, M. Koçyiğit, Y. Yeşil, (ISTE 102441, No. det. 31317).

\**T. fascians* Kirschner, Mikoláš and Štěpánek in Preslia 69: 45 (1997) [Gürdal et al. 2018].

**Examined specimen:** Turkey. A3 Bolu: Abant Silsilesi Mts, Abant lake, SW of Bolu, ca 1100 m, v.1997, J. Sadlo, 4756 (ISTE, PRA, no. det. 31325).

\**T. oblongatum* Dahlst. in Rep. Bot. Soc. Exch. Club Brit. Isles 9: 27 (1930) [Gürdal et al. 2018].

**Examined specimens:** Turkey. A1(E) Kocaeli: Kartepe, Kardelen mesire alanı çevresi, 651 m, 17.iv.2015, B. Gürdal, BG-846–41, H. Gürdal, (ISTE 107342, no. det. 31341); A1(E) Kocaeli: Sapanca, İ.Ü. Su Ürünleri tesisi bahçesi, 58 m, 17.iv.2015, B. Gürdal, BG-844–441, H. Gürdal, (ISTE 107340, no. det. 31347).

e\*\**T. pseudobithynicum* B.Gürdal, Štěpánek, Zeisek, Kirschner & N. Özhatay in Phytotaxa 373 (3): 197–210 (2018) [Gürdal et al. 2018].

**Type:** Turkey. A2(A) Bursa: Uludağ, Volfram çevresi, 2176 m, 11.viii.2014, B. Gürdal 835-16, M. Koçyiğit (holotype: ISTE 102911).

## CONVOLVULACEAE

*Ipomoea* L. (6:221)

\**I. hederifolia* L. in Syst. Nat., ed. 10. 2: 925 (1759) [Hançerli et al. 2018].

**Examined specimen:** Turkey. C5 Adana: Sarıçam, maize fields, 37°1'26.17" N and 35°23'12.81" E, 2016.

\**I. triloba* L. in Sp. Pl. 1: 161 (1753) [Yazlık et al. 2018].

**Examined specimen:** Turkey. C3 Antalya: Serik, 36°55'032.6" N 31°03'024.7" E and Aksu, 36°55'026.6" N 30°52'042.3" E, vii.2014, Ege University Botanical Garden and Herbarium Research and Application Centre as herbarium accession number EGE42414.

## CRUCIFERAE

*Aethionema* W.T. Aiton (1:314)

e\*\**A. adiyamanense* Yıld. & Kılıç, in Ot Sistematik Botanik Dergisi, 25(1): 25-30 (2018) [Yıldırım & Kılıç, 2018a].

**Type:** Turkey. C7 Adiyaman: Koçali-Çelikhan arası, sulu vadi, meşe (*Quercus brandii*) ormanı, 1061-1120 m, 29.iv.2018, Ş. Yıldırım 44198 & Ö. Kılıç (holo.Yıldırım Otluk'u; iso. ANK, EGE, GAZİ, HUB, PAMUK, Yıldırım Otluk'u).

e\*\**A. alidaghenicum* Yıld. in Ot 23 (1-2): 1-66 (2016) [Yıldırım & Kılıç 2016a].

**Type:** Turkey. B5 Kayseri: Talas, Alidağ eteğinden doruğa, kuzey ağaçlandırmalı ve doğu meşelik yamaçlar, bozkır, y. 1300-2000 m, 24.vi.1995, Ş. Yıldırım 18672 (holo. Yıldırım Otluk'u (YO), iso. HUB, MUH, Yıldırım Otluk'u).

e\*\**A. annuum* Yıld. in Ot 23 (1-2): 1-66 (2016) [Yıldırım & Kılıç 2016a].

**Type:** Turkey. B2 Manisa: Soma, HAcimusa-Bayat-Işıklar köyleri ilerişi, maden yolu yakını, maki-orman, çakıllı yerler, 650 m, 27.v.2009, Ş. Yıldırım 35747 & Görkem Yıldırım (holo. Yıldırım Otluk'u, iso. HUB)

e\*\**A. apetalum* Yıld. et Kılıç in Ot 23 (1-2): 1-66 (2016) [Yıldırım & Kılıç 2016a].

**Type:** Turkey. B7 Tunceli: Merkez, Rabat (Çemçeli) köyü alt yolu, kırmızı kayrak taşlık yer, meşe ormanı, 1300 m, 30.v.2015, Ş. Yıldırım 41056 & Ö. Kılıç (holo. Yıldırım Otluk'u (YO), iso. GAZİ, HUB, Nezahat Gökyiğit Botanik Bahçesi Otluk'u, Yıldırım Otluk'u).

e\*\**A. bingolicum* Yıld. et Kılıç in Ot 23 (1-2): 1-66, 2016 [Yıldırım & Kılıç 2016a].

**Type:** Turkey. B8 Bingöl: Merkez, Alatepe (Arçuk, Armani) köyü üstü, Fırın deresi çevresi, yayla, meşe ormanı ve açıklığı, yamaç, taşlık, 1900-1950 m, 11.vi.2015, Ş. Yıldırım 41402 & Ö. Kılıç (holo. Yıldırım Otluk'u, iso. HUB).

e\*\**A. dincii* Yıld. in Ot 23 (1-2): 1-66 (2016) [Yıldırım & Kılıç 2016a].

**Type:** Turkey. C6 Osmaniye: Amanos dağları, Zorkun yaylası üstü, alpin step, 2000 m, 27.viii.2000, M. Dinç 949 (holo. Yıldırım Otluk'u).

**e\*\*A. dincii** Yild. subsp. *baytopiae* Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. C5 Adana: Karsanti, Şamadan bölgesi, Karapınar mevki, ağaçlandırma sahası çevresi, 1700 m, 26.vii.1979, E. Tuzlacı & M. Saraçoğlu (ISTE 43295) (holo. Yıldırımli Otluk'u).

**e\*\*A. dumelicum** Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. A4 Çankırı: Eldivan (Dümeli), Karadere boyunca, karışık orman kıyısı, 900-1200 m, 27.v.1983, Ş. Yıldırımli 5005 (holo. Yıldırımli Otluk'u, iso. HUB, Yıldırımli Otluk'u).

**e\*\*A. ertughrulli** Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. B5 Kırşehir: Mucur, Ayri dağları etekleri, bozkır, 1300-1450 m, 21.v.1989, Ş. Yıldırımli 12202 (holo. Yıldırımli Otluk'u, iso. HUB).

**e\*\*A. kilicii** Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. B6 Sivas: Zara, Halkalı ve Korkut köyleri karşısı, bozkır, jipsli dere, tepe, bayır, karışık orman ve açıklığı, 1385-1500 m, 19.vi.2014, Ş. Yıldırımli 40044 & Ö. Kılıç (holo. Yıldırımli Otluk'u, iso. ANK, HUB, Yıldırımli Otluk'u).

**e\*\*A. ozbekii** Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. B7 Tunceli: Ovacık, Karagöl kepezi (vadisi), kayalık ve taşlık alanlar, 135 m, 30.vi.1983, Ş. Yıldırımli 5406 (holo. Yıldırımli Otluk'u).

**e\*\*A. turanicum** Yild. in Ot 23 (1-2): 1-66 (2016) [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. A7 Gümüşhane: Şiran, karaçam (*Pinus nigra*)-tüylümeşe (*Quercus pubescens*)-dağardıcı (*Juniperus excelsa*) ve dikenliardıç (*Juniperus oxycedrus*) karışık ormanı, 1400-1550 m, 19.vii.1984, Ş. Yıldırımli 6732 (holo. Yıldırımli Otluk'u, iso. EGE, HUB, YO).

**e\*\*A. yildirimlii** Kılıç in Ot 23 (1-2): 1-66, 2016 [Yıldırımli & Kılıç 2016a].

**Type:** Turkey. C3 Konya: Beyşehir, Çamlık kasabası, Kızıldağ, doğu yamaç, karaçam (*Pinus nigra*) ormanı, kayalık ve taşlık, 1470-1705 m, 01.vi.2008, Ş. Yıldırımli 34914 & Görkem Yıldırımli (holo. Yıldırımli Otluk'u, iso. HUB, PAMUH, Yıldırımli Otluk'u).

**Aubrieta** Adanson (1:444)

**e\*\*A. alshehbazii** Dönmez, Uğurlu & M.A.Koch in Phytotaxa 209(1): 13-110 (2017) [Dönmez et al. 2017].

**Type:** Turkey. Afyon: Çay, Karakuş Mountain, between Aydoğmuş-Armutlu Villages, limestone, 38°23'11"N, 030°46'55"E, 1100 m, 31.iii.2001, A.A. Dönmez 8282 (holotype HUB, isotypes HEID, HUB).

**Berteroa** DC. (1:360)

**e\*\*B. physocarpa** Yüzb. & Al-Shehbaz in Phytotaxa 305(2): 87-96 (2017) [Yüzbaşıoğlu et al. 2017].

Turkey. A2(A) Kocaeli: KARtepe, zirve çevresi, 1600 m, 24.vii.1994, A.J. Byfield 1058 (holotype ISTE 67180, isotype ISTE).

**Erysimum** L. (1:466)

**e\*\*E. erolii** Yild., in in Ot Sistematik Botanik Dergisi, 25(2): 1-22 (2018) [Yıldırımli, 2018b].

**Type:** Turkey. A3 Ankara: Nallıhan, Davutlar köyü berisi, kuş cenetine varmadan, jipizli yamaç ve tepe, 600-625 m, 07.vi.2018, Ş. Yıldırımli 44660 (holo. Yıldırımli Otluk'u; iso. HUB).

**e\*\*E. nemrutdaghense** Mutlu, in Phytotaxa 336 (3): 239-251 (2018) [Mutlu 2018].

**Type:** Turkey. C7 Adıyaman: Kahta Village, The Northern side of Nemrut Mountain, 37 58 54.48 N-38 44 27 82 E, 2138 m, alpine steppe, 06.vi.2009, B. Mutlu 10839 (in flower) (holotype: INU; isotype: HUB, GAZI); ibid., 28.vi.2009, B. Mutlu 10958- Fatma and Can Mutlu (in fruit); ibid., 22.vii.2010, B. Mutlu 11232 & İ. Yıldırım (in mature fruit).

■ **Diptychocarpus** Trautv.

\***D. strictus** (Fisch. Ex M. Bieb.) Trautv in Bull. Soc. Imp. Naturalistes Moscou 33(1): 108 (1860) [Fidan et al. 2017].

Turkey, B9 Van: Edremit, Kadembas district, behind the green valley picnic area, slopes, 28.iii.2010, 38°24.48' N, 43°13.58' E, 1683 m, M. Fidan 551; 18.iv.2014, M. Pınar 4063 & H. Eroğlu (in fruit).

**Fibigia** Medik. (1:356)

\***F. yildirimlii** Kılıç, in Ot Sistematik Botanik Dergisi, 24(2): 27-35 (2017) [Yıldırımli & Kılıç 2017c].

**Type:** Turkey. B7 Tunceli: Merkez, Rabat (Çemçeli) köyü alt yolu, kırmızı kayrak taşlık yer, meşe ormanı, 1300 m, 30.v.2015, Ş. Yıldırımli 41058 & Ö. Kılıç (holo. Yıldırımli Otluk'u; iso. HUB, Yıldırımli Otluk'u).

**Iberis** L. (1:309)

**e\*\*I. gypsicola** Yild., in Ot Sistematik Botanik Dergisi, 25(2): 1-22 (2018) [Yıldırımli, 2018b].

**Type:** Turkey. B4 Ankara: Sivrihisar'a doğru, Acıkır-Sivrihisar arası, Demirci köyü berisi, jipizli yerler, 880 m, 07.vi.2018, Ş. Yıldırımli, 44620 (holo. Yıldırımli Otluk'u; iso. HUB).

**e\*\*I. saxatilis** subsp. *magnesiana* Oskay in Phytotaxa 306 (2): 153-158 (2017) [Oksay 2017].

**Type:** Turkey. B1 Manisa: Soma district, Kocasivri Hill, 850 m, April 2009, (holotype EGE 42417, isotypes EGE, CBÜ- Department of Biology).

**Noccaea** Moench

**e\*\*N. ali-atahanii** Güzel, Özüdoğru & Kayıkçı, in Turk J Bot 42: 780-789 (2018) [Güzel et al. 2018].

**Type:** Turkey. C6 Hatay: Defne, Subaşı, 36°11'8.74" N, 36°7'33.71" E, 120 m, 25.iv.2017, Güzel 902 (holotype HUB, isotypes ANK, GAZI).

**Thlaspi** L. (1:330)

\***T. kilicii** Yıld., in Ot Sistematik Botanik Dergisi, 24(2): 27-35 (2017) [Yıldırımli & Kılıç 2017c].

**Type:** Turkey. B7 Tunceli: Nazimiye, Büyükyurt (Hakis) köyü üstü, Şirince ve Sinekli dere çevresi, titrekkavak (*Populus tremula*) ormanı, kuru dere boyunca, 1850-2000 m, 31.v.2015, Ş. Yıldırımli 41211 & Ö. Kılıç (holo. Yıldırımli Otluk'u; iso. HUB, Yıldırımli Otluk'u).

## GROSSULARIACEAE

**Ribes** L. (4:261)

\***R. aureum** Pursh in Fl. Amer. Sept. (Pursh) 1: 164 (1813) [Yıldırımli et al., 2004; Firat 2018c].

**Examined specimen:** Turkey. A9 Kars: Kağızman Province, at the natural garden, 1294 m, 40°10'03" N, 43°08'11" E, coll. 25.iv.2014, M. Firat 30535 (VANF, Herb. M. Firat), A9 Kars: Kağızman Province, at the natural garden, 1294 m, 40°10'03" N, 43°08'11" E, coll. 9.v.2016, M. Firat 32659 (VANF, Herb. M. Firat); B1 İzmir: Karşıyaka, Bostanlı, cultivated areas, 1 m, 13.ix.2003, Ş. Yıldırımli 29271.

## HYPERICACEAE

**Hypericum** L. (2:355)

e\*\***H. bilgehan-bilgili** Başköse & Savran, in Phytotaxa 374 (2): 110-118 (2018) [Başköse & Savran, 2018].

**Type:** Turkey. Konya: Beyşehir district, Dumanlı Village-Antalya road, 8 km S-SW of Dumanlı Village, Çürük Mountain, Düden cave environments, on calcareous rock, chasmophyte, 1650 m, 02.vii.2016, N 37°29'21.66" E 31°19'35.81", Başköse and Savran 4600, (holotype ANK, isotypes ANK and Herbarium of Niğde Ömer Halisdemir University).

e\*\***H. ekerii** E. Yüce & Aytaç in Pak. J. Bot., 49(5): 1763-1768 (2017) [Yüce Babacan et al. 2017].

**Type:** Turkey. B7 Tunceli, Mazgirt, c. 21 km E of Tunceli, c. 3 km SE of Çevrecik, Düzgün Baba Dağı (Munzur Mountain ranges), 1800-2060 m, 11.vi.2015, E.Yüce 3000 (holo. GAZI, iso. ANK)

## LABIATAE

**Lamium** L. (7:126)

e\*\***L. bilgili** Celep in Phytotaxa 312 (2): 263-270 (2017) [Celep 2017].

**Type:** Turkey. C2 Burdur-Muğla: Altınyayla (Dirmil), Yayla Karaçulha village, Karaağaç plateau, 1870-2100 m, 36°55'39.63" N, 29°35'23.98" E, 5.vi.2015, F. Celep 3860 (holotype GAZI, isotype ANK).

**Marrubium** L. (7:165)

e\*\***M. amasiensis** Akgül & Ketenoğlu, in Ot Sistematik Botanik Dergisi, 24(2): 37-46 (2017) [Akgül et al. 2017].

**Type:** Turkey. A5 Amasya: Direkli Village, S of Sakarat dağı, location of Karanlıkönü, 1100-1400 m, 30.vi.2002, on glades in mixed and *Quercus* forest slopes, G. Akgül 2556 (holo. ANK.), GPS. 37°24'65" E, 45°06'39" N.

e\*\***M. lanatum** Akgül, in Ot Sistematik Botanik Dergisi, 25(2): 23-30 (2018) [Akgül, 2018].

**Type:** Turkey. C5 Niğde: Centrum, near Azatlı Village, rocky slopes, 1600-1650 m, 15.vii.2012, G. Akgül 2418 (holo. ANK; iso. Yıldırımli Otluk'u).

**Micromeria** Benth (7:335)

e\*\***M. aybala** H. Duman & T. Dirmenci in Turk J Bot 41: 383-391 (2017) [Duman & Dirmenci, 2017].

**Type:** Turkey. C2 Muğla: Köyceğiz, Sandras Mountain, west of Çayhisar Village, calcareous rocks, 980-1000 m a.s.l., 4.xi.2015, H.Duman 10395 (holotype GAZI, isotypes ANK, HUB, ISTE).

**Origanum** L. (7:297)

e\*\***O. ayliniae** Dirmenci & Yazıcı, in Turk J Bot 42: 73-90 (2018) [Dirmenci et al. 2018b].

**Type:** Turkey. C1 Aydın: Kuşadası, Dilek Peninsula National Park, rocky slopes, 1195 m, 22.vii.2016, Dirmenci 4584 (holotype GAZI, isotypes ANK, EGE, HUB, ISTE).

e\*\***O. x adae** Dirmenci & Yazıcı, in Turk J Bot 42: 73-90 (2018) [Dirmenci et al. 2018b].

(*Origanum ayliniae* Dirmenci & Yazıcı x *Origanum sipyleum* L.)

**Type:** Turkey. C1 Aydın: Kuşadası, Dilek Peninsula National Park, rocky slopes, 1195 m, 22.vii.2016, Dirmenci 4583 (holotype GAZI, isotypes ANK, EGE, HUB, ISTE).

e\*\***O. x malyeri** Dirmenci & Yazıcı, in Phytotaxa 371 (3): 145-167 (2018) [Dirmenci et al. 2018a].

(*Origanum vulgare* L. subsp. hirtum (Link) A. Terracc. x *Origanum boissieri* letsw.)

**Type:** Turkey. C5 İçel: between Çamlıyayla and Saydibi, 13. km, calcareous in open *Abies cilicia* and *Cedrus libani* forest, 6050 ft., 37.219730 N, 34.563330 E, 01.x.2015, Dirmenci 4502 & Yazıcı (Holotype GAZI, isotypes ANK, ISTE, HUB, EGE).

e\*\***O. x sevcaniae** Dirmenci, Arabacı & Yazıcı, in Phytotaxa 371 (3): 145-167 (2018) [Dirmenci et al. 2018a].

(*Origanum vulgare* L. subsp. hirtum (Link) A. Terracc. x *Origanum vogelii* Greuter & Burdet)

**Type:** Turkey. C5 Niğde: Ulukışla, Horoz Village, Fenk throat, 4800 ft., 37.455940 N, 34.751250 E, 02.x.2015, Dirmenci 4508 & Yazıcı (Holotype GAZI, isotypes ISTE, ANK, HUB, EGE).

**Ziziphora** L. (7:395)



\***Z. clinopodioides** Lam. subsp. **elbursensis** (Rech.f.) Rech.f. in Fl. Iranica 150: 487 (1982) [Firat 2017e].

**Examined specimen:** Turkey. B9 Van: Nebirnaf plateau, steppe, 2900 m, 37°54'44" N, 43°43'10" E, coll. 27.viii.2012, M. Firat 28914 (Herb. M. Firat).

\***Z. clinopodioides** Lam. subsp. **flicaulis** (Rech.f.) Rech.f. in Fl. Iranica 150: 486 (1982) [Firat 2017e].

**Examined specimen:** Turkey. C9 Hakkâri: Kandil plateau, steppe, 2956 m, 37°37'56" N, 43°57'05" E, coll. 21.vii.2011, M. Firat 27775 (Herb. M. Firat).

\***Z. clinopodioides** Lam. subsp. **kurdica** (Rech.f.) Rech.f. in Fl. Iranica 150: 487 (1982) [Firat 2017e].

**Examined specimen:** Turkey. B9 Van: Bahçesaray, Sampaz, helin stream, steppe, 1760 m, 37°58'25" N, 42°47'05" E, coll. 28.vii.2016, M. Firat 28862 (Herb. M. Firat).

\***Z. clinopodioides** Lam. subsp. **rigida** (Boiss.) Rech.f. in Fl. Iranica 150: 483 (1982) [Firat 2017e].

**Examined specimen:** Turkey. B9 Van: from Hoşap to Karadağ, steppe, 2100 m, 30.vii.2012, M. Firat 28862 (Herb. M. Firat).

## LINACEAE

**Linum** L. (2:425)

e\*\***L. ayliniae** Yılmaz in A Journal for Botanical Nomenclature, 26(2):174-179 (2018) [Yılmaz 2018].

**Type:** Turkey. B3 Afyon: Akdağ, 30 km from Işıklı to Sandıklı, 30 km, 1077 m, 8.v.2017, Ö. Yılmaz 2151 (holotype, BULU; isotypes, ANK, NGBB).

e\*\***L. platyphyllum** (P.H.Davis) Yild., subsp. **güvensenii**, in Ot Sistematik Botanik Dergisi, 25(2): 1-22 (2018) [Yıldırım, 2018b].

**Type:** Turkey. A3 Ankara: Nallıhan, Davutlar köyü berisi, kuş cennetine varmadan, jipizli yamaç ve tepe, 600-625 m, 07.vi.2018, Ş. Yıldırım 44671 (holo. Yıldırım Otluk'u; iso. HUB).

**Lythrum** L. (4:174)

e\*\***L. anatolicum** Leblebici & Seçmen subsp. **vanense** Pinar in Acta Biologica Turcica 30(1) 16-19 (2017) [Pinar, 2017].

**Type:** Turkey. B9 Van: Çatak, North of Çatak Valley, surroundings of Bilgi Village, stream side, wet and sandy places, 1723 m, 25.viii.2002, 38°06'184"N, 43°16'213"E, M. Pinar 1229 (holotype: VANF, isotypes: GAZI, EGE)

■ **Proboscidea** Schmid.

\***P. louisianica** (Miller) Thell. in Mém. Soc. Sci. Nat. Math. Cherbourg 38: 480 (1912) [Sevgi et al. 2017].

**Examined specimens:** Turkey. A1 Çanakkale: Karabiga-Biga. Between Güleçköy and Yeniçiğlık on roadsides, dried Ece lake around, 7.ix.2017, 20m, Sevgi E., ISTO Number: 37325.

**Orobanche** L. (7:3)

\***O. inulae** Novopokr. & Abramov in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 13: 323 (1950) [Raab-Straube & Raus, 2017].

**Examined specimens:** Turkey. Trabzon, Maçka, Altındere Valley National Park, July 1866, B. Balansa (P02968068)

\***O. reticulata** subsp. **agigenis** Rätzel & Uhlich in Willdenowia, 46(3):430-432. [Raab-Straube & Raus, 2018].

**Examined specimens:** Turkey. B5 Kayseri, Mountain Erciyes, 15 km from Hisarcık to Develi, 38°30'42"N, 35°29'58"E, 2100 – 2200 m, steppe, 14.vii.2009, Zare 490 & al. (HUB); ibid., 2 km S of Tekir lake, 38°29'52"N, 35°30'59"E, steppe, 27.vi.2010, Zare 600 & Bayrak (HUB); ibid., Develi to Kayseri, 8 km before (S of) Tekir lake, 27.vi.2010, Zare 606 & Bayrak (HUB).

■ **Phelipanche** Pomel

\***P. kelleri** (Novopokr.) Sojak in Čas. Nár. Mus., Odd. Přír. 140(3-4): 130 (1972) [Raab-Straube & Raus, 2018].

**Examined specimens:** Turkey. Ankara: Şereflikoçhisar, 12.v.2013, Tonsun, as *Orobanche* sp. (photo [http://dogal hayat.org/property/Orobanche-10/]).

## PAPILIONACEAE

**Astragalus** L. (3:49)

e\*\***A. ihsancalisii** Dönmez & Uğurlu in Willdenowia 48: 399–404 (2018) [Dönmez & Uğurlu-Aydın, 2018a].

**Holotype:** Turkey. A8 Erzurum: Horasan, 1 km from road junction of İğdeli Village to Eleşkirt, 1795 m, 39°56'31"N, 42°19'49"E, 26.vi.2015, A. A. Dönmez 19559 (HUB; isotypes: B, GAZI, HUB).

**Ebenus** L. (3:590)

e\*\***E. zekiyae** Aytaç & Yıldırım in Ann Bot Fennici 55: 25-29 (2017) [Aytaç & Yıldırım 2017].

**Type:** Turkey. A8 Erzurum: Hınıs-Pasinler road, 33rd km, between Erduran and Dibekli Villages, 2040 m a.s.l., limestone rocks, slopes, 30.vi.2016, H. Yıldırım 3967 (holotype GAZI, isotypes EGE, ANK).

**Genista** L. (3:24)

e\*\***G. unalii** M. Dinç & Y. Bağcı, in Phytotaxa 371 (1): 49-54 (2018). [Dinç & Bağcı, 2018].

**Type:** Turkey. C5 Karaman: Ereğli, foot of Bolkar Mountains, above Çatköy, steppe, 1880 m, 23.v.2007, M. Dinç 2979 & Y. Bağcı (holotype KNYA; isotypes GAZI, HUB and personal herbarium-Yıldırım Herb).

**Hedysarum** L. (3:549)

e\*\***H. ketenoglui** Başköse, Yaprak & Akyıldırım in Phytotaxa 357(4): 291-297 (2018) [Başköse et al. 2018].

**Type:** Turkey. C4 Konya: Hadim district, Taşkent to Alanya road, Gevne valley, northeast side of Yalnızardıç Dam Lake, Küçükklü Village, roadside, 1600 m, 5.ix. 2014, A.E. Yaprak, B. Akyıldırım and İ. Başköse 2656 (holotype ANK, isotypes ISTF, ANK).

**\*H. singarense** Boiss. & Hausskn. Fl. Orient. 2: 522 (1872) [Hoşgören & Ertekin, 2018].

**Examined specimen:** Turkey. B8 Diyarbakır, Silvan, Silvan to Sason, 3-4 km, around of Hassuni Mağaraları, stony and calcareous slopes, 970-980 m, 17.v.2014, A. Selçuk Ertekin, DUF 10128. ibid. 08.vi.2014, A. Selçuk Ertekin, DUF 10165. 37683071 E 4222262 N.

**Lathyrus** L. (3:328)

**\*L. pannonicus** (Jacq.) Garcke subsp. **collinus** (J. Ortmann) Soo, Scripta Bot. Mus. Transs.1:46 (1942) [Güneş, 2018].

**Examined specimen:** Türkiye. Edirne: Lalapaşa, Vaysal köyü Develiağaç köyü yolu, Ömeroba köyü yol ayrımı çevresi, meşe ormanı altı ve açıklıkları, 04.v.2016, F. Güneş 4765.

**Trigonella** L. (3:452)

**e\*\*T. coerulescens** (M.Bieb.) Halacsy subsp. **ayvalikensis** Erdoğan, Selvi & Tümen in Phytotaxa 319 (2): 167-174 (2017) [Erdoğan et al. 2017].

**Type:** Turkey. B1 Balıkesir: Ayvalık, Küçükköy, west of Badavut beach, sandy coast, 1 m, 12.III. 2016, 39°16'23"N, 26°37'43"E, Selami Selvi 1616 (holotype: The herbarium of Balıkesir University, Altınoluk Vocational School, Programme of Medicinal and Aromatic Plants, isotypes: ANK, ISTE)

**Onobrychis** Mill. (3:560)

**e\*\*O. mehmetchiquii** in Phytotaxa 298(1): 96-100 (2017) [Aybeke & Dane 2017].

**Type:** Turkey. A1(E) Edirne: Centre, between Budakdoganca and Ahiköy Villages, first degree military forbidden zone, II. Mehmetcik station environs, 41°47'24"N, 26°21'34"E, 110 m, 06.vi.2015, M. Aybeke (holotype EDTU 15050).

## PLUMBAGINACEAE

**Acantholimon** Boiss. (7:478)

**e\*\*A. gemicianum** Kaptaner İğci, Köroğlu & Aytaç in Ann. Bot. Fennici 54: 83-88 (2017) [Kaptaner İğci et al. 2017].

**Type:** Turkey. B3 Eskişehir: Ahiler-Kurtseyh Village, 830-850 m, steppe, 23.vii.2015 Köroğlu 20113 ( holotype GAZI; isotype ANK).

**e\*\*A. ibrahimii** Akaydin in Phytotaxa 340(1): 48-54 (2018) [Akaydin, 2018].

**Type:** Turkey. C5 Niğde: Çamardı, Demirkazık Village, on calcareous slopes, 1650 m, 08.vii.2008, Akaydin 11971 (holotype: ANK, isotype: HUB)

**Limonium** Miller (7:465)

**e\*\*L. didimense** Doğan & Akaydin, in Ot Sistematik Botanik Dergisi, 24(2): 9-26 (2017) [Doğan & Akaydin 2017].

**Type:** Turkey. C1 Muğla: Mils, on the coast of Cennet bay, Boz-bük, 2-3 m, 29.x.2002, G. Akaydin 7690 & Doğan (holo. ANK).

**e\*\*L. marmarisense** Doğan & Akaydin, in Ot Sistematik Botanik Dergisi, 24(2): 9-26 (2017) [Doğan & Akaydin 2017].

**Type:** Turkey. C1 Muğla: Marmaris, Bozburun, on the coast of Müskebi island, 2-3 m, 28.vii.2004, G. Akaydin 9910 & M. Doğan (holo. ANK).

## POLYGALACEAE

**Polygala** L. (1:533)

**e\*\*P. azizsancarii** Dönmez, in Phytotaxa 340(3): 255-262 (2018) [Dönmez & Uğurlu-Aydın 2018b].

**Type:** Turkey. C8 Mardin: 8 km from Mardin to Mazıdağı, Akresta Pass, steppe, limestone, 1075m, 37°23'14" N, 040°39'14" E, 27.v.2016, A.A.Dönmez 19755 (holotype HUB; isotypes: E, EGE, HUB).

## ROSACEAE

**Pyrus** L. (4:160)

**\*P. demetrii** Kuth., Zаметki Sist. Geogr. Rast. 13: 25 (1947) [Uğurlu Aydın & Dönmez 2017].

**Examined specimen:** Turkey. Sivas: 3.3 km from Sincan to Zara, steppe, among deciduous scrub, 39°29'31" N, 037°55'07" E, 1275 m a.s.l., 2.x.2012, AAD 19237 (HUB)

**Spiraea** L. (4:4)

**e\*\*S. cudidaghense** Firat & N. Aksoy in J For Res 29(9): 1751-1756 (2018) [Firat & Aksoy 2018].

**Type:** Turkey. C9 Şirnak: Cudi Mountains, Bilgan region, rocky slopes, 969 m, 37°25'11"N, 42°38'57"E, 15.x.2013, M. Firat 30467 (holotype DUOF, isotypes ISTO, VANF).

## RUBIACEAE

**Galium** L. (7:767)

**e\*\*G. cariense** Daşkın & Bağcıvan in Phytotaxa 308 (2): 267-274 (2017) [Daşkın & Bağcıvan 2017].

**Type:** Turkey. C2 Muğla: Çameli Fethiye road, between Karabayır and Üzümlü, 36°53'37"N, 29°10'02"E, serpentine screes under *Pinus brutia* forests, 1207 m, 19.v.2011 (fl), R. Daşkın 1085 (holotype: BULU, isotypes: ANK, GAZI).

**e\*\*G. karliovaense** Yild. & Kılıç, in Ot Sistematik Botanik Dergisi, 25: 31-39 (2018) [Yıldırım & Kılıç, 2018c].

**Type:** Turkey. B8 Bingöl: Karlıova, Göynük köyü içinden geçerek sulu dere boyunca, tepeye, taşlık, bozkır, 1860-2060 m, 06.ix.2018, Ş. Yıldırım 44756 & Ö. Kılıç (holo. Yıldırım Otluk'u; iso. PAMUK, Yıldırım Otluk'u).

**e\*\*G. ovitdaghense** Daşkın in Nordic Journal of Botany 036 (1-2): 01-06 (2018) [Daşkın, 2018].

**Type:** Turkey. A8 Rize, İkizdere, around Ovit Dağı Pass, rocky slopes, 2640 m a.s.l., 28.vi.2012, fl. & fr., R. Daşkın 1383 (holotype: BULU, isotypes: ANK, BULU, GAZI).

**e\*\*G. sancakense** Yild. & Kılıç, in Ot Sistematik Botanik Dergisi, 25: 31-39 (2018) [Yıldırımli & Kılıç, 2018c].

**Type:** Turkey. B8 Bingöl: Sancak, Yazgülü köyü çevresi, Uzun-savat baraj gölü batı kesimleri, taşlı yamaç, nemli yerler, 1500-1600 m, 04.vi.2018, Ö. Kılıç 5988 & Ş. Yıldırımli (holo. Yıldırımli Otluk'u; iso. PAMUK, Yıldırımli Otluk'u).

## RUTACEAE

**Haplophyllum** Jussieu (2:496)

**e\*\*H. ermenekense** Ulukuş & Tugay, in PhytoKeys 111:119-131 (2018) [Ulukuş & Tugay, 2018].

**Type:** Turkey. C4 Karaman: Ermenek, limestone slopes, steppe, 1200 m, alt., 36°37.356 N, 32°51.543 E, 21.vi.2014, O. Tugay 9641 & Ulukuş (holotype: KNYA; isotype: ANK, GAZI).

**e\*\*H. sahinii** Tugay & Ulukuş in Phytotaxa 297 (3): 265-272 (2017) [Tugay & Ulukuş, 2017].

**Type:** Turkey. C4 Konya: Çumra, between Apasaraycık-Apa Village, rocky area, 1090 m, 37°22.482'N, 32°28.765'E, 18.vi.214, O. Tugay 9266 & Ulukuş, KNYA Herb. No: 26908 (holotype: KNYA; isotype: ANK, GAZI).

### ■ **Cardiospermum** L.

**\*C. halicacabum** L. in Sp. Pl. 1:366 (-367) (1753) [Yıldırımli, 2018a].

**Examined specimen:** Turkey. C1 Aydın: Kuşadası, Davutlar, Çağay sitesi, ev harlası (garden), çite tırmanıcı, deniz kıyısına yakın (near sea shore), 1 m, 16.viii.2018, Ş. Yıldırımli 44715 (Yıldırımli Otluk'u, HUB).

**Pedicularis** L. (6:768)

**e\*\*P. munzurdaghensis** Armağan in Phytotaxa 333 (1): 124-130 (2018) [Armağan, 2018].

**Type:** Turkey. Tunceli: Pülümür, 11 km N of Ardıçlı (Gersunut) Village, Munzur Mountain (near to Erzincan border), ca. 2510 m, 18.vi.2014, Armağan 4874 (holotype HUB; isotype AYDN).

**Verbascum** L. (6:461)

**e\*\*V. faik-karaveliogullarii** Çingay & Cabi in Phytotaxa 372 (4): 263-272 (2018) [Çingay et al. 2018].

**Type:** Turkey. C9 Hâkkari: 11 km north of Hâkkari, Berçelan Yaylası, riverside, limestone rocks, 2779 m elevation, 17.vii.2015, B. Çingay 5317, F.A. Karavelioğlu, H. Tek & A. Akbaba (holotype: NGBB 4801, isotypes: ANK, CBB).

**e\*\*V. gimgimense** Firat in Phytotaxa 291 (3): 209-216 (2017) [Firat, 2017f].

**Type:** Turkey. B8 Muş: Gimgim (Varto) province, 6-7 km from Gimgim to Gulik, Suya Gonene region, stepe, 2043 m a.s.l., 39°12'08"N, 41°30'19"E, 4.vi.2014, M.Firat 31026 (holotype VANF, isotypes ANK, Herb. M.Firat).

**e\*\*V. golawanense** Firat in Phytotaxa 305 (1): 21-28 (2017) [Firat, 2017g].

**Type:** Turkey. B9 Van: from Van to Muradiye, Bendi mahi region, fallow fields, edge of fields, 1659 m, 38°57'42"N, 43°37'50"E, 1.vii.2011, M.Firat 27749 (holotype ANK, isotypes E, GAZI, HUB, VANF).

**e\*\*V. mughlaeum** H.Duman, Uzunh. & Kit Tan in Phytotaxa 291 (3): 231-236 (2017) [Duman et al. 2017b].

**Type:** Turkey. C2 Muğla: Fethiye, Saklıkent, on rocky limestone slopes, 110 m, 17.iv.1998, H. Duman 6630 (holotype GAZI, isotypes ANK, C, HUB).

**Cymbocarpum** DC. (4:438)

**e\*\*C. alinihatii** Menemen & Çingay, in Turk J Bot 42: 91-99 (2018) [Menemen et al. 2018].

**Type:** Turkey Ankara: Beypazarı, near Sekli Village, roadside, scree rocks, 619 m a.s.l., 30.vi.2014, 40.194850N, 31.707329E, B. Çingay, A. Ö. Çimen, R. Anşın, R. M. Aydıncal, Ö. Demir (OBKA) 947 (holotype: NGBB 005901; isotypes: ADO, NGBB).

**Ekimia** H.Duman & M.F.Watson (11:142)

**e\*\*E. ozcan-secmenii** Şenol & Eroğlu in Turk J Bot 42: 510-517 (2018) [Şenol et al. 2018].

**Type:** Turkey. C2 Denizli: Between Karaismailler-Suçatı Village, Acipayam, serpentine scree slopes, P. brutia open forests, around Dalaman stream; 37°06'62.2"N, 29°05'49.824"E, 650 m, 03.vi.2013, S.G. Şenol & V. Eroğlu 3560 (holotype: EGE42490).

### ■ **Cyclosporum** Lag.

**\*C. leptophyllum** (Pers.) Sprague, Bot. Porto Rico 6: 52. (1925) [Yıldırım et al., 2018].

**Examined specimen:** Turkey. A8 Trabzon: in a forest nursery, amongst green-houses, 10 m, 03.ix.2014, UTM: 0611904, 4538117, KATO 9856.

**Oenanthe** L. (4:372)

**\*O. millefolia** Janka Oesterr. in Bot. Z. 22: 177-178 (1872) [Doğan-Güner et al. 2016].

**Examined specimen:** Turkey. Kırklareli: Demirköy-İğneada, to 5-10 km İğneada, under Pinus sylvestris forest, 273 m, 18.vii.2014, E. Doğan Güner 2044 & B. Bani (GAZI); ibid., 03.viii.2014, E. Doğan Güner 2075 & B. Bani (GAZI); Kırklareli: Sarpdere-Armutveren, under Pinus sylvestris forest, 33 m, 19.vi.2014, E. Doğan Güner 2046 & B. Bani (GAZI); Tekirdağ: Saray, Kiyıköy district, under Quercus forest, 247 m, 16.vi.2015, E. Doğan Güner 2101 & B. Bani (GAZI).

*Peucedanum* L. (4:473)

**e\*\*P. guvenianum** Yıldırım & H.Duman in Turk J Bot 41: 600-608 (2017) [Yıldırım & Duman 2017].

**Type:** Turkey. İzmir: Menderes-Gümlüdüz yolu, Tahtalı Baraj gölü karşısı, Gümlüdüz'e 40 km kala, maki içi, 237 m, 07.xi.2016, H.Yıldırım 4112 (holotype: EGE 42440, isotypes: GAZI, HUB, NGBB).

*Rhabdosciadium* Boiss. (4:311)

**e\*\*R. anatolyi** Lyskov & Kljuykov in Phytotaxa 331(2): 253-262 (2017) [Lyskov et al. 2017].

**Type:** Turkey. Hakkari: 20 km E from Hakkari, wet rocky northern slope near the snowfield, alt. 2620-2630 m, 37°28'N, 43°49'E, 3.vii.2014, Lyskov & Krupitsky 14-TR-135 (holotype MW0595616; isotypes GAZI, W)

*Parietaria* L. (7:636)

**\*P. rechingeri** Chrtek in Fl. Iranica 105: 12 (1974) [Firat, 2018b].

**Examined specimen:** Turkey. C9 Şırnak: Cudi Mountains, Bilgan region, rocky slopes, 969m, 37°25'11" N, 42°38'57" E, 15.vii.2014 M. Firat 31054, VANF.

## VIOLACEAE

*Viola* L. (1:524)

**e\*\*V. denizliensis** O.D.Düşen, Göktürk, U.Sarpkaya & B.Gürçan in Phytotaxa 369 (1): 37-46 (2018) [Düşen et al. 2018].

**Type:** Turkey. C2 Denizli: Nikfer, Bozdağ Mountain, serpentinite stony slopes, 1670 m, 29.iv.2017, O.D.Düşen 1512 & R.S.Göktürk (holotype: PAMUH, isotypes: Akdeniz University Herbarium).

## MONOCOTYLEDONS

### CYPERACEAE

*Rhynchospora* Vahl (9:70)

**\*R. caucasica** Palla, Vestn. Tiflissk. Bot. Sada 30: 26-27 (1913) [Leblebici, 2017].

**Examined specimen:** Türkiye, Rize, Ardeşen, Işıkli, Afyon Baba tepesi çevresi, 19.viii.1985, 300-400 m, M. Vural 3981, A. Güner (HUB).

### GRAMINAE

*Aegilops* L. (9:233)

**e\*\*A. triuncialis** L. subsp. **bozdagensis** Cabi & Dogan in Acta Biologica Turcica 31(2): 56-61, (2018) [Cabi et al. 2018].

**Type:** Turkey. Denizli: Bozdağ, Geyran yaylası, roadsides, open forest, 1400-1650 m, 30.vi.2009, E. Cabi 4050 (holotype GAZI, isotype ANK).

*Alopecurus* L. (9:373)

**e\*\*A. goekyigitiana** Cabi & Soreng in Turk J Bot 41: 189-199 (2017) [Cabi et al. 2017].

**Type:** Turkey. C4 Konya, Bozkır, Karacahisar köyü, Palaz yaylası, steep slopes on northwest side of pass to Hacıobası yaylası, 2015 m, 37.04410°N, 32.09117°E, 25.vii.2014, R.J. Soreng 8856, E.Cabi & B.Çingay (holotype US, isotypes ANK, CAN, E, G, HAOC, ISTE, K, KNYA, LE, NAKU, W).

*Cyperus* L. (9:34)

**\*C. eragrostis** Lam., Tabl. Encycl. Méth. Bot 1:146 (1791) [Şapıcı & Vural 2018].

**Examined specimen:** Turkey. Samsun: Çarşamba, Yeşilirmak river side, 1.6 m, 41°12'245"K, 36°43'648"D, 25.viii.2014, HS1365, ERCH.

**\*C. microiria** Steud., Syn. Pl. Glumac. 2: 23 (1854) [Şapıcı & Vural 2018].

**Examined specimen:** Turkey. Rize: Çayeli, Büyükdere under the bridge, 15 m, 41°04'948"K, 40°42'778"D, 27.viii.2014, HS1390.

## IRIDACEAE

*Crocus* L. (8:413)

**e\*\*C. hatayensis** Rukšāns in Int Rock Gardener 108: 20-54 (2018) [Rukšāns, 2018].

**Type:** Ex culturae in horto Jānis Rukšāns. Plants originally collected in dry leaves, on the 29th of May, 2003 in SE Turkey, Hatay Province, Ziyaret Mts., along rd. from Antakya to Yayladağı Yolu, 36° 2.230' N and 36° 7.195' E, at alt. 960 m, RUDA-117. Holotype: GB (Gothenburg), isotype GAT.

**e\*\*C. heilbronniorum** Erol in Phytotaxa 298(2): 173-180 (2017) [Erol et al. 2017].

**Type:** Turkey. Muğla: Fethiye, near Arpacık, 1200 m a.s.l., 01.iii.2016, O.Erol & L. Can (holotype ISTF 41115).

**e\*\*C. tuna-ekimii** Yüzb. in Phytotaxa 314 (1): 110-116 (2017) [Yüzbaşıoğlu 2017].

**Type:** Turkey. Balıkesir: Dursunbey, Durabeyler köyü, *Pinus nigra* orman altı, kayalık arazi, 1000 m, 27.ii.2016. S. Yüzbaşıoğlu 4248 & F. Canız (holotype ISTE, isotypes ISTE, NGBB).

**e\*\*C. youngiorum** Rukšāns & Zetterlund in Int Rock Gardener 102: 14-24 (2018) [Rukšāns & Zetterlund 2018].

**Type:** Ex culturae in hortus Jānis Rukšāns, 11-03-2018. Plants collected in Turkey, Tunceli Province, 27 km from Tunceli along the Munzur River towards Ovacık, along a roadside S of the river in a narrow ravine on a south-facing slope at 1000 m alt., leg. H. Zetterlund, 11-04-1990 (KPPZ 90-209). Holotype: GB (Gothenburg).

*Iris* L. (8:382)

**e\*\*I. zagrica** subsp. **hakkariensis** Firat in Phytotaxa 305 (3): 209–216 (2017) [Firat, 2017d].

**Type:** Turkey C10 Hakkari: Şemdinli district, from Ciyaye Gov-ende (Güven Dağı) to Oremar (Dağlıca), in loose soil, 1543 m, 37°12'58"N 44°16'55"E, 24.iv.2013, M.Firat 30011(holotype: VANF; isotypes: NGBB, Herb. M. Firat).

## LILIACEAE

**Allium** L. (8:98)

**e\*\*A. ankareense** Yild., in Ot Sistematik Botanik Dergisi, 25(2): 1-22 (2018) [Yıldırım, 2018b].

**Type:** Turkey. A3 Ankara: Nallıhan, Davutlar köyü berisi, kuş cen- netine varmadan, jipizli yamaç ve tepe, 600-625 m, 07.vi.2018, Ş. Yıldırım 44670 (holo. Yıldırım Otluk'u; iso. HUB).

**e\*\*A. gemicana** Yild. & Kılıç in Ot 22 (1-2): 1-24 (2016) [Yıldırım & Kılıç 2016b].

**Type:** Turkey. B7 Tunceli: Ovacık, at junction of Ovacık-Çemişgezek-Hozat-Kemaliye districts, Yılan Mountain, from Cevzlidere Village to İtyokuşu-Eşekmeydanı-Devboğazi- Tapiktepe-Deveboynu-Barasorderesi-Karataş Village, by path, stepe, 1550-2250 m, 13.vi.2015, Ş. Yıldırım 41590 & Ö. Kılıç (holo. Yıldırım Otluk'u).

**e\*\*A. guttatum** Steven subsp. **kartalkayaense** Yild. in Ot 22 (1-2): 1-24 (2016) [Yıldırım & Kılıç 2016b].

**Type:** Turkey. A3 Bolu: Aladağlar, Kartalkaya yolu üzeri, üç yol ayrımı, sarıçam (*Pinus sylvestris*) altı ve açıklığı, volkanik kayalıklar, 1400-1410 m, 07.vii.2016, Ş. Yıldırım 42604 & H. Işıl Yıldırım (holo. Yıldırım Otluk'u; iso. HUB, PAMUH, Yıldırım Otluk'u).

**e\*\*A. hoshabicum** Firat in Phytotaxa 312 (1): 129-134 (2017) [Firat 2017a].

**Type:** Turkey. B9 Van: Hoşab (Güzeldere) province, Güzeldere passage, stepe and meadow, 38°10'28" N, 43°55'44" E, 2791 m, 21.vii. 2012, M. Firat 28979 (holotype: VANF, isotypes: ANK, HUB, Herb. M. Firat).

**e\*\*A. istanbulense** Özhatay, Koçyiğit, Brullo & Salmeri, in Phy- totaxa 334 (2): 152-166 (2018) [Özhatay et al. 2018].

**Type:** Turkey. A2 (E) Istanbul Arnavutköy, Terkos (Durusu) Lake, NW end of the sea shore among *Quercus* shrubs 20-30 m, 12 August 2017, N. Özhatay, E. Özhatay & M. Keskin (7654) Ist. Bio. 3068 (ISTE 114975, holotype; isotypes NGBB, CAT).

**e\*\*A. pervariensis** Firat & Koyuncu in Plant Biosystems, 152 (3): 305–310 (2018) [Firat et al. 2018].

**Holotype:** Turkey. C9: Siirt, Pervari, Botan River, opposite to Bê- dar (Beğendik) Village, fields converted from the *Quercus* for- ests, 1500–1700 m, 4.vii.2012. M. Firat 29712 (AEF 26722).

**e\*\*A. tchihatschewii** Boiss. subsp. **armani** Yild. & Kılıç in Ot 22 (1-2): 1-24 (2016) [Yıldırım & Kılıç 2016b].

**Type:** Turkey. B8 Bingöl: Merkez, Alatepe (Arçuk, Armani) köyü üstü, Kale yaylası, bulak başı çevresi, sulu dere, tepe, bayır, taşlık, 1900-2050 m, 11.vi.2015, Ş. Yıldırım 41482 & Ö. Kılıç (holo. Yıldırım Otluk'u; iso. GAZI, HUB, Yıldırım Otluk'u).

**e\*\*A. yilandaghense** Yild. & Kılıç in Ot 22 (1-2): 1-24 (2016) [Yıldırım & Kılıç 2016b].

**Type:** Turkey. B7 Tunceli: Ovacık, at junction of Ovacık-Çemişgezek-Hozat-Kemaliye districts, Yılan Mountain, from Cevzlidere Village along patway İtyokuşu-Eşekmeydanı- Devboğazi-Tapiktepe-Deveboynu-Barasorderesi to Karataş Village, stepe, 1550-2250 m, 13.vi.2015, Ş. Yıldırım 41592 & Ö. Kılıç (holo. Yıldırım Otluk'u, iso. HUB, Yıldırım Otluk'u).

**Fritillaria** L. (8:284)

**e\*\*F. ozdemir-elmassii** Yıldırım & Tekşen in Resimli Türkiye Florası 2: 872-885 (2018) [Tekşen 2018].

**Type:** Muğla: Fethiye, Akdağlar silsilesi, Karamuar mevkii, Kas- tabara (Deliktaş) Antik kenti yukarıları, Darıözü Yaylası, açık ya- maçlar ve tarla kenarları, 1655 m, 23.iv.2017, H. Yıldırım 4604 (holotype: EGE, isotype: NGBB).

**Gagea** Salisb. (8:312)

**\*G. chomutovae** (Pascher) Pascher in Bull. Soc. Imp. Naturali- stes Moscou, n.s., 19: 372 (1907) [Tekşen & Karaman Erkul 2015].

**Examined specimens:** B9 Van: Bahçesaray, Kızılköprü to Hi- zan, 57 km to Hizan, 2255 m, stony slopes, 11.v.2010, M. Tekşen 2411 & S. Karaman (GAZI); Güzelsu, Hoşap to Günbaşı Village, 13. km, 1950 m, 15.v.2012, stepe, M. Tekşen 2878 & S. Karaman (GAZI); Güzelsu, Hoşap to Gürpınar, 7 km from Hoşap, 1971 m, 16.v.2012, stepe, M. Tekşen 2880 & S. Karaman (GAZI); ibidem, 18.v.2013, M. Tekşen 2914 & S. Karaman (GAZI).

**e\*\*G. goekyigitii** Eker & Tekşen in Bağbahçe Bilim Dergisi 4(1): 22-30 (2017) [Tekşen & Eker, 2017].

**Type:** C4 Karaman: Sarıveliler, Göktepe'den Göktepe Dağına 20 km, Çamurluk Beleni mevkii, Yüksek dağ çayırı, 1906 m, 05.vi.2012, İ.Eker 2845 (holotip: NGBB, izotip: AIBU, paratipler: NGBB, GAZI).

**e\*\*G. vanensis** Tekşen & Karaman in Phytotaxa 188 (5): 251- 260 (2015) [Tekşen & Karaman Erkul 2015].

**Type:** Turkey. B9 Van: Gürpınar, Işıkpınar to Hacıköy, around the pond, N 38°18'872", E 43°37'032", 2154m, stepe, 13.v.2010, M. Tekşen 2460 & S. Karaman (holotype GAZI, isotypes ANK, HUB).

**Muscari** Mill. (8:245)

**\*M. botryoides** (L.) Mill. Gard. Dict., ed. 8. N. 1 (1768) [Pinar et al., 2018b].

**Examined specimen:** Turkey. B9 Van: Gürpınar, Van to Başkale road, 5 km before Güzelsu, 38 15 45 N, 43 52 09 E, meadows, 2140 m, 26.v.2015, M. Pinar 6485, M. Fidan & H. Eroğlu.

**Scilla** L. (8:214)

**e\*\*S. bilgineri** Yıldırım in Turk J Bot 41:88-95 (2017) [Yıldırım & Altıoğlu 2017].

**Type:** Turkey. Adıyaman: Gölbashi, Akçabel köyü, Say Mevkii, 1152 m, Kırık kalker kayalık yamaçlar *Quercus* sp. açıkları 15.iii.2014, H Yıldırım 2788 (holotype: EGE 42435, isotypes: EGE 42436, ANK, NGBB).

**Ornithogalum** L. (8:227)

**e\*\*O. alatepense** Yild. & Kılıç in Ot 22 (1-2): 1-24 (2016) [Yıldırım & Kılıç 2016b].

**Type:** Turkey. B8 Bingöl: Merkez, Alatepe (Arçuk, Armani) köyü üstü, Fırın deresi çevresi, yayla, meşe orman ve açıklığı, bayır, taşlık, 1900-1950 m, 11.vi.2015, Ş. Yıldırım 41429 & Ö. Kılıç (holo. Yıldırım Otluk'u; iso. HUB, PAMUH, Yıldırım Otluk'u).

**e\*\*O. yildirimlii** Kılıç, in Ot Sistematik Botanik Dergisi, 24 (2): 73-83 (2017) [Yıldırım & Kılıç 2017b].

**Type:** Turkey. B7 Elazığ: Keban, baraj aşağısı, Fırat alabalık tesisleri ilerisi, tekedilmiş yol boyunca, bozkır, 780-900 m, 19.v.2017, Ş. Yıldırım 43060 & Ö. Kılıç (holo. Yıldırım Otluk'u; iso. HUB).

**e\*\*O. kilicii** Yild, in Ot Sistematik Botanik Dergisi, 24 (2): 73-83 (2017) [Yıldırım & Kılıç 2017b].

**Type:** Turkey. B8 Bingöl: Solhan, Hazarşah köyü, Aksakal göl mezrası, Yüzenada çevresi, yamaçlar, çayırılık, 1300-1350 m, 25.v.2017, Ş. Yıldırım 43429 & Ö. Kılıç (holo. Yıldırım Otluk'u; iso. HUB).

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