

CHROMOSOME NUMBERS OF TURKISH MOUNTAIN PLANTS

An annotated list of 34 taxa

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ABSTRACT. Chromosome numbers are presented for 34 taxa of flowering plants, mostly from the mountains of S Anatolia. Sixteen of them are new or differ from published counts for the same taxon.

The following list is based on plants cultivated in the Copenhagen Botanic Garden from seeds collected by Hartvig and Strid in SW and SC Anatolia in July 1984. Chromosomes were counted in crystal-violet stained sections of root tips from young plants. Families, genera and species are presented in alphabetical order. Collection numbers, following map references, are those of Strid *et al.* Voucher specimens are kept as indicated (abbreviations of herbaria according to Holmgren *et al.*, 1981).

APIACEAE

Ferulago humilis Boiss. $2n = 22$. B1 Manisa, along road from the town of Manisa to Manisa Dağı (Mt Sipylus), 800 m, deciduous oak scrub, 38°32'N 27°25'E, 23211, 5 vii 1984 (C).

No previous counts. $2n = 22$ is known in *F. campestris* (Besser) Grec. and *F. sylvatica* (Besser) Reichenb., and also seems to be the universal chromosome number in the genus *Ferula*.

Malabaila secacul Banks & Sol. $2n = 22$. C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of the village of Demirkazik Köyü, ravine between Karayalak and the Narpiz valley, 2000-2100 m, limestone rocks and scree, 37°45'N 35°08'E, 23835, 22 vii 1984 (C, EGE).

Confirms a count by Constance *et al.* (1976: 620) in material from Israel.

ASTERACEAE

Anthemis cretica L. cf. subsp. **anatolica** (Boiss.) Grierson. $2n = 18$. C3 Antalya, Çalbali Dağ, W side, 1950-2050 m, rocky slopes, serpentine, 36°48'N 30°22'E, 23715, 19 vii 1984 (B, C, EGE, G, UPA). C3 Antalya, Tahtali Dağ (c.50 km SW Antalya), W side (ascent from the village of Yukari Beycik), rocky slopes above timberline, 2000-2350 m, limestone, 36°33'N 30°28'E, 23616, 17 vii 1984 (B, C, EGE, G).

Anthemis cretica L. cf. subsp. **leucanthemoides** (Boiss.) Grierson. $2n = 36$. B1 Manisa, Manisa Dağı (Mt Sipylus), summit area, 1450 m, *Pinus nigra* woodland, 38°32'N 27°25'E, 23231, 5 vii 1984 (B, C, EGE, G, UPA).

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Anthemis cretica L. subsp.? **2n = 18.** C2 Muğla, Çal Dağ, S side, 1900–2000 m, rocky slopes facing W, open *Pinus nigra* woodland near timberline, limestone, 36°50'N 29°08'E, 23424, 9 vii 1984 (B, C, EGE, G).

Anthemis cretica s.l. is an exceedingly difficult complex in Turkey (cf. Grierson in *Fl. Turkey* 182–191, 1975) and in the Balkan Peninsula (Franzén, unpubl.). **2n = 18, 36, 54** and occasional higher numbers have been reported in different populations, but much additional work is required to correlate chromosome numbers with morphological variation.

Centaurea cyanus L. **2n = 24.** B1 Manisa, along road from Manisa to Manisa Dağı (Mt Sipylus), 800 m, deciduous oak scrub, 38°32'N 27°25'E, 23206, 5 vii 1984 (B, C, EGE, G).

Confirms several previous counts. This well-known weed of cereal fields grows in semi-natural habitats in the eastern Mediterranean area and has probably originated here.

Inula sechmenii Hartvig & Strid, ined. **2n = 16.** C2 Antalya, Kaputaş ravine SE of Kalkan, along coastal road to Kaş, c.50 m, large, vertical limestone rocks, 36°13'N 29°27'E, 23551, 13 vii 1984 (C, E, EGE).

This new species belongs to the *I. candida* group; **2n = 16** has been reported in other members of this complex.

Scorzonera cana (C. A. Meyer) Hoffm. var. ***alpina*** (Boiss.) Chamberlain. **2n = 14.** C2 Muğla, Ak Dağ, W side, 2300–2600 m, rocky slopes, limestone, 36°32'N 29°32'E, 23503, 11 vii 1984 (C, EGE, G).

Confirms several previous counts in the species.

Tanacetum praeritum (Horwood) Heywood subsp. ***massicyticum*** Heywood. **2n = 36.** C2 Muğla, Göğübeli Pass NE of Seki, 1800 m, crevices of limestone rocks, 36°50'N 29°45'E, 23547 (B, C, EGE, G).

No previous counts.

Tripleurospermum decipiens (Fischer & C. A. Meyer) Bornm. **2n = 18.** C3 Antalya, Çalbalı Dağ, SE part of Bakirkli Dağ, 1550–1650 m, meadows and deforested rocky slopes, chiefly limestone with patches of serpentine, 36°39'N 30°22'E, 23675, 18 vii 1984 (B, C, EGE, G, UPA).

No previous counts. **2n = 18** has been reported in the closely related *T. disciforme* (C. A. Meyer) Schultz Bip.

BORAGINACEAE

Arnebia densiflora (Nordm.) Ledeb. **2n = 14.** C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of Demirkazık Köyü, ravine between Karayalak and the Narpiz valley, 2000–2100 m, limestone rocks, 37°45'N 35°08'E, 23836, 22 vii 1984 (B, C, EGE, G).

No previous counts.

Omphalodes luciliae Boiss. subsp. ***cilicica*** (Brand) Bornm. **2n = 19!** C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of Demirkazık Köyü, ravine

between Karayalak and the Narpiz valley, 2000–2100 m, limestone rocks and screes, 37°45'N 35°08'E, 23803, 22 vii 1984 (B, C, EGE, G).

The unexpected, uneven number was confirmed in several slides. Grau (1968: 287) reported $2n = 20$ in garden material of *O. luciliae*.

Paracaryum lithospermifolium (Lam.) Grande subsp. **cariense** (Boiss.) R. Mill. $2n = 24$. C2 Muğla, Ak Dağ, W side, 2600–2800 m, rocky slopes and meadows, limestone, 36°32'N 29°32'E, 23521 (C, EGE, G).

Confirming a count by Strid & Andersson (1985: 207, sub nom. *Cynoglossum lithospermifolium* Lam.) in material from W Crete.

BRASSICACEAE

Alyssum aurantiacum Boiss. $2n = 16$. C2 Muğla, Çal Dağ, S side, 1900–2000 m, rocky slopes facing W, open *Pinus nigra* woodland near timberline, limestone, 36°50'N 29°08'E, 23430, 9 vii 1984 (C, E, EGE).

No previous counts.

Alyssum umbellatum Desv. $2n = 14$. B1 Manisa, along road from Manisa to Manisa Dağı (Mt Sipylus), 600 m, *Pinus brutia* scrub, 38°32'N 27°25'E, 23216, 5 vii 1984 (C, EGE, G).

Confirming counts by Ančev (1978: 532) and Ančev & Dudley (1981: 856) in material from Bulgaria. Persson (1971: 406) reported $2n = 16$ in material from the Aegean islands of Naxos, Ios and Ikaria.

Draba bruniifolia Steven subsp. **bruniifolia**. $2n = 32$. C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of Demirkazik Köyü, just W of entrance to Narpiz valley, 2150–2250 m, rocky places, limestone, 37°45'N 35°08'E, 23871, 22 vii 1984 (C).

Buttler (1986: 315) reported $2n = 16$ in *D. heterocoma* subsp. *archipelagi* (O. E. Schulz) Buttler (= *D. bruniifolia* subsp. *archipelagi* (O. E. Schulz) Coode & Cullen) from the island of Samos. There seem to be no other counts in this complex.

Ptilotrichum cyclocarpum Boiss. $2n = 16$. C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of Demirkazik Köyü, just W of entrance to Narpiz valley, 2150–2250 m, rocky places, limestone, 37°45'N 35°08'E, 23870, 22 vii 1984 (C).

Confirms a count by Gustavsson (1978: 203) in material from Greece.

CAMPANULACEAE

Michauxia tchihatchewii Fischer & C. A. Meyer. $2n = 28$. C5 Adana, 2 km N of Yelatan between Pozanti and Çamardı, 1500–1700 m, screes and rocky places, serpentine, 37°42'N 35°03'E, 24078, 28 vii 1984 (C, EGE).

In addition to the normal chromosomes there are 1–2 smaller bodies, apparently B chromosomes or fragments, which may explain the report of $2n = 30$ by Contandriopoulos (1972: 90, material from Cilicia).

CARYOPHYLLACEAE

Agrostemma gracilis Boiss. $2n = 24$. B1 Manisa, along road from Manisa to Manisa Dađı (Mt Sipylus), 800 m, deciduous oak scrub, $38^{\circ}32'N$ $27^{\circ}25'E$, 23204, 5 vii 1984 (B, C, EGE, G, UPA).

No previous counts. The related *A. githago* L. has $2n = 48$.

Cyathophylla chlorifolia (Poirot) Bocquet & Strid (*Saponaria chlorifolia* (Poirot) Kuntze). $2n = 30$. C3 Antalya, alıbalı Dađ, W side, 1950–2050 m, rocky slopes, serpentine, $36^{\circ}48'N$ $30^{\circ}22'E$, 23719, 19 vii 1984 (C).

Confirms counts by Persson (in Strid, 1986: 175) in Greek and Turkish material.

Silene bupleuroides L. $2n = 24$. C3 Antalya, Calbali Dađ, SE part of Bakirli Dađ, 1550–1650 m, meadows and deforested rocky slopes, chiefly limestone with patches of serpentine, $36^{\circ}39'N$ $30^{\circ}22'E$, 23670 (B, C, EGE, G, UPA).

Confirms a few previous counts (cf. Melzheimer in Strid, 1986: 143).

Silene flavescens Waldst. & Kit. $2n = 24$. C2 Antalya, Kaputaş ravine SE of Kalkan, along coastal road to Kaş, c.50 m, large, vertical limestone rocks, $36^{\circ}13'N$ $29^{\circ}27'E$, 23550, 13 vii 1984 (C, EGE, G).

Confirms a count by Petrova (1975: 511) in material from Bulgaria.

Silene rhyncocarpa Boiss. $2n = 48$. C3 Antalya, Tahtalı Dađ (c.50 km SW Antalya), W side (ascent from Yukarı Beycik), rocky slopes above timberline, 2000–2350 m, limestone, $36^{\circ}33'N$ $30^{\circ}28'E$, 23617 (C, EGE, G).

No previous counts.

Silene supina Bieb. subsp. **pruinosa** (Boiss.) Chowdh. $2n = 24$. C3 Antalya, alıbalı Dađ, SE part of Bakirli Dađ, 1550–1650 m, meadows and deforested rocky slopes, chiefly limestone with patches of serpentine, $36^{\circ}39'N$ $30^{\circ}22'E$, 23682 (B, C, EGE, G).

Petrova (1975: 511) reported $2n = 48$ in *S. supina* from Bulgaria.

Telephium imperati L. subsp. **orientale** (Boiss.) Nyman. $2n = 18$. C5 Adana, 2 km N of the village of Yelatan between Pozanti and amardi, 1500–1700 m, screes and rocky places, serpentine, $37^{\circ}42'N$ $35^{\circ}03'E$, 24086, 28 vii 1984 (B, C, EGE, G).

Confirms several previous counts.

DIPSACACEAE

Knautia integrifolia (L.) Bertol. var. **bidens** (Sm.) Borbás. $2n = 20$. B1 Manisa, along road from Manisa to Manisa Dađı (Mt Sipylus), 800 m, deciduous oak scrub, $38^{\circ}32'N$ $27^{\circ}25'E$, 23207, 5 vii 1984 (C, EGE, G, WU).

Confirms counts by Verlaque (1977: 272 and 1980: 363) in material from Greece.

EUPHORBIACEAE

Euphorbia herniariifolia Willd. var. **glaberrima** Hal. $2n = 16$. C2 Muğla, Sandras Dağ, W side of the summit area, 2100–2200 m, snowbed meadows and rocky slopes, serpentine, $37^{\circ}04'N$ $28^{\circ}50'E$, 23365, 7 vii 1984 (C, EGE).

Confirms several counts in Greek material, most of which belongs to var. *glaberrima*.

Euphorbia herniariifolia Willd. var. **herniariifolia**. $2n = 16$. C2 Muğla, Çal Dağ, S side, 1900–2000 m, rocky slopes facing W, open *Pinus nigra* woodland near timberline, limestone, $36^{\circ}50'N$ $29^{\circ}08'E$, 23433, 9 vii 1984 (C, EGE).

LAMIACEAE

Dorystoechas hastata Boiss. & Heldr. ex Benth. $2n = 20$. C3 Antalya, Tahtali Dağ (c.50 km SW Antalya), SW side, above the village of Yukari Beycik, 1300–1450 m, rocks in opening of mixed coniferous forest, limestone, $36^{\circ}32'N$ $30^{\circ}27'E$, 23571, 16 vii 1984 (B, C, EGE, G).

No previous counts. The genus is monotypic and taxonomically isolated.

POACEAE

Secale montanum Guss. $2n = 14$. C5 Adana, 2 km N of the village of Yelatan between Pozanti and Çamardi, 1500–1700 m, screes and rocky places, serpentine, $37^{\circ}42'N$ $35^{\circ}03'E$, 24085, 28 vii 1984 (C, E, EGE, G).

Stipa holosericea Trin. $2n = 44$. C2 Muğla, Çal Dağ, S side, 1900–2000 m, rocky slopes facing W, open *Pinus nigra* woodland near timberline limestone, $36^{\circ}50'N$ $29^{\circ}08'E$, 23429, 9 vii 1984 (C). C3 Antalya, Tahtali Dağ (c.50 km SW Antalya), W side (ascent from the village of Yukari Beycik), rocky slopes above timberline, 2000–2350 m, limestone, $36^{\circ}33'N$ $30^{\circ}28'E$, 23610, 17 vii 1984 (C, E, EGE).

Confirms counts by Chohanov & Yurtsev (1976: 1243) in material from Turkmenia and by Strid & Andersson (1985: 219) in material from Peloponnisos (sub nom. *S. fontanesii* Parl.).

SCROPHULARIACEAE

Scrophularia kotschyana Benth. $2n = 40$. C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of the village of Demirkazik Köyü, ravine between Karayalak and the Narpiz valley, 2000–2100 m, limestone rocks and screes, $37^{\circ}45'N$ $35^{\circ}08'E$, 23790, 22 vii 1984 (C, E, EGE).

No previous counts.

Scrophularia rimarum Bornm. $2n = 46$. C5 Adana/Niğde, Aladağ, NW part, c.5 km SSE of Demirkazik Köyü, ravine between place called Karayalak and the Narpiz valley, 2000–2100 m, limestone rocks and screes, $37^{\circ}45'N$ $35^{\circ}08'E$, 23794, 22 vii 1984 (B, C, EGE, G, UPA).

No previous counts.

Verbascum pestalozzae Boiss. $2n = 28$. C3 Antalya, Çalbali Dağ, W side, 2100–2300 m, rocky slopes, limestone, 36°48'N 30°22'E, 23753, 19 vii 1984 (B, C, EGE, G, UPA).

No previous counts.

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