Comments on some tessellated Colchicum species in the East Mediterranean area

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ABSTRACT

PERSSON, K. (1998). Comments on some tessellated Colchicum species in the East Mediterranean area. *Candollea* 53: 399-418. In English, English and French abstracts.

Five Greek and Turkish species of *Colchicum* L. with tessellated flowers are revised, with synonym lists, typifications, chromosome numbers, and notes on differences from other species, phenology, phytogeography and ecology. *C. euboeum* (Boiss.) K. Perss. is here raised to specific level, and two new subspecies are described (*C. chalcedonicum* subsp. *punctatum* K. Perss. and *C. lingulatum* subsp. *rigescens* K. Perss.). The taxonomic history of *C. sfikasianum* Kit Tan & Iatrou (syn. *C. polymorphum* Orph., nom. nud.) is discussed. Finally, *C. amabile* Heldr. is reduced to synonymy under *C. bivonae* Guss.

RÉSUMÉ

PERSSON, K. (1998). Commentaires sur quelques espèces tessellées du genre Colchicum en Méditerranée orientale. *Candollea* 53: 399-418. En anglais, résumés anglais et français.

L'auteur présente la révision de cinq espèces à fleurs tessellées du genre *Colchicum* L. en provenance de Grèce et de Turquie. Pour chacune d'elles, sont fournis la liste des synonymes et les typifications, leur nombre chromosomique et des considérations sur leurs rapports avec des taxons proches, sur leur phénologie, leur phytogéographie et leur écologie. La nouvelle combinaison *C. euboeum* (Boiss.) K. Perss. est validée et deux nouvelles sous-espèces sont décrites: *C. chalcedonicum* subsp. *punctatum* K. Perss. and *C. lingulatum* subsp. *rigescens* K. Perss. De nouvelles données taxonomiques sur *C. sfikasianum* Kit Tan & Iatrou (syn. *C. polymorphum* Orph., nom. nud.) sont présentées. Enfin, *C. amabile* Heldr. est considéré comme synonyme de *C. bivonae* Guss.

KEY-WORDS: Colchicum – *COLCHICACEAE* – Turkey – Greece – Taxonomy – Chromosome numbers.

Introduction

Colchicum L. is a very difficult genus, particularly as regards the autumn-flowering species with hysteranthous leaves. Remarkable differences in the chromosome numbers (see, e.g., PERSSON, 1993a, 1993b) are accompanied by often only slight morphological differences. This is certainly true particularly for the large group of taxa with uniformly coloured flowers but perhaps surprisingly also of a number of species with their perianth adorned with ± strikingly chequered patterns. Most of these species have at times been neglected or misunderstood and subsumed in other taxa. Five of these species from the East Mediterranean region (Greece and Turkey) are revised here.

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Material and methods

All species were studied and collected in the field by the author. For further study these plants together with living material supplied by other collectors were cultivated in the Botanical Garden, Göteborg, partly in pots in the experimental plots, partly free-planted in the bulb garden. In addition dried material from a number of herbaria (see list in Acknowledgements) has been examined.

All measurements and other features in the descriptions refer to wild material. Shape and size of leaves refer to mature basal leaves, colour of anthers to the condition before dehiscence, size of anthers and length of styles to the condition after anther dehiscence. Flower colour has been compared with HCC, i.e. Horticultural Colour Chart (WILSON, 1939, 1942).

Chromosome numbers were determined on cultivated material from **localities marked by an asterisk** in the specimen lists. Preparations were made according to the methods described in PERSSON (1988).

The phytogeography of the species is summarized by "geoelement" terms (FISCHER & FISCHER, 1981), which indicate those phytochoria mainly covered by the distribution of the taxon concerned. The chorological concepts are based mainly on FISCHER & FISCHER (1981), MEUSEL & al. (1965), RECHINGER (1950), and GREUTER (1971).

Taxonomic revisions

1. *Colchicum euboeum* (Boiss.) K. Perss., **stat. nov.** (Fig. 1A–D).

≡ *C. euboeum* Orph. in Atti Congr. Int. Bot. Firenze 1874: 29, 214. 1876 [nom. nud.]
≡ *C. latifolium* var. *euboeum* Boiss., Fl. Orient. 5: 159. July 1882.
≡ *C. bivonae* subsp. *euboeum* (Boiss.) Nyman, Consp. Fl. Eur.: 743. Oct. 1882.

Type: (**Greece**) In monte Candyli Euboeae, Aug. 1871, *Orphanides 4027* (Lecto-, selected here: G-Boiss!).

– *C. parnassicum* auct. non Sartori & al.: Stef. in Sborn. Balg. Akad. Nauk. 22: 71. 1926; Rech. f. in Bot. Jahrb. Syst. 80: 433. 1961.

Corm ovoid to ovoid-globose, 3.5–6.5 × 3–5(–6) cm; tunics submembranous to subcoriaceous (to coriaceous), often many layers, deep reddish-brown to mid or dark brown, produced into a stout neck, 6.5–13(–18.5) cm long, 1.5–2.5(–3) cm in diam. *Cataphyll* yellowish-white, often ± greenish in upper part and purplish at mucronate apex, 6.5–13(–18) cm above corm, not or only slightly exceeding the tunic neck. *Leaves* 3–4 (most commonly 3), hysteranthous, congested (sometimes slightly spread) on stem projecting ca. 4–8 cm above ground, sheath completely fused, blade (8.5–)10–19(–26) × (1.6–)2.5–6(–8.5) cm, length/width ratio usually ca. 3–5, suberect to erecto-patent-arcuate, (lanceolate or oblong to) narrowly oblong-elliptic to elliptic, subobtuse to obtuse, rather flat with blunt keel on the back, often slightly plicate, hardly to somewhat twisted lengthwise, mid to deep green, margins indistinctly to narrowly cartilaginous, glabrous. *Flowers* 1–3(–4); perianth tube entire, exceeding the cataphyll by (2.5–)4–10 cm, (2.5–)3–5 mm wide, yellowish-white to white; limb infundibular with segments sometimes slightly recurved, these (3.8–)4.5–6.5(–7.5) cm long, generally of rather unequal length within each flower (differing by 2–15 mm), 0.6–1.6(–2) cm wide, narrowly oblong (to narrowly elliptic-oblong or oblanceolate-oblong), often slightly longitudinally pleated and apically twisted, dorsally with a distinct median ridge, (subacute to) subobtuse to obtuse or rarely retuse, moderately to strongly tesselated in lilac-purple to violet-purple (shades of HCC 35 verging on 34, "Amethyst Violet/Bishops Violet") on pale ground, paler outside at least basally and on keels, with a median white streak on the upper side along most or the whole length of the segment, indistinctly (7–) 11–27-veined; filament channels glabrous to puberulous at least on margins. *Sta-*

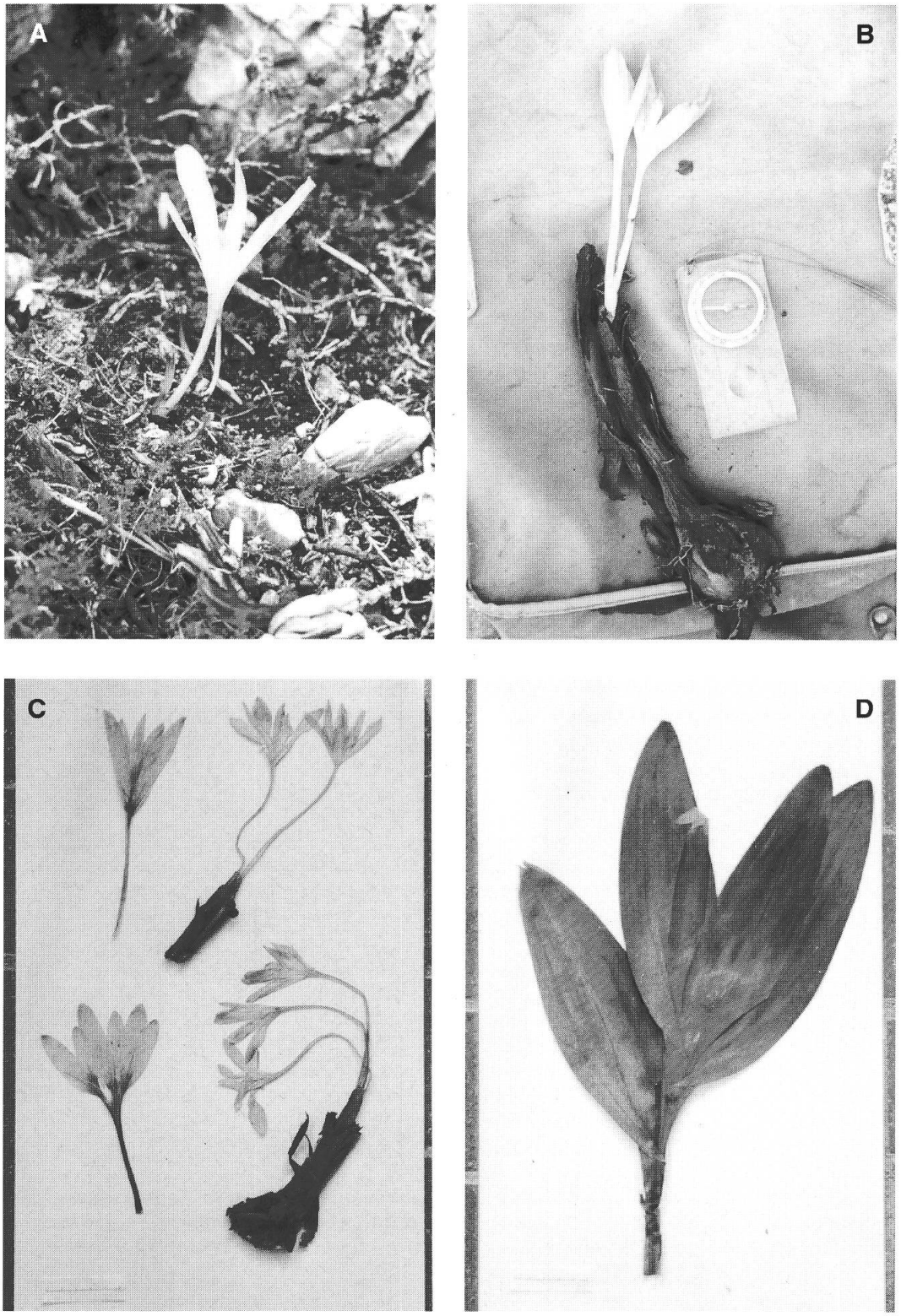

Fig. 1. – *Colchicum euboeum* (Boiss.) K. Perss. – **A–C:** Greece, Evvia, Dirfis, 1260 m, 3.8.1977 (*K. Persson 341*); C: pressed material. – **D:** Leaves from cultivation, pressed material, 4.5.1987 (*K. Persson 341*).

mens ca. 1/3 to at the most 1/2 of perianth limb in length, outer 1.5–2.3(–2.6) cm, inner 2–2.8(–3) cm; filaments yellowish-white, slightly thicker base with pale to mid yellow margins; anthers versatile, 9–15 mm, yellow to buff yellow; pollen yellow, grains 53–75 × 40–55 µm, broadly bean-shaped to almost ellipsoid, 2-foraminate. *Styles* slightly to much overtopping stamens, yellowish-white, apex straight or slightly hooked, rarely distinctly recurved, stigmas decurrent for 3–4(–5.5) mm. *Capsules* ± elevated above ground on projecting stem, 2–5 × 0.8–2.5 cm, oblong-ellipsoid to ellipsoid, short-pointed (broad-acuminate); seeds numerous, oblong-globose to globose, 2.5–3.5 mm in diam., reddish-brown, raphe surrounded by a pale somewhat swollen zone. – Flowering without leaves late July–August; leaves and fruits April–beginning of June.

Chromosome number: **2n = 54**. – No previous reports.

Nomenclatural comments: *Colchicum euboeum* was first recognized as a species by ORPHANIDES (1876). Unfortunately it was only presented as a name together with three other new species at a botanical congress, and just as in the case of *C. polymorphum* (see below under *C. sfikasianum*) no description was given in the printed congress acts. On the type material (*Orphanides 4027*) the following note is hand-written: "*Colchicum euboeum* Boiss. & Orphan. nov. sp. Il diffère beaucoup de *C. Bivonae* par le port et constamment par le nombre des fleurs qui ne surpassent jamais les deux." In 1882 Boissier described it formally, not with a specific rank, however, but as a variety under *C. latifolium* Sibth. & Sm. and Nyman transferred it to *C. bivonae* Guss. as a subspecies, perhaps on account of its variegated flowers. The tunics of the two species, *C. euboeum* and *C. bivonae* are very different, as are their leaves, which is probably why STEFANOV (1926) transferred *C. euboeum* to *C. lingulatum* Boiss. & Spruner, as a synonym of his new combination *C. lingulatum* var. *parnassicum* (Sartori & al.) Stef., a name that is incorrect owing to his citation of var. *euboeum* Boiss.

Taxonomic comments: *C. euboeum* differs from *C. bivonae*, under which it was first formally described, above all in its tunics (in the latter reddish-brown, delicately membranous, not or very shortly extended into a neck) and leaves (in *C. bivonae* mostly 5–9, on the Balkans most commonly 7, linear to lanceolate-oblong, mostly 1–3 cm wide, rarely to 4 cm). The flowers of *C. bivonae* are furthermore more heavily tessellated, the perianth segments are often wider, more elliptic to obovate, and the anthers are usually ± fuscous.

Also *C. parnassicum* Sartori & al. differs in its much thinner castaneous tunics, and furthermore in being a smaller plant with e. g. smaller corms and much smaller flowers and anthers (see description in PERSSON, 1988).

In general habit *C. euboeum* is more reminiscent of *C. graecum* K. Perss. (PERSSON, 1988) on account of its big corms, long, dark, coarse tunics and large leaves. However, it usually has fewer leaves, 3(–4) versus 4–5(–6), and the flowers are often larger with longer and sometimes wider perianth segments. Furthermore, the segments are generally somewhat twisted and longitudinally plicate. The obvious dorsal ridges and distinct chequering of the segments are more in the style of *C. bivonae*, although the flowers are paler. In *C. graecum* the flowers are shallowly, indistinctly ridged, and not or only obscurely tessellated. *C. euboeum* also has conspicuously long anthers, 9–15 mm as compared to 6–10 mm in *C. graecum*.

C. euboeum is also superficially similar to *C. macrophyllum* B. L. Burtt in its big corms, coarse dark tunics, rather large leaves, and general flower colouring as well as keeled and often somewhat twisted perianth segments. Apart from a divergent phytogeography and ecology, *C. macrophyllum* differs (PERSSON, 1998c) in the even larger, heavily pleated, bright glossy green leaves, more patent perianth segments with often more marked tessellations, longer stamens (more than 1/2, sometimes up to 4/5 of segment length), ± fuscous anthers, and shorter stigmas (1–2.5 mm). Note that *C. macrophyllum* is present on Evvia (PERSSON, 1998c), near Platanistos in the extreme south of the island.

Distribution and habitat: Endemic to E. Greece (Fig. 2). Stony slopes and cliffs; on limestone; 900–1350 m. Mediterranean element (West Aegeic/North Aegeic).

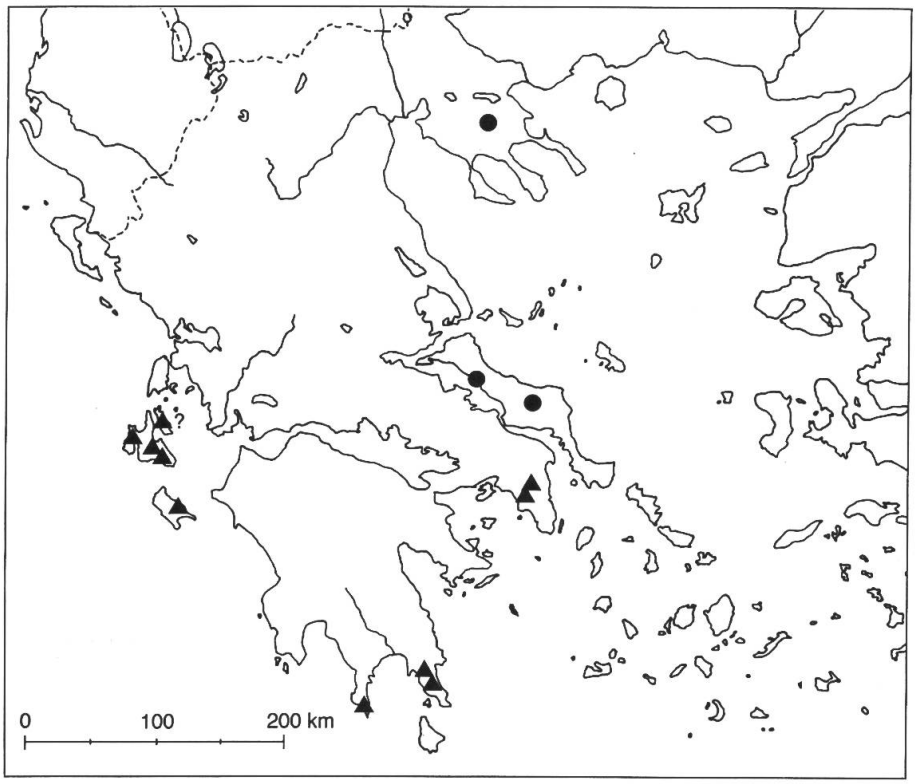

Fig. 2. – Distribution of *Colchicum euboeum* (Boiss.) K. Perss. (●) and *C. sfikasianum* Kit Tan & Iatrou (▲).

Apart from the populations on the mountains of Evvia, the species has also been collected twice (by Zaganiaris and Ganiatsas) on Halkidiki. A similar distribution can be found in e. g. *Fritillaria euboeica* Rix (KAMARI, 1996), for which one collection (by Ganiatsas) is known from Halkidiki. None of these collections have been confirmed after their first appearance, however, so some doubts as to their true origin must still be expressed.

Specimens examined:

Greece: Sterea Ellas: Evvia: Halkis: Delphi, Ex Herb. *Schultes* (M); in m. Dirphye (Delphi hod.) Euboeae, in rachi, 4500', 2.8.1858, *Heldreich Herb. Graec. Norm. 765* (E, FI, G, G-Boiss, P, UPS); mt. Dirfis, main top, W-facing stony limestone slope, 1260 m, 3.8.1977, *K. Persson 341** (GB, K, UPA); mt. Xirovouni, just below large N-facing limestone cliffs, 1200–1250 m, 29.4.1989, *Strid & al. 28729* (C, GB); in monte Kandyli Euboeae, 3000', 24.7.1871, *Orphanides Fl. Gr. Exsicc. 631* (BM); ibid., 5.8.1871, *Orphanides Fl. Gr. Exsicc. 1191* (BM, GB, LD, P, S, UPS, WU). – Makedonia: Halkidiki: Halkidiki: In regione media mt. Cholomon, *Zaganiaris Herb. Maced. 3659* (TAU). Agion Oros: Panagia, *Ganiatsas* (TAU).

2. *Colchicum chalcedonicum* Azn. in Bull. Soc. Bot. France 44: 174. 1897.

≡ *C. turcicum* var. *chalcedonicum* (Azn.) Stef. in Sborn. Balg. Akad. Nauk. 22: 77. 1926.

Type: (Turkey) Constantinople, Caïche Dagh au dessus de 250 m d'alt., 28.8.1893, *Aznavour* (Lecto-, selected here: LY!).

– *C. lingulatum* auct. non Boiss. & Spruner: Brickell in Davis (ed.), Fl. Turkey 5: 344. 1984.

Corm ellipsoid-ovoid to ovoid (to globose-ovoid), 2–3.5(–4.5) × 1.5–2.5 cm; tunics subcoriaceous to coriaceous, often many layers, inner mid to deep reddish-brown, outer dark red-

brown to dark brown, produced into a neck ca. (1–)1.5–6(–7.5) cm long, 0.4–0.9(–1.3) cm in diam. *Cataphyll* yellowish-white to white, sometimes rather thin, often yellowish-green and/or purplish towards mucronate apex, (1–)1.5–12 cm long above corm, not or only slightly (up to ca. 1 cm) exceeding the tunic neck. *Leaves* 3–6, hysteranthous, crowded near ground surface, linear to narrowly oblong or elliptic-oblong, subacute to rounded (sometimes cucullate) at apex, rather flat, sometimes slightly twisted, pale or greyish green sometimes tinged purplish towards apex, often rather thick, margins distinctly cartilaginous; dry leaves often remaining until anthesis, then matte greenish-grey tinged light brownish-red, rather thick and stiff. *Flowers* 1–2(–3); perianth tube entire, exceeding the cataphyll by (0.2–)1–7 cm, 1.5–3.5 mm wide, yellowish-white to white sometimes flushed purplish-lilac in upper part; limb infundibular to campanulate-infundibular, mostly distinctly keeled at least in basal part, segments (2.5–)3–5.5(–6.5) cm long (to 6 cm in cult.), subequal or differing by up to 3(–7) mm in length within a flower, (4–)5–13(–15) mm wide, narrowly oblong to oblanceolate (rarely lanceolate), subacute to obtuse or obtuse-acuminate, strongly chequered or dotted in mid to deep purple to violet-purple (shades of HCC 733/634/34, "Violet Purple/Cobalt Violet/Bishops Violet"), paler basally and on keels, with a thin to very distinct white streak on the upper side along 1/2 to 4/5 (to 1/1) of the segment, with 7–25 veins, straight and parallel in median part, outwards often arcuately divergent, connected by rather distinct oblique anastomoses; filament channels sparsely papillose. *Stamens* generally slightly less than 1/2 to 2/3 of perianth limb in length, outer series generally inserted in the tube ca. 3–7(–9) mm below the connation of the limb segments, (1.2–)1.4–2.6 cm long, inner (1.4-)1.7–2.9 cm; filaments whitish, slightly widened base pale to mid yellow (to brown-yellow or purplish-bordered); anthers versatile, sometimes curved, (3–)4-9 mm, ± fuscous or yellow; pollen (pale to) mid yellow, occasionally brownish-yellow, grains 50–77 × 27–44 µm, ± oblong to bean-shaped, occasionally narrowly reniform, 2-foraminate. *Styles* scarcely to distinctly overtopping stamens, white sometimes tinged purple in upper part, apex slightly thickened, almost straight to ± hooked or slightly curved, stigmas decurrent for 1.5-4.5(–5.5) mm. *Capsules* at ground level, 1.2–2.5 × 0.5–1.5 cm, ellipsoid to oblong-ovoid (to ovoid), often suffused purplish-carmine, obtuse to short-pointed; seeds 5–20 per locule, subglobose to dimidiate-globose or broadly oblong-ellipsoid, 2–3.5 × 1.7–3 mm, (red-brown to) brown, raphe region at least near micropyle swollen to a large yellowish-white appendage.

Taxonomic comments: *C. chalcedonicum* has at times been included both in *C. lingulatum* L. and *C. turcicum* Janka. All three were reinstated as different species by BAYTOP (1993), though the characters taken up for *C. lingulatum* were those of the Turkish population, here recognized as a separate subspecies. *C. chalcedonicum* and *C. lingulatum* are obviously closely related, with some similarities in ecological preferences and morphological characters, e. g. in general features of the corm, tunics and leaves, and in the insertion of the stamens below the throat of the perianth limb. They differ in plant height (tunic neck, cataphyll and tube often longer in *C. lingulatum* than at least in *C. chalcedonicum* s. str.), leaf colour (on the whole somewhat greener in *C. lingulatum*), number of flowers (usually 1–2 in *C. chalcedonicum*, up to 5, occasionally more, in *C. lingulatum*), flower shape (more narrowly infundibular in *C. lingulatum*), tepal shape and colour (proportionally narrower, more linear, paler, not or only slightly tessellated in *C. lingulatum*), anther colour (always yellowish in *C. lingulatum*, rarely yellow in *C. chalcedonicum*).

The peculiar feature of the insertion in the tube of the stamens (or rather, the partial connation of the limb segments) is often seen also in *C. turcicum.* However, the latter species is often a much larger and coarser plant than *C. chalcedonicum*, in flower rather similar to *C. autumnale.* It generally has more, 5–7(–9), leaves which are suberect, pronouncedly twisted lengthways, greener (not greyish-green), and usually distinctly ciliate on the margins; more (2–8) flowers with perianth segments that are mid pinkish-purple to deep rose-purple, not or only very obscurely tessellated and have distinctly pubescent filament channels; finally, the anthers are yellow (never fuscous).

2a. *C. chalcedonicum* Azn. subsp. ***chalcedonicum*** – Ill.: Fig. 3A–C; BAYTOP & MATHEW (1984: Fig. 71); KÜÇÜKER (1996: 213, Fig. 1).

Cataphyll ca. (1–)1.5–7(–8) cm long above corm. *Leaves* 3–4(–6), most commonly 4, ± procumbent, (2.5–)4–10 × (0.4–)1–2(–2.5) cm (in cultivation up to 15 × 5 cm!), (linear to) narrowly oblong to elliptic-oblong, obtuse to rounded (sometimes cucullate) at apex, margins ± undulate, glabrous or occasionally scaberulous. Perianth tube exceeding the cataphyll by (0.2–)1–4.5 cm; limb segments (2.5–)3–4.5(–5) cm × (4–)5–13(–14.5) mm, distinctly chequered. Outer *stamens* (1.2–)1.4–2.3 cm long, inner (1.4-)1.7–2.6 cm; anthers (3–)4–8 mm, ± fuscous (greyish- to brownish-yellow, purple, dark greyish-purple, purplish-brown), occasionally yellow. – Flowering without leaves (late August–)September–October in Greece; late August–September(–early October) in Turkey; leaves and fruits March–May.

Chromosome number: **2n = 54** (Fig. 5A). – Previous reports: *2n = 50*, material from Turkey, Yakacık, Aydos dagı (KÜÇÜKER, 1984, 1987).

Distribution and habitat: E. Greece, N. W. Turkey (Fig. 4). Dry stony or sandy hills in sparse vegetation or among scrub, *Erica-Arbutus* macchie (mostly degraded); generally on siliceous or ultramafic substrates, rarely basic igneous rocks or limestone; 100–1000 m in Greece, 25–300 m in Turkey. Predominantly Submediterranean element (Macedonic/Thracic provinces).

The presence of *C. chalcedonicum* in Greece was first acknowledged by GOULIMIS (1960) who recorded the species for Halkidiki (where I have found it too: *K. Persson 317*). Even in recent times, the taxon has been described solely as a Turkish species, endemic to the Istanbul area (cf. KÜÇÜKER, 1987; KÜÇÜKER & ÇELEBIOĞLU, 1988; BAYTOP, 1993). The area of distribution is now found to be substantially wider, however, with many more localities in Greece (see below). There are no significant differences between the Greek and the Turkish populations.

Specimens examined:

Greece: Sterea Ellas: Fthiotis: Fthiotis: Between Pelasgia and Ag. Theodori, gravelly slope with sparse vegetation, on ultramafic ground, 350 m, 17.3.1976, *K. Persson 319** (GB). Fthiotis/Domokos: 15 km SSW of Domokos, 2 km N of the village Trilofon, serpentine slopes on small peaks called Mega Isoma and Devoropoula with bushland of *Juniperus oxycedrus*, *Quercus coccifera*, *Pistacia terebinthus* and *Arbutus*, 600–850 m, *Hartvig, Franzén & Christensen 10548* (C, GB). – Thessalia: Karditsa: Karditsa: 7 km from Rendina to Loutropigi, bare sandy scrub among *Cistus creticus*, serpentine, 775 m, 16.9.1989, *K. Persson 478** (GB); on road Rendina–Loutropigi, 2 km W of Loutropigi, dry hillsides, under *Quercus pubescens* and *Qu. coccifera*, serpentine, 29.9.1974, *K. Persson 267** (C, GB, UPA). Larisa: Larisa: Westliche Vorhügel der Ossa bei Nesson, therophytenreiche Extensivweiden über Kalkgestein, 100–250 m, 22.9.1980, *Binder & al. 579** (B, GB); Ossa, Ambelakia, Extensivweiden, tiefgründiger Silikatlehm, 1000 m, 27.4.1985, fld. in cult. 1986, *Raus 10686* (B). Trikala: Kalambaka: Meteora, close to the Varlaam monastery, stony ground, 400 m, 17.10.1954, *Goulimis* (K); Meteora, dry hillsides, 550 m, 30.9.1974, *K. Persson 271** (C, GB). – Makedonia: Imathia: Naousa: Mt. Vermion above Naousa on road to Kato Vermion, 4. 1972, fld. in cult. 2.10.1973, *Mathew 6989B* (K). Halkidiki: Halkidiki [probably mt. Holomon, cf. Goulimis 1960, p. 18], 8.10.1956, *Goulimis* (K); Ag. Prodromus E of Galatista, gravelly slopes with small cliffs, probably ultramafic, 16.3.1976, *K. Persson 317** (GB).

Turkey: Istanbul: Galata dere, 16.9.1918, *Aznavour* (LY); pr. Konstantinopel, *Wiedemann* (JE). Üsküdar: lieux secs près du sommet de Tchamlidja [Çamlica tepe], 2.4.1896, fr. 14.5.1896, *Aznavour* (LY); lieux découverts près du sommet de Beiyuk-Tchamlidja, fr. 5.5.1901, fl. 1.9.1901, *Aznavour* (BM, FI, LY, M, MPU, S); Umgebung von Constantinopel, Dschamlidscha bei Scutari, 2.10.1896, 10.10.1896, *Nemetz* (LD, WU), fr. 16.5.1897, *Nemetz* (WU); lieux secs près du sommet de Yacadjik-dagh, 12.9.1897, *Aznavour* (MPU); Yakacık, foot of Aydos Da., under macchie, *T. Baytop ISTE 31579** (GB); Aïdos Dagh (Dalaij-Bey), collines, 19.4.1897, *Nemetz* (WU); Aydos, 17.8.1950, *Baytop* (G), 13.9.1966, *A. Baytop 10587* (K); Aydos Dağ, lower slopes above village of Yakacık, maquis hillside among *Arbutus* scrub, 200–300 m, *Brickell & Mathew 8553** (GB, K); between Aydos Dağ and Samandira, degraded macchie with *Erica*, *Cistus* and *Salvia* species, siliceous soil, 200 m, 11.9.1986, *K. Persson 424** (GB); environs de Constantinople, Kartal, 10.5.1896, *Nemetz* (WU).

2b. *C. chalcedonicum* subsp. ***punctatum*** K. Perss., **subspec. nova** – Ill.: Fig. 3D–E.

Type: **Turkey**, Aydın, 15 km from Nazilli to Beydağ, near Samailli, *Quercus-Styrax* thicket, under shrubs in deep, stony soil (micaschist), 700–800 m, 23.4.1991, fld. in cult. 21.9.1994, *K. Persson 521** (Holo-: GB!, iso-: K!).

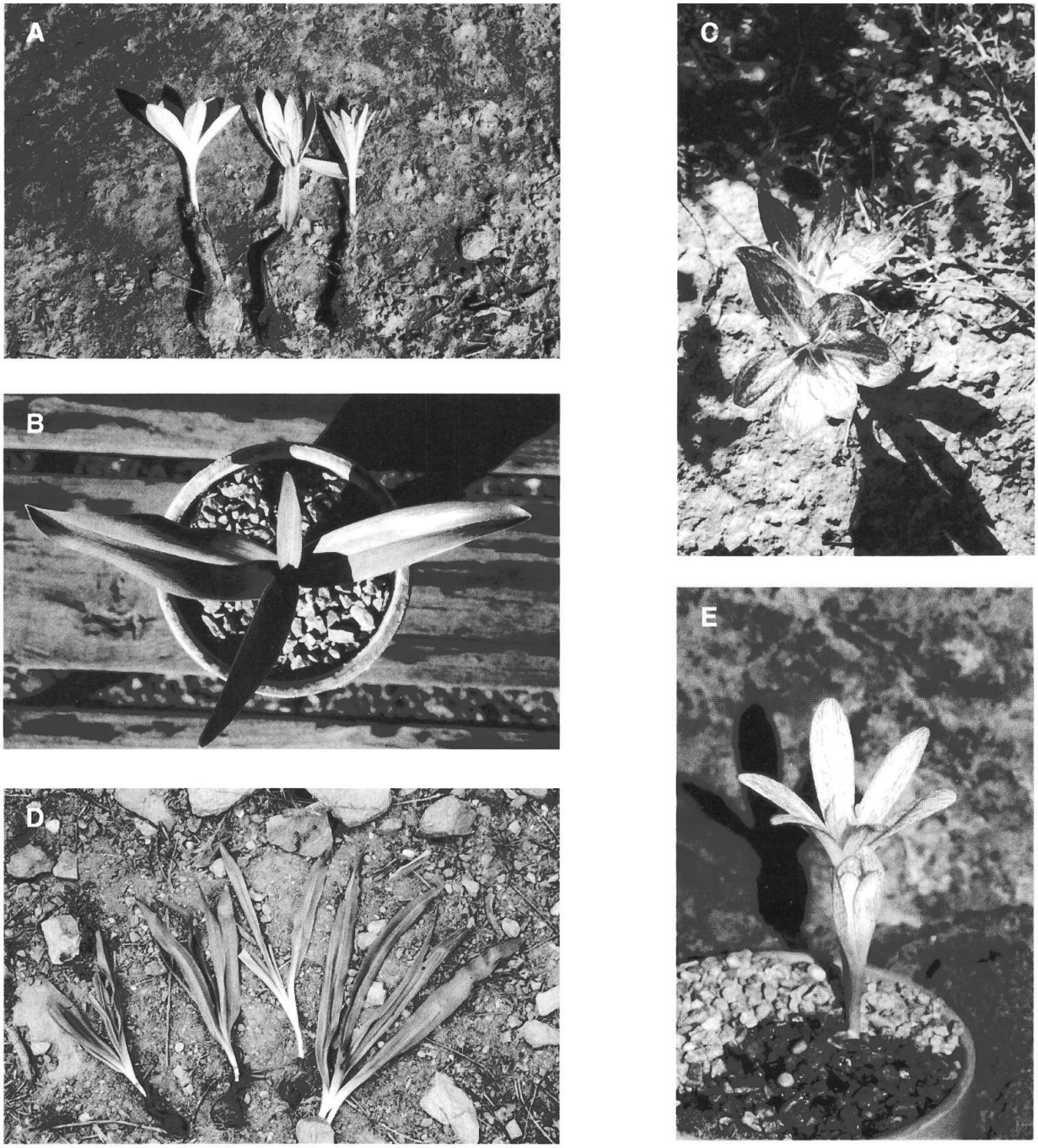

Fig. 3. – *Colchicum chalcedonicum* Azn. – **A–C:** subsp. *chalcedonicum*. A: Greece, Thessalia, Rendina–Loutropigi, 775 m, 16.9.1989 (*K. Persson 478*); B: Greece, Thessalia, foothills of mt Ossa, 100–250 m, cult. 13.4 (*Binder & al. 579*), leaves are usually more wavy on margins in nature; C: Turkey, Istanbul, between Aydos Dağ and Samandira, 200 m, 11.9.1986 (*K. Persson 424*). – **D–E:** subsp. *punctatum* K. Perss. Turkey, Aydın, near Samailli, 700 m, (*K. Persson 521*). D: 23.4.1991; E: cult. 20.9.

A subsp. chalcedonico foliis suberectis vel erecto-patentibus linearibus longioribus, floribus majoribus, antheris plerumque flavis (nec fuscis), chromosomatum numero et forma differt.

Cataphyll up to ca. 12 cm long above corm. *Leaves* (3–)4–6, most commonly 5, suberect to erecto-patent, (12–)15–22(–30) × 2–3(–4.5) cm, linear to narrowly oblong, subacute to obtuse (sometimes cucullate) at apex, margins hardly undulate, glabrous or occasionally short-ciliate. Perianth tube usually exceeding the cataphyll by 3–7 cm; limb segments 4–5.5(–6.5) cm × 7–13(–15) mm, small-dotted or chequered. Outer *stamens* ca. 2–2.6 cm long, inner 2.2–2.9 cm; anthers 5–9 mm, often yellow. – Flowering without leaves September–October; leaves and fruits April–May.

Chromosome number: **2n = 50**. The karyotype (Fig. 5B) is very distinctive in that it is pronouncedly bimodal, with 16 pairs of medium to relatively long chromosomes, and constantly 9 pairs of very small almost dot-like chromosomes. The same number and bimodality is evident in material from both subareas. The karyotype of the other subspecies, subsp. *chalcedonicum* (Fig. 5A), is more "typical" of *Colchicum*, with a gradual variation from small to large chromosomes; the smallest are also not really dot-like, but more elliptic in outline. The chromosome number of subsp. *chalcedonicum* is a very common number in the genus, the same as e. g., in the species treated here, *C. lingulatum*, *C. euboeum* and *C. sfikasianum*. The basic number, x = 9, is also the most common one in *Colchicum* s. lat. (PERSSON, 1993b). Scattered examples of small deviations from the euploid number have been observed in many populations of high-polyploid colchicums (pers. obs.). There is no doubt that the number of subsp. *punctatum* is derived from 2n = 54, perhaps through processes of structural rearrangements with subsequent stabilisation of the aberrant karyotype. It is very unlikely that the small chromosomes suggestive of B-chromosomes actually are accessory chromosomes on account of 1. there are so many of them, 2. the number is constant, 3. they are not differentially stained, and 4. the number of larger chromosomes, 32, does not represent an existent number in the large group of autumn-flowering colchicums; it is only known in a small spring-flowering species from northern Greece, *C. chimonanthum* K. Perss. (PERSSON, 1998b).

Taxonomic commments: The new subspecies was first noted in cultivation on account of its unusually long leaves and mostly somewhat larger flowers with yellow anthers, and later on its peculiar karyotype. Only two populations have been found so far, both of them rather removed from the distribution area of subsp. *chalcedonicum*, and both furthermore on micaschist and in rather sheltered environmental conditions, in deciduous bushland of e. g., *Quercus* spp. and *Styrax*.

Distribution and habitat: Endemic to W. Turkey (Fig. 4). Deciduous scrub, in sheltered positions; on micaschist; 700–1000 m. Mediterranean element (West Anatolian).

The original substrate of all listed collections is obvious in the dried material: the corms are ± coated by glistening mica grains. *C. micaceum* K. Perss., a recently described species from W. Turkey (PERSSON, 1998a), is also a micaschist endemic but is found at higher altitudes, usually between 1500 and 1800 m, on Boz Dağ (Izmir) and Baba Dağ (Denizli).

Specimens examined:

Turkey: Muğla: 19 km N of Milas near Labraunda, 15. 4. 1972, *Runemark & Wendelbo bulb coll. no. 14C** (GB); Milas area, NNW of Labraunda, on micaschist, 800–1000 m, 3.5.1983, *Runemark** (GB).

3. *Colchicum lingulatum* Boiss. & Spruner in Boiss., Diagn. Pl. Orient. 5: 66. 1844.

Type: (**Greece**) Mons Parnes Atticae, 5. 1842, [*Spruner*] (Holo-: G-Boiss!, iso-: G!).

Corm ellipsoid-ovoid to ovoid, 2.5–4 × (1.5–)2–3.5 cm; tunics subcoriaceous to coriaceous, many layers, produced into a neck ca. (1.5–)3–10 cm, (0.3–)0.5–1.5 cm in diam. *Cataphyll* yellowish-white to white, mostly rather thin, often yellowish-green and/or purplish towards mucronate apex, (2–)3–11 cm long above corm, not or or slightly (to 1 cm) exceeding the tunic neck. *Leaves* hysteranthous, 3–5, sometimes 1–3 additional smaller and narrower leaves, crowded near

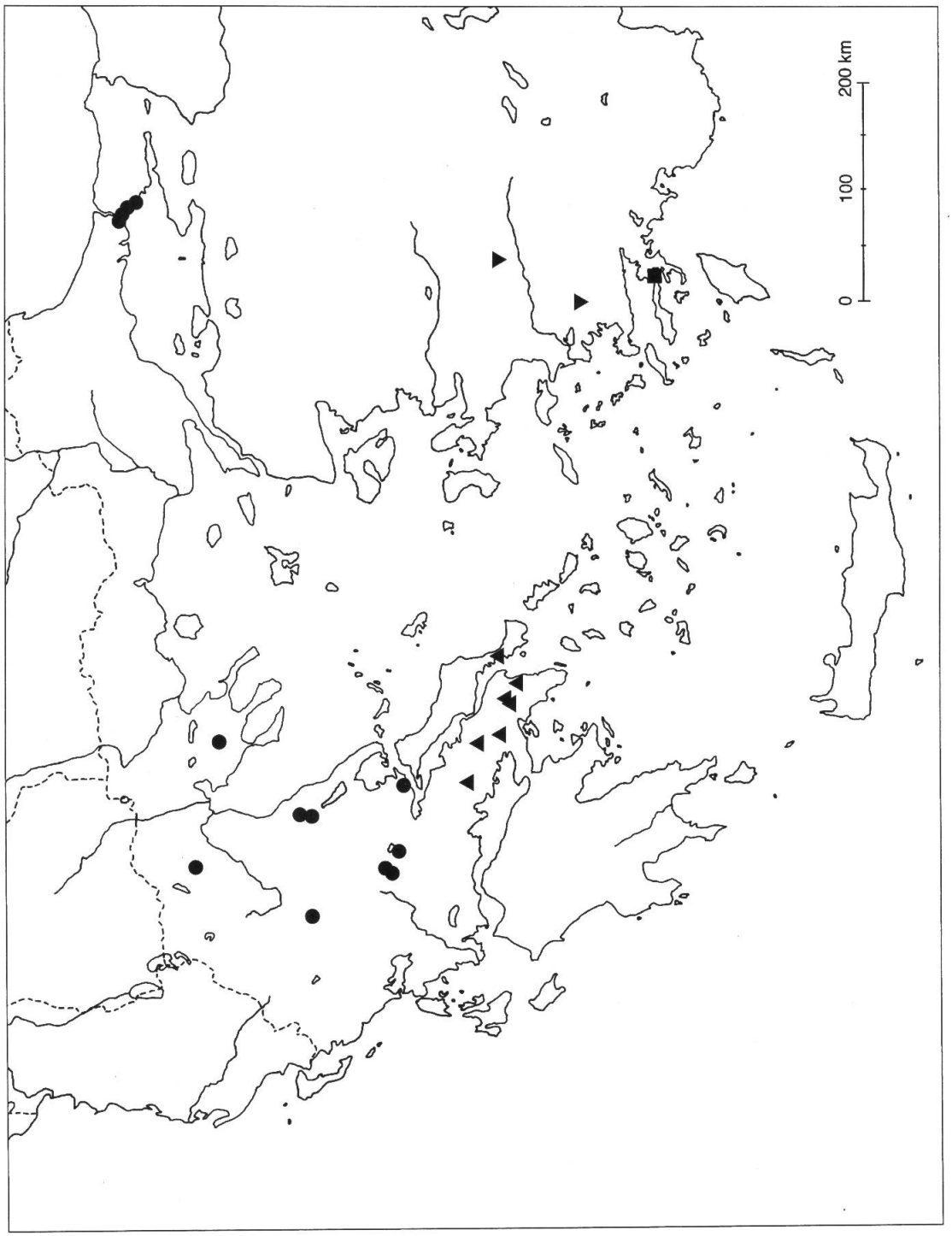

Fig. 4. – Distribution of *Colchicum chalcedonicum* Azn. (● = subsp. *chalcedonicum*, ▼ = subsp. *punctatum* K. Perss.) and *C. lingulatum* Boiss. & Spruner (▲ = subsp. *lingulatum*, ■ = subsp. *rigescens* K. Perss.).

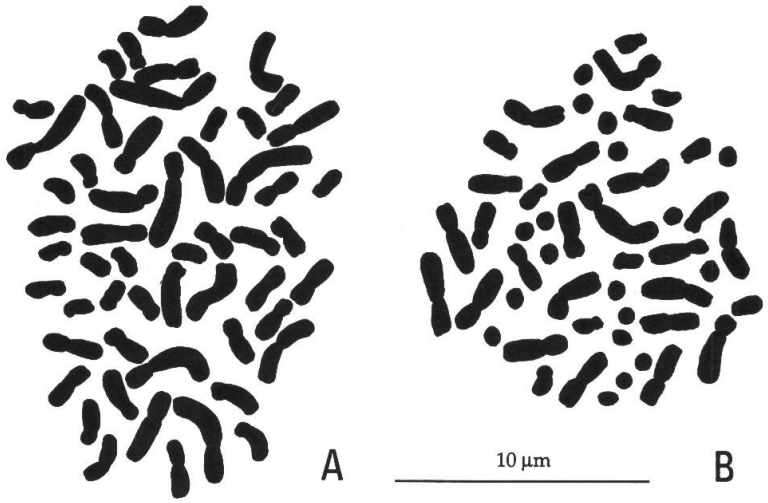

Fig. 5. – *Colchicum chalcedonicum* Azn. Metaphase of root tip mitosis. – **A:** subsp. *chalcedonicum*, 2n = 54 (*T. Baytop ISTE 31579*); **B:** subsp. *punctatum* K. Perss., 2n = 50 (*Runemark & Wendelbo 14C*).

ground surface, linear to narrowly oblong (to narrowly lanceolate-oblong), subobtuse to rounded at apex, sometimes somewhat twisted, somewhat glossy glaucous green to rather deep green sometimes tinged purplish towards apex, margins distinctly cartilaginous, glabrous; dry leaves often remaining until anthesis, then light brownish-red, thick and stiff. *Flowers* 1–5(–9); perianth tube entire, exceeding the cataphyll by 0.5–3.5(–5.5) cm, 1.5–3 mm wide, whitish sometimes flushed pale purplish-lilac in upper part; limb mostly narrowly infundibular, distinctly keeled at least in basal part, segments 2.4–4.5 cm long, differing by 1–5(–7) mm in length within a flower, (2.5–)3–9(–11) mm wide, linear to narrowly oblong-oblanceolate (to narrowly elliptic-oblong), subacute to obtuse, pale to mid purplish-lilac (lighter tints of HCC 35–636, "Amethyst Violet/Heliotrope"), not or slightly tessellated, paler at base and dorsally, with a white median streak along most or the whole of the upper side, densely veined by 7–19(–23) straight parallel nerves with oblique anastomoses; filament channels glabrous or sparsely papillose. *Stamens* ca. 1/3–1/2(–2/3) of perianth limb in length, outer 0.9–1.8 cm, inner 1.2–2 cm, the two series inserted at distincly different levels, the outer one up to ca. 11 mm below the connation of the limb segments; filaments white including slightly widened base or this pale yellow; anthers versatile, sometimes curved, 4–7(–9) mm, usually yellow; pollen yellow (rarely greyish-yellow), grains 48–68(–72) × 29–44 µm, bean-shaped to almost ellipsoid, 2-foraminate. *Styles* scarcely to distinctly overtopping stamens (at first often reaching segment tips), whitish, apex slightly thickened, almost straight to hooked or slightly curved, stigmas decurrent for 0.8-2 mm. *Capsules* at ground level, 1–2 × 0.5–1.5 cm, oblong to oblong-ovoid (to ellipsoid), often ± suffused purplish-carmine, obtuse-acuminate to short-pointed; seeds ca. 5–20 per locule, subglobose (to dimidiate-globose), 2.5–3.5 × 2–3 mm, reddish-brown to dark brown, raphe region swollen to a moderate or large yellowish-white appendage.

Taxonomic comments: For differences from the closely related *C. chalcedonicum*, see under that species.

3a. *C. lingulatum* Boiss. & Spruner subsp. ***lingulatum*** – Ill.: Fig. 6A–B.

Tunics ± coriaceous, stiff, outer deep reddish-brown to blackish-brown, inner mid to deep reddish-brown. *Leaves* (3-)4–5, sometimes 1–3 additional smaller and narrower leaves, erecto-patent to patent-arcuate, (2.5–)3.5-7(–9) × 0.5–2.5(–4) cm, linear to narrowly oblong, shallowly channelled to flattish, rather thick, margins generally ± wavy. *Flowers* 1–5(–9), filament

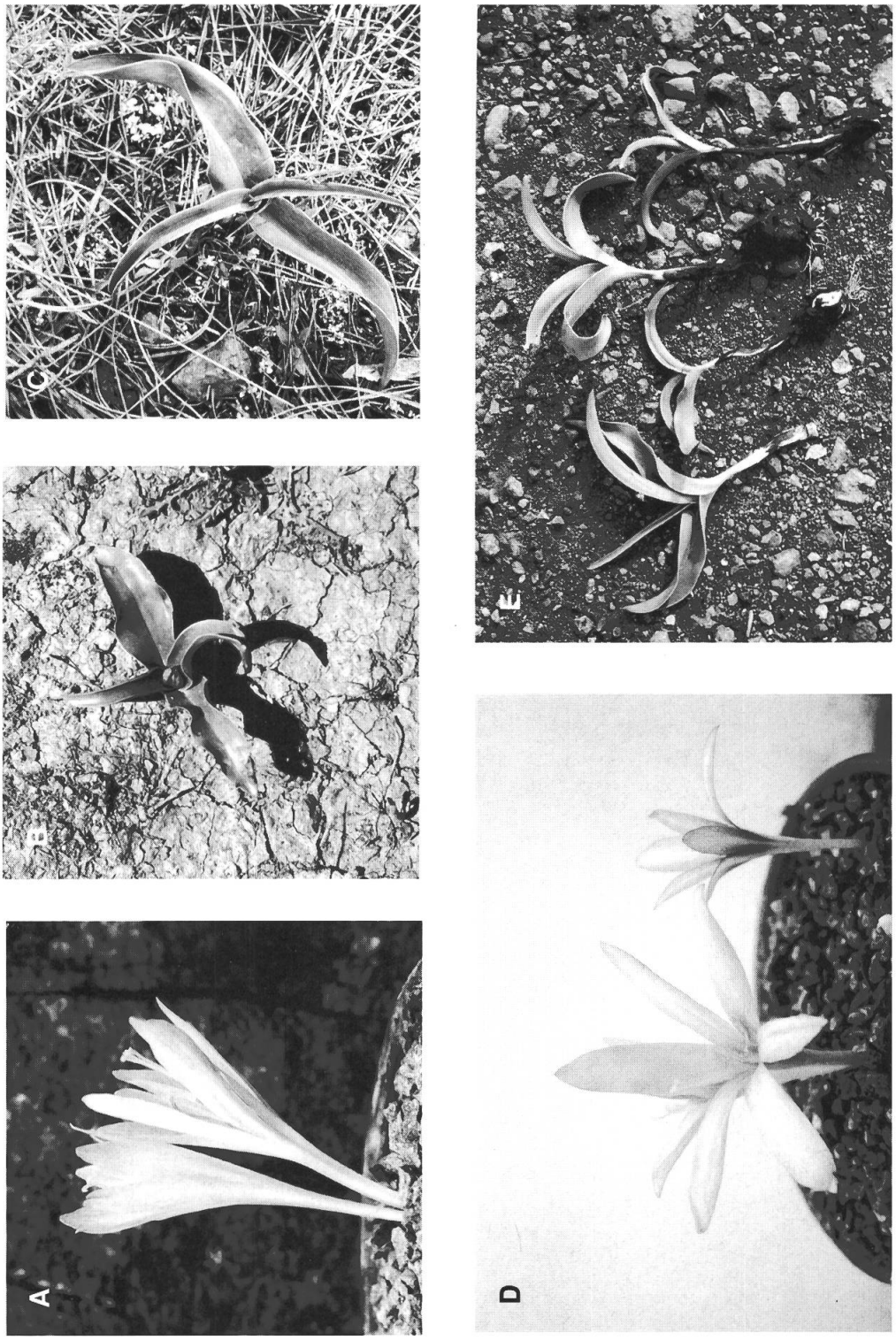

Fig. 6. – *Colchicum lingulatum* Boiss. & Spruner. – **A–B:** subsp. *lingulatum*. A: Greece, Viotia, 5 km W of Livadia, 300 m, cult. 29.9 (*K. Persson 332*); B: Greece, Evvia, Polipotamos, 200 m, 5.5.1994 (*K. Persson 550*). – **C–E:** subsp. *rigescens* K. Perss. (all Turkey, Muğla, Datça peninsula, 140 m, *K. Persson 515*). C, E: 21.4.1992; D: cult. 14.8.

channels glabrous or sparsely papillose. Anthers yellow, occasionally greyish-yellow. – Flowering without leaves (late August–)September–early October; leaves and fruits March–beginning of June.

Chromosome number: **2n = 54**. – No previous reports.

Distribution and habitat: Endemic to S. E. Greece (Fig. 4). Open stony places in phrygana, pine woods or *Abies cephalonica* forest; on various substrates, often non-calcareous; 200–1200 m. Mediterranean element (West Aegeic).

Specimens examined:

Greece: Sterea Ellas: Attiki: Attiki: Mt. Pentelikon near Dionyso, in phrygana, pine woods, 1400', 9.1930, *Atchley 296* (K), 10. 1931, *Atchley 870* (K); m. Parnes, 3500', 9 & 10, *Orphanides Rel. Orph.* (WU), ibid. 20.9.1853, *Heldreich Fl. Graec. Exsicc.* (LD, M, MPU); in reg. abietina m. Parnethis Atticae, 10.18xx, *Orphanides Fl. Graec. Exsicc.* (BM, K, LD, WU); ibid., 20.9.1852, 10.1852, 2.10.1852, 11. 1852, *Heldreich 2784* (BM, FI, G-Boiss, GOET, K, S, UPS, W); ibid., 8.6.1873, *Heldreich* (ATHU); ibid., 3500', 5.3.1852, *Heldreich* (FI); ibid., 3000', 20.9.1854, 4. 1857, 28.5.1858, *Heldreich Herb. Graec. Norm. 31* (G, JE, K, P, S, UPS); Parnes supra Metochi versus Coromilia, 20.5.1852, *Orphanides* (ATHU); ibid., supra Hagia Triada, 22.5.1852, *Orphanides* (ATHU); in pratis mts. Parnes, 5.1876, *Pichler* (G-Boiss, K, WU); in petrosis regionis abietinae m. Parnethis, 3000', 1.9.1896, 9.1900, *Heldreich Herb. Graec. Norm. 1391* (BM, FI, G, GB, JE, K, LD, MA, P, S, UPS, WU); Parnes passim in regione abietina, 20.8.1928, *Guiol 292* (BM); Parnes, *Zaganiaris 3982* (TAU); mt. Parnis, 3–5.9.1948, *Goulimis 14988* (ATH), 8.1929, *Atchley 47* (K), 19.4.1966, *Mathew 5136* (K); ibid., in *Abies cephalonica* forest on bare schist gravel, 1200 m, 14.9.1974, *K. Persson 245** (GB); ibid., Paleochora, clay ground, 1000 m, 3–5.9.1946, *Goulimis 5* (K); in m. Parnethe supra Dekeliam (hod. Tatoï), 9.1878, 4.1879, *Holzmann* (G, M). Megaris: Along road between Erithre and Inoï, phrygana, 600 m, 27.3.1976, *K. Persson 331** (GB). – Sterea Ellas: Viotia: Thive: Thebes, 1930, *Guiol* (BM). Livadia: 5 km W of Livadia, phrygana with *Arbutus unedo*, 300 m, 27.3.1976, *K. Persson 332** (GB). Evvia: Karistia: Almiropotamos to Polipotamos, thin very stony soil over schist, open spaces among phrygana, 250 m, 3.6.1984, *Archibald 5173* (GB); 3 km from Polipotamos to Zarakes near Ag. Nikolaos, poor phrygana on serpentine, open gravelly areas among *Genista acanthoclada*, *Cistus salviaefolius*, *Fumana thymifolia*, *Erica manipuliflora*, *Arbutus unedo*, 250 m, 5.5.1994, *K. Persson 550** (GB).

3b. *C. lingulatum* subsp. ***rigescens*** K. Perss., **subspec. nova** – Ill.: Fig. 6C–E; BAYTOP & MATHEW (1984: Fig. 74).

Type: Turkey, Muğla, 25 km from Marmaris to Datça, bare brown stony soil (serpentine) among *Pinus*, 140 m, 21.4.1991, fld. in cult. 31.8.1992, *K. Persson 515** (Holo-: GB!).

A subsp. lingulato tunicis subcoriaceis, foliis longioribus falcatis canaliculatis crassis differt.

Tunics subcoriaceous, deep reddish-brown. *Leaves* 3–4, sometimes 1–2 additional smaller and narrower leaves, patent-falcate, 7–15 × 1.5–4 cm, narrowly oblong to narrowly lanceolate-oblong, ± channelled at least in basal half, very thick and stiff, margins slightly wavy. *Flowers* 1–4, filament channels glabrous. Anthers pale yellow to yellow. – Flowering without leaves September–October; leaves and fruits March–early May.

Chromosome number: **2n = 54**. – Previous reports: *2n = 48*, material (as *C. lingulatum*) from Turkey, Muğla (KÜÇÜKER & ÇELEBIOĞLU, 1986).

Distribution and habitat: Endemic to S. W. Turkey (Fig. 4). Open stony places among *Pinus* and *Erica*; on ultramafic ground; 50–200 m. Mediterranean element (West Anatolian).

A small number of *Colchicum* species frequently grow on serpentine ground, e. g., *C. variegatum* L., *C. chalcedonicum* subsp. *chalcedonicum*, and *C. confusum* K. Perss. Also *C. lingulatum* s. str. and *C. autumnale* L. are fairly often observed on such as well as various other non-calcareous substrates, more rarely on limestone.

Specimens examined:

Turkey: Muğla: Datça peninsula, 19.4.1972, *Runemark & Wendelbo bulb coll. no. 19** (GB); Marmaris to Datça, with *Erica*, 200 m, 25.3.1975, *T. Baytop, Mathew & Brickell ISTE 31367* (ISTE); 21 km from Marmaris to Datça, 110 m, 10.10.1975, *T. Baytop, Leep & Sütlüpınar ISTE 33910* (ISTE); ibid., among *Pinus* and *Erica*, 100 m, 24.3.1981, *A. & T. Baytop & Atilla ISTE 46109* (ISTE); 27 km from Marmaris to Datça, with *Pinus* and *Erica*, 100 m, 3.5.1980, *T. Baytop ISTE 44249* (ISTE); 48 km from Datça to Marmaris, 50 m, 2.10.1976, *T. Baytop & Leep ISTE 36234* (ISTE).

4. *Colchicum sfikasianum* Kit Tan & Iatrou in Rock Gard. 96: 255. 1995. – Ill.: Fig. 7A–E; RIX & PHILLIPS (1981: 176, Fig. i, as "*C. parlatoris*"); KIT TAN & IATROU (1995: Fig. 62).

Type: Greece, Lakonia, Epidavros Limiras, Malea peninsula, 1 km W of Monemvasia, 27.10.1986, *Iatrou 3233* (Holo-: UPA).

= *C. polymorphum* Orph. in Atti Congr. Int. Bot. Firenze 1874: 29, 33 & 214. 1876 [nom. nud.]. – Orig. collection: (**Greece**) Hymettus Atticae, 1872, *Orphanides 4018* (G-Boiss!).

– *C. parnassicum* auct. non Sartori & al.: Stef. in Sborn. Balg. Akad. Nauk. 22: 71. 1926.

– *C. kochii* auct. non Parl.: Boiss., Fl. Orient. 5: 162. 1882; Heldr., Fl. Céphalonie: 71. 1883; Halácsy, Consp. Fl. Graec. 3: 276. 1904; Phitos & Damboldt in Bot. Hron. 5: 144. 1985.

– *C. amabile* auct. non Heldr.: Phitos & Damboldt in Bot. Hron. 5: 144. 1985.

Corm (oblong-ovoid to) ovoid to subglobose, sometimes rather flattened on shoot side, 2–4.5(–5) × 1.7-4.5 cm; tunics membranous to submembranous (to subcoriaceous), reddish-brown to dark brown (inner ones often lustrous orange-brown), produced into neck ca. (1–)2–6.5(–9.5) cm long, 0.4–1.5 cm in diam. *Cataphyll* often thin, yellowish-white, sometimes tinged purplish in uppermost part, 3-8(–10) cm long above corm, generally, often much, surpassing the tunic neck in length. *Leaves* 3–4(–6) (most often 4), hysteranthous, crowded near ground surface, 5–15(–22) × (0.3–)0.6–2(–4) cm, patent-arcuate, (linear to) narrowly oblong to lorate (rarely lanceolate-linear), subobtuse to broadly rounded at apex, sometimes retuse, channelled, often slightly twisted-undulate lying propeller-like on the ground, rather light green to dull somewhat greyish green, often darker-veined above, often tinged brownish-red on sheaths, blade bases and tips, margins indistinctly to very narrowly cartilaginous, glabrous (rarely finely scabrid). *Flowers* 1–2 (very rarely 3); perianth tube entire, exceeding the cataphyll by (1-)2.5-7.5(–10) cm, 1.2–2.5 mm wide, white; limb infundibular, often slender, segments (2–)2.5–4.5(–4.9) cm long, subequal or only slightly differing in length within a flower, 3–12 mm wide, linear to narrowly oblong-oblanceolate (to narrowly oblanceolate), sometimes with low blunt keels on the back, acute to subobtuse (to obtuse), sparsely chequered at least in upper part in pale purplish-lilac to mid purple (HCC 33/733–35, "Imperial Purple/Violet Purple–Amethyst Violet") on pale or white ground, sometimes also striped in purplish along the (5–)7–17(–19) veins; filament channels glabrous. *Stamens* generally ca. 1/3 to 1/2 of perianth limb in length, outer series sometimes inserted in the tube up to ca. 5 mm below the connation of the limb segments, 0.8–1.6(–1.8) cm long, inner 1.2–1.9(–2.2) cm; filaments filiform, yellowish-white to white, scarcely widened base palest yellow; anthers versatile, (3–)4–7 mm long, slender with thin thecae, pale to mid yellow; pollen pale to mid yellow, grains 46–65 × 32–45(–50) µm, ± oblong to broadly bean-shaped, 2-foraminate. *Styles* equalling to slightly overtopping stamens, yellowish-white to white, recurved at apex, stigmas decurrent for 1.5–2.5(–3.5) mm. *Capsules* at ground level, 1.5–2.5(–3) × 0.6–0.8(–1) cm, narrowly cylindrical to narrowly ellipsoid-oblong, mostly ± pointed; seeds numerous, subglobose, ca. 2–2.5 mm in diam., deep reddish-brown, raphe region somewhat swollen to a rather small yellowish-white appendage. – Flowering without leaves September–October (on Kefallinia from late August, on Peloponnisos to early November); leaves and fruits March–May.

Chromosome number: **2n = 54**. – No previous reports.

Nomenclatural comments: The above species was published by ORPHANIDES already in 1876 as *Colchicum polymorphum* (not mentioned by KIT TAN & IATROU, 1995), unfortunately without a formal description. Orphanides just makes a short note on its great variability, at the same time suggesting as its closest relative, perhaps even identity with, *C. neapolitanum* (Ten.) Ten. It is distributed in several herbaria under Orphanides's specific name, even including a variety ("*C. polymorphum* var. *stenolobum* Orph.") but also as *C. neapolitanum* under which name it was listed for Attica by HELDREICH (1861). Obviously also Fraas reco-

Fig. 7. – *Colchicum sfikasianum* Kit Tan & Iatrou. – **A:** Greece, Lakonia, Ag. Dimitrios, 200 m, 7.11.1985 (*K. Persson 418*). – **B–D:** Greece, Lakonia, Mani peninsula near Vathia, 200 m (*K. Persson 386*). B: cult. 16.8; C–D: 2.4.1984, note dissected fruits in C. – **E:** Greece, Kefallinia, SSW of Sami, 500 m, 14.4.1980 (*K. Persson 363*).

gnized the distinction of the species, as judged by his notes on a couple of herbarium sheets (in M): "*Colchicum* sp. n." (no. 231); "*Colchicum versicolor* m.; forsan var. *C. variegati?*" (no. 232). BOISSIER (1882) discarded the new species, however, referring it rather to *C. kochii* Parl., in which standpoint he was later copied by HELDREICH (1883) and HALÁCSY (1904). Also JANKA (1882) does not take up *C. polymorphum* as a separate species but just notes that *C. kochii* in his opinion is synonymous with *C. longifolium* Coss. After these references *C. polymorphum* was not mentioned again until it was included by STEFANOV (1926) in his long list of synonyms under *C. lingulatum* var. *parnassicum* (Sartori & al.) Stef.

Taxonomic comments: In recent times the species was noted by SFIKAS (1988) who discussed some plants from southern Peloponnesos, believing them to probably represent a new species. A few years before, RIX & PHILLIPS (1981) had published a photographic illustration of the species from the same area as "a variety of *Colchicum parlatoris* Orph." KIT TAN & IATROU (1995) also believed their new species *C. sfikasianum* to be a Peloponnese endemic, not realizing the fact of its being conspecific with Orphanides's unvalidated *C. polymorphum* which he had collected in Attica, and which has been found also on the southern Ionian Islands. Several collections have been in cultivation under that name in Göteborg Botanical Garden for a number of years, and it has also been sent out to other gardens. Because of the restricted material available to Kit Tan & Iatrou, however, they have not been able to include the whole pattern of the morphologic variation or the typical characters of the species, now identified to be spread over a much larger area of southern Greece than originally assumed. They also postulate the alliance of *C. sfikasianum* to *C. lingulatum* Boiss. & Spruner, probably because of Stefanov's inclusion of the species under the latter name. This relationship does not seem very plausible to me, however, but the true affinity of the species seems rather uncertain. According to some characters listed in a table, the two authors are also obviously comparing their new species only with the Turkish populations of *C. lingulatum.* It is not true that *C. lingulatum* in general has much larger corms, nor that it has broader leaves ("2–4 cm" versus "1.5–2 cm"). Thus, plants of *C. sfikasianum*, particularly from the southern Peloponnese, very often have quite broad leaves, ca. 2–4 cm. Typical for the species is especially the combination of the following characters: tunics membranous to submembranous; leaves most often 4 in number, patent-arcuate, propeller-like, lorate, channelled, often dark-veined on the upper side; flowers narrowly infundibular with a relatively thin tube, limb segments connate for up to 5 mm, distinctly but sparsely tesselated on a very pale background, with distinct veins; anthers slender with thin thecae, pale to mid yellow; capsules relatively long and narrow (often ± narrowly cylindrical, see Fig. 7C).

The occasional misidentification of plants of the present species from Kefallinia as *C. amabile* Heldr. (e. g., in PHITOS & DAMBOLDT, 1985) probably stems from BOISSIER (1882) who tentatively included in *C. amabile* some material with tessellated flowers from Kefallinia, cited as *C. pulchrum* Herb. ex Baker (= *C. bivonae* Guss., see below).

Distribution and habitat: Endemic to coastal regions of S. Greece (Fig. 2). Stony and rocky slopes, often N-facing, in open phrygana, macchie and pine woods; on limestone; 20–500 m. Mediterranean element (West Hellenic-West Aegeic).

Specimens examined:

Greece: Peloponnisos: Lakonia: Epidavros Limiras: Hills beween Neapolis and Monemvasia, *Rix 2127* (RIX & PHILLIPS, 1981, p.176–177, Fig. i; as "C. parlatoris"); between Lira and Elliniko (SW of Monemvasia), clearing in phrygana on stony ground, 450m, 1.4.1984, *K. Persson 384** (GB); Ag. Dimitrios, phrygana, 200 m, 7.11.1985, *K. Persson 418** (GB). Githion: Mani, 1 km S of Vathia, stony ground in terraced, somewhat moist slope, 200 m, 2.4.1984, *K. Persson 386** (GB). – Ionii Nisi: Zakinthos: Fl. Zakynthia, "comm. amic. Mazziaria 1850", *Herb. Orphanides* (ATHU). Kefallinia: Kefallinia, *Young 640* (K, GB). Kranea: Prope pagum Katelios, in nanofruticetosis, 50 m, 7.9.1985, *Phitos & Kamari 19558* (UPA); m. Rhoudi (m. Aeni part. boreal.) reg. abietina, 24.8.1872, *Heldreich Pl. Cephal. Exsicc. 3754b* p. p. (G-Boiss; some specimens are *C. parlatoris* Orph.!); 4–5 km SSW of Sami, along road to Argostoli, macchie, 200–600 m, 14.4.1980, *K. Persson 363** (ATH, GB, W); mons Roudi, in declivibus borealibus, ad viam 5 km ab urbe Sami, 250 m, 4.9.1985, *Phitos & Kamari 19557* (UPA). Pali: Prope Akoli, 29.8.1867, *Heldreich Fl. Cephal. Exsicc. 3754* (G-Boiss). Ithaki: see next paragraph. – Sterea Ellas: Attiki: Attiki/Protevousa: Hymettus Atticae, 15.9.1854, *Orphanides* (ATHU); ibid., 5.1871, *Orphanides 572* (ATHU); ibid., 1872, *Orphanides 4018bis* (G-Boiss, as "*C. polymorphum* var. *stenolobum* Orph."); in Hymetto boreal., 9, *Fraas 231 & 232* (M); ad m. Hymettina oriental., in collibus aridis, 17.4.1884, *Heldreich Fl. Hell.* (WU); ad radices m. Hymetti, 5.10.1901, *Tuntas* (GB, JE, MA); mt. Hymettus ("planta lecta e loco classico Orphanidii"), 10. 1929, *Guiol 5993* (BM, G, MPU); ibid., 1000', 10.1930, *Atchley* (K). Pro-

tevousa: In m. Hymetto prope Asteri, 9 & 5.18xx, *Orphanides Fl. Graec. Exsicc. 1192* (BM, E, GB, K, UPS); ibid., 28.10.1857, *Heldreich Pl. Exsicc. Graec. 3431* (G-Boiss); mt. Imittos, along road leading to the summit, rocky ground with scattered *Pinus heldreichii*, 500 m, 20.3.1976, *K. Persson 324** (GB); northern slopes of mt. Hymettos, on rocky ground east of the cloister of Hagios Ioannis Kinigos, 9.1948, *Goulimis 9* (K); ibid., close to the chapel Hagios Ioannis Kinigos near Hagia Paraskevi, stony ground, clay, 10.10.1954, *Goulimis* (K).

C. sfikasianum probably occurs also on Ithaki in the Ionian Islands. SFIKAS (1994) writes: "These plants from Ithaka are similar to those from Kefalonia identified as *C. amabile* by Phitos and Damboldt". The plants from Kefallinia seen by me, with these determinations by Phitos & Damboldt, are *C. sfikasianum.*

A note on *Colchicum amabile* Heldr.

C. amabile was described by HELDREICH (1876) in the acts of the same Botanical Congress (Firenze 1874) as where Orphanides presented his four new species *C. euboeum*, *C. polymorphum* (see above), *C. parlatoris*, and *C. boissieri.*

Great uncertainty has prevailed as to the taxonomic position of *C. amabile*. BAKER (1879) had not seen Heldreich's plants but listed the species in the neighbourhood of *C. bivonae* Guss., and so did BOISSIER (1882). HALÁCSY (1904) placed it just before *C. variegatum* L. LOJACONO-POJERO (1909) recorded *C. amabile* for the Flora of Sicily (although with a question mark), and gave his own *C. nebrodense* Lojac. ined. as a synonym: these plants (from the Madonie mountains) are just small specimens of *C. bivonae*. Both Boissier and Halácsy speculated on the possibility of the relationship of *C. amabile* with *C. pulchrum* Herbert ex Baker, said to come from Cephalonia and Epirus; this species has also turned out to be synonymous with *C. bivonae* (PERSSON, 1998b) but has at times been interpreted as being the same as *C. visianii* Parl. (= *C. haynaldii* Heuff., cf. PERSSON, 1998b). This misunderstanding is probably the reason why PHITOS & DAMBOLDT (1985) includes *C. amabile* for Kefallinia, but the herbarium material from the island determined as this species by the two authors is *C. sfikasianum* Kit Tan & Iatrou (syn. *C. polymorphum* Orph. nom. nud.) belonging to quite another species group. *C. amabile* was furthermore included by STEFANOV (1926) in his impossibly wide concept of *C. parnassicum* Sartori & al. (as *C. lingulatum* var. *parnassicum*) together with *C. euboeum*, *C. polymorphum*, and populations of what has later been recognized as *C. graecum* (PERSSON, 1988), and HAYEK (1932) followed suit. GREY (1938) considered it entitled to some taxonomic recognition, at least to varietal, if not to specific rank, "on the strength of its short-necked corm, and beautifully tesselated flowers, with segments barely one and a half inches long". He did not make a formal combination, however. BRICKELL (1980) referred *C. amabile* with a question mark to *C. bivonae* (on the other hand he also included *C. visianii* in this species).

The specimens of the type material are small for a *Colchicum* species with hysteranthous leaves. In the description Heldreich compares his plant to *C. bivonae* which in his opinion is the only Greek species remotely similar on account of its hardly produced tunic necks and the tessellated perianth, but that species is said to differ in being a larger plant with many flowers (not 1-flowered) and ovate-lanceolate, acute perianth segments (not oblong-elliptic, obtuse). I have visited the type locality twice. The plants in question occur on the mountain itself (Xirovouni) and the ridge to the nearby saddle towards the Dirfis peak above ca. 1100 m (not observed below this altitude). They are somewhat varying in perianth shape (oblong-elliptic to oblanceolate, acute to subobtuse) and overall size, the smallest specimens being observed higher up, but they tend to grow larger in cultivation, and to my mind there are no significant differential characters to separate this population from *C. bivonae* in general. The plants also have leaves typical of this species in shape and number (most commonly 7). Even the chromosome number is the same, 2n = 48 (cf. PERSSON, 1993a). *C. bivonae* has been observed to vary quite significantly in size of both flowers and leaves; for instance, *C. bowlesianum* B. L. Burtt which was recognized on mainly quantitative characters (larger flowers and leaves overall than "typical" *C. bivonae*), is now included in the latter species. As mentioned in PERSSON (1998b) the variation seems to be

± clinal in that the species tends to be smaller towards the south (Peloponnisos–Evvia and Sicily) and north (N. Dalmatia) but gradually larger towards the centre of its distribution area (N. Greece, Macedonia, and N. W. Turkey). A similar clinal pattern of variation has been observed in *C. haynaldii* Heuff. (PERSSON, 1998b).

C. bivonae Guss., Cat. Pl. Hort. Boccadifalco: 72. 1821.

= *C. amabile* Heldr. in Atti Congr. Int. Bot. Firenze 1874: 227. 1876. **Type**: **(Greece)** In m. Xirobuni Euboeae cacumine, 4800', 5.8.1858, *Heldreich Herb. Graec. Norm. 764* (Holo-: B, destroyed; Lecto-, selected here: G!; isolecto-: FI!, JE!, P!, UPS!).

Specimens examined:

Greece: Sterea Ellas: Evvia: Karistia/Halkida: mt. Xerovuni, 31.8.1910, *Tuntas 1124* (WU). Halkida: Mt. Xirovouni in the Dirfis massif, stony slope facing WNW, 1150 m, 4.8.1977, *K. Persson 342** (GB); ibid., N-facing slope and plains close to ridge towards mt. Dirfis, stony and rocky ground on limestone, deep earth, 1100–1150 m, 6.5.1994, *K. Persson 552** (GB); along the ridge from Xirovouni to the saddle between this and Dirfis, *Abies cephalonica* woodland, meadows and rocky hillslopes, 1050–1150 m, 29.4.1989, *Strid & al. 28707* (C, GB). – Makedonia: Halkidiki: Halkidiki: Cholomon, *Zaganiaris herb. maced. 937* (TAU).

Chromosome number: **2n = 48**.

On the Xirovouni mountain the species is growing together with *Crocus sieberi*, *Colchicum euboeum*, *Cerastium candidissimum*, *Alyssum montanum*, *Erysimum microstylum*, *Veronica peloponnesiaca*, and *Sideritis euboea*.

The Zaganiaris collection (in TAU) from Halkidiki has pronounced similarities with Heldreich's type collection from Evvia and is perhaps not entirely trustworthy (cf. above under *C. euboeum* and comments on Zaganiaris in STRID, 1986: xiv). It is determined as "*C. variegatum*", and it is also listed under that name as no. 937 in ZAGANIARIS (1938).

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