

MATERIALS FOR A FLORA OF TURKEY XXXII: CAMPANULACEAE

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ABSTRACT. Preparatory material for the account of Campanulaceae in *Flora of Turkey* vol. 6 is presented. A synopsis of the infrageneric classification of *Campanula* includes one new subgenus and four new sections. Three new species are described: *C. sorgerae* Phitos; *C. telmessi* Huber-Morath & Phitos; *C. troegerae* Damboldt. Various new combinations are made in the genus at supraspecific, specific and infraspecific level. There are also comments about the genera *Symphyandra*, *Asyneuma*, *Michauxia*, *Legousia* and *Jasione* with new combinations or taxa in *Asyneuma* and *Jasione*.

INTRODUCTION

In this paper, various new taxa and combinations are made in *Campanula*, *Asyneuma* and *Jasione*; there are also comments about *Symphyandra*, *Michauxia* and *Legousia*. The taxa are arranged according to the sequence which will be adopted in the account of Campanulaceae for *Flora of Turkey* vol. 6. I am grateful to Professor D. Phitos, University of Patras, Greece, for allowing me to include his new taxa and combinations in *Campanula* sect. *Quinqueloculares*. All specimens cited have been examined.

Campanula

A modern critical revision of the genus *Campanula* based on anatomical, morphological, cytological and phytogeographical data is a *desideratum*. The classical systems of A. De Candolle (1830) and Boissier (1875) are now out-of-date but the latter is still used. In future revisional work on the genus, life form, mode of dehiscence of the capsule, seed morphology, and cytology will be of great importance. The treatment of the genus being adopted for the *Flora of Turkey* largely follows that of Fedorov in *Flora URSS* (1957) with minor alterations. Some of his subsections are treated here as sections following Charadze (1949), and the genus *Brachycodonia* Fedorov (= *Brachycodon* Fedorov) is now regarded as a subgenus of *Campanula*. Some new sections are also proposed. [See Postscript].

The genus as represented in Turkey is divided into six subgenera: *Campanula*, *Megalocalyx*, *Sicyodon*, *Roucela*, *Brachycodonia* and *Rapunculus*. In our present state of knowledge the subdivision of the two largest subgenera, *Campanula* and *Rapunculus*, is not very satisfactory. Greater changes within and between sections in these two subgenera may be necessary to achieve a more natural classification based on a wider range of biosystematic and morphological data.

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INFRAGENERIC TAXA

Subgenus *Campanula*

Syn.: Sect. *Medium* DC. in Lam. & DC., Fl. Fr. ed. 3,3:706 (1805), *sensu lato*.

Sect. *Eucodon* A. DC., Monogr. Camp. 214, 251 (1830), *pro parte*.

Sect. *Medium* Boiss., Fl. Or. 3:893 (1875), *pro max. parte*.

Type. *C. latifolia* L., Sp. Pl. 165 (1753).

Sect. *Quinqueloculares* (Boiss.) Phitos, stat. nov.

Syn.: *Quinquelocularia* C. Koch in Linnaea 23:631 (1850), *pro min. parte*.

Subsect. *Quinqueloculares* Boiss., Fl. Or. 3:893 (1875).

Subgen. *Quinqueloculares* (Boiss.) Charadze in Zam. Sist. Geogr.

Rast. (Tbilisi) 15:16 (1949).

Type. *C. medium* L., Sp. Pl. 167 (1753).

A discussion of the phylogenetic relationships within the group is given by Phitos (Oest. Bot. Zeitschr. 112:449-498, 1965).

Sect. *Megalocodon* Damboldt, sect. nov.

Herba biennis; caules erecti vel suberecti. *Folia* basalia et inferiora plerumque cordata, longe petiolata. *Flores* erecti, magni, ad 3.5(-6) cm longi. *Calyx* appendiculatus. *Appendices calycis* post anthesin valde accretae, capsulam obtectae. *Stigmata* tria. *Capsula* erecta, trilocularis poris basalibus dehiscens. *Semina* plana, brunnea.

Type. *C. incurva* Aucher in DC., Prodr. 7:464 (1839).

C. incurva resembles some species of sect. *Quinqueloculares* in habit and may be related to this possibly artificial group. This rather isolated species may have evolved by reduction of the chromosome number from species with a diploid number of 34 chromosomes (in *C. incurva* $2n=32!$).

Sect. *Campanula*

Syn.: Sect. *Eucodon* A. DC., Monogr. Camp. 251 (1830), *pro parte incl. typ.*

'*Trachelioideae*' Boiss., Fl. Or. 3:894 (1875).

Ser. *Trachelioideae* (Boiss.) Fomin in Fl. Cauc. Crit. 4, 6:81 (1906).

Sect. *Trachelioideae* (Boiss.) Charadze in Zam. Sist. Geogr. Rast.

(Tbilisi) 15:28 (1949).

Subsect. *Eucodon* (DC.) Fedorov in Fl. URSS 24:191 (1957).

Type. *C. latifolia* L., Sp. Pl. 165 (1753).

Sect. *Sibiricae* (Fomin) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:24 (1949).

Syn.: Ser. *Sibiricae* Fomin in Fl. Cauc. Crit. 4, 6:22 (1906), *pro parte incl. typ.*

Type. *C. sibirica* L., Sp. Pl. 167 (1753).

Sect. **Involucratae** (Fomin) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:30 (1949).

Syn.: Ser. *Involucratae* Fomin in Fl. Cauc. Crit. 4, 6:100 (1906).

Subsect. *Involucratae* (Fomin) Fedorov in Fl. URSS 24:198 (1957).

Type. *C. glomerata* L., Sp. Pl. 166 (1753).

Sect. **Spicatae** (Fomin) Damboldt, stat. nov.

Syn.: Ser. *Spicatae* Fomin in Fl. Cauc. Crit. 4, 6:98 (1906), *pro parte*.

Lectotype (designated here). *C. macrostachya* Waldst. & Kit. in Willd.,

Enum. Pl. Horti Berol. 1:213 (1809).

C. stricta L., which was included in ser. *Spicatae* by Fomin, is excluded from the section as presently circumscribed (see under sect. *Dictyocalyx* below).

Sect. **Elatae** (Boiss.) Damboldt, stat. nov.

Syn.: '*Elatae*' Boiss., Fl. Or. 3:894 (1875).

Ser. *Cordifoliae* Fomin in Fl. Cauc. Crit. 4, 6:32 (1906), *pro parte*.

Sect. *Cordifoliae* (Fomin) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:21 (1949).

Ser. *Alliariaefoliae* Kem.-Nath., l.c. 10.

Subsect. *Cordifoliae* (Fomin) Fedorov in Fl. URSS 24:213 (1957).

Subsect. *Elatae* (Boiss.) Rech. f. & Schiman-Czeika in Fl. Iranica—
Campanulaceae 33 (1965).

Type. *C. alliariifolia* Willd., Sp. Pl. 1:910 (1798).

Sect. **Latilimbus** (Fedorov) Damboldt, stat. nov.

Syn.: Subsect. *Latilimbus* Fedorov in Fl. URSS 24:464 (1957).

Type. *C. collina* Bieb., Fl. Taur.-Cauc. 1:152 (1808).

Sect. **Symphyandriiformes** (Fomin) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:17 (1949), *pro min. parte incl. typ.*

Syn.: *Symphyandra* A. DC., Monogr. Camp. 365 (1830), *pro parte excl. typ.*

Ser. *Symphyandraeformes* Fomin, Fl. Cauc. Crit. 4, 6:73 (1906),
pro parte incl. typ.

Subsect. *Symphyandriiformes* (Fomin) Fedorov in Fl. URSS 24:238
(1957), *pro parte incl. typ.*

Type. *C. kolenatiana* C.A. Meyer ex Rupr. in Bull. Acad. Imp. Sci. Pétersb. 11:216 (1867).

Sect. **Rupestres** (Boiss.) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:24 (1949).

Syn.: '*Rupestres*' Boiss., Fl. Or. 3:894 (1875).

Ser. *Rupestres* (Boiss.) Fomin in Fl. Cauc. Crit. 4, 6:68 (1906).

Sect. *Saxicolae* Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:20
(1949), *pro parte*.

Subsect. *Rupestres* (Boiss.) Fedorov in Fl. URSS 24:282 (1957).

Subsect. *Oreocodon* Fedorov. l.c. 465, *pro parte*.

Type. *C. petrophila* Rupr. in Bull. Acad. Imp. Sci. Pétersb. 11:186 (1867).

Sect. *Scapiflorae* (Boiss.) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:25 (1949).

Syn.: '*Scapiflorae*' Boiss., Fl. Or. 3:894 (1875).

Ser. *Scapiflorae* (Boiss.) Fomin in Fl. Cauc. Crit. 4, 6:45 (1906).

Subsect. *Scapiflorae* (Boiss.) Fedorov in Fl. URSS 24: 256 (1957).

Type. *C. ciliata* Stev. in Mém. Soc. Nat. Mosc. 256 (1812).

Sect. *Saxicolae* (Boiss.) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 15:20 (1949), *pro parte*.

Syn.: '*Saxicolae*' Boiss., Fl. Or. 3:894 (1875).

Subsect. *Oreocodon* Fedorov in Fl. URSS 24:465 (1957), *pro parte*.

Subsect. *Saxicolae* (Boiss.) Rech. f. & Schiman-Czeika in Flora Iranica—Campanulaceae 21 (1965).

Type. *C. kachetica* Kantsch. in Monit. Jard. Bot. Tiflis 1928-30, n.s. pt. 4-5:2 (1931).

Sect. *Tracheliopsis* (Buser) Damboldt, *stat. nov.*

Syn.: '*Trachelium*' Boiss., Fl. Or. 3:960 (1875).

Tracheliopsis Buser in Bull. Herb. Boiss. 2:519 (1894).

Diosphaera Buser, l.c. 524.

Subgenus vel sect. *Diosphaera* (Buser) Engler in Engler & Prantl, Natürl. Pflanzenfam. 4(5), Nachtr.: 319 (1897).

Subgenus vel sect. *Tracheliopsis* (Buser) Engler, l.c.

Lectotype (designated here). *C. buseri* Damboldt in Notes R.B.G. Edinb. 35:47 (1976) [Syn.: *Tracheliopsis tubulosa* (Boiss.) Buser].

The taxonomy and nomenclature of the species concerned have frequently been subject to change [for discussion see Damboldt in Oest. Bot. Zeitschr. 115:144-151 (1968); Davis in Hook., Ic. Pl. t. 3498, p. 3-5 in adnot. (1950) & in Bot. Mag. 637 (1972)]. According to Davis (1972) and our own observations, the morphological and cytological distinctions between *Diosphaera*, *Tracheliopsis* and *Campanula* are too ill-defined to justify generic separation. Therefore the species of the Turkish flora which were formerly included in the genera *Trachelium*, *Tracheliopsis* and *Diosphaera*, must be included in *Campanula*, for which a separate section, *Tracheliopsis*, seems justified. The species of this section form a natural group of closely allied perennial chasmophytes with mostly local or disjunct distributions. The species of the genera *Trachelium* and *Feeria* may have evolved from this group through adaptation to more specialised pollinators, though showing more distinct characters which justify a generic separation from *Campanula*.

Sect. *Dictyocalyx* (Fedorov) Damboldt, *stat. nov.*

Syn.: Ser. *Spicatae* Fomin in Fl. Cauc. Crit. 4, 6:98 (1906), *pro parte excl. typ.*

Subsect. *Dictyocalyx* Fedorov in Fl. URSS 24:464 (1957).

Type. *C. stricta* L., Sp. Pl. ed. 2:238 (1762).

Sect. **Platysperma** Damboldt, **sect. nov.**

Herbae perennes, rhizomate valde ramoso-plerumque caespitoso. *Caules* plerumque simplices. *Folia* crassa, firma, $\pm$ carnosa. *Calyx* exappendiculatus. *Capsula* sphaerica vel ovoidea, trilocularis, poris basalibus vel valvulis longis dehiscens vel indehiscens. *Semina* ellipsoidea vel ovata, plerumque complanata, margine pallido.

Typus. *C. ptarmicifolia* Lam., *Encycl.* 1:573 (1785).

Other species are *C. munzurensis* Davis, *C. trachyphylla* Schott & Kotschy and *C. glaucophylla* Damboldt. This small section of very closely related species, mainly from E Anatolia, has an interesting variation in methods of seed dispersal. While in *C. trachyphylla*, which has the smallest seeds in the section, the capsule opens by basal pores and the capsule of *C. glaucophylla* opens by large valves from the base, the ripe capsules of *C. ptarmicifolia* and *C. munzurensis* show no sign of dehiscence.

Subgen. **Megalocalyx** Damboldt, **subgen. nov.**

Syn.: 'Annuae' Boiss., *Fl. Or.* 3:895 (1875), *pro parte excl. typ.*

Sect. *Annuae* (Boiss.) Charadze in *Zam. Sist. Geogr. Rast.* (Tbilisi) 15:32 (1949), *pro parte excl. typ.*

Subsect. *Annuae* (Boiss.) Fedorov in *Fl. URSS* 24:189 (1957), *pro parte excl. typ.*

Herbae annuae, caules plerumque dichotome ramosi. *Calyx* appendiculatus. *Laciniae calycis* et appendicis post anthesin valde accretae. *Laciniae* stellatae vel elongatae vel inflatae apice conniventiae, capsulam obteclae. *Ovarium* sursum post anthesin crescens, partim tubo corollae inclusum. *Capsula* nutans trilocularis valvulis basalibus dehiscens vel irregulariter dehiscens. *Semina* ovata, lutea, nitida, 1 mm longa.

Typus. *C. strigosa* Banks & Sol. in Russell, Aleppo ed. 2, 2:246 (1794).

Other species: *C. propinqua* Fisch. & Mey.; *C. sulphurea* Boiss.; *C. camptoclada* Boiss.; *C. saxonorum* Gandoger; *C. balansae* Boiss.; *C. reuteriana* Boiss. & Bal.; *C. rimarum* Boiss.; *C. stellaris* Boiss.; *C. dichotoma* L.; *C. hierosolymitana* Boiss.

This is a subgenus of mostly closely allied annuals, distributed from S and SE Anatolia through the Syrian Desert to N Iraq and Iran.

Subgenus **Sicyodon** (Feer) Damboldt, **comb. et stat. nov.**

Syn.: *Sicyodon* Feer in *Bot. Jahrb.* 12:613 (1890).

Lectotype (designated here). *C. macrostyla* Boiss. & Heldr. in Boiss., *Diagn. ser.* 1, 11:65 (1849).

Subgenus **Roucelia** (Dumort.) Damboldt, **comb. et stat. nov.**

Syn.: *Roucelia* Dumort., *Comm. Bot.* 14 (1822).

'Annuae' Boiss., *Fl. Or.* 3:895 (1875), *pro parte incl. typ.*

Sect. *Annuae* (Boiss.) Charadze in *Zam. Sist. Geogr. Rast.* (Tbilisi) 15:32 (1949), *pro parte incl. typ.*

Subsect. *Annuae* (Boiss.) Fedorov in *Fl. URSS* 24:189 (1957), *pro parte incl. typ.*

Lectotype (designated here). *C. erinus* L., *Sp. Pl.* 240 (1753).

Subgenus **Brachycodonia** (Fedorov) Damboldt, **comb. et stat. nov.**

Syn.: *Brachycodon* Fedorov in Fl. URSS 24:468 (1957), non Progel (1865).

Brachycodonia Fedorov in Fl. Azerb. 8:163 (1961).

Type. *C. fastigiata* Dufour in A. DC., Monogr. Camp. 340 (1830).

This monotypic subgenus holds an intermediate position between *Campanula* and *Legousia* (Fedorov, 1957).

Subgenus **Rapunculus** (Fourr.) Charadze in Zam. Sist. Geogr. Rast. (Tbilisi) 28:100 (1970).

Syn.: *Rapunculus* Fourr. in Ann. Soc. Linn. Lyon, N.S. 7:111 (1869).

Sect. *Rapunculus* (Fourr.) Boiss., Fl. Or. 3:895 (1875).

Sect. **Rapunculus**

Syn.: Ser. *Rapunculiformes* Fedorov in Fl. URSS 24:305 (1957), *nomen.*

Type. *C. rapunculus* L., Sp. Pl. 164 (1753).

Sect. **Pterophyllum** Damboldt, **sect. nov.**

Herbae biennes. *Folia* basalia et caulina inferiora in petiolum ad 10 cm longum attenuata. *Stylus* filiformis, trifidus. *Capsula* trilocularis, poris $\pm$ medianis dehiscens.

Typus. *C. peregrina* L., Mant. Alt. 204 (1771).

The peculiar, often cultivated, *C. primulifolia* Brot. from S Portugal seems to be related to *C. peregrina* (both species have the same chromosome number of $2n=26$) and should therefore be placed in the same section.

Sect. **Alaria** Damboldt, **sect. nov.**

Herba biennis. *Caules* simplices, alati. *Folia* caulina sessilia, semi-amplexicaulia, caulo longe decurrentia. *Capsula* ovoidea, poris $\pm$ apicalibus dehiscens.

Typus. *C. pterocaula* Hausskn. in Bornm. in Mitt. Thür. Bot. Ver., N.F. 20:34 (1905).

An isolated section within subgenus *Rapunculus*. The only species, from N & C Anatolia, is remarkable for its sessile, semi-amplexicaul long-decurrent cauline leaves.

NEW SPECIFIC AND INFRASPECIFIC TAXA

Campanula lyrata Lam. subsp. **icarica** [Runemark ex] Phitos, **subsp. nov.** [sect. *Quinqueloculares* (Boiss.) Phitos]

Differt a subspecie typica indumentum pubescenti, foliis basalibus cordatis, corollae tubo plerumque longiore, usque ad 25 mm longo.

Greece. Ikaria: 1-1.5 km W of Petropoulis cliffs, c. 250 m, Runemark & Snogerup 7049 (holo. LD); Runemark & Snogerup 5976, 6228, 6266, 6310, 6431, 6358, 6664, 6839, 11086, 12451; Davis 1588; Tzanoudakis 1608, 1609, 1610, 1611, 1612. Samos: Marathokampos, Runemark & Snogerup 19121, 19180. Kalimnos: Runemark & Persson 22202, 22278.

Campanula sorgerae Phitos, sp. nov. [sect. *Quinqueloculares* (Boiss.) Phitos]. Fig. 1.

A *C. lyrata* corollae tubo brevioris usque ad 10 mm longo, floribus in ramulis lateralibus abbreviatis congeste dispositis differt.

Herba biennis vel perennis, tota hirsuta, scabra. *Radix* oblonga, napiformis. *Caulis* erectus singularis, usque ad 60 cm longus vel caules plurimi sed medius manifeste validior. *Folia* basalia oblongo-ovata in petiolum longum parce lobulatum attenuata. *Inflorescentia* elongata, paniculata, ramulis lateralibus abbreviatis. *Flores* breviter pedicellati vel subsessiles, in ramulis lateralibus 2-5-floris, congeste dispositi. *Laciniae calycis* triangulares corollae tubo dimidio $\pm$ aequilongae; appendices ovatae receptaculum plene tegentes. *Corolla* valde tubulosa tubo usque ad 10 mm longo.

Turkey. C4 Konya: c. 16 km N of Konya, 10 vi 1966, *Sorger* 66-38-61 (holo. hb. *Sorger*; photo E).

I am glad to have the opportunity to name this species after Dr Friederike Sorger (Vienna), who has made large plant collections on several journeys in Turkey.

Campanulata telmessi Huber-Morath & Phitos, sp. nov. [sect. *Quinqueloculares* (Boiss.) Phitos].

Ex affinitate *C. hagiellae* Boiss., sed floribus brevioribus, lacinii calycis corollae tubo valde tubuloso longioribus vel aequilongis post florendum stellatim patentibus.

Herba biennis vel perennis, molliter hirsutula vel pubescens, caulibus simplicibus vel simpliciter racemoso-ramulosis. *Folia* rosularia lyrata vel ovato-cordata in petiolum lobatum attenuata; folia caulina inferiora basilibus subsimilia, petiolata, superiora sessilia. *Flores* axillares et terminales, pedicellati in racemis dispositi. *Laciniae calycis* anguste triangulares, acuminatae, margine ciliatae, corollae tubo longiores vel aequilongae, plerumque post florendum stellatim patentes; appendices oblongae, receptaculo aequilongae vel longiores, sed non plene tegentes. *Corolla* valde tubulosa, coerulesco-violacea, $\pm$ 13-15 mm longa et $\pm$ 6 mm lata.

Turkey. C2 Muğla: Muğla to Fethiye, calcareous rocks, 34 km NW of Fethiye, 29 v 1962, *Huber-Morath* 16590 (holo. hb. *Hub.-Mor.*); Fethiye, *Runemark & Bentzer* 29424, 29448, 29490. Antalya: Gazipaşa, *Huber-Morath* 10263; Manavgat, 3 km NW of Side, *Huber-Morath* 17749.

Campanula rapunculoides L. subsp. *cordifolia* (C. Koch) Damboldt, comb. et stat. nov. [sect. *Quinqueloculares* (Boiss.) Phitos].

Syn.: *C. cordifolia* C. Koch in *Linnaea* 19:22 (1847).

Campanula sibirica L. subsp. *hohenackeri* (Fisch. & Mey.) Damboldt, stat. nov. [Sect. *Sibiricae* (Fomin) Charadze].

Syn.: *C. hohenackeri* Fisch. & Mey. in *Suppl. Ind. Sem. Horti Petrop.* 9:9 (1844).

C. sibirica L. var. *hohenackeri* (Fisch. & Mey.) Fomin in *Fl. Cauc. Crit.* 4, 6:25 (1906), *pro parte*.

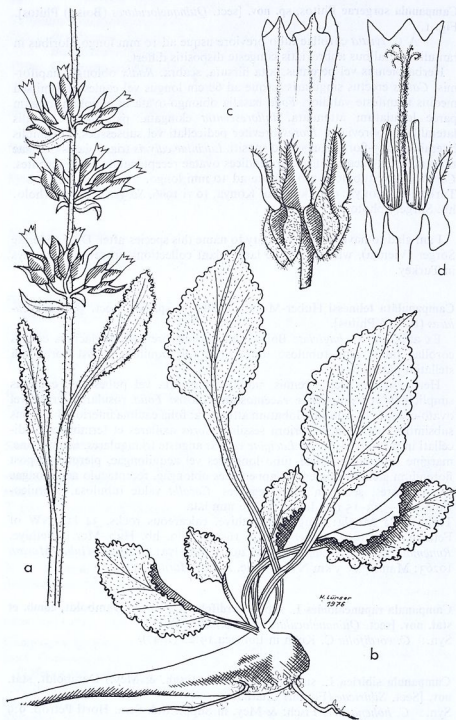


FIG. 1. *Campanula sorgerae* Phitos: a, flowering shoot $\times 1$ (Sorger 66-38-61); b, basal leaves $\times 1$; c, flower $\times 4\frac{1}{2}$; d, flower in longitudinal section $\times 4\frac{1}{2}$.

***Campanula stricta* L. var. *alidagensis* Damboldt, nom. nov.** [sect. *Dictyocalyx* (Fed.) Damboldt].

Syn.: *C. stricta* L. f. *adpressa* Witasek in Ann. Nat. Hofmus. Wien 20:418 (1905).

***Campanula troegerae* Damboldt, sp. nov.** [sect. *Symphyandriiformes* (Fomin) Charadze]. Fig. 2.

Affinis *C. betulifoliae* C. Koch, sed foliis serratis vel biserratis, caulibus 1-3-floris, indumento densiore pubescente, corolla majore (ad 4.5 cm in diam.), late infundibularis, ad $\frac{3}{4}$ divisa, extus densiore pubescentia differt.

Planta perennis, saxatilis, basi indurata ob bases petiolorum persistentes squamosa. *Caules* ascendentes-erecti, flexuosi, simplices, foliosi, 12-17 cm longi. *Folia* omnia ovata-cordata, acuta, serrata-biserrata, supra pallide virido-pubescentia, subtus cinereo-sericea. *Folia basalia* ad 6 cm petiolata, lamina 1-3 $\times$ 1-2 cm. *Folia caulina* mediana majora, 1.5-3 $\times$ 1.5-2 cm, 0.5-2 cm petiolata. *Flores* 1-3, suberecti, terminales vel in axillis foliorum floralium dispositi, ad 5 cm pedicellati. *Calyx* tubo breviter obconico 3 mm longo, sericeo; lacinae late lanceolatae vel ovatae, acutae, 8-13 $\times$ 4-6 mm, patenti-erectae; appendices lanceolatae, acutae, reflexae, 2-3 mm longae. *Corolla* late infundibularis, 3-4.5 cm lata, dilute rosea in alabastro, albescens in flore, $\frac{3}{4}$ in lobos obtusos divisa, extus dense pubescens; lobi late ovati, 2 cm longi, 10-12 mm lati. *Filamenta* 6 mm longa, in partibus inferioribus ovata, margine ciliata. *Antherae* 5-6 mm longae, lineares. *Stylus* longe exsertus, 2.5-3 cm longus, pilosus, apice trifidus, stigmatibus 5 mm longis. *Capsula* et semina ignota. *Fl.* Jun.

Turkey. A8 Çoruh: Yusufeli, c. 610 m, 7 vi 1962, Guichard TUR/122/62 (holo. E).

Known to me only from the type gathering, this beautiful new *Campanula* is closely allied to *C. betulifolia* C. Koch (incl. *C. finitima* Fomin) from NE Anatolia. I am glad to have the opportunity to name this species after Annemarie Tröger (Berlin), who has made so many fine drawings for our work in the Campanulaceae.

***Campanula buseri* Damboldt, nom. nov.** [sect. *Tracheliopsis* (Buser) Engler]. Syn.: *Trachelium tubulosum* Boiss., Diagn. ser. I, 11:60 (1849).

Tracheliopsis tubulosa (Boiss.) Buser in Bull. Herb. Boiss. 2:525 (1897).

Campanula tubulosa (Boiss.) Engler in Engler & Prantl, Natürl. Pflanzenfam. 4(5), Nachtr. 319 (1897) non Lam. (1785).

Diosphdera tubulosa (Boiss.) Bornm. in Beih. Bot. Centr. 38:338 (1921).

***Campanula pubicalyx* (Davis) Damboldt, comb. nov.** (sect. *Tracheliopsis*).

Syn.: *Tracheliopsis pubicalyx* Davis in Notes R.B.G. Edinb. 22:79 (1956).

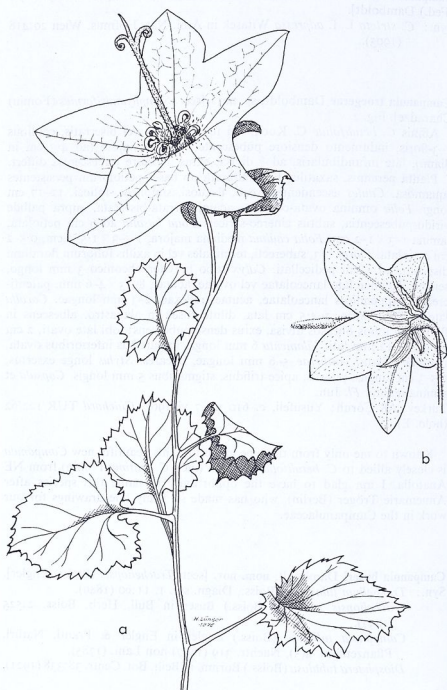


FIG 2. *Campanula troegerae* Damboldt: a, flowering shoot $\times 1\frac{1}{3}$ (Guichard TUR/122/62); b, flower and calyx $\times \frac{1}{2}$.

Campanula fruticulosa (Schwarz & Davis) Damboldt, **comb. nov.** (sect. *Tracheliopsis*).

Syn.: *Tracheliopsis fruticulosa* Schwarz & Davis in Hook., Ic. Pl. 35: t. 3498, p. 2, in adnot. (1950).

Campanula glaucophylla Damboldt, **nom. nov.** (sect. *Platyspermae* Damboldt).

Syn.: *C. crassifolia* Hub.-Mor. & Simon in Bauhinia 2:197 (1963)—non Nees (1824).

Campanula ptarmicifolia Lam. var. ***capitellata*** Damboldt, var. **nov.** (sect. *Platyspermae*).

Differt a var. *ptarmicifolia* floribus plerumque 2–5 terminalibus fasciculatis, foliis margine retrorse vel antrorse ciliatis, laciniis calycis retrorse ciliatis vel glabrescentibus.

Turkey. B7 Malatya: in monte Göl Da., Bornmüller 1883:3426 (holo. B; iso. B, G). Tunceli: Munzur Da., above Ovacik, Davis 31233 (E). Erzincan: Armenischer Olymp (Keşiş Da.), Aucher 1859 (G).

The epithet '*capitellata*' was used by Bornmüller on herbarium labels for plants collected by himself on Göl Da. (B7 Malatya). In the population from Munzur Da. (D. 31233), the leaf margin is antrorsely ciliate.

Symphyandra

The genus is very closely related to *Campanula* and differs only in the anthers being connate in a tube. Even this difference breaks down, since in *Campanula* sect. *Symphyandriiformes* there are some species, such as *C. betulifolia* and *C. ossetica*, where the anthers are partly connate in younger flowers. Also in *C. flaccidula* (sect. *Rapunculus*) the anthers are partly connate during anthesis (observation from herbarium material only). The preservation of *Symphyandra* as a genus seems to result from conservative tradition, and subgeneric rank may be more appropriate.

Asyneuma

Asyneuma linifolium (Boiss. & Heldr.) Bornm. subsp. ***podanthoides*** (Boiss. & Hausskn.) Damboldt, **comb. et stat. nov.**

Syn.: *Campanula podanthoides* Boiss. & Heldr. in Boiss., Fl. Or. 3:938 (1875).

Asyneuma eximium Rech. fil. in Ann. Naturhist. Mus. Wien 57:86 (1950).

A. linifolium (Boiss. & Heldr.) Bornm. subsp. *eximium* (Rech. fil.) Damboldt in Boissiera 17:83 (1970).

Asyneuma michauxioides (Boiss.) Damboldt, **comb. nov.**

Syn.: *Campanula michauxioides* Boiss., Diagn. ser. 1, 4:35 (1844).

Asyneuma davisii Quézel, Contandriopoulos & Pamukçuoğlu in Candollea 25:351 (1970).

Michauxia

Bornmüller in Beih. Bot. Centr. 61B:72 (1941) mentioned that a Sintenis gathering (*Sint.* 1890:3522) from Egin (B7 Erzincan: Kemaliye) represented an undescribed species of *Michauxia*. The incomplete specimen (without capsules and only two flowers) was given the exsiccata nomen, *Michauxia spathulaefolia*, by Haussknecht. The material I have studied from the Sintenis collection in Lund agrees with the description given by Bornmüller. The two flowers have a 5-fid calyx and corolla; calyx appendages are absent and the corolla is $\frac{1}{2}$ or $\frac{3}{4}$ divided; the style is trifid. The plants therefore belong not to *Michauxia* but to *Campanula* and possibly represent a new species related to *C. peregrina* L., but the material is insufficient for description.

Legousia

The systematic position and relationships of the four *Legousia* species in Turkey (*L. falcata*, *L. hybrida*, *L. pentagonia* and *L. speculum-veneris*) are still a matter of controversy (cf. McVaugh 1948, Gadella 1966). McVaugh even considers that *L. falcata* belongs to the independent North American genus *Triodanis* Raf. All the species, especially *L. pentagonia*, show a close relationship to *Campanula*. Hybridization between the species may be common; that between *L. hybrida* and *L. speculum-veneris* [Turkey C3: Pamphylic, ruines de Termessos, (Contandriopoulos 1970)] was fertile. The combination of characters found in other collections from Turkey suggests possible hybridization between *L. pentagonia* and *L. speculum-veneris*.

Jasione

Jasione supina Sieber in Sprengel, Syst. Veg. 1:1810 (1825) emend. DC., Prodr. 7:416 (1839).

The typification of *J. supina* Sieber presents problems. It was first published by Sprengel with the locality "?Asia minor". No original material collected by Sieber has been located, though the original Sieber type probably exists somewhere. The concept of the species as adopted in *Flora of Turkey* is based upon A. De Candolle's concept of it as represented by *Aucher* 1881 (G) from Bithynian Olympus (Ulu Da.).

Within *J. supina* four subspecies can be recognized which are morphologically and geographically clearly separated. Difficulties arise only in delimitation from the very polymorphic *J. orbiculata* Gris. which replaces the *J. laevis* group in the Balkan peninsula. Usually the taxa recognized in *J. orbiculata* have larger and more rounded, almost acute-toothed, involucre bracts; the plants are also more robust. Otherwise, there occurs in N Greece (Macedonia and Epirus) *J. orbiculata* var. *supinoides* Stoj., which is very similar to typical *J. supina*. The hairiness of the inner side of the involucre bracts is highly variable in *J. supina*, and cannot be used to distinguish *J. orbiculata* and *J. supina* (see Stojanov 1926). The taxa of *J. supina* are mostly caespitose plants, growing between 2000 and 2800 m in screes, alpine meadows, rarely on rocks, often on non-calcareous substrates.

J. supina subsp. **akmanii** Damboldt, subsp. nov.

Differt a subsp. *pontica* (Boiss.) Damboldt involucris phyllis integris haud dentatis.

Turkey. A3 Bolu: Koroğlu Da., summit, volcanic rock, 2000–2400 m, 24 viii 1975, Akman 3051 (holo. ANK).

This rare new subspecies is closely allied to subsp. *pontica* (Boiss.) Damboldt.

J. supina subsp. **pontica** (Boiss.) Damboldt, stat. nov.

Syn.: *J. supina* Sieber var. *pontica* Boiss., Fl. Or. 3:886 (1875).

J. pontica (Boiss.) Hand.-Mazz. in Ann. Nat. Hofmus. Wien 23:192 (1909).

J. supina subsp. **tmolea** (Stoj.) Damboldt, comb. et stat. nov.

Syn.: *J. tmolea* Stoj. in Notizbl. Bot. Gart. Berlin 9:550 (1926).

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POSTSCRIPT. While this paper was in press, Charadze has published a synopsis of the infra-generic classification of *Campanula* and some of its allies in the Caucasus. Charadze, A. (1976). Genus *Campanula* L. s. l. in Caucaso (conspectus). *Zam. Sist. Geogr. Rast. (Tbilisi)* 32:46-56. [In Russian].