Article

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Reinstating *Campanula nisyria* as a distinct species of Sect. *Quinqueloculares* (*Campanulaceae*)

Abstract

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The recently emerging trend to define *Campanula nisyria* as a synonym of *C. hagielia* provided the incentive for the publication of the current paper. The morphological differences of the two species, along with their different geographical distribution are supplemented by recent molecular data, which reinforce the clear distinction of the two aforementioned species.

Key words: *Campanula hagielia*, morphology, taxonomy, distribution.

Introduction

The decision to prepare this article stemmed from the examination of the available *Campanula* material, for the PhD Thesis of our collaborator Eleni Liveri (2021).

Thus, after several decades, I return to the study of the *Campanula lyrata* Lam. group, which on the Aegean islands and W Anatolia presents a unique polymorphism, the center of which is on Rhodes island and the surrounding islets. I believe that K. H. Rechinger was the first to clearly express the mentioned polymorphism in his fundamental work "Flora Aegaea – Flora der Inseln und Halbinseln des ägäischen Meeres" (1943), noting (p. 595): "Der Formenkreis der Sect. *Medium* Subsect. *Quinqueloculares* bedürfte dringend einer monographischen Bearbeitung, doch muss diese auf späteren Zeitpunkt verschoben werden". Already, in the first publication on the group of the quinquelocular *Campanula* species (Phitos 1965), we emphatically pointed out its polymorphism. Also Carlström (1987), who studied the flora of Rhodes island and the surrounding islets, mentions, in relation to this: "The quinquelocular *Campanula* species on the East Aegean islands and in W Anatolia are problematic and experimental work on the group is badly needed". In addition, Eddie & Ingrouille (1999) devote another paper to the "Polymorphism in the Aegean "five-loculed" species of the genus *Campanula* section *Quinqueloculares*".

In the process of examining the above-mentioned, collected *Campanula* material, we also turned to the recent, two-volume work by Arne Strid "Atlas of the Aegean

Flora" (2016). In that work, *Campanula nisyria* Papatsou & Phitos is mentioned as synonym of *C. hagielia* Boiss.

Taxonomy

Campanula nisyria Papatsou & Phitos in Notes Roy. Bot. Gard. Edinburgh 34: 203 (1975).
Holotype: − [GREECE, EAST AEGEAN ISLANDS]. No 446. Ins. Nisyros (Dodekanisa): in ditione pagi Emporios, in petrosis vulc., ca. 150 m, 29.5.1971, *S. Papatsou* (Herb. Phitos & Kamari in UPA!). − Fig. 1.

Campanula nisyria is a stenoendemic species that grows only on Nisyros island (East Aegean Islands).

It should be pointed out from the beginning that *C. nisyria* grows mostly on volcanic substrates. No other species of the *C. lyrata* group has been found on Nisyros island. Besides, on Rhodes island, despite the unrestrained polymorphism of the *C. lyrata* group, no individuals have been found so far, bearing the characteristic features of *C. nisyria*.

Table 1 presents the morphological differences between *Campanula nisyria* and *C. hagielia*, based also on the herbar-material, collected in the meanwhile. However, we consider useful to further comment on some characteristic features of *C. nisyria.*

As shown in Fig. 1, the most characteristic traits of *Campanula nisyria* are its robust and usually sole stem, up to 70 cm tall and the leaves in rosettes, oblong-ovate to

Table 1. The main morphological differences between *Campanula nisyria* and *C. hagielia*.

Campanula nisyria	***Campanula hagielia***
Plants long hirsute, scabrid, sometimes strigose	Plants softly hirsute or pubescent
Stem usually single, erect, up to 70 cm, rarely with 1–2 lateral branches	Stems usually many (1–)2–3(–4), suberect, up to 60 cm, irregularly branched or stems flexuose
Basal leaves (8–)12–18(–21) cm long, oblong-lanceolate to oblong-ovate, crenate, rarely bicrenate	Basal leaves (6–)10–16(–20) cm long, cordate or ovate-cordate, serrate, lobulated-petiolate or sublyrate, crenate to bicrenate
Flowers usually 2–3 together, or sessile to subsessile, forming a spikelet-like inflorescence	Flowers usually solitary, pedicelate or subpedicelate
Corolla tube infundibular; calyx lobe ovate, clearly less than ½ of corolla tube length; appendages densely incanus-hirsute or albo-strigose	Corolla broadly cylindrical to infundibular; calyx lobe variable in form and length; appendages hirsutulous to hirsute

Fig. 1. Holotype of *Campanula nisyria* (Herb. Phitos & Kamari in UPA).

oblanceolate, reaching 22 cm in length. The main stem usually bears 1-2 lateral stems. The rarely appearing forms with short stems that grow from the base of the plant, are derived from individuals, in which the main stem is missing, most likely eaten by sheep and goats; herding is one of the common practices for Nisyros residents, taking place all over the island. In this case, the common habitus of *C. nisyria* changes, however, the extensive damage on the main stem is visible.

Campanula hagielia Boiss., Fl. Orient. 3: 899 (1875).

Lectotype (designated here): − [GREECE, EAST AEGEAN ISLANDS], Rhodes: Rochers du mont Santo Elio près Salakos, 30 Mai 1870, *Bourgeau 217*, sub *Campanula lyrata* Lam. (G00748548 photo! - SIB 427802/1, image available at http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=550546&base=img). − Fig. 2.

In the Lectotype of *Campanula hagielia* (Fig. 2) it is clear that, apart from a single main stem, at least two secondary shoots grow from its base with stemmed single flowers. Moreover in Fig. 3, the leaf form in the two rosettes, that have been collected from the *locus classicus*, must be considered to be the typical form for this species. It is also clear in this case, that the different variants in leaf form are common, due to the polymorphism (Table 1).

In addition to the above morphological differences, recent molecular data (Liveri & al. 2020) reveal that *Campanula nisyria* belongs to a well-supported clade, together with five Turkish endemics, whereas *C. lyrata* and *C. hagielia* form a different clade; both clades, though, are included in a larger one, consisting of taxa distributed in SE Aegean and Anatolia.

With the above remarks and with the hope that it has become at least clear that *Campanula nisyria* constitutes a distinguished species, this does not mean that the unusual polymorphism of *C. lyrata,* mainly on Rhodos island and the surrounding islets has been solved. In fact, further work is required, which is left to the younger colleagues, particularly in view of the writing of "Flora Hellenica".

Besides, the author himself has repeatedly commented that the Aegean region with the multitude of islands and islets, is considered a natural laboratory for the evolution of living organisms, a result of which is also the formation of the above-mentioned polymorphism. Without doubt, this creates several difficulties in the taxonomy of the plants and especially in the polyphyletic genus *Campanula,* commonly leading to mistakes that even the author has not avoided in the past.

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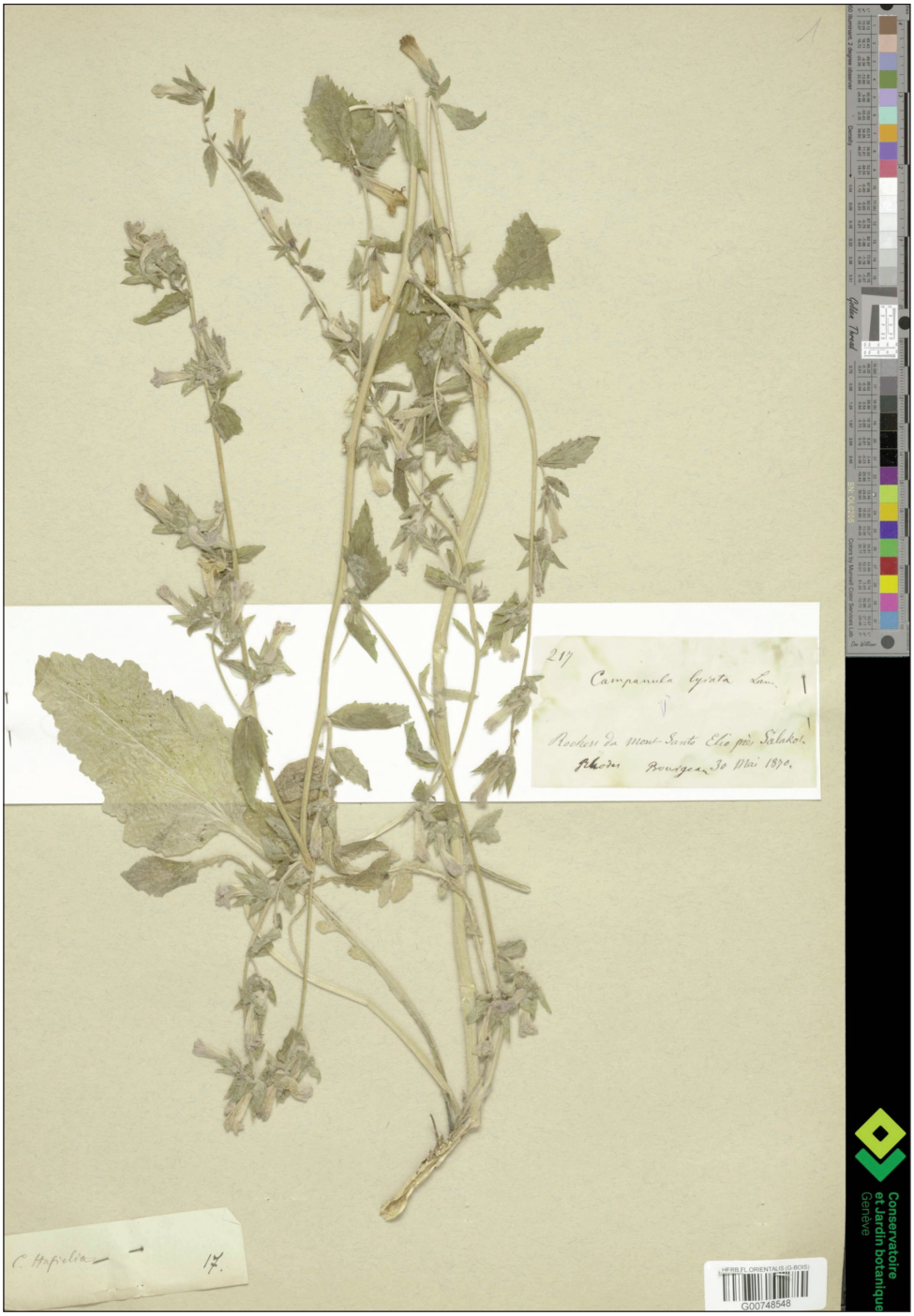

Fig. 2. Lectotype (designated here) of *Campanula hagielia* (Herb. Genève).

Fig. 3. Rosettes leaves of *Campanula hagielia* from Rhodos island (*locus classicus*).

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