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***Centaurea sibthorpii* HALÁCSY (*Compositae* – *Cardueae*) – a Disputable Taxon**

By

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With 4 Figures

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Key words: *Asteraceae*, *Compositae*, *Centaurea achaia* BOISS. & HELDR., *Centaurea sibthorpii* HALÁCSY. – Taxonomy, varieties. – Flora of Greece.

Summary

PHITOS D. 1992. *Centaurea sibthorpii* HALÁCSY (*Compositae* – *Cardueae*) – a disputable taxon. – *Phyton* (Horn, Austria) 32 (2): 277–281, 4 figures. – English with German summary.

The pronounced variation existing within *Centaurea achaia* BOISS. & HELDR. imposes the re-adoption of the infraspecific taxa recognized by BOISSIER, namely var. *achaia*, var. *submutica* and var. *ferox*. *C. sibthorpii* HALÁCSY, which was up-to-date considered as a rare and distinct species of the Greek flora, is brought back to the rank of variety (var. *ferox* BOISS. & HELDR.).

Zusammenfassung

PHITOS D. 1992. *Centaurea sibthorpii* HALÁCSY (*Compositae* – *Cardueae*) – ein strittiges Taxon. – *Phyton* (Horn, Austria) 32 (2): 277–281, 4 Abbildungen. – Englisch mit deutscher Zusammenfassung.

Die ausgeprägte Variabilität innerhalb *Centaurea achaia* BOISS. & HELDR. legt die Wiederaufnahme der infraspezifischen Gliederung von BOISSIER nahe, nämlich var. *achaia*, var. *submutica* und var. *ferox*. Der *C. sibthorpii* HALÁCSY, die bisher als seltene, eigene Art der griechischen Flora angesehen worden ist, kommt der Rang einer Varietät zu (var. *ferox* BOISS. & HELDR.).

In a previous paper by PHITOS & GEORGIADIS 1981, as well as in the study of WAGENITZ & GAMAL-ELDIN 1985 on the Greek *Centaurea* species of *C. sect. Acrocentron*, it was pointed out that *C. sibthorpii* HALÁCSY has not

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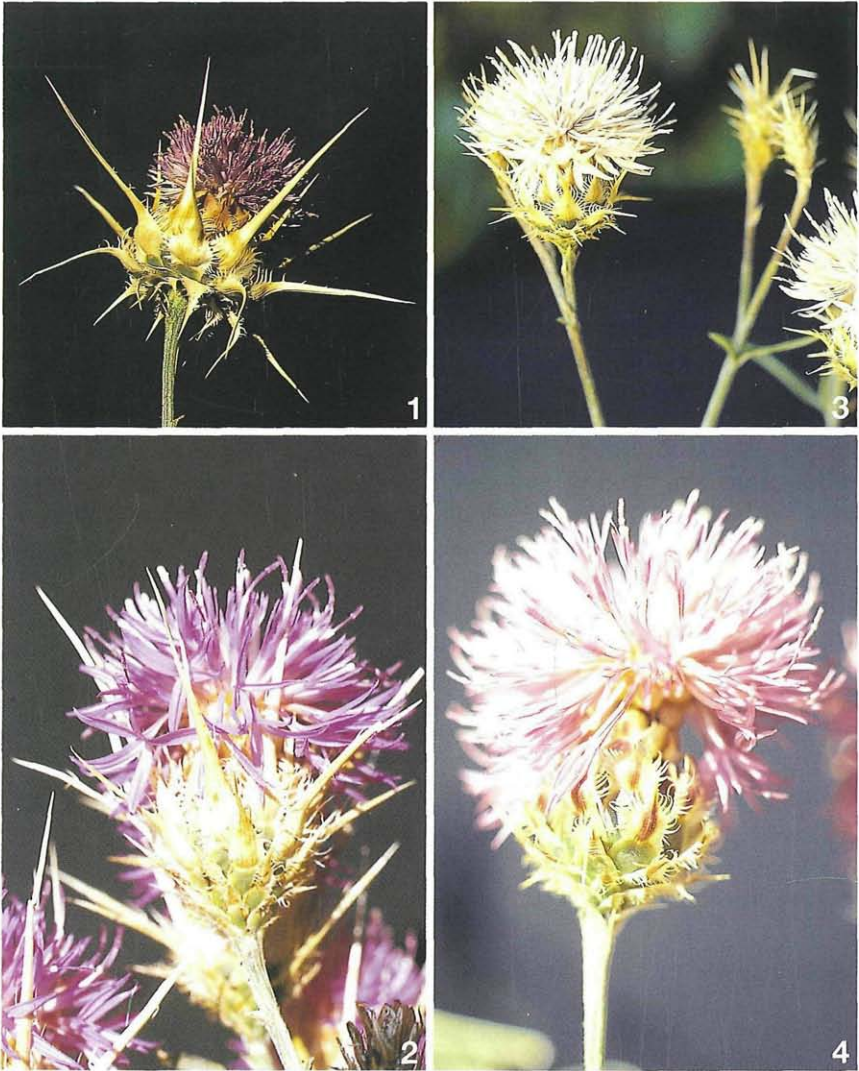
been found during the last decades (the most recent collection of the taxon was made by PINATZI, from "Mons Parnes" in 1937), and that the species was probably extinct. *C. sibthorpii*, described from Prov. Attikis, was known to me from herbarium material and its rediscovery has always been a challenge. Recently (together with Profs. W. GREUTER, A. STRID and S. SNOGERUP), I was assigned by WWF the Project "Red Data Book on Greek Plants", and thus I had an additional incentive to search for this species at the localities of its occurrence cited in literature. All records are from Prov. Attikis and to be more precise from locations very close to Athens.

Centaurea sibthorpii was described by HALÁCSY 1898. According to the original description, it differs from the closely related *C. achaia* BOISS. & HELDR. by its shorter stems, big rough leaves with wider lobes and, mainly, by the pale involucre bracts, which bear a stout apical spine and shorter fimbriae. Synonyms and existing herbarium specimens are listed in PHITOS & GEORGIADIS 1981 and WAGENITZ & GAMAL-ELDIN 1985.

The classical locality of *Centaurea sibthorpii* (Typus: "in campis et vinetis pr. Mesoitis Atticae", HELDREICH no. 426) is defined by the local name "Mesoitis", corresponding to a site probably located in the valley of Prov. Attikis, which extends south of Mt. Pentelikon and east of Mt. Imittos. The site is even better defined on the label of the type specimen of *C. achaia* var. *ferox* BOISS. & HELDR., stating "in vinetis prope Mesoitis planitie Atticae" (HELDREICH no. 2068). Unfortunately, it was not possible to locate "Mesoitis", probably due to the fact that this local name is forgotten by now. Furthermore, our research in the field within the valley was fruitless.

Liosia, a location only 8 km away from the centre of the city of Athens, is also cited on labels of *C. sibthorpii* specimens collected by HELDREICH. Today most of this area is densely populated, thus our efforts to find the species were once more vain. However, the possible existence of some scattered individuals north of Liosia, and up to the southern foot of Mt. Parnis is not to be excluded, particularly since specimens of *C. sibthorpii*, collected by L. PINATZI in 1937, bearing the indication "Mons Parnes", are extant in Munich (M) and Vienna (W) (WAGENITZ & GAMAL-ELDIN 1985). Incidentally, Liosia is the classical locality of *C. tuntasia* HELDR. ex HAL., which also belongs to *C. sect. Acrocentron*. The most recent collection of *C. tuntasia* was made by TUNTAS, from Marathon (Prov. Attikis), in 1912.

In 1986, we (PHITOS & KAMARI) collected a number of *Centaurea* individuals all belonging to the *C. achaia* group, in an area extending between the small towns of Megara and Alepochorion (Prov. Attikis); a second visit to collect the plant in flower was made in 1991. This population grows along the sides of the road to Alepochorion as well as at the borders of old, largely abandoned olive-groves. Some of the individuals occurring in this population could be easily identified as *C. sibthorpii* (Fig. 1). However, our enthusiasm when locating at least some representatives of *C. sibthorpii*



Figs. 1–4. *Centaurea achaia* – Fig. 1. *C. achaia* var. *ferox* (= *C. sibthorpii*), from Megara-Alepochorion. – Fig. 2. *C. achaia* var. *achaea* (non-typical form), from Kato Lousi. – Fig. 3. *C. achaia* var. *achaea* (bearing whitish florets), from Kato Lousi. – Fig. 4. *C. achaia* var. *submutica*, from Kato Lousi.

was soon subsided as we realised that characters such as leaf shape, and mainly the shape and size of involucre bracts, were extremely variable within the population.

We also attempted to locate the taxon in the field in N Peloponnisos, more precisely in the area around the village Peristera, which is situated at the NE foot of Mt. Chelmos, as well as in the village of Soudena (present called Lousi), to the NW of the same mountain. The most interesting fact relating to the Peristera area (the classical locality of *C. achaia*) is that, as stated in WAGENITZ & GAMAL-ELDIN 1985, among the collection ORPHANIDES no. 305 (Type of *C. achaia*), one finds individuals belonging to *C. sibthorpii*. With the discovery of the Peristera population, our notion (mainly formed by literature data) of a distinct general habit, characterizing the two taxa, became blurred. Within the population, a great variation in all morphological characters was evident. Typical *C. achaia* and typical *C. sibthorpii* were associated with a full range of intermediate individuals. Thus, the question posed by WAGENITZ & GAMAL-ELDIN 1985 as to whether the *C. sibthorpii* plants distributed as ORPHANIDES no. 305 indeed came from Mt. Chelmos can be answered affirmatively. There is no need to assume that they originate from Prov. Attikis and were accidentally admitted to the presaid collection. At the same time, however, our suspicion that no pure populations of *C. sibthorpii* exist was strengthened, even more so when a small population consisting of 100–120 individuals, occupying about one acre, was found near the village Kato Lousi, on the NW slopes of Mt. Chelmos. At this location, we observed a series of intermediate forms between *C. achaia* and *C. sibthorpii*, two individuals identified as *C. achaia* var. *submutica* BOISS. & HELDR. (PHITOS & ANAGNOSTOPOULOS no. 22206), and individuals bearing whitish florets (PHITOS & ANAGNOSTOPOULOS no. 22204) (Figs. 2–4).

Representatives of all the above forms were cytologically studied: $2n = 22$ chromosomes were found in all cases. The same chromosome number was also counted in material from Megara (PHITOS & KAMARI no. 22007), identified as *C. sibthorpii*. No significant difference was observed between the respective karyotypes.

It might appear as if all variable intermediate forms studied could result from crossings between *C. achaia* and *C. sibthorpii*. This hypothesis would be plausible, if a pure, even very limited, population of *C. sibthorpii* could be found. However, what we in fact observed were a few individuals with a *C. sibthorpii* habit within variable populations of *C. achaia* “sensu latissimo” and this not only once but within at least three populations studied by us. The Megara population (Prov. Attikis) is phytogeographically isolated from the other two, located on Mt. Chelmos. In addition, WAGENITZ & GAMAL-ELDIN 1985 state that in the gathering HELDREICH no. 426 (collected from Eptalofos, Prov. Attikis) both “species” co-exist. Co-

existence, however, of two distinct species linked by hybrid swarms in a number of isolated localities, over more than one century, is no plausible assumption.

We are led to conclude that searching for a pure, even very limited, population of *C. sibthorpii* may be a pointless task, and that this taxon is a mere assemblage of extreme forms within the large variation of *C. achaia*, a species widely distributed in Greece (Peloponnisos, Sterea Hellas). WAGENTZ & GAMAL-ELDIN 1985: 122 have already emphasized the remarkable range of variation of *C. achaia*, stating that "*Centaurea achaia* ist innerhalb dieser Artengruppe die am weitesten verbreitete und variabelste Art".

The infraspecific taxa recognized by BOISSIER 1856 within *C. achaia* should be adopted as providing an adequate taxonomic frame for the observed variation.

Centaurea achaia BOISS. & HELDR.,
Diagn. Pl. Orient. ser. 2 (3): 79 (1856).

Type: as for var. *intermedia*.

var. *achaia*

Syn.: *C. achaia* var. *intermedia* BOISS. & HELDR., Diagn. Pl. Orient. ser. 2 (3): 80 (1856). – Type: Greece, Nomos Achaias: "In monte Chelmos prope Peristeram, 22. VI./4. VII. 1852", ORPHANIDES no. 305 p.p. (Lectotype: UPA; Isotypes: G-BOIS, LD, WU-HAL).

Fimbriae (4-)5–8 mm long, as long as or longer than half of the width of the undivided appendage. Appendages sometimes with brown centre. Apical spine much longer than twice as long as fimbriae.

var. *submutica* BOISS. & HELDR., Diagn. Pl. Orient. ser. 2 (3): 79 (1856).

Type: Greece, Nomos Achaias: "In vinetis pagi Sudena, alt. 4500', ad radices m. Chelmos, 28. VII. 1848", HELDREICH no. 2068 (Lectotype: G-BOIS; Isotypes: ATHU, UPA).

As in var. *achaia*, but apical spine less than twice as long as fimbriae.

var. *ferox* BOISS. & HELDR., Diagn. Pl. Orient. ser. 2 (3): 80 (1856).

Type: Greece, Nomos Attikis: "In vinetis prope Mesoitis planitiei Atticae, 30. VI. 1852", HELDREICH no. 2068 (Lectotype: G-BOIS).

Syn.: *Centaurea sibthorpii* HALÁCSY, Bull. Herb. Boiss. 6: 635 (1898).

Fimbriae 2–4 (–5) mm long, shorter than half of the width of appendage. Appendages indistinct from the stout apical spine, which is widened at base, straw-coloured, rarely with greyish stripes.

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Recensiones

FLÜELER R. P. 1992. Experimentelle Untersuchungen über Keimung und Etablierung von alpinen Leguminosen. – Veröffentlichungen des Geobotanischen Insitutes Rübel, Zürich, H. 110. – 8°, 149 Seiten, mit 82 Fig. und 31 Tab. im Text, broschürt. SF. 54,-. – ISSN 0254-9433.

In der alpinen Stufe (in 2400 m), in der Umgebung von Davos in der Schweiz, wurde das Keimverhalten und die Jungpflanzenentwicklung von 144 Leguminosen aus 65 Populationen untersucht. Von Karbonat- und Silikatstandorten wurden von folgenden Arten Samen entnommen: *Anthyllis alpestris*, *Astragalus alpinus*, *Astragalus frigidus*, *Hedysarum obscurum*, *Hippocrepis comosa*, *Lotus alpinus*, *Oxytropis campestris*, *Oxytropis jacquinii*, *Trifolium badium*, *Trifolium nivale*, *Trifolium thalii*; von Silikatstandorten wurden weiters Samen von *Trifolium alpinum*, *Trifolium pallens* und *Trifolium repens* gesammelt. Von den Samen wurde ihr Gewicht ermittelt und die Anatomie untersucht. In der Klimakammer wurden Keimversuche angestellt, ebenso wurden Aussaaten auf dolomitischem und silikatischem Substrat von planierten Skipisten und Auspflanzungen mit Jungpflanzen durchgeführt, die in der Klimakammer gekeimt waren und nach 100 Tagen ausgepflanzt wurden. Das Keimverhalten der Leguminosensamen zeigte große Unterschiede. Großen Einfluß auf die Keimung der meisten Arten hatte eine mechanische Vorbehandlung (Skarifikation mit dem Skalpell) der Samen, wodurch die Samen schon kurz nach der Aussaat keimten. Die unbehandelten Samen hingegen keimten nur zu einem geringen Prozentsatz. Arten mit großen Samen hatten eine geringe und Arten mit kleinen Samen eine längere, angeborene Keimruhe. Außerdem wurde beobachtet, daß die Samengröße der Leguminosen mit zunehmender Meereshöhe abnahm. Nicht nur im Keimverhalten, auch bei der Jungpflanzenentwicklung der überprüften Arten traten große Unterschiede auf. Die dreijährigen Versuche in dieser Höhenlage dürften nicht ganz ausreichen, um auch zuverlässige Aussagen über eine erfolgreiche Anwendung dieser Leguminosen zur Skipistenbegrünung treffen zu können.

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