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Centaurea xaveri (Compositae), a new species from North Africa

Abstract

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Centaurea xaveri, a species of *C. sect. Acrocentron*, is described as new to science and illustrated. A close relation to the complexes of *C. ornata* in the Iberian Peninsula and *C. pubescens* in North Africa is suggested.

Introduction

A recent survey of the complex of *Centaurea prolongi* Boiss. and *C. granatensis* Boiss. of *C. sect. Acrocentron* (Cass.) DC. (Garcia Jacas 1992) led us to a peculiar *Centaurea* population of the Rif (NW Morocco). Specimens from there had been collected and determined by Font Quer in 1930 (no. 700) as *C. incana* var. *amourensis*, a taxon otherwise only known from the Saharian Atlas. Examination of living material now confirmed these plants to belong to a hitherto undescribed species related to the very complicated *C. pubescens* Willd. group.

Centaurea xaveri Garcia Jacas & Susanna, spec. nova [*C. sect. Acrocentron* (Cass.) DC.]. – Fig. 1.

Typus: Morocco, Tetuán, Djebel Tasaot, cinglos calizos a la izquierda de la pista ya cerca del abetal, 1500 m, rocas verticales, 17. 7. 1990, Susanna 1410 & Vallès (Holo- BC, iso- B, BC).

Differt a *C. pubescens* Willd. foliis quidem saturate viridibus etsi aliquantulum glaucis (nec viridi-cinereis) et hispidulis (nec dense lanuginosis), bractearum appendicibus in debiliorem spinam abeuntibus atque magnitudine totius plantae minore capitulisque minoribus. A *C. carolipauana* Fern. Casas & Susanna, quacum locum occupat suum, primo ictu seiungitur foliis bipinnatisectis (nec pinnatifidis) et hispidulis (nec glaberrimis) capitulisque multo minoribus. A *C. saharae* Pomel porro secernitur bractearum appendicibus atro-ferrugineis (nec stramineis), in spinam multo debiliorem abeuntibus, rhizomate non dense lanato atque rha-

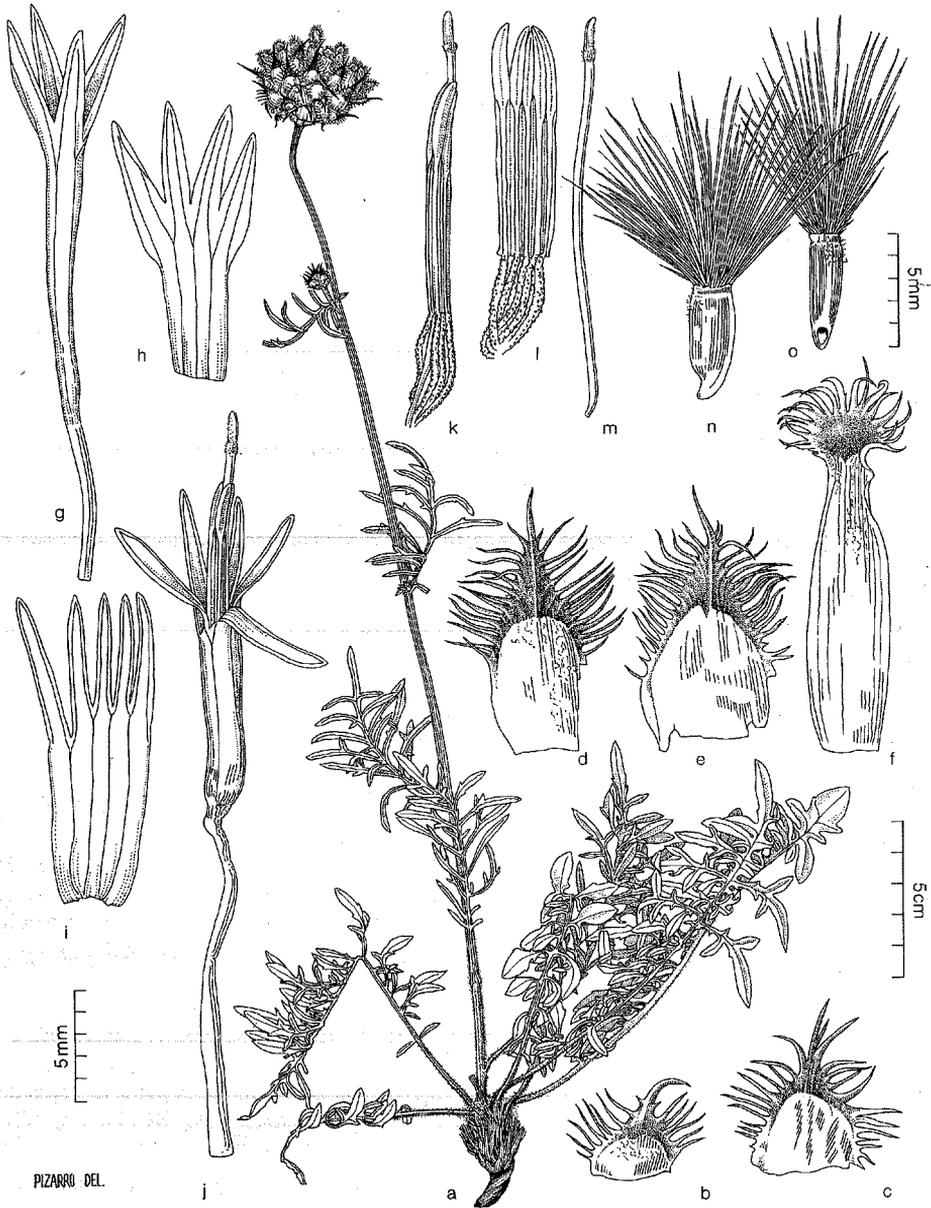


Fig. 1. *C. xaveri* Garcia Jacas & Susanna (*Susanna 1410 & Vallès*, holotype). - A: Habit. - B-F: Involucral bracts, from outermost to innermost. - G: Outer sterile flower. - H: Outer sterile flower, opened. - I: Inner fertile flower, opened. - J: Inner fertile flower. - K: Anther tube with papillose filaments and enclosed style. - L: Anther tube, opened to show basal appendages. - M: Style. - N: Cypsela, lateral view. - O: Cypsela, frontal view.

chide rufescenti foliorum, hispidulorum (nec hispidulo-lanuginosorum). A *C. prolongi* Boiss. denique, cui si bracteae attendantur similis, facile foliis distinguitur, bipinnatisectis (nec pinnatifidis) atque hispidulis (nec glabrescentibus). Ab iis omnibus, demum, flosculis intense luteo-aurantiacis (nec pallide flavis vel purpureis) plane distincta.

Amicissimo Javier Fernández Casas, in studiis nostris de genere *Centaurea* magistro carissimo, decorativa haec species ex animo dicatur.

Subrosetted hemicyptophyt about 30–40(–50) cm high, with rhizome. Rosette leaves green, somewhat glaucous, with reddish rachis, hispidulous with unicellular septate hairs; primordial leaves lanceolate, basally long-attenuate, sometimes apiculate, entire with toothed margin; later leaves interruptedly runcinate-bipinnate, or the oldest interruptedly runcinate-bipinnatisect, basally long-attenuate, of variable size, 7–17 × 2.8–5 cm, with lateral segments 1.4–2.5 × 0.8–1.5 cm and the frequently larger terminal segment 1.4–4.5 × 0.8–3.5 cm; margin thickened, remotely denticulate with cartilaginous denticules. Cauline leaves similar but smaller, pinnatifid, 2.5–7 × 2–4.5 cm, with segments 1.3–2.5 × 0.2–0.3 cm; uppermost leaves grading into linear bracts. Flowering stem terete, striate, 30–45 cm high, unbranched, sparsely woolly, with solitary, terminal capitules. Capitules subglobose, frequently umbilicate, 1.7–3 × 1.7–3 cm; middle involucre bracts with the herbaceous part broadly oval, 4–6 mm wide, green or grey-green, nerveless, densely aculeolate, sparsely woolly, including the terminal spine of the appendix 11–15 mm long; appendix broad-triangular, pectinate-fimbriate with lateral fimbriae 3–4 mm long, decurrent, including the fimbriae 6–10 × 8–10 mm, rusty-blackish, densely aculeolate, sparsely woolly, apically ending in a thin spine, 3–5 mm long, fimbriate at its base, prickly, often recurved; outer involucre bracts like the middle bracts but smaller; inner bracts linear-lanceolate, with the herbaceous part green or grey-green, with the appendix widely elliptic or rounded, 3–4 mm wide, cochlear, pectinate-fimbriate, deep brown, aculeolate, especially on the fimbriae. Flowers deep yellow to almost orange; outer sterile, corolla variably 3–5-partite, corolla lobes 4.5–6 × 0.8–1.3 mm, linear, acute; inner florets fertile, hermaphrodite, slightly zygomorphic, corolla with five unequal linear, acute lobes, 4.5–5 × 0.8 mm, thickened at the margin and apex. Anther tube 8.5–9.5 mm long, 0.7–0.8 mm in diameter, basal appendices 0.5 mm long, lacerate. Filaments 3.5–4 mm long (when extended), 0.4 mm wide, papillose, papillae 0.125 mm long. Style symmetrically bifid, style arms 1.8–2 × 0.5–0.6 mm long; style brush 0.7–0.8 mm wide. Cypselae oblong, 4–5.2 × 1.8–2.4 mm, compressed, deep brown, blotched with black or almost black, very sparsely sericeous. Exocarp cells variable in shape, with parallel, somewhat sinuate margins 0.062 × 0.016 mm. Basipodium lateral near base, somehow sericeous, with elaiosome. Pappus biseriate, whitish, outer series of pinnulate bristles 6–9.5 mm long; inner with paleae of double width than outer bristles and 1–2 mm long, with lacerate apex but without lateral pinnules.

Chromosome number: 2n = 20 (García Jacas 1992).

Specimens examined:

MOROCCO: Tétouan: Beni Zedjel [= Beni Zejjel], 1. El Kreien-d'Iest, ad 1400 m, [UTM coord. 30SUE00], 11. 7. 1930, *Font Quer, Iter Maroccanum 1930, 700* (BC); Djebel Tasaot, 1640 m, UTM coord. 30SUE00, 29. 6. 1988, *Molero, Romo & Susanna R4555* (BC); *ibid.*, área de los cinglos, 12. 6. 1989, *García Jacas & Susanna S-1321* (BC); *ibid.*, 1600 m, 10. 8. 1991, *García Jacas & Susanna S-1435* (BC).

Geographic distribution and ecology

A plant of the Occidental Rif, NW Morocco, only known from two localities in the region of the Beni Zejjel near Chechaouen (Fig. 2). *C. xaveri* grows in fissures and on rocky shelves of limestone cliffs at elevations of 1300–1700 m. As Djebel Tasaot is an area of intense pasturing *C. xaveri* might be restricted to the cliffs merely due to the grazing strain, and might grow in other habitats as well.

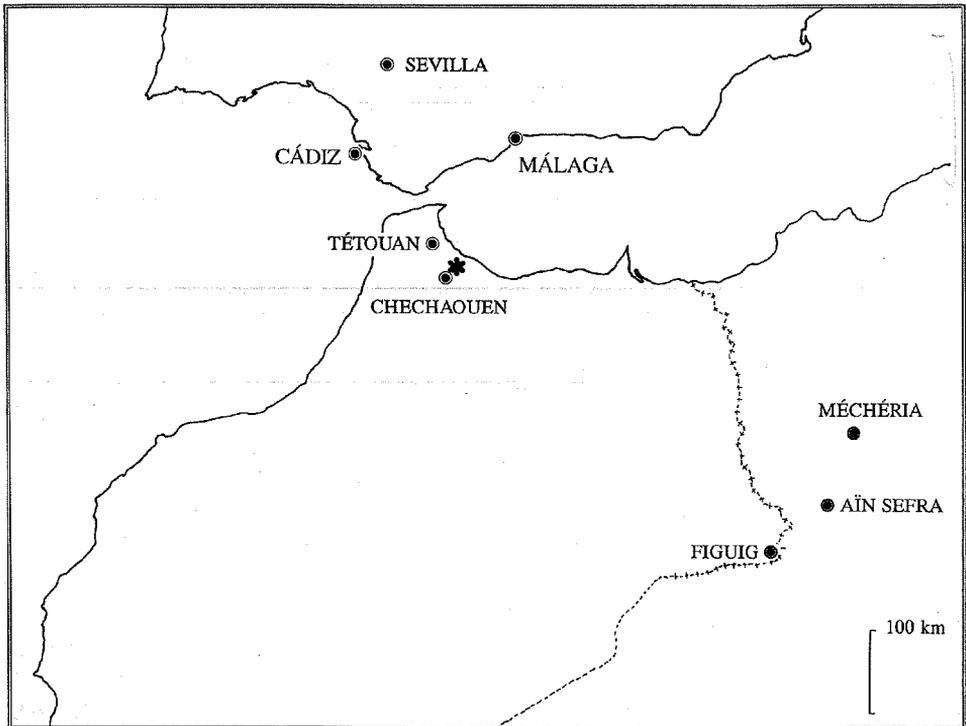


Fig. 2. Geographic distribution of *C. xaveri*.

Discussion

C. xaveri can be distinguished from related species of *Centaurea* sect. *Acrocentron* by the combination of brown involucre bract appendages provided with a very short spine, bipinnatisect, hispidule leaves and deep yellow florets. *C. xaveri* occupies a quite isolated position within a species complex belonging to *C.* sect. *Acrocentron* in North Africa. Representatives of this group are *C. pubescens* Willd., better known by its illegitimate name *C. incana* Desf., non Burm. f., and *C. saharae* Pomel which we understand, along with other authors, as a species comprising also those forms which Pomel (1874: 30–31) has described as *C. amourensis* and *C. rupicola*.

Willdenow's type of *C. pubescens* (B-W no. 16644 photo.!) and the type of *C. incana* Desf. (P-Desf.) both belong to the same plants of the Oriental Rif and we have no doubt that both specimens belong to the same species, even if the plant in Desfontaines' herbarium is in very bad condition. Pomel's type of *C. saharae* (P) corresponds with plants of the extreme SE of Morocco.

The populations of *C. pubescens* and *C. saharae* from the Oriental Rif and the Saharian Atlas respectively can be easily distinguished, but many populations in C Morocco (N of the Haut Atlas) are intermediate between the two species; introgression seems to have played a major role in the origin of these populations. The same could be said about the closely related complex of *C. ornata* in the Iberian Peninsula which comprises five described species and many intermediate (probably introgressive) populations. A crucial difference is that in the *C. ornata* group a noticeable polyploid series ranging from $2n = 20$ to $2n = 60$ occurs (Garcia Jacas & Susanna 1992: 12–13) whereas in the North African complex only the diploid level is known.

The elements of both groups can be listed as follows:

***C. ornata* complex:**

- (1) *C. ornata* Willd. s. str. (tetraploid) [= *C. ornata* Willd. var. *macrocephala* Willk.]: S and C Spain, C Portugal.
- (2) *C. saxicola* Lag. (hexaploid): SE Spain.
- (3) *C. legionis-septimae* Fern. Casas & Susanna (tetraploid): NW Spain.
- (4) *C. gabrielis-blancae* Fern. Casas (diploid) [= *C. ornata* Willd. var. *microcephala* Willk.]: S and C Spain.
- (5) *C. galianoi* Fern. Casas & Susanna (diploid): SW Spain, S Portugal.

***C. pubescens* complex:**

- (1) *C. pubescens* Willd. (= *C. incana* Desf.): N Morocco.
- (2) *C. saharae* Pomel: S and E Morocco, SW Algeria.
- (3) *C. xaverii* Garcia Jacas & Susanna: NW Morocco.
- (4) intermediates between 1 and 2: C Morocco.

There is no clear morphological cut between the two complexes; we can stress differences only between single species: e.g. *C. pubescens* can be easily distinguished by its hairy indumentum from all species of the Iberian *C. ornata* group as they are all glabrescent; *C. saharae* can be identified by its very prickly heads with thin spines being scarcely fimbriate at their base while Iberian species of the *C. ornata* groups have thick spines being densely fimbriate at their base. Nevertheless, frequent introgression makes it difficult to ascertain the identity of many populations both in the Iberian Peninsula and in North Africa.

A comprehensive revision of both complexes is needed to clarify the relationship between the Iberian (especially SE Iberian) and the North African populations. *C. xaverii* was distributed to major European herbaria by Font Quer with the exsiccata series *Iter Maroccanum* already in 1930 but remained unrecognised as a new species up to now. This suggests, better than any other argument, that an exhaustive survey of North African material (especially from C Morocco) must precede any taxonomic conclusion. In this sense, the inclusion of "*C. ornata*" in "*C. incana*" as suggested by Kerley & Jury (1990: 144) on the basis of a few collections only (Jury, Rejdali & Watson 1988) seems to us an unsatisfactory simplification.

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