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The genus *Taraxacum* (*Asteraceae*) in Italy. III. A new species of *T.* sect. *Erythrocarpa* from Sicily

Abstract

Peruzzi, L., Aquaro, G., Caparelli, K. F. & Raimondo, F. M.: The genus *Taraxacum* (*Asteraceae*) in Italy. III. A new species of *T.* sect. *Erythrocarpa* from Sicily. — *Fl. Medit.* 19: 73-79. 2009. — ISSN 1120-4052.

Taraxacum sect. *Erythrocarpa* is reported for the first time for Sicily. After field, herbarium and laboratory studies, a new species belonging to that section is described as new to science: *T. garbarianum* ($2n = 32$). Morphological, cytotaxonomical and distributional data are illustrated and discussed.

Key words: *Taraxacum garbarianum*, Karyology, Taxonomy.

Introduction

According to Kirschner & Štěpánek (1985), *Taraxacum* F.H. Wigg. sect. *Erythrocarpa* Hand.-Mazz. (*Asteraceae*) is known to comprise 50–80 species, occurring mainly on the territories extending from the Eastern Mediterranean to Central Asia. The representatives of this section share usually the following features: plants often robust; outer involucre bracts lanceolate to broadly ovate with pale, often broad, scarious margin; achenes densely spinulose, usually red to dark brown, large (often larger than 4.5–5 mm, including long cylindrical cone), with a long rostrum. In Europe, 29 species only are known (Kirschner & Štěpánek 1985; Richards 1991; Sonck 1993; Kirschner & al. 2008; Aquaro & al. 2009): *T. duriense* Soest and *T. malato-belizii* Soest (from Iberian peninsula); *T. pseudohoppeanum* Kirschner & Štěpánek (from Maritime Alps); *T. albo-marginatum* A.J. Richards, *T. amorum* G.E. Haglund, *T. dialeptum* Sonck, *T. olym-pophilum* Sonck and *T. panhellenicum* Sonck (from Greece); *T. capricum* Soest (from France, Italy); *T. apulicum* Soest, *T. calabricum* Aquaro, Caparelli & Peruzzi, *T. cescae* Aquaro, Caparelli & Peruzzi, *T. kirschneri* Aquaro, Caparelli & Peruzzi, *T. optima*e Aquaro, Caparelli & Peruzzi, *T. pollinense* Aquaro, Caparelli & Peruzzi (from peninsular Italy); *T. dorhocarpum* Soest, *T. janchenii* Kirschner & Štěpánek (= *T. hoppeanum* Griseb. & Schenk, *nom. illeg.*), *T. pindicola* (Bald.) Hand.-Mazz. and *T. poliochloroides* R. Doll (from Balkans); *T. calocephalum* Hand.-Mazz. and *T. poliochlorum* Dahlst.

(from E Mediterranean); *T. erythrocarpum* Kirschner & Štěpánek (from W Carpathians); *T. pieninicum* Pawł. (from Pieniny Mts); *T. tauricum* Kotov (from Ukraine); *T. breve* R. Doll, *T. conicum* R. Doll, *T. desertorum* Schischk., *T. divulsiforme* R. Doll and *T. pseudophaleratum* R. Doll (from European Russia).

Only eight species of *T.* sect. *Erythrocarpa* are known to occur in Italy (Kirschner & Štěpánek 1985; Kirschner & al. 2006–2007; Aquaro & al. 2009): *T. apulicum*, *T. calabricum*, *T. capricum*, *T. cescae*, *T. kirschneri*, *T. optimae*, *T. pollinense* and *T. pseudo-hoppeanum*. Any of these species is quoted in Conti & al. (2005).

During a field excursion in Sicily we identified several plants clearly referable to sect. *Erythrocarpa*. This contribution, dealing on the taxonomy of these plants, is part of a planned series of papers devoted to *Taraxacum* diversity and distribution in Italy (Aquaro & Peruzzi 2007; Aquaro & al. 2008; Peruzzi 2008; Aquaro & al. 2009).

Materials and methods

The study was based on *exsiccata* from CLU, FI, PAL and PI and on living plants collected during the years 2004–2009.

Karyological studies were carried out, after cultivation in the Botanic Garden of Calabria University. Root tips were pretreated with a 0.3% colchicine solution and fixed in Carnoy; afterwards they were hydrolyzed in 1N HCl solution and coloured with fuchsin; at the end, they were squashed in a 45% solution of acetic acid for counting and observation of chromosomes. Karyotype formula according to Levan & al. (1964) was drawn out from measurements made on five somatic metaphase plates. A_1 (Intrachromosomal asymmetry index) and A_2 (Interchromosomal asymmetry index) were calculated according to Romero Zarco (1986).

Results & Discussion

According to our morphological study, only one apomict systematic unit belonging to *Taraxacum* sect. *Erythrocarpa* is identified in the studied area of Sicily. It appears not identifiable with previously described taxa. Among Italian units, it is the only species possessing strongly corniculate inner and outer bracts and paler achenes.

Taraxacum garbarianum Peruzzi, Aquaro, Caparelli & Raimondo **sp. nov.** (Figs. 1, 2)

Diagnosis: Planta 5–10 cm alta, prostrata, viridia vel rubescentes, sparse araneosa, plerumque 3–5 cm longa et 0.8–1.5 cm lata, lobata; lobus terminalis obtuse triangularis, 0.3–0.8 cm longus, 0.5–1.1 cm latus; lobi laterales 5–7, triangulares-deltaidei, marginibus distalibus raro denticulatis; interlobii sublatis brevi, crispo-plicatuli; petiolus alatus, 0.6–1.5 cm longus, nervo mediano viridis vel purpureo-colorato. Scapus paulo brunnescens, sparse araneosus, 3–5 cm longus. Involucrum basi 0.7–1.2 cm diametro, squamae interiores ad 12–16 mm longae et 1.5–2 mm latae, apice purpurascens, valde cornutae; squamae exteriores 10–12, subadpressae, ovatae, acuminatae, apice purpureo, membranaceo-



Fig. 1. *Taraxacum garbarianum* sp. nov.: general view and particular of achenes. All plants scanned are parts of type collections.



Fig. 2. *Taraxacum garbarianum* sp. nov.: plants in habitat, from the Madonie Mts.

marginatae (marginis ad 0.3 mm lati), ciliolatae, ad 4–6 mm longae et 2–3 mm latae, valde cornutae. Stigmata luteo-viridia, antherae polliniferae, grana pollinis diametro valde variantia. Achenium subpallide rufum – obscure luteum, superne dense spinulosum, 3.5–4 mm longum (pyramide exclusa) et 0.9–1.2 mm latum, in pyramiden cylindricam 0.9–1.5 mm longam subabrupte abiens. Rostrum (3.5)5–6.5 mm, pappus albus *ca.* 4–6 mm longi.

Holotypus: Sicily: Madonie, near the crossroad among Piano Zucchi, Piano Battaglia and Polizzi Generosa, eastern slope of Monte dei Cervi, ca. 1500 m, 3/IV/2006, *L. Peruzzi, D. Gargano, G. Aquaro, K. F. Caparelli, C. Stefano* (PI; isotype: FI).

Paratypes: Madonie, Fosse di San Gandolfo, 14/VI/2009, *F. M. Raimondo, E. Schimmenti* (PAL); Madonie, Case Prato, VI/2009, *F. M. Raimondo* (PAL); Sicilia, Nebrodi: contrada Cannata, a NW di Randazzo, 1200 m ca., pascoli non troppo soleggiati, 10/IV/2005, *L. Peruzzi, K. F. Caparelli* (CLU, n. 16220); Ficuzza, 1842, *Parlatore* (FI, sub *Leontodon*, revised as *T. obovatum* by Handel-Mazzetti); Pizzuta e anche alle Madonie, 1842, *Parlatore* (FI, sub *Leontodon*, revised as *T. obovatum* by Handel-Mazzetti); in Sicilia al Godrano presso il Cuozzo di Cannatella vicino al Gorgolo Drago, IV/1839, *Parlatore* (FI, sub *Leontodon*, revised as *T. obovatum* by Handel-Mazzetti).

Description: Perennial medium/little-sized herb, 5–10 cm tall, pubescent on the adaxial surface of the leaves and densely hairy on the rachis; scapes more or less equalling the leaves. Leaves adpressed to soil, light green, 3–5 cm long and 0.8–1.5 cm wide, lobed (usually not more than 2/3 of the lamina); terminal lobe obtuse-triangular, 0.3–0.8 cm long and 0.5–1.1 cm wide; lateral lobes 5–7, triangular to deltoid; distal margin convex, rarely denticulate; interlobes short and sometimes plicate; petiole green to purplish along the rachis, winged, 0.6–1.5 cm long. Scape brown-reddish, sparsely hairy, 3–5 cm long. Involucre 0.7–1.2 cm wide at the base, inner bracts 10–12, 12–16 mm long and 1.5–2 mm wide, with a reddish strongly corniculate apex; outer bracts 10–12, sub-adpressed, ovate, acuminate at the apex, 4–6 mm long and 2–3 mm wide, with membranous margin *ca.* 0.3 mm wide, ciliate, strongly corniculate. Stigma yellow-green; anthers with pollen grains of variable size. Achenes dark yellow to brownish - light red, with spines in the upper portion; body 3.5–4 mm long and 0.9–1.2 mm wide; cone 0.9–1.5 mm; rostrum (3.5)5–6.5 mm; pappus white, *ca.* 4–6 mm long.

Etymology: the name of this species is dedicated to Prof. Fabio Garbari (Pisa), dear friend of FMR and mentor of LP.

Ecology: mainly on limestones (1000–1600 m a.s.l.), flowering in springtime (April–June).

Chromosome number: $2n = 32$ (Fig. 3). Karyotype formula: $2n = 4x = 4m + 4sm + 8m + 4sm + 4m + 4sm + 4m$; $A_1 = 0.35$, $A_2 = 0.28$. Chromosome size ranges between 2.02 and 4.27 μm .

Distribution: known only for northern Sicily: Nebrodi, Madonie and Montains south to Palermo (Fig. 4).

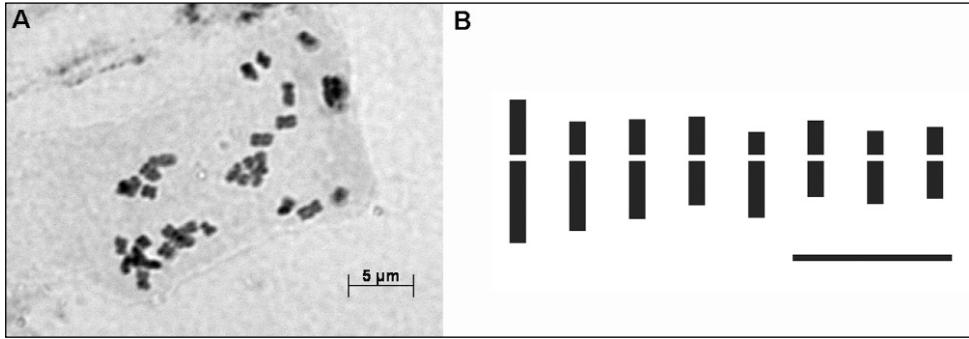


Fig. 3. *Taraxacum garbarianum* sp. nov.: A. root tips metaphase plate $2n = 32$; B. haploid idiogram.

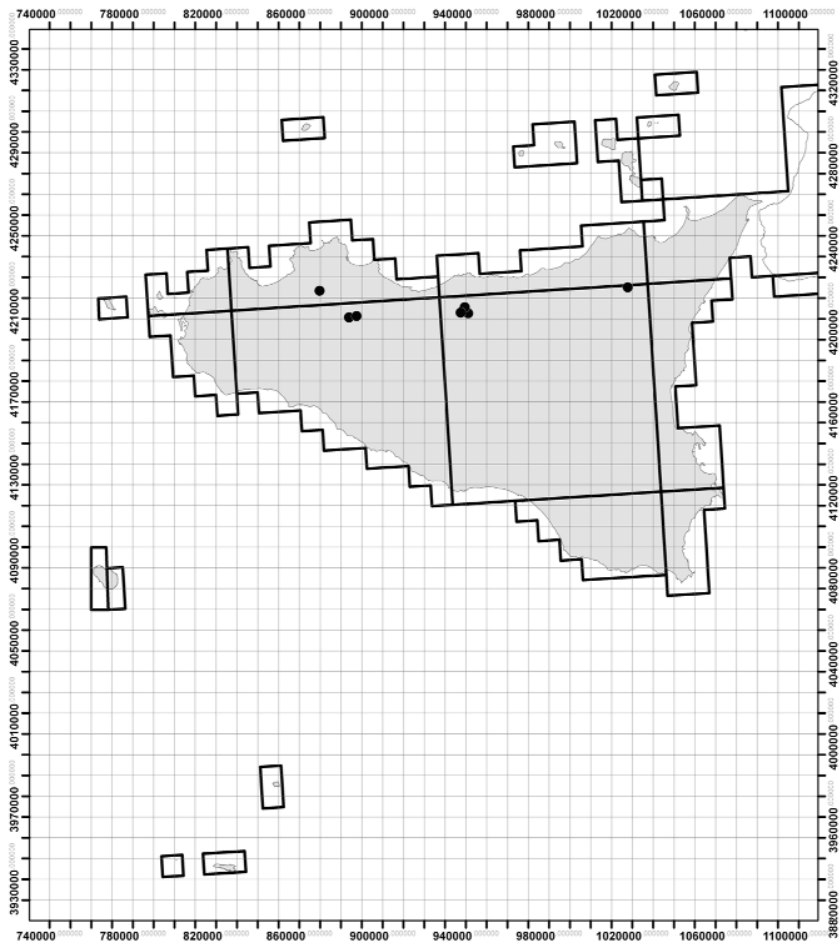


Fig. 4. Geographical distribution of *Taraxacum garbarianum* sp. nov.

Conclusions

Taraxacum sect. *Erythrocarpa* was here recorded for the first time in Sicily. In particular, it was possible to describe one agamospecies in the studied area, which refers to small-sized plants up to now known as “*T. obovatum*” (Lojacono Pojero 1908; Pignatti 1982; Conti & al.; 2005; Giardina & al. 2007), a species which has nothing to do with our Sicilian plant. Indeed, a peculiar feature of the new species, within sect. *Erythrocarpa*, is a relatively short rostrum and a paler achene colour and this could led previous authors to include this unit within “*T. obovatum*” (sect. *Obovata*) (see for instance, Handel-Mazzetti 1907). On the other hand, already van Soest (1954), in describing sect. *Obovata*, affirms that Sicilian and most of the Italian material he studied (including Lojacono’s citation of *T. obovatum* for Sicily) did not belong to that section at all.

Concerning karyotype asymmetry, *T. garbarianum* shows a rather isolated position (higher values of both A_1 and A_2 indices) if compared with available data from other Italian species of sect. *Erythrocarpa* (*T. cescae* and *T. pollinense*, $2n = 32$, *T. kirschneri*, $2n = 24$; cfr. Aquaro & al. 2009). Noteworthy, also a report of $2n = 32$ chromosomes for “*T. obovatum*” from Nebrodi range (Brullo & al. 1977) is to refer to the new species.

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