

Scorzonera scyria, a New Chasmophytic Species from Greece

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ABSTRACT

GUSTAFSSON, M. & SNOGERUP, S. 1972. *Scorzonera scyria*, a new chasmophytic species from Greece. — Bot. Notiser 125: 323—328.

The new locally endemic species *Scorzonera scyria* M. GUST. & SNOG. is described from the island of Skiros, Greece. It is a perennial, obligate chasmophyte belonging to subgen. *Scorzonera* sect. *Foliosae* (BOISS.) LIPSCHITZ. The chromosome number is $2n=14$. A schematic karyotype is given.

INTRODUCTION

The flora of the island of Skiros is being investigated in detail by a team including the present authors, Prof. D. PHITOS, Patras, and R. v. BOTHMER, Lund. Several new taxa have been discovered during the field work and will be published separately as soon as they have been sufficiently investigated.

The specimens of *Scorzonera scyria* transplanted into a greenhouse in the Botanical Garden, Lund, became much modified, e.g. in having longer stems, more capitula and longer leaves. Thus, the description below is entirely based on material collected in field, with only some remarks on the cultivated material.

Scorzonera scyria M. GUSTAFSSON & SNOGERUP, sp. nov. (Figs. 1, 2)

Typus: SNOGERUP & GUSTAFSSON 42666 (LD holotypus, W, G, K, PATRAS).

Planta perennis, e basi lignosa, ramosa, caules floriferos et rosulas vegetativas plures emittens. Folia basalia et caulina pluria, alterna, basalia et caulina inferiora e basi vaginata petiolata, elliptica usque lanceolata, caulina superiora semiamplexicaulia, cordi-

formia, superne sensim acuminata. Capitula florentia 4—6 cm lata, flores dilute lutei. Involucri squamae ovatae vel inferiores sub-oblongae, obtusae vel acutae, apice floccosae. Pappi setae 5 longiores apice simplices, scabridae, et c. 30 breviores, tota longitudine pennatiramosae, scabridae.

Perennial, with a branched, woody basal part each year producing 1—10 herbaceous flowering shoots and a variable number of non-flowering rosettes. Basal woody branches short, 1—2 cm thick, dark, covered with remnants of former leaves, annual rings inconspicuous, only the outer ones recognizable. Flowering stems 20—35 cm high, usually 4—5 mm thick in the basal part, striate, or in dried material sulcate, with 4—10 basal and 6—15 cauline leaves, 1—5-headed (or in cultivated specimens up to 10-headed). Basal leaves petiolated, petiole short or up to 3(—6) cm long, from a sheathy basal part flat, 2—7 mm broad, lamina lanceolate to elliptic, acute, entire, 4—8 cm long, 1.5—2.5(—3) cm broad, curved-ribbed with anastomosing veinlets forming an irregular reticulum. Lower cauline leaves up to 11 cm long, and 3 cm broad,



Fig. 1. *Scorzonera scyria*. — Part of flowering specimen, $\times 0.6$. Type collection.

lanceolate to narrowly ovate, short-petioled or all with a broad, semiamplexicaul base, upper leaves gradually smaller, semiamplexicaul, ovate with a prolonged

tip. Floccose hair-covering of multiradiate hairs, densely developed on ventral leaf surface, basal part of the stem and basal part of the dorsal surface of some upper

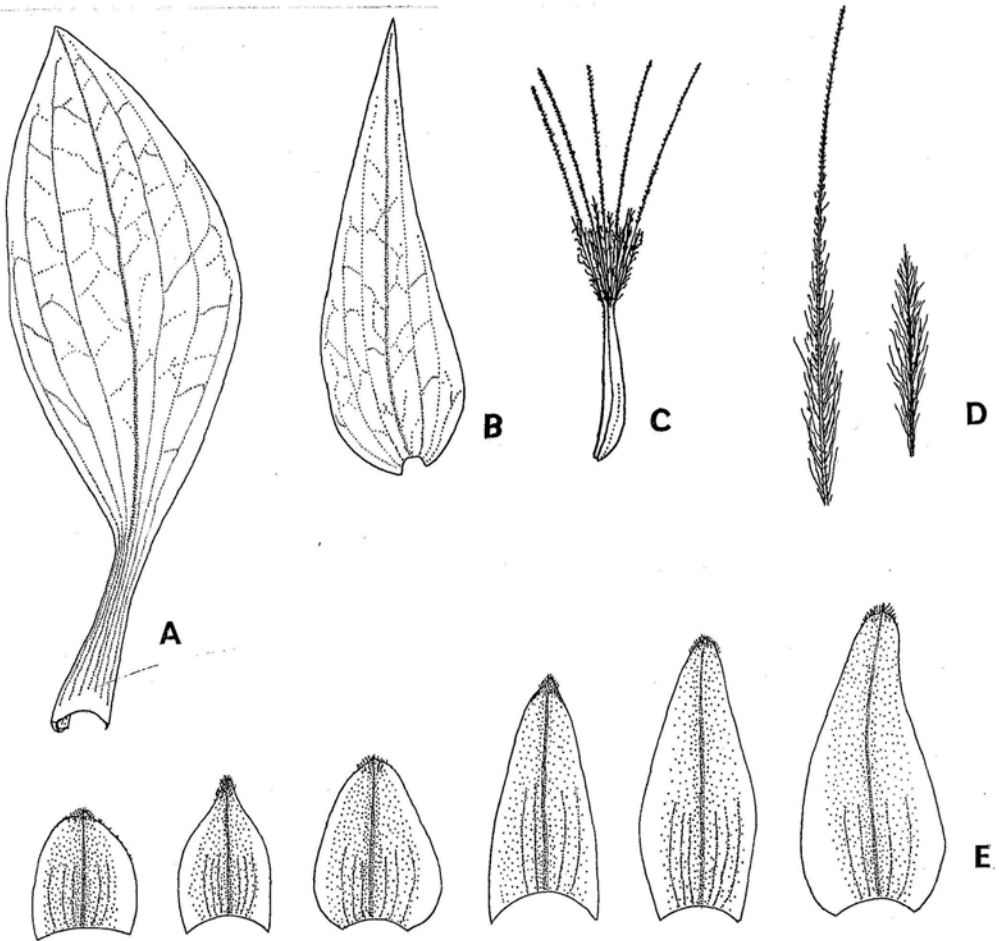


Fig. 2. *Scorzonera scyria*. — A: Basal leaf, $\times 1.2$. — B: Middle cauline leaf, $\times 1.2$. — C: Achene, $\times 1.5$. — D: Pappus bristles, $\times 3$. — E: Involucral scales, $\times 2$. — A, B and E: Type collection. C and D: S & G 44329.

leaves, sparse or lacking on other parts of dorsal leaf surfaces and stem.

Capitulum usually 50—60-flowered, (3—)4—6 cm broad at anthesis. Involucrum cylindrical, 20—30 mm long and 8—15 mm thick. Involucral bracts 12—18, overlapping, of varying sizes, lower ones broad, ovate to oblong, obtuse, mucronate or rarely acute, upper ones gradually longer and more narrowly ovate, some of them with an elongated, oblong tip, obtuse to acute. Involucral bracts green all over

or with a darker, \pm purplish apex, with narrow scarious margins and a marked tuft of flocculose hairs at the apex, at the margin also some simple hairs. Receptacle hairy with predominantly simple hairs.

Florets pale yellow, tube 8—12 mm long, lamina 14—20 mm long and 2—5 mm broad, varying in form from oblong to narrowly lanceolate, apically markedly 5-fid, with 2—4 (—8) striae, quite glabrous or with a sparse covering of predominantly simple hairs on the ventral side. Anthers

4.5–6.5 mm, greenish yellow to light brown, filaments c. 1.5 mm. Ripe stigmata 6–7 mm, light brown.

Achene 12–14 mm, c. 1.5 mm broad, glabrous, 4-costate but costae often inconspicuous especially in the symmetric inner achenes, those of the slightly curved marginal achenes sometimes irregularly rugulose, in their apical part setose. Pappus bristles of two discrete types. Long bristles normally 5, 15–18 mm long, densely covered with 0.1–0.2 mm long setae and in their basal part with lateral, crispulate hairs. Short bristles c. 30, 5–10 mm long, densely covered with lateral, crispulate hairs along their entire length and with some setae like those of the long bristles.

Pollen yellow, of Helianthus-type (ERDTMAN et al. 1961), with verrucae or broad spinulae on the ridges. Chromosome number $2n=14$.

The name is formed from the name of the island of Skiros, to indicate the local distribution.

COLLECTIONS: Skiros, 2.5–3 km N–NW of the top of Mt. Kochilas, 100–200 m, cliffs of hard limestone. SNOGERUP & GUSTAFSSON 42666. (LD holotypus, W, G, K, PATRAS). — Skiros, cliffs of predominantly N–NE exposure at Akr. Korakias and up to 1 km S of Akr. Korakias, 10–200 m, hard limestone. SNOGERUP & GUSTAFSSON 44329. (LD, PATRAS).

DISTRIBUTION AND ECOLOGY

In 1971 *Scorzonera scyria* was found on the lower, N-facing cliffs of Mt. Kochilas, 2.5–3 km to the N of the top. The following year it was also observed growing along the cliffs at Akr. Korakias, situated in the E part of the same mountain. Thus, both collections originate from the same cliff system, which extends for 10–12 kms with cliffs of varying altitudes from sea level up to 700 m. *S. scyria* has only been observed within a distance of one km from the sea and preferably at altitudes of 50 to 200 m. Both the higher parts of the same cliff system as well as several other cliffs of Skiros, the neigh-

bouring island of Skiropoula and all the islets around Skiros have been investigated too, but unsuccessfully. It seems most probable that *S. scyria* is restricted to the maritime cliffs on the northern and eastern sides of Mt. Kochilas. In particular the southern populations visited in 1972 comprised many specimens, at the least more than 500 and probably thousands of individuals, particularly if the adjacent cliffs, which have not yet been closely investigated, also are included. *S. scyria* must be considered as being locally well established and its existence secure for the nearest future. Further, it is restricted to small crevices containing very little earth or none, in the open, very steep, sometimes vertical cliff surfaces. The influence of grazing or other agricultural practices is insignificant or nonexistent and it has probably remained wholly undisturbed by human activity. The species has only been observed growing on cliffs composed of hard limestone.

The cliff system to which *Scorzonera scyria* is endemic, contains a very rich cliff flora. From the cliff surfaces have been noted: *Senecio bicolor* (WILLD.) TOD., *Centaurea rechingeri* PHITOS, *Ptilostemon chamaepeuce* (L.) LESS., *Inula* cf. *sophiae* BEAUV., *Campanula merxmülleri* PHITOS, *Galium reiseri* HAL., *Scrophularia heterophylla* WILLD., *Athamantha macedonica* (L.) SPR., *Hedera helix* L., *Erysimum senoneri* (HELDL. & SART.) WETTST. ssp. *senoneri*, *Aethionema* sp. nov. (PHITOS et al. in manuscr.), *Malcolmia scyria* RECH. FIL., *Brassica oleracea* L. s.l. (= *B. cretica* LAM.), *Aubrieta scyria* HAL., *Silene italica* (L.) PERS., *Silene fabaria* SIBTH. & SM., *Minuartia verna* (L.) HIERN s.l., *Polypodium australe* FEE, and *Ceterach officinarum* DC.

The island of Skiros has at least four locally endemic species of chasmophytic plants. Two of them, *Campanula merxmülleri* and *Aethionema* sp., it shares with the small neighbouring island of Skiropoula, like most of the cliff flora. The other two species, *Scorzonera scyria* and

Aubrieta scyria, are however, endemic to the main island of Skiros and both are only known from Mt. Kochilas. Most other chasmophytes are in common with the Northern Sporades, to which the cliff flora of Skiros shows the closest affinities.

POSSIBLE TAXONOMIC RELATIONSHIPS

Scorzonera scyria belongs to subgen. *Scorzonera*, sect. *Foliosae* (BOISS.) LIPSCHITZ (1964). In our opinion it shows close affinity to the widespread *S. hispanica*, but can be distinguished from that species by several characters. Thus *S. hispanica* has a more or less herbaceous and usually unbranched basal part, *S. scyria* a branching woody base. The lower leaves of *S. hispanica* have long, tapering tips, in *S. scyria* they are acute to obtuse. The upper cauline leaves of *S. hispanica* are narrow, in *S. scyria* they have a broad, heart-shaped base. The scales of the involucre have a long, sharp point in *S. hispanica* and its pappus hairs are not as clearly separated into two types as in *S. scyria*. The pollen of *S. hispanica* has high spinulae on the ridges, not verrucae to broad spinulae as in *S. scyria*. *S. scyria* is not closely related to the chasmophytic *S. araneosa* S. & S. group, occurring in the southern part of the Aegean area. *S. araneosa* has linear leaves with unbranched, parallel veins, villose achenes and only one type of pappus bristles.

CYTOLOGY

METHODS. The chromosome number was determined from material originating from the type locality and cultivated in the Botanical Garden, Lund. Mitotic chromosomes were studied in root tip squashes. The root tips were kept in a solution of 2 mM 8-hydroxyquinoline over a night at a temperature of 5°C and then fixed in Carnoy (3:1). The tips were squashed in a solution of 2% orcein. The squash technique used was similar to that

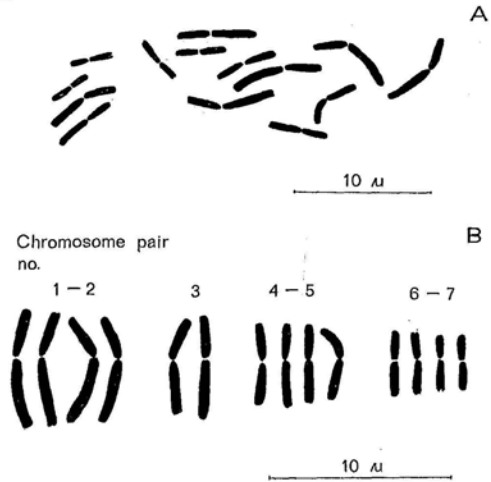


Fig. 3. *Scorzonera scyria*. Chromosomes from root tip mitosis. — A: Metaphase plate. — B: Schematic karyotype. — Further explanation in text.

described by ÖSTERGREN and HENEEN (1962).

RESULTS. The chromosome number of *Scorzonera scyria* was found to be $2n=14$ (Fig. 3 A). All the chromosomes are metacentric or submetacentric and the length varies between 6.5 and 3.0 μ . The karyotype is illustrated in Fig. 3 B. Four different groups of chromosomes are distinguishable. Chromosome pairs 1—2 are submetacentric with a length of about 6.5 μ . Pair no. 3 is somewhat smaller, about 5.5 μ and distinguishable from 1 and 2 at least in those cells seen by the authors. Chromosome pairs 4—5 and 6—7 have a length of 4.5 μ and 3.0—3.5 μ respectively. No chromosomes with satellites have been observed in the material studied. In some cells, chromosomes with minor constrictions have been noticed but as they are weak or absent in other cells they have been excluded.

The most common basic chromosome number in the genus is $x=7$, but species with $x=6$ are also represented. Like *Scorzonera scyria* all investigated species of sect. *Foliosae*, i.e. *S. hispanica* L., *S. in-*

conspicua LIPSCH. and *S. stricta* HORNEM., have $x=7$ and are diploids with $2n=14$. In addition tetraploid forms of *S. hispanica* have been reported by SOSNOWEC (1960). The karyotypes of *S. hispanica* and *S. scyria* seem to be very similar.

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