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## ***Elaeoselinum tunetanum* (Umbelliferae) a new species from Tunisia**

### **Abstract**

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*Elaeoselinum tunetanum*, a new species from the cliffs of Cap Bon (Tunisia) is described and illustrated. Considerations of its ecology, distribution and cariology are showed, as well as its relationships with the other species of this genus and its taxonomic position are discussed.

### **Introduction**

During field investigations in Tunisia a very distinctive population of *Elaeoselinum* Koch ex DC. was found in the cliffs near Cap Bon. On the basis of the literature data (Tutin 1968; Garcia Martin & Silvestre 1985; Veuillet 1959; Pottier Alapetite 1979), the Tunisian material is morphologically, ecologically and phenologically well differentiated from the up to now known species of this genus. In particular, it flowers in autumn (late September, October) and the leaves sprout after blooming from a stout rhizome and represents a typical chasmophyte, exclusive of rocky crevices.

On the whole this Tunisian plant can be treated as a species new to science, named *Elaeoselinum tunetanum*.

***Elaeoselinum tunetanum* Brullo, Minissale & Terrasi sp. nova** (Fig. 1)

Typus: Tunisia, Cap Bon, Falesie costiere presso El Haouaria 16.10.1995, Brullo & Minissale (holotype CAT).

Planta perennis, rhizomatae valido, axonomorpho, caule erecto, glabro, usque ad 70 cm alto, saepe e basi ramoso, foliis basalibus 10-50 cm longis, 4-5 pinnatis, ramificationibus inferioribus 2/3 - 3/4 axis principalis partes aequantibus, ceteris gradatim decrescentibus, lobis lanceolatis usque ad triangulari-lanceolatis, apiculatis, 0,5-1 mm latis, inflorescentia monochasiali, umbella terminali quam inferioribus brevior, radiis umbellae 6-10, sepalis 0,3-0,4 x 0,3 mm, petalis luteis, 0,6 mm longis, filamentis staminorum 0,5-0,8 mm, anthera 0,4 x 0,4 mm, mericarpio 6-20 mm longo, non compresso dorsaliter, alis lateralibus 4-5 mm latis et dorsalibus 1-2,5 mm latis, vittis solitaribus solum in cristis praesentibus.

Plant herbaceous, perennial. Stock robust, axonomorphous, with numerous coarse fibres. Stem erect, striate glabrous, 20-70 cm high, often from the base branched. Basal leaves sprouting after stem on a distinct bud, hispid to subglabrous, 10-50 cm long, 4- to-5 pinnate, with the pair of the lower primary ramifications long 2/3-3/4 of the principal axis, the other

ones progressively decreasing; lobes lanceolate, to triangular lanceolate, apiculate, 1,5-5 mm long, 0,5-1 mm wide. Cauline leaves reduced to inflated petioles, 8-15 mm long. Inflorescence monochasial with the axis of the terminal umbel shorter than lower ones. Umbel rays 6-10. Bracts and bracteoles 2-5, linear-lanceolate. Flowers of terminal umbel hermaphrodite, those of the other umbels male or sometimes mixed with hermaphrodite. Sepals ovate, 0,3-0,4 x 0,3 mm. Petals yellow, ovate, bent inwards, 0,6 mm long. Stamens with filaments 0,5-0,8 mm long and anthers 0,4 x 0,4 mm. Ovary 1,5 mm long. Styles 0,6-0,8 mm long. Mericarps 16-20 mm long, not compressed dorsally, with wide lateral (4-5 mm) and narrow dorsal (1-2,5 mm) wings; vittae solitary only in the ridges.

Specimina visa - Can Bon, presso El Haouaria, 21.XI.1990, Brullo & Minissale (CAT).

### Distribution and ecology

*Elaeoselinum tunetatum* is localized on the sea cliffs of Cap Bon near El Haouaria (Tunisia), where it grows in the rocky crevices constituted by arenaceous limestones or flysch of Upper Tertiary. This area is characterized by a thermomediterranean dry bioclimate with annual rainfall below 500 mm, which is nevertheless mitigated by the air humidity coming from the sea. This species, occurring on northern slopes, is a member of plant community characterized by several endemic chasmophytes, as *Dianthus rupicola* Biv. subsp. *hermaeensis* (Coss.) Bolòs & Vigo, *Scabiosa farinosa* Coss., *Sedum tuberosum* Letourn. & Pom., *Brassica atlantica* (Coss.) Schultz, *Bellevalia dolichophylla* Brullo & Minissale, *Centaurea gymnocarpa* Moris & De Notaris var. *papposa* Coss. *Calendula suffruticosa* Vahl. In this places are frequent also some halophytes, as *Anthyllis barba-jovis* L., *Crithmum maritimum* L., *Lotus cytisoides* L., *Asteriscus maritimus* (L.) Less., *Daucus gingidium* L., *Reichardia picroides* Roth var. *maritima* (Boiss.) Fiori. From the phytosociological point of view, this vegetation belongs to *Anthyllido-Dianthetum hermaeensis*, association of *Anthyllidion barbae-jovis*, alliance of *Crithmo-Limonietea* (Brullo & Minissale 1997).

### Karyology

The karyological analysis carried out on root tips of living material cultivated in the Botanical Garden of Catania has revealed that the somatic chromosome number of *Elaeoselinum tunetatum* is  $2n=22$  (Fig. 2). This count confirms that ones previously observed in other species of the genus *Elaeoselinum* (Silvestre 1976; Chichiriccò & Tammaro 1980; Garcia Martin & Silvestre 1983; Garcia Martin 1984). Nevertheless, remarkable differences there are among the karyotypes of these species. According the Levan et al. (1964) their karyotype formula is the following: *E. tunetatum*,  $2n=2x: 2M + 12m + 4sm + 2st + 2st^{\circ}$ ; *E. asclepium* ssp. *asclepium*,  $2n=2x: 2M + 10m + 6sm + 2st$ ; *E. asclepium* ssp. *millefolium*,  $2n=2x: 12m + 4sm + 4st + 2t$ ; *E. foetidum*,  $2n=2x: 4M + 8m + 6sm + 2sm^{\circ} + 2st$ ; *E. gummiferum*,  $2n=2x: 2M + 14m + 4sm + 2sm^{\circ}$ .

### Taxonomic remarks

The genus *Elaeoselinum* Koch ex DC. shows a Mediterranean distribution and is

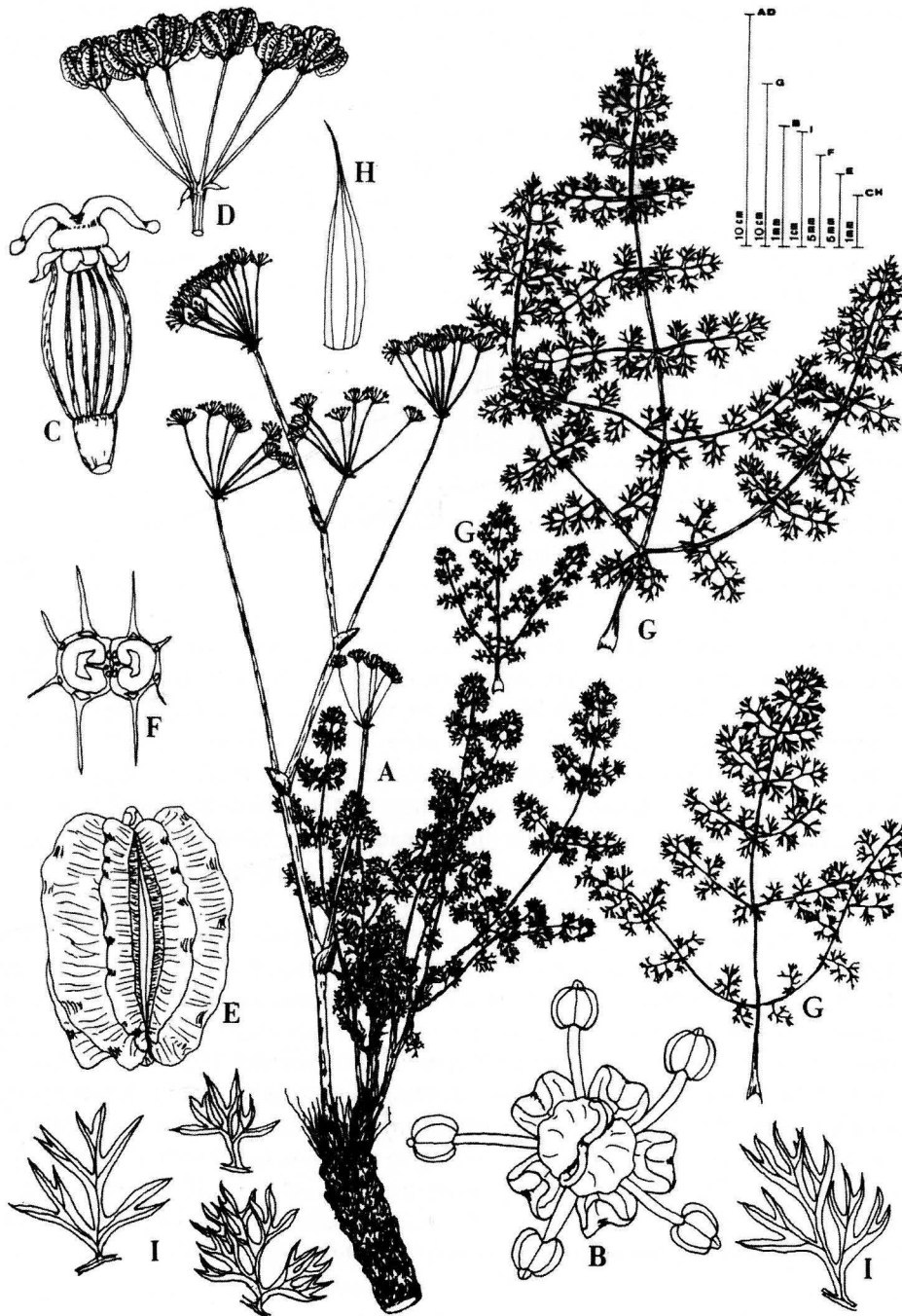


Fig. 1. *Elaeoselinum tunetanum* Brullo, Minissale & Terrasi. A, habit; B, flower; C, pistil; D, fructiferous umbel; E, mericarp; F, cross-section of the mericarps; G, leaves; H, bract; I, leaflets.

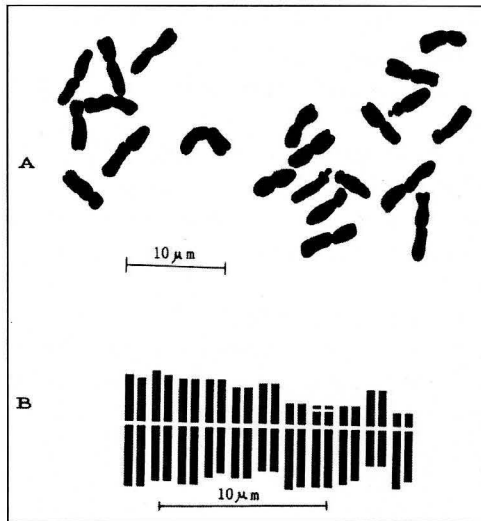


Fig. 2. Mitotic metaphase plate and idiogram of *Elaeoselinum tunetanus*.

morphologically characterized by mericarps with 2 well developed lateral wings and 2 narrow wings in the dorsal ridges often absent, and solitary vittae in the grooves and ridges (Tutin 1968). More recently, Garcia Martin & Silvestre (1983, 1985), proposed to divide the genus *Elaeoselinum* into three distinct genus represented by *Elaeoselinum* s.s., *Margotia* Boiss. and *Distichoselinum* Garcia Martin & Silvestre. This traitment is based on few or feeble diagnostic characters, that are at most useful to discriminate mere sections. In particular the genus *Distichoselinum* differs mainly from *Elaeoselinum* s.s in having basal leaves distichous and glabrous; while the genus *Margotia* differs chiefly from *Elaeoselinum* in having petal white, emarginate.

As concerns *Elaeoselinum tunetanus*, it shows yellow petals not emarginated like the species of *Elaeoselinum* and *Distichoselinum* and the leaves sparsely arranged like in the species of *Elaeoselinum* and *Margotia*. Nevertheless, *E. tunetanus* differs from all species of the aforesaid genera, in which the scape sprout after leaves at the centre of the basal rosette, in having the leaves sprouting after stem on a distinct bud. Besides, *E. tunetanus* flowers in autumn (late september-october), while the flowering period of the other species of *Elaeoselinum* s.l. coincide with late spring-summer. These characters emphasize the remarkable taxonomical isolation of *E. tunetanus*, which is can be considered a quite archaic species; this is also corroborated by its ecology, as it is a typical chasmophyte growing together with numerous other rupicolous endemics belonging to the old Tertiary flora, most part having a punctiform distribution. The other species of *Elaeoselinum* s.l. are instead localized in the perennial grasslands or garigues and show a more or less wide-spread distribution.

On the basis of such considerations, it seems advisable to keep the original significance to the genus *Elaeoselinum*, within it to distinguish various subgenera and sections.

Therefore, the following taxonomic treatment is proposed:

***Elaeoselinum*** Koch ex DC., Prodr. 4: 215 (1830)

Type: *Elaeoselinum meoides* (Desf.) Koch ex DC.

Subgen. ***Elaeoselinum***

Type: *Elaeoselinum meoides* (Desf.) Koch ex DC.

Leaves produced before the stem sprouting from the same bud, leaves with primary ramifications progressively decreasing, mericarps more or less compressed dorsally, vittae solitary in the grooves and ridges. Flowering in late spring and summer.

Sect. ***Elaeoselinum***

Type: *Elaeoselinum meoides* (Desf.) Koch ex DC.

Stock not branched, leaves villous or scabrous, sparsely arranged; bracts herbaceous, petals yellow, entire; mericarps with dorsal wings absent or feeble developed.

***Elaeoselinum meoides*** (Desf.) Koch ex DC., Prodr. 4: 215 (1830)

Syn.: *Laserpitium meoides* Desf., Fl. Atl. 1: 253 (1798)

*Thapsia meoides* (Desf.) Guss., Prodr. Fl. Sic. 1: 370 (1827)

*Elaeoselinum asclepium* (L.) Bertol. subsp. *meoides* (Desf.) Fiori, N. Fl. Anal. Ital. 2: 84 (1925).

*Elaeoselinum cadevallii* Sennen & Mauricio, Cat. Pl. Rif Or.: 145 (1934), n.n.

*Elaeoselinum cuatrecasasii* Sennen & Mauricio, Cat. Pl. Rif Or.: 145 (1934), n.n.

***Elaeoselinum asclepium*** (L.) Bertol., Fl. Ital. 3: 383 (1838)

Syn.: *Thapsia asclepium* L., Sp. Pl.: 261 (1753)

*Laserpitium asclepium* (L.) Calest., Webbia 1: 270 (1905)

a) subsp. ***asclepium***

b) subsp. ***millefolium*** (Boiss.) Garcia Martin & Silvestre, Lagasalia 12: 265 (1984)

Syn.: *Elaeoselinum millefolium* Boiss., Elenchus: 50 (1838)

*Laserpitium millefolium* (Boiss.) Calest., Webbia 1: 270 (1905)

***Elaeoselinum foetidum*** (L.) Boiss., Elenchus: 50 (1838)

Syn.: *Thapsia foetida* L., Sp. Pl.: 261 (1753)

*Laserpitium foetidum* (L.) Calest., Webbia 1: 270 (1905)

***Elaeoselinum fontanesii*** Boiss., Voy. Bot. Midi Esp. 2: 263 (1839)

Syn.: *Laserpitium thapsoides* Desf., Fl. Atl. 1: 252 (1798)

*Prangos thapsoides* (Desf.) DC., Prodr. 4: 240 (1830)

*Elaeoselinum thapsoides* (Desf.) Maire, Bull. Soc. Hist. Nat. Afr. Nord 19: 28 (1928), non DC. (1830)

Sect. ***Margotia*** (Boiss.) Brullo, Minissale & Terrasi, stat. nov.

Bas.: *Margotia* Boiss., Elenchus: 52 (1838)

Type: *Elaeoselinum gummiferum* (Desf.) Samp.

Stock not branched, leaves scabrous, sparsely arranged; bracts with scarious margin, petals white, emarginate; mericarps with dorsal wings.

***Elaeoselinum gummiferum*** (Desf.) Samp., Boll. Soc. Brot. 24: 51 (1908)

Syn.: *Laserpitium gummiferum* Desf., Fl. Atl. 1: 254 (1798)

*Margotia gummifera* (Desf.) Lange in Willk. & Lange, Prodr. Fl. Hisp. 3: 25 (1874)

*Thapsia gummifera* (Desf.) Spreng., Sp. Umbell.: 31 (1818)

*Margotia laserpitoides* Boiss., Elenchus: 52 (1838).

*Laserpitium thapsoides* Brot., Phyt. Lusit. 1: 77 (1816)

Sect. ***Distichoselinum*** (Garcia Martin & Silvestre) Brullo, Minissale & Terrasi, stat. nov.

Bas.: *Distichoselinum* Garcia Martin & Silvestre, Lagasalia 12: 100 (1983)

Type: *Elaeoselinum tenuifolium* (Lag.) Lange in Willk. & Lange

Stock branched, leaves glabrous, distichous; bracts herbaceous, petals yellow, entire; mericarps with dorsal wings.

***Elaeoselinum tenuifolium*** (Lag.) Lange in Willk. & Lange, Prodr. Fl. Hisp. 3: 26 (1874)

Syn.: *Thapsia tenuifolia* Lag., Gen. Sp. Nov.: 12 (1816)

*Elaeoselinum lagascae* Boiss., Elenchus: 51 (1838)

*Laserpitium tenuifolium* (Lag.) Calest., Webbia 1: 270 (1905)

*Distichoselinum tenuifolium* (Lag.) Garcia Martin & Silvestre, Lagasalia 12: 101 (1983)

Subgen. ***Archeoselinum*** Brullo, Minissale & Terrasi subgen. nov.

Type: *Elaeoselinum tunetanum* Brullo, Minissale & Terrasi

Caulis ante folia ex alia gemma producens, ramificationibus inferioribus foliorum 2/3 - 3/4 axis principalis partes aequantibus, ceteris gradatim decrescentibus, mericarpio non compresso dorsaliter, vittis solitaribus solum in cristis praesentibus.

Stem produced before the leaves sprouting from a different bud, leaves with the pair of the lower primary ramifications long 2/3-3/4 of the principal axis, the other ones progressively decreasing, mericarps not compressed dorsally, vittae solitary only in the ridges.

Flowering in autumn.

***Elaeoselinum tunetanum*** Brullo, Minissale & Terrasi sp. nov.

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