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The Genus *Ferulago* Koch

For the generic diagnosis, the baptismal font of a taxon, which as a rule precedes the botanical key, I cannot change a word of that which the excellent BOISSIER wrote more than a century ago (*Flora orientalis*... 2: 996. 1872) and to it I beg to accede my gentle lectors.

“Flores polygami. Calyx 5-dentatus. Petala subrotunda vel ovata integra apice inflexa. Fructus a dorso plano-compressus margine tenui vel subincrassato cinctus. Mericarpia jugis æquidistantibus tribus filiformibus corticoso-elevatis vel alatis, lateralibus obsoletis in marginem abeuntibus. Vittæ numerosissimæ dorsales pericarpio tectæ et in sulcis albuminis nidulantes, commissurales superficiales. — Herbæ perennes sæpius elatæ, flavifloræ, foliis decompositis. Genus *Ferulæ* affine, ab eâ præter vittas irregulares sæpius multo numerosiores et pericarpio tectas jugaque sæpissime corticosa umbellis semper involucro polyphyлло donatis et habitu peculiari commode distinguendum. *Lophosciadium* a Candolleo inter *Thapsieas* ob juga erroneé secundaria dicta collocatum, ex cl. Bth. et Hooker *Seselineis* adnumeratum, omnibus notis congruit cum *Euferulagine* mediante *F. macrocarpâ* et affinibus.”

The three *Ferulago* sections

Owing to the narrow morphological field of this genus together with an ample network of affinities between species, the number of vittae was eventually the only means for dividing the species into three sections, defined thus:

I. § *Anisotaenia* Boiss.

(Species Typus: *F. angulata*)

Species vittis commissuralibus in fructu semper minus quam viginti, dorsualibus semper minus quam triginta; inflorescentia Typi I; laciniis foliorum saepius Typi VI vel valde reductis. Hic adsunt haec *Ferulaginis* species: *angulata*; *blancheana*; *bracteata*; *carduchorum*; *contracta*; *pachyloba*; *subvelutina*; *thyrsiflora*; *trachycarpa*.

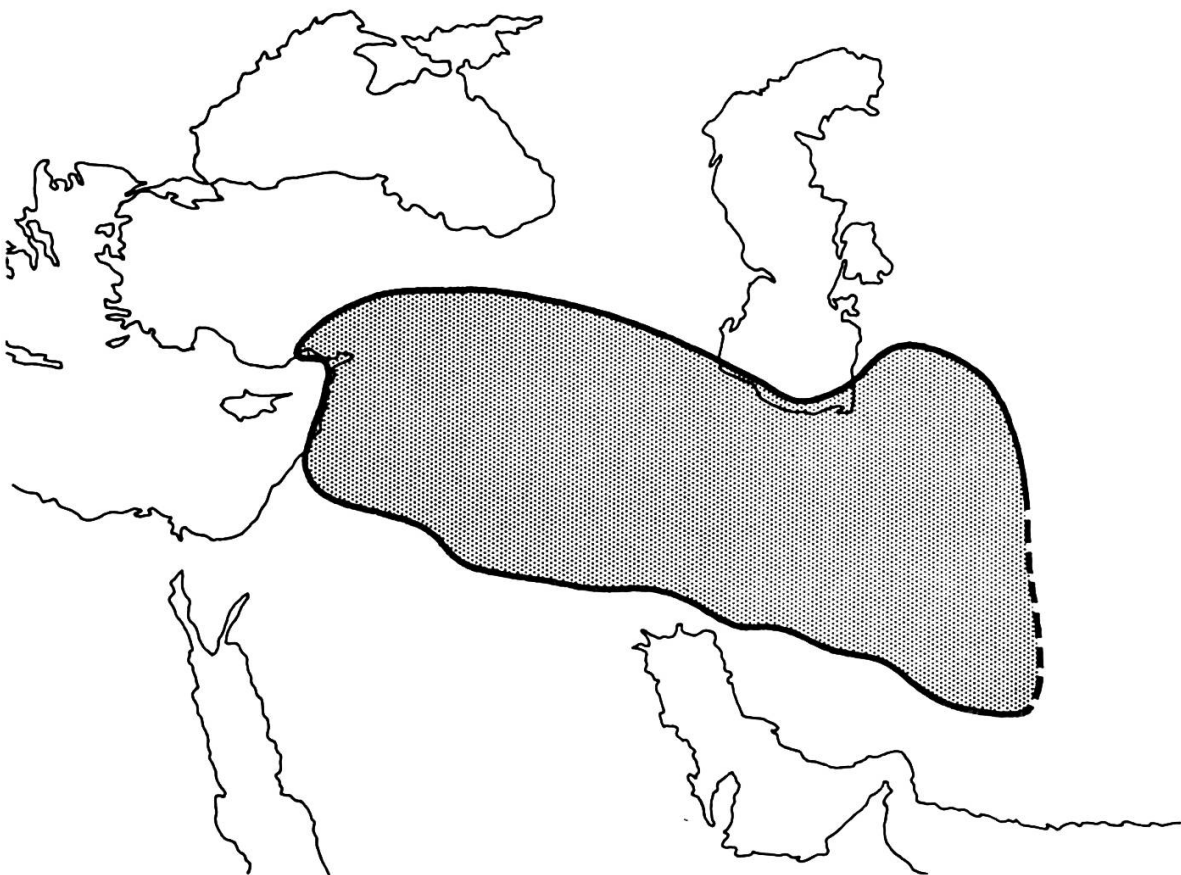


Fig. 14. — Area of the § *Anisotaenia* Boiss. of *Ferulago*: see p. 54 and 163 (*F. thyrsiflora*, ex Creta, omitta).

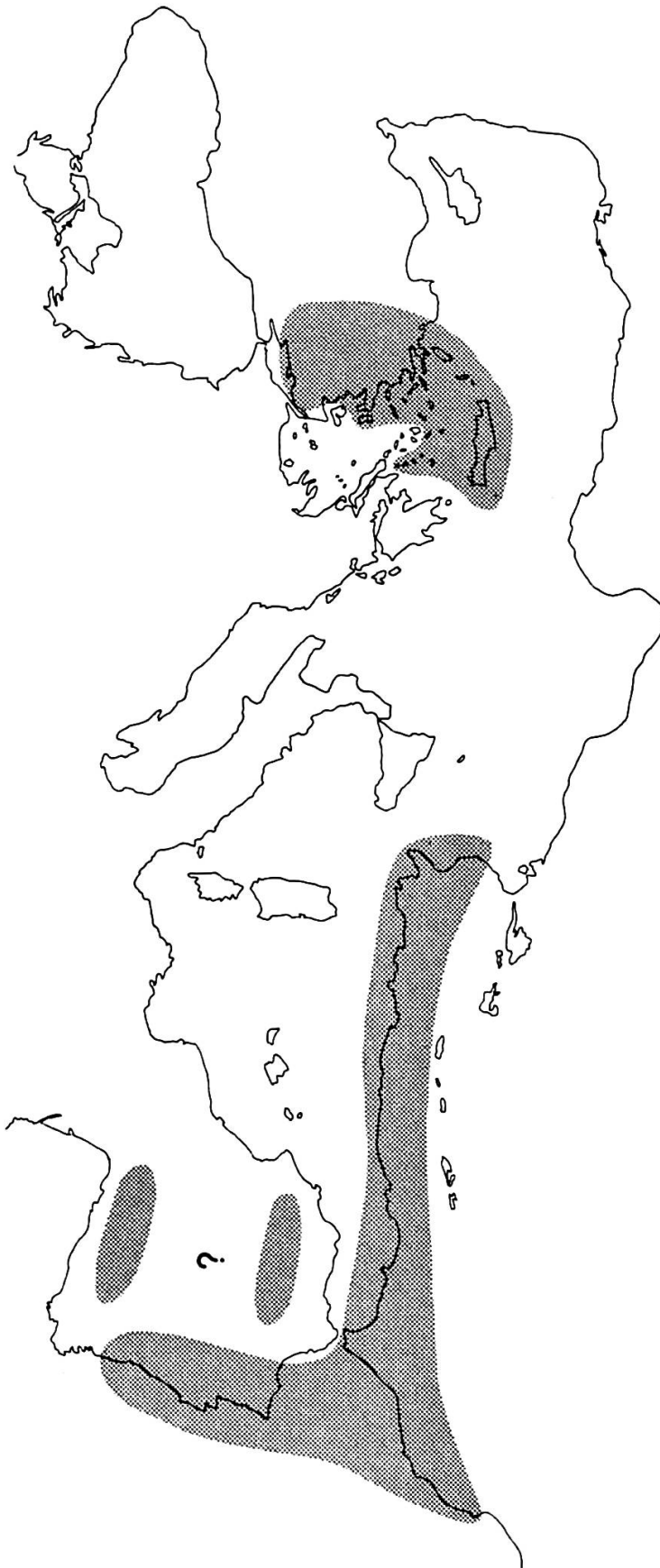


Fig. 15. — Distribution area of *Ferulago* species with lineate hypsophylls.

The question mark in the middle of Spain marks the odd fact that thus far the most widespread *Ferulago* (*F. campestris*, with oblong hypsophylls; recorded in Portugal and also in Morocco) seems to be absent from Spain!



Fig. 16. — Detail of distribution of *Ferulago* with lineate hypsophylls recorded in Anatolia and the East Mediterranean. This character scattered in several Aegean Islands, but avoiding peninsular Greece, reappears in North Africa. The heads of the arrows follow the presumed geographical trend of this character.

II. § *Eutaenia* Bernardi

(Species Typus: *F. nodosa*)

Species vittis commissuralibus saepius minus quam triginta, dorsualibus minus quam quadraginta vel ut summum quadraginta; inflorescentiae et laciniae omnibus formis in genere inventis, praeditae. Hic adsunt: *armena*; *asparagifolia*; *aucheri*; *brachyloba*; *fieldiana*; *humilis*; *isaurica*; *macrosciadia*; *mughlae*; *nodosa*; *phialocarpa*; *serpentinica*; *setifolia*; *silatifolia*; *syriaca*; *thirkeana*.

III. § *Ferulago*

(Species Typus (generis): *Ferulago campestris*)

Species vittis commissuralibus saepius ultra triginta, dorsualibus semper ultra quadraginta; inflorescentiae et laciniae omnibus formis in genere inventis, praeditae. Hic adsunt: *biumbellata*; *campestris*; *cassia*; *confusa*; *daghestanica*; *granatensis*; *lutea*; *macrocarpa*; *platycarpa*; *sandrasica*; *sartorii*; *scabra*; *sylvatica*; *stellata*.

In the following "Conclusions" (see p. 167), I present the geographical significance of the characters which have been evaluated here, correlated with the number of vittae, starting from the § *Anisotaenia*.

From these results, carefully avoiding the deep-well of fruitless speculations, it seems to me that the species of *Ferulago* which more than others show links with both *Peucedanum* and *Ferula* could be *Ferulago angulata* (Schlecht.) Boiss. to *Peucedanum*, and specially to the § *Junceae*, in regard to the really few vittae and the leaves' form; inclining, on the other hand, toward *Ferula* for its type of inflorescence and general facies.

That being postulated, we note that the more we move away from the area of *F. angulata*, the more we encounter *Ferulago* species with more vittae. The farthest species, *Ferulago granatensis*, of Spain, has more dorsal vittae (60!) than on all the rest of genus.

We can observe besides that the species with lineate hypsophylls — without regard to their sections — follow a geographical trend. The Figures 15 and 16 with the legends will make this point clearer.

The "visiting card" of the *Ferulago* species

Every species of *Ferulago* on its heading bears a kind of bordered hieroglyph with four signs to be read in this way:

1. the numerator of the fraction represent the more or less variable number of commissural vittae; the denominator that of dorsal vittae;

2. one of the three Types of inflorescence, highly simplified but, we hope, easy to understand. The same for:
3. the hypsophylls, which are also presented in three types, highly simplified;
4. the laciniae, on the contrary, are sketched from a representative sample, most often the Typus. When they are fully black, the leaves are scabrid; when white, the leaves are completely glabrous, but if they have grey hachures, it means that some samples of the same species are glabrous, while others are scabrid.

Considering the fair ample variation in the number of vittae and the very high number of small differences in the form of the laciniae, the various combinations of the four signs could amount to myriads!

Since these hieroglyphs are synoptic and perceptible at first glance, they can help in the arranging of the species in series and sections, to test or to refute affinities, etc. In every case they are a suitable aide-mémoire, sparing in some instances the need of circulating those poor brittle botanical samples just for checking a character.

Those signs, viz. those characters, are to be selected in reasonably small number (I think no more than five) from the legions of others, this should be carefully done on botanical criteria, and *not* by a non-botanical device, even if this can facilitate vast numbers of connexions, and astonishing quick answers to binary questions.

This opinion of mine is based thus:

- a) the taxonomic revisions are (still) made for the human mind, and should represent a synthetic attempt to read from an astronomical number of separate elements, an "organic" phrase;
- b) the non-botanical devices may eventually count all the leaves and leaflets (and even all the stomata of them) of a taxonomic maze; but it is the human mind which must discover the path for emerging;
- c) the non-botanical device shall be nourished by codified human perceptions. By itself, it will not establish any representation of the object as a whole. Thus it will never give an "organic" phrase, viz. a taxonomic answer to us, since every taxonomic result is a representation raised at least to the second stage;
- d) my beliefs being what they are before "human perception", I would have to add "selected by an ever alert discrimination". Consequently, if we wanted to give "taxonomic power" to the machine to avoid a dangerous subjective judgement, all the "input" of our non-botanical device is polluted by our discriminate perceptions. We cannot elude our taxonomic responsibility!

All my *a*, *b*, *c*, *d*, disquisitions, however, are ineffective in adding an infinitesimal part of an ounce of worth to my chosen characters. If the

botanist's selection is frankly bad, all the taxonomic work is a building founded on sand, all will be a Love's Labour's lost. I hope that is not the case for my mole-hill "Tentamen revisionis", but it is an honest truth that it is easier to behold the mote in my brother's revision, than the beam that is in mine... With this double edged sentence, I presume to have completed my "Narthex" (it is odd that narthex means *Ferula*, in Pliny, and narthecia, *Ferulago*!); before passing to the botanical key, here is a short bibliography of *Ferulago* chronologically arranged.

Auctores, ordine chronologico, qui *Ferulaginem* approbarunt et descriptionibus vel notulis perfecerunt:

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|----------------------------|--|
| 1825 KOCH, G. D. E. | 1905 BORNMÜLLER, J. |
| 1826 REICHENBACH, H. G. L. | 1905 CALESTANI, V. |
| 1835 KOSTELETZKY, V. F. | 1906 BRIQUET, J. |
| 1838 BOISSIER, E. | 1911 BORNMÜLLER, J. |
| 1839 BOISSIER, E. | 1913 COUTINHO, A. X. PEREIRA |
| 1842 KOCH, C. | 1917 BORNMÜLLER, J. |
| 1843 GUSSONE, G. | 1926 HEGI, G. |
| 1844 BOISSIER, E. | 1937 DEGEN, A. VON |
| 1844 LEDEBOUR, C. F. | 1937 FOURNIER, P. |
| 1845 BOISSIER, E. | 1938 BORNMÜLLER, J. |
| 1849 BOISSIER, E. | 1940 BORNMÜLLER, J. |
| 1856 BOISSIER, E. | 1940 RECHINGER, K. H. |
| 1859 BOISSIER, E. | 1940 THIÉBAUT, J. |
| 1860 TCHIHATCHEFF, P. DE | 1941 BORNMÜLLER, J. |
| 1866 SCHUR, P. J. F. | 1943 RECHINGER, K. H. |
| 1872 BOISSIER, E. | 1945 NORMAN, C. & J. BORNMÜLLER |
| 1874 POMEL, A. | 1947 SCHISCHKIN, B. K. |
| 1878 BORBÁS, V. VON | 1947 KOROVIN, E. |
| 1879 JANKA, V. VON | 1950 SILVA, A. R. PINTO DA &
L. G. SOBRINHO |
| 1879 NYMAN, C. F. | 1951 SCHISCHKIN, B. K. |
| 1887 SIMONKAI, L. | 1952 RECHINGER, K. H. |
| 1889 NYMAN, C. F. | 1958 SĂVULESCU, T. |
| 1891 VELENOVSKÝ, J. | 1961 RECHINGER, K. H. |
| 1896 POST, G. E. | 1961 RECHINGER, K. H. |
| 1898 DRUDE, O. | 1966 TOWNSEND, C. C. |
| 1898 GRECESCU, D. | 1967 STOJANOV, N. & al. |
| 1903 VELENOVSKÝ, J. | |

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|---------------------------|-------------------|
| 1968 CANNON, J. F. M. | 1972 PEŞMEN, H. |
| 1970 MOUTERDE, P. | 1972 ZOHARY, M. |
| 1970 QUÉZEL, P. & al. | 1973 NICOLIN, V. |
| 1971 FRANCO AMARAL, J. DO | 1976 ZÁNGHERI, P. |

Auctores qui *Ferulaginem* Kochii denegarunt et praecipue in *Ferulam* L. immitterunt:

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|----------------------------------|-------------------------------|
| 1829 CANDOLLE, A.-P. DE | 1886 COLMEIRO Y PENIDO, N. |
| 1830 CANDOLLE, A.-P. DE | 1889 BATTANDIER, J. A. |
| 1834 DON, G. | 1900 FIORI, A. & G. PAOLETTI |
| 1837 BERTOLONI, A. | 1901 ROUY, G. & E.-G. CAMUS |
| 1839 ENDLICHER, S. | 1902 COSTE, H. |
| 1843 SCHLECHTENDAL, D. F. L. VON | 1905 BATTANDIER, J. A. & |
| 1867 BENTHAM, G. & J. D. HOOKER | L. TRABUT |
| 1879 BAILLON, H. | 1932 JAHANDIEZ, E. & R. MAIRE |
| 1880 CESATI, V. & al. | 1941 EMBERGER, L. & R. MAIRE |
| 1880 WILLKOMM, M. & J. LANGE | 1963 QUÉZEL, P. & S. SANTA |