

Zeitschrift: Boissiera : mémoires de botanique systématique
Herausgeber: Conservatoire et Jardin Botaniques de la Ville de Genève
Band: 30 (1979)

Artikel: Tentamen revisionis generis Ferulago
Autor: Bernardi, L.
DOI: <https://doi.org/10.5169/seals-895589>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 09.12.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

boissiera



Volume **30**

**Mémoires des Conservatoire
et Jardin botaniques
de la Ville de Genève**

Avis aux auteurs

La revue "Boissiera" publie, en langue française, anglaise ou allemande, et éventuellement — avec autorisation spéciale du Directeur — en une autre langue, des travaux scientifiques originaux traitant de systématique, morphologie, chorologie et écologie végétale ainsi que d'autres sujets étroitement liés à la phytotaxonomie.

Les travaux présentés sont appréciés par le comité consultatif de rédaction et, le cas échéant, par un expert spécialement désigné. L'avis de ces instances et la suite à donner seront communiqués à l'auteur.

Les auteurs sont priés de discuter au préalable, avec la rédaction, de tous les problèmes particuliers que pose la publication de leur travail, spécialement en ce qui concerne la présentation des graphiques, tableaux et illustrations de tout genre.

Ne sont acceptés que des manuscrits proprement dactylographiés, en deux exemplaires si possible (dont la frappe originale, sur du papier blanc solide), avec grande marge et double espacement (4 crans). Les auteurs sont instamment priés de ne rien souligner, sauf éventuellement, d'un trait droit, les noms latins des taxons à faire apparaître en caractères italiques dans le texte.

Pour la présentation et la disposition du texte, surtout des citations de tout genre et de la bibliographie, il est vivement recommandé de suivre le modèle des fascicules précédents de cette revue, à partir du volume 14. En particulier, les abréviations des titres des périodiques se conformeront au modèle du "Botanico-Periodicum-Huntianum" (Pittsburgh 1968). Pour la citation des herbiers, on adoptera les sigles de l'"Index herbariorum" (Regnum Veg. 92). Les clefs de détermination en escalier (indented keys) sont à éviter. La publication de tableaux et graphiques dépliant est à exclure.

L'application stricte des dispositions du "Code international de la nomenclature botanique" (Regnum Veg. 97) est de rigueur.

Les dessins au trait et les graphiques seront exécutés à l'encre de chine et numérotés au crayon. Les textes explicatifs doivent être relégués, dans la mesure du possible, dans les légendes. Il est recommandé d'associer à chaque figure un étalon métrique. L'assemblage des figures et leur disposition dans le texte sont du ressort de la rédaction.

La reproduction d'illustrations déjà publiées ailleurs est en règle générale à exclure. Si pour des raisons particulières, une exception à cette règle s'impose, il incombe à l'auteur de se procurer les copyrights requis.

Les légendes des illustrations, aussi concises que possible, seront regroupées sur une feuille séparée. Toute indication chiffrée de l'agrandissement ou de la réduction est à éviter.

Un résumé en français et/ou en anglais, ne dépassant pas 200 mots, doit être proposé. Il est cependant du ressort de la rédaction d'établir les versions françaises et anglaises définitives de ce résumé.

Les contributeurs s'engagent tacitement à céder leur copyright, en exclusivité, aux Conservatoire et Jardin botaniques de Genève. Cette cession devient effective dès la confirmation écrite de l'acceptation du manuscrit pour publication. La propriété intellectuelle des textes reste acquise aux auteurs.

La publication d'un article dans "Boissiera" n'implique nullement que la rédaction de cette revue et le Conservatoire botanique approuvent ou cautionnent les opinions de l'auteur.

Les auteurs reçoivent 50 tirages à part gratuits, sans couvertures. Des exemplaires supplémentaires, à concurrence de 200, pourront être fournis sur demande écrite. Ils seront facturés au prix coûtant, de même que des couvertures si elles sont demandées. Si le nombre de tirages à part requis excède 250, une autorisation spéciale, délivrée par le Directeur, est nécessaire. Ces exemplaires seront facturés au prix de vente pratiqué par le Conservatoire botanique.

Couverture: *Boissiera bromoides* Hochst. & Steud.

Diagramme floral de Hervé M. Burdet
Maquette et réalisation de Saskia Wikström

CODEN: BOISB2 30 1-182 (1979)
ISSN: 0373-2975

volume **boissiera**
30

Mémoires
des Conservatoire et Jardin botaniques
de la Ville de Genève



Editions des
Conservatoire et Jardin botaniques
de la Ville de Genève

Directeur:
Gilbert Bocquet

Rédacteur:
Hervé M. Burdet

Et la collaboration pour ce volume de:
Patricia Geissler

Comité de lecture:
Luciano Bernardi, André Charpin, Manfred Dittrich, Pierre Hainard,
Olivier Monthoux, Adélaïde Stork, avec la collaboration occasionnelle
d'experts extérieurs spécialement désignés

Réalisation technique:
Robert Meuwly, avec la collaboration de Myriam Delley

Imprimerie du Journal de Genève

Toute correspondance doit être adressée à:
Conservatoire et Jardin botaniques
Editions
Case postale 60
CH-1292 Chambésy/GE

volume **boissiera**
30

Tentamen
revisionis
generis
Ferulago

L. BERNARDI
felsineo

Genève, le 11 septembre 1979

ISBN 2-8277-0046-8



Ferula nodiflora L.

N. J. Jacquin, "Florae austriacae sive plantarum selectarum Icones..." (Appendix), tab. 5. 1778.

Contents

“Introduction”	9
Four structural characters in the genera <i>Peucedanum</i> , <i>Ferula</i> and <i>Ferulago</i>	36
Review of the first character: inflorescence form	37
A) <i>Peucedanum</i>	37
B) <i>Ferula</i>	38
C) <i>Ferulago</i>	38
Review of the second character: laciniae of the leaves	39
Review of the third character: hypsophylls	40
Review of the fourth character: leaves sheaths	42
The taxonomic relations of <i>Peucedanum</i> , <i>Ferula</i> and <i>Ferulago</i>	49
The number of vittae as a useful aid to <i>Ferulago</i> systematics and geography	51
The Genus <i>Ferulago</i> Koch	53
The three <i>Ferulago</i> sections	54
I. § <i>Anisotaenia</i> Boiss.	54
II. § <i>Eutaenia</i> Bernardi	57
III. § <i>Ferulago</i>	57
The “visiting card” of the <i>Ferulago</i> species	57
Libri omnino pertinentes ad Genus <i>Ferulago</i>	59
Clavis specierum	61
Clavis introitus	61
Animadversiones ad specierum affinitatum symbolum	68

Descriptio specierum	70
Notula ad specierum descriptiones	70
1. <i>Ferulago angulata</i> (Schlecht) Boiss.	71
2. <i>Ferulago armena</i> (DC.) Bernardi	73
3. <i>Ferulago asparagifolia</i> Boiss.	76
4. <i>Ferulago aucheri</i> Boiss.	78
5. <i>Ferulago biumbellata</i> Pomel.	80
6. <i>Ferulago blanchiana</i> Post.	82
7. <i>Ferulago brachyloba</i> Boiss. & Reuter	84
8. <i>Ferulago bracteata</i> Boiss. & Hausskn.	86
9. <i>Ferulago campestris</i> (Besser) Grec.	87
10. <i>Ferulago carduchorum</i> Boiss. & Hausskn.	92
11. <i>Ferulago cassia</i> Boiss.	94
12. <i>Ferulago confusa</i> Velen.	97
13. <i>Ferulago contracta</i> Boiss. & Hausskn.	101
14. <i>Ferulago daghestanica</i> Schischkin.	103
15. <i>Ferulago fieldiana</i> Rech. fil.	105
16. <i>Ferulago granatensis</i> Boiss.	106
17. <i>Ferulago humilis</i> Boiss.	108
18. <i>Ferulago isaurica</i> Peşmen	110
19. <i>Ferulago lutea</i> (Poiret) Grande	112
20. <i>Ferulago macrocarpa</i> (Fenzl) Boiss.	116
21. <i>Ferulago macroscladia</i> Boiss. & Balansa	119
22. <i>Ferulago mughlae</i> Peşmen	120
23. <i>Ferulago nodosa</i> (L.) Boiss.	122
24. <i>Ferulago pachyloba</i> (Fenzl) Boiss.	126
25. <i>Ferulago phialocarpa</i> Rech. fil. & Riedl	128
26. <i>Ferulago platycarpa</i> Boiss. & Balansa	130
27. <i>Ferulago sandrasica</i> Peşmen & Quézel	132
28. <i>Ferulago sartorii</i> Boiss.	133
29. <i>Ferulago scabra</i> Pomel	135
30. <i>Ferulago serpentinica</i> Rech. fil.	137
31. <i>Ferulago setifolia</i> C. Koch	139
32. <i>Ferulago silaifolia</i> (Boiss.) Boiss.	141
33. <i>Ferulago stellata</i> Boiss.	143
34. <i>Ferulago subvelutina</i> Rech. fil.	146
35. <i>Ferulago sylvatica</i> (Besser) Reichenb.	147
36. <i>Ferulago syriaca</i> Boiss.	155
37. <i>Ferulago thirkeana</i> (Boiss.) Boiss.	158
38. <i>Ferulago thysiflora</i> (Sibth. & Sm.) Koch	160
39. <i>Ferulago trachycarpa</i> Boiss.	162
Species e genere expulsae	165
Conclusions	167
References	170
Notula (combinationes novae)	174
Index specierum Ferulaginis cum synonymis	174
Specimina Ferulaginis ex nomine collectorum ordine alphabetico digessa	176

"How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service."

"I have an old belief that a good observer really means a good theorist."

*Ch. Darwin,
cited by
Philip V. Tobias
in Trans. Roy. Soc. South Africa
40: 246. 1972.*

Domine, ... exaltabo te... quoniam
fecisti mirabilia, cogitationes antiquas
fideles.

Isaias, 25.

Taxonomic revisions are made by a hard and fast rule. The best examples, since the second World War, are to be found in "Blumea" from Leiden. All begin, of course, with an "Introduction" and "Acknowledgments" to the institutions from whom botanical samples were obtained (and exceptionally to the rare-as-a phoenix Maecenas who sponsored the work); after that a short historical review of the taxon, which obviously was previously inadequately reviewed; eventually we are informed at length about the method and technique employed here. All that, for the pious reader, could be pictured as a Cathedral narthex, guiding us towards the dichotomous keys, the hard sculptured Portal... And soon we are between the sacred walls! There we catch sight of the colonnade of the species, described in diligent uniformity but naturally differing in part, as do the capitals of a Romanesque or, if you prefer, Norman Cathedral. The illustrations or Icones, as well as the stained glass, reproduce the same subjects as the capitals; we can sometimes find, as a Jesse window, a presumed genealogical or phylogenetical tree of the taxon. In alas, too few instances, perhaps an added baroque chapel, we agree with the collector's list and the synonym index. At the transept of the "Conclusions", there are optional doors, one on each side: to the left, the Splitting one, opening to the churchyard of the "Nomina supervacanea", to the right, the Lumping one, giving on to the sacristy of haughty Tradition.

The revision so made should have all the strength of cut stone edifice but, sadly, far from it all too human shadows and doubts are to be expected! Its

proud author most usually seems completely free of them, and the reader (if there are readers of taxonomic works), can only admire the stupendous work, apart from some rare heretical fellow, devilish iconoclast. However, the lists of the "Species excludendae" and "Species minus notae" could sound to a sensitive ear as a cracked bell. Left out of that Paradise Garden, where are they to go, those taxa? Outside that supposedly well-constructed taxonomic building, what a waste land, what a jungle of never-seriously-revised-taxa, what a crowd of deep wells of exquisitely worked but all miniature specialised works. Oh the pity of our taxonomic standing! Are we really Architects of solid things, or blind moles with pursed lips boastful of our humid, friable, grubby mole-hills?

Facing *Ferulago*, I was soon in a bad mood; this genus was saying nothing of value to me, or conversely, I was deaf to its message. I was inclined to see it as an unpleasant companion; its botanical samples were presenting me with some mean characters with few divergences, a tedious song: what poor jingle! I visualised it as a splenetic travelling Lord, articulating a few syllables every thousand miles. I felt as if I were Theseus in a small maze but without any helping Ariadne. And I was dreaming about the clearly "speaking" austral *Schefflera*, the gifted *Ocotea*, the delicately-scented American *Nectandra*: for all that scavenging what had I but that poor little yellow-flowered umbellate genus? I thought then, and I still do think that the revision of any taxon should afford something of value to the revisor on the level of knowledge. *Ferulago* instead sounded, at first, like a poor stuttering beggar, not at all an illuminating Mentor. But I thought again: which is indeed the beggar of the tale? *Ferulago* or me? Assuming the idea of Leibniz, since it is wholly true, that in its smallest part all the Universe is reflected, I was forced to admit that *Ferulago* too would be a marvelous and forthcoming speaker to a keen ear. But, how was I to obtain a keen "ferulaginous" ear? By knowing in advance all the *Umbelliferae* family? Time, Talent and Thoughtfulness were likely to fail me... Setting apart the megalomaniac presumption of swallowing easily, as the whale his plankton, just that family which as they say (cf. BERNARDI, 1975) defeated the great Linnaeus. And more: in these days, the concept of family (of plants indeed, but not of plants alone) is so frequently debated, that before paying the toll to the *Umbelliferae*, I should have to search for its actual boundaries. Supposing I found them, I would have in front of me so big a monument, more or less mutilated Colosseum, that for a poor fellow like myself, wishing to scrutinize a small genus like *Ferulago*, just a stone of that massive marbled building, the beautiful sight of the whole should have to disappear again. I was eventually forced to restrain my imperialist wishes of enlarging my work, in order to begin somewhere. I chose for myself in my proposed mole-hill-cathedral, the right hand door, opening on "haughty Tradition"; through it will trust my *Umbelliferae* (in)-comprehension and (in)-competence to old, famed, worthy personalities, such as BAILLON (1879), BENTHAM & HOOKER (1867), DRUDE (1898) and also KOROVIN (1947) and SCHISCHKIN (1951). All of them agreed in thinking *Ferulago* akin to *Ferula* (reduced to its subg. by Bentham & Hooker) and also

close to *Peucedanum* (Baillon, in his peremptory synthetic concept of major taxa, put both *Ferula* and *Ferulago* in *Peucedanum*).

A monograph on the genus *Ferula* by KOROVIN (1947) and his later contribution to the "Flora SSSR" (vol. 17. 1951) had led me to hope that its taxonomy was definitive. *Peucedanum* on the contrary came forward with bad references, for instance that of HIROE & CONSTANCE (1958): "The boundaries between the species of this genus and some of those of *Angelica* are highly problematical... It is possible that all Japanese species [of *Peucedanum*] should be transferred to *Angelica*...". These illustrious authors expressed one "Angelicophil" point of view: could it be possible, dare I ask, for a "Peucedanist" to transform that to: "It is possible that all species of *Angelica* of Japan should be transferred to *Peucedanum* sensu lato (with *Lomatium*)?" Anyway, I feared that my search for a common measure for *Peucedanum*, *Ferula* and *Ferulago* had to take into consideration all the *Angelica* of the world also: notwithstanding that heavenly name, what a devilish task!

BURTT & DAVIS (1949: 225) for *Peucedanum* species growing not so far from us, wrote: "It is very difficult to generalize about the genus *Peucedanum*, which remains a vast assemblage of Old World species which show a wide range of general facies and a considerable variation in details of fruit structure. In this group (= genus!) generic and subgeneric limits are greatly in need of redefinition". Recently THEOBALD (1971) recalling word by word the Burtt & Davis observation, confirms that *Peucedanum* is still in shabby dress. He also adds something which might sound pleasantly to a Peucedano-imperialist ear: "It appears that many of the taxa within *Peucedanum* develop (the fruit) in a manner somewhat similar to that of *Lomatium*".

Accepting *Peucedanum* in spite of its ragged systematic clothes and *Ferula* apparently in well-fashioned dress (by Korovin), I had yet to find how to compare them, taking care of the quicksands: the never-ending investigations. Being alone in my work, I was forced to search for some easy macroscopical characters: enlarging the field I had to get some larger patterns. Fully conscious of the danger of that choice, today easily labelled as out-dated, I comforted myself with the old saying "All roads lead to Rome". More: with all respect and envious admiration for the up-to-date ultra-sophisticated micro- and inframicroscopic means of research applied here and there to systematics, it should be granted too that the Phanerogams are the meeting or gathering of "Things" (res naturales) that the naked eye and the human brain (or, if you prefer, human mind) can differentiate in conceptual categories. It should be accepted that long before our elaborate means of research, the species and genus concept was born in the human mind. It even seems questionable to me that the human mind could have developed far if completely devoid of the concept of categorising into divisions of at least the subtlety of species. Could human language have appeared? The Nominalists would have liked to reply "Yes" but at great length and with many qualifications. It is acknowledged that the men of New Guinea, Madagascar, New Caledonia, Fiji, Amazonia, etc., are known to

distinguish and denominate their Flora and Fauna to the species and in some instances down to the variety. I want to state that clearly, because if my following four chosen characters are to be labelled as “children of a Primitive”, I would have it known that I am not alone.

Four structural characters in the genera *Peucedanum*, *Ferula* and *Ferulago*

For the first of them, I found the clue from Boissier applied to *Ferula* and *Peucedanum* (cf. *Flora orientalis*... 2: 983. 1872) “Hoc unico inflorescentiae caractere genus *Ferula* naturali modo a *Peucedano* fere eadem fructus structura donato distinguitur”.

For the others, I took into account:

2. the most obvious for all the *Umbelliferae*: the laciniae of the leaves;
3. the most peculiar to *Ferulago*: the hypsophylls (involucres and involucels), with the purpose comparing *Peucedanum* and *Ferulago*;
4. the most overgrown in several *Ferula*, the leave sheaths, with the aim of comparing it with *Peucedanum*.

The many adjoined illustrations are presented together with the species' names, the designation inferred from the presence or absence of one or another of those characters, if that indeed can help in the generic delimitations and in the intergeneric relationships. The text of the legends is therefore complementary to this one. Here instead, it is hoped to argue the trends with geographical significance of those characters in the three genera, but with special attention to *Ferulago*.

Review of the first character: inflorescence form

The umbellulae are arranged in three Types in the 3 genera (somewhat simplified; see also in the legends of the illustrations for some intermediates).

- Type I: from the main, robust stem, here and there several verticillated compound umbels arise; *Ferulago campestris* is an obvious European example.
- Type II: the umbellulae are displayed by a more or less corymbiform panicle lacking a main axis; an Anatolian example, *Ferulago stellata* Boiss.
- Type III: the whole inflorescence, with a main axis, ends in a constantly compound umbel fructiferous; lateral ascending umbels are as a rule not fructiferous or fruit much later. A Mediterranean example: *Ferulago lutea* (Poiret) Grande.

A) PEUCEDANUM

Of the samples available in Geneva Conservatoire, it could be said: the inflorescence Type I is rather rare and seems localized in centro-oriental Europe, Spain and Africa (see Fig. 1: 1-6). The Type II instead is fairly evenly distributed over the whole genus area (see Fig. 2: 1-15). The same seems true for Type III (see Fig. 3: 1-15). By the way, from a quick survey of the very rich collection of *Lomatium* in New York Botanical Garden Herbarium (Oct. 1974) confirmed by the scrutiny of the Geneva collections, I ascertained that all the *Lomatium* species would seem to have the Type III inflorescence. I was then very anxious to see if the Far North-East species of *Peucedanum* would show an increasing incidence of Type III inflorescence. That could have meant a geographical trend of this character, as it were a centrifugalisation toward the East (for my ideas about this topic for *Araliaceae*, see BERNARDI, 1975). But alas the *Peucedanum* samples to those regions are too poorly represented in Geneva for either confirmation or refutation of that hypothesized trend, leaving untouched the question, perhaps more nomenclatural than taxonomic, of *Lomatium* versus *Peucedanum*.

It is worth observing that some *Peucedanum* species have an inflorescence without a main axis but with a basipetous blooming, therefore of an intermediate Type: II toward III (see Fig. 4: 1-7). In *Ferulago*, on the

contrary, the intermediate forms of inflorescence are to be found between Types I and III. However, in both genera, those intermediate forms tend to the dominant form of inflorescence: the Types II and III in *Peucedanum*; the Type I in *Ferulago*.

B) FERULA

Here the main tendency is to Type I (see Fig. 5: 1-7). Frequently it is possible to observe a tall, straight floriferous stem attaining a size rare in the family. But, unlike *Peucedanum* where as a rule all the umbellulae bloom at the same time and fruit later, in *Ferula*, quoting again BOISSIER (1872: 983) "umbellis centralibus ramorum fertilibus saepius sessilibus vel brevius pedunculatis, lateralibus (sub umbrella centrali sitis) masculis vel polygamis". This means that throughout the inflorescence, on the verticillate lateral compound umbels and, on the top, one umbel will carry fruit while the others will remain sterile. All this approaches Type III, but here only, the top umbel is fertile. From the available evidence of Geneva samples and Korovin's beautiful monograph, it would seem that the true Type III is lacking in *Ferula*.

On the other hand, inflorescences of Type II, when they are present in *Ferula* species, take from it a fair amount of its generic facies. I believe that many species of *Ferula*, chiefly of the subg. *Peucedanoides*, would be better placed in *Peucedanum*. As the aim of this work is to order *Ferulago* clearly, I cannot enter into the problem of the hazy boundary between *Ferula* and *Peucedanum*, but I limit myself to giving an account of some *Ferula* species which, for a constellation of characters, e.g.: stature, small fruits, bracts both at the inflorescence base and throughout it, leaves sheaths and of course, inflorescence Type II, point straight to *Peucedanum*; they are: *Ferula canescens* (Ledeb.) Ledeb.; *F. caucasica* Korovin; *F. dshaudshamyr* (sic!) Korovin; *F. gracilis* (Ledeb.) Ledeb.; *F. involucrata* Korovin; *F. leucographa* Korovin; *F. microcarpa* Korovin; *F. sadleriana* Ledeb.; *F. sinaica* Boiss.; *F. syreitschikowii* Kos.-Pol (see Fig. 6).

This list surely is incomplete. The much-needed botanist (needed for more than a century) who will revise *Peucedanum* should take into account the fact that this genus is — in my opinion — hugely parasitized, in a taxonomic sense, by *Ferula*.

C) FERULAGO

In the "Conclusions" (p. 167), the reader can find the results of my research discussed at length, with the geographical implications.

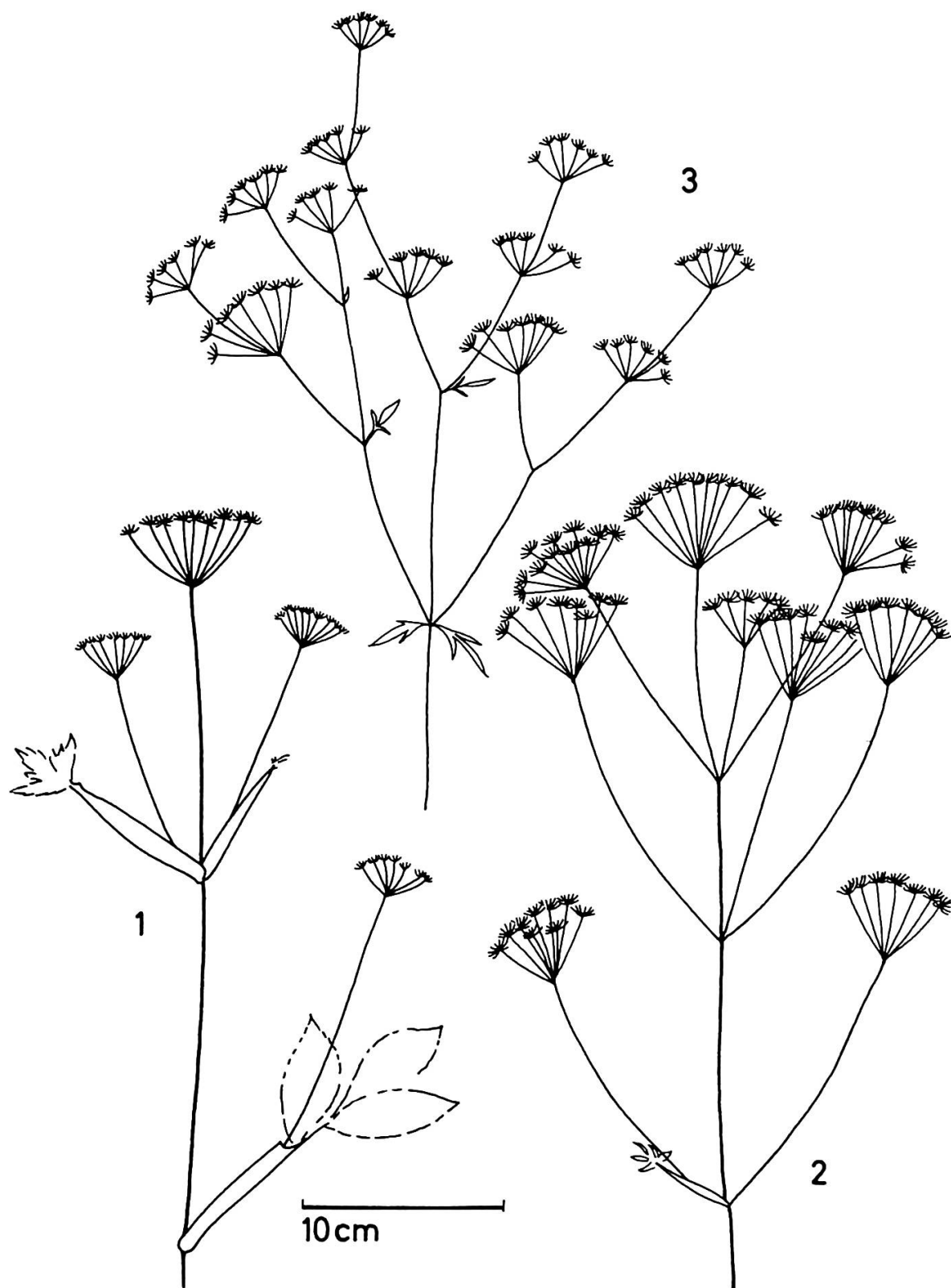


Fig. 1 (see explanation p. 26).

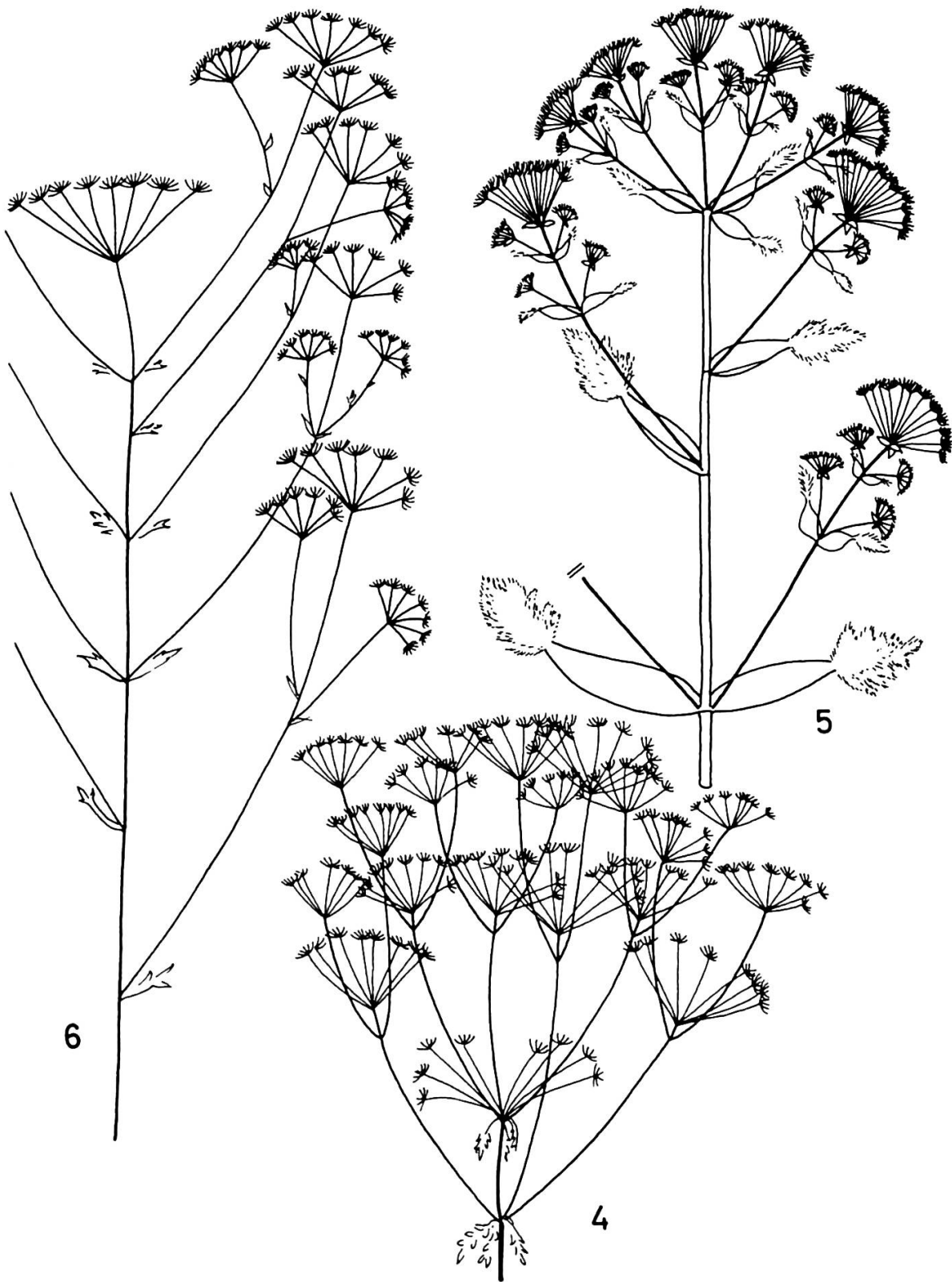


Fig. 1 (see explanation p. 26).

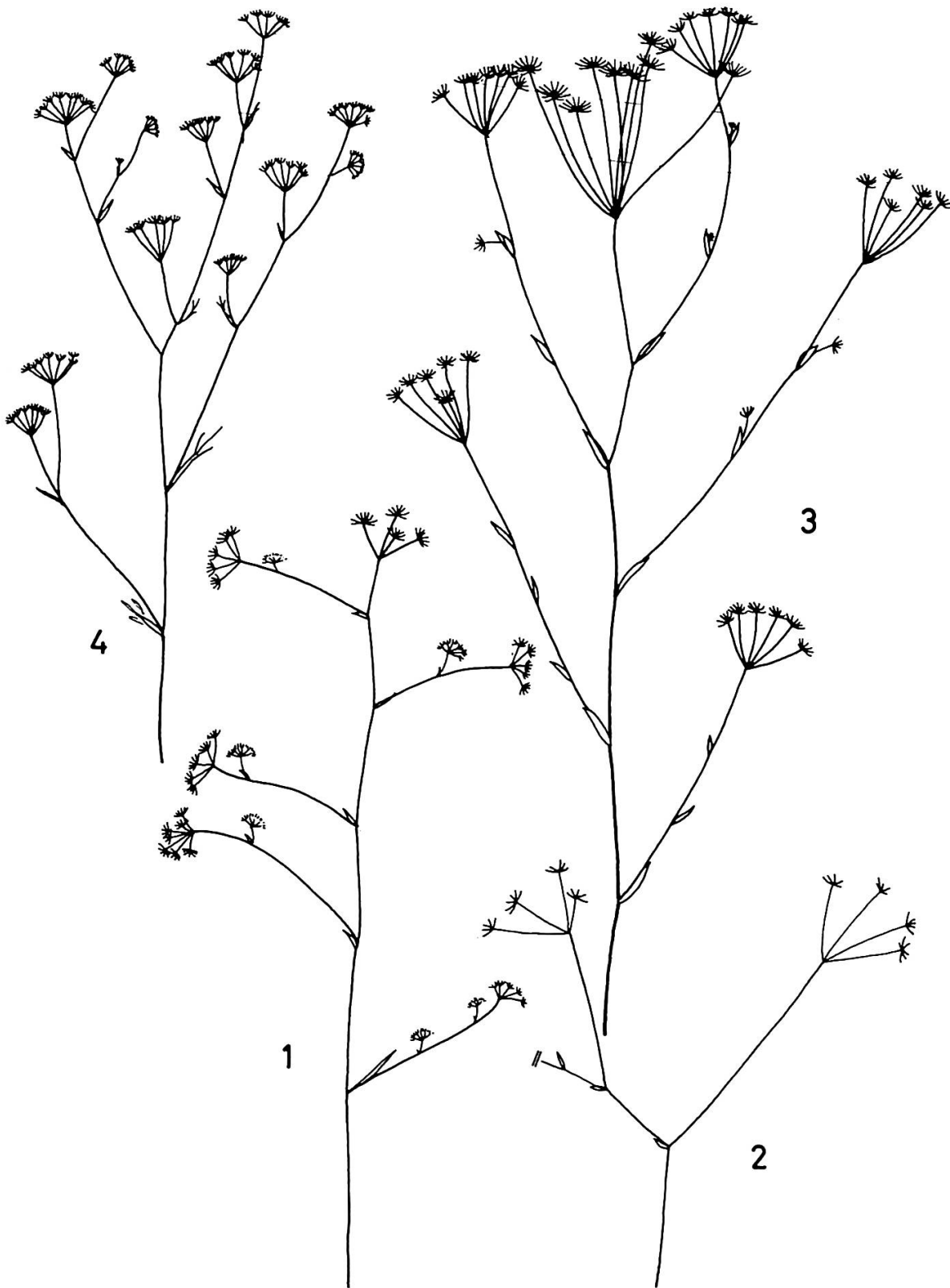


Fig. 2 (see explanation p. 26).

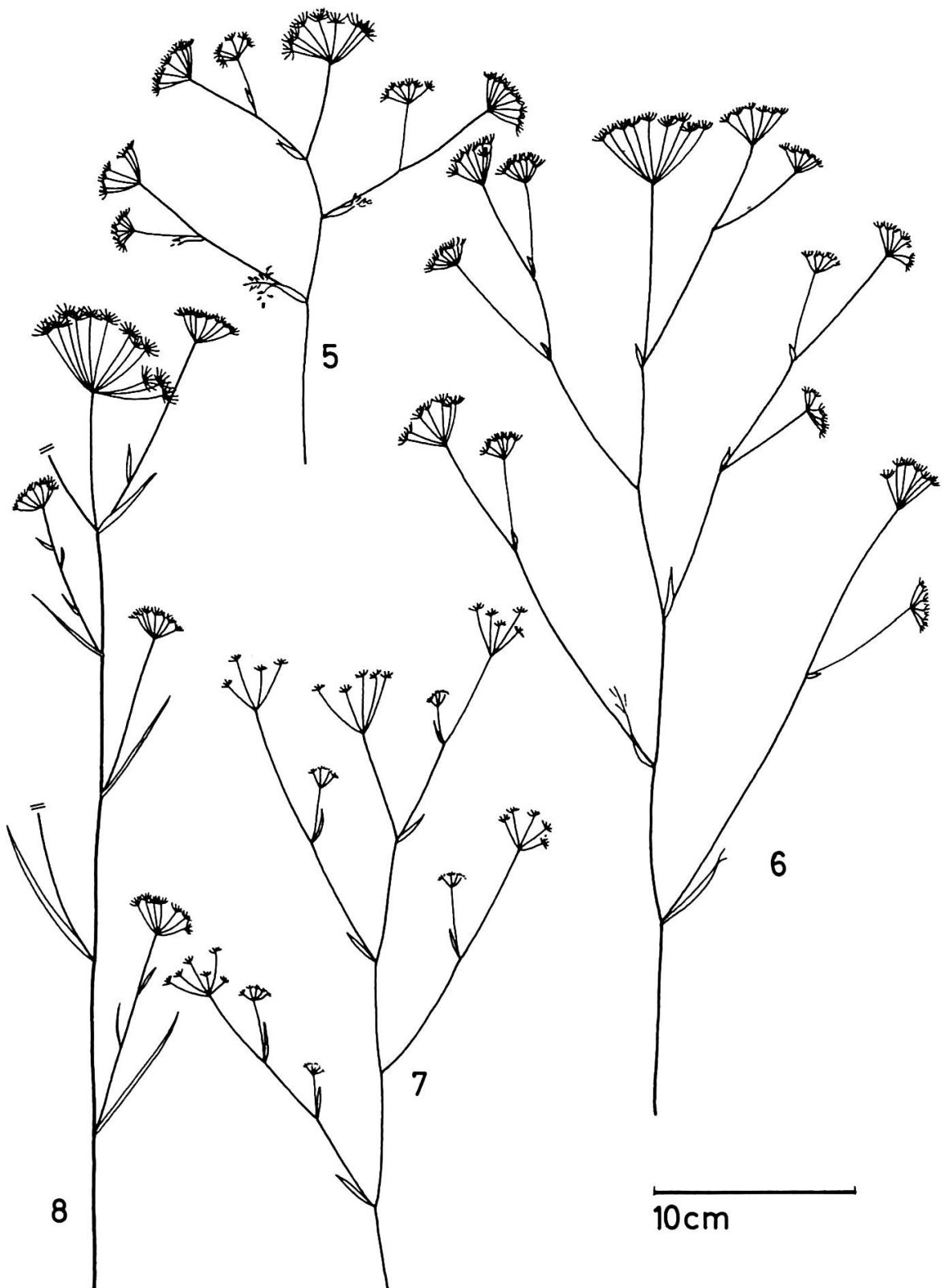


Fig. 2 (see explanation p. 26).

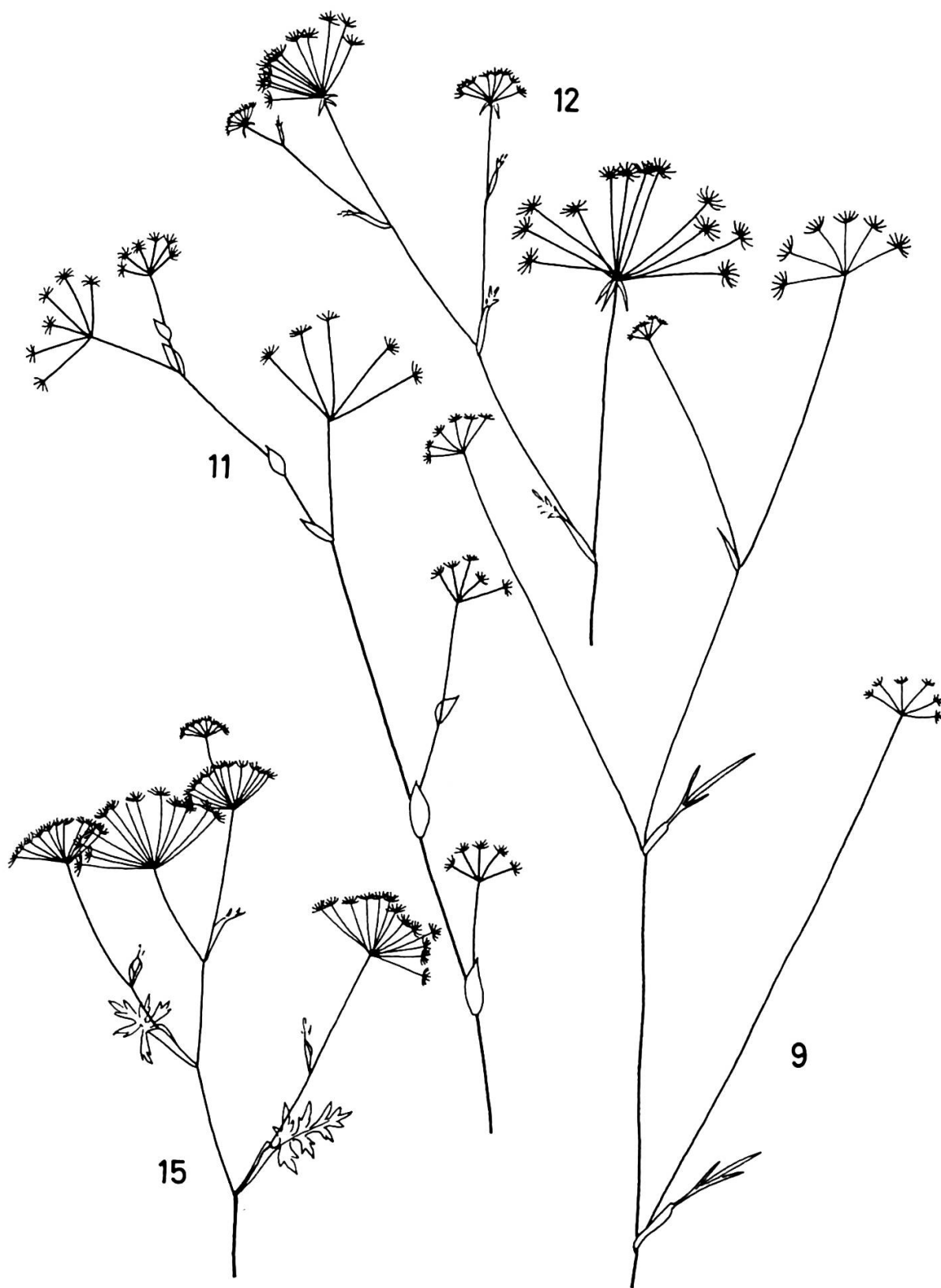


Fig. 2 (see explanation p. 26).

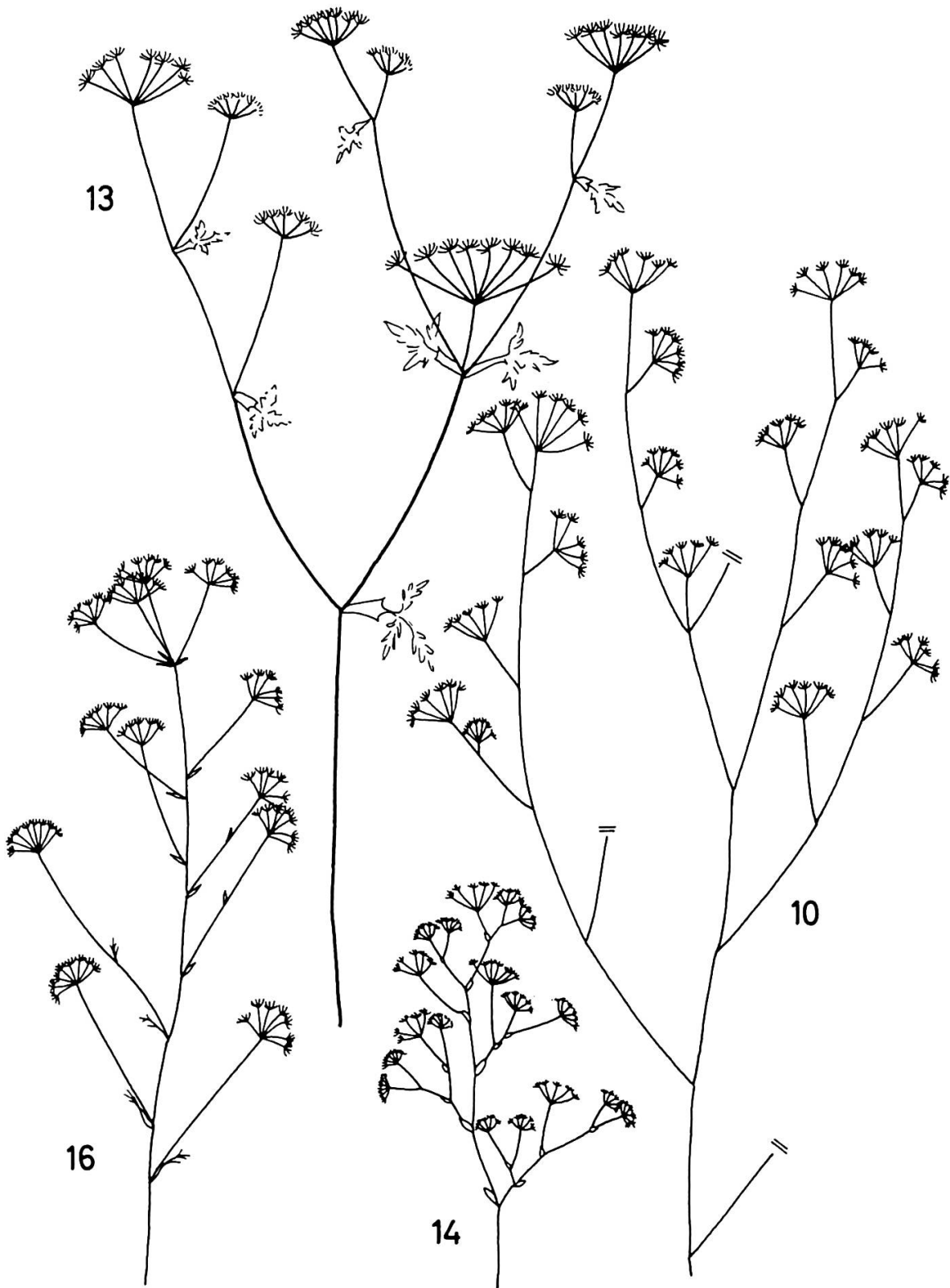


Fig. 2 (see explanation p. 26).

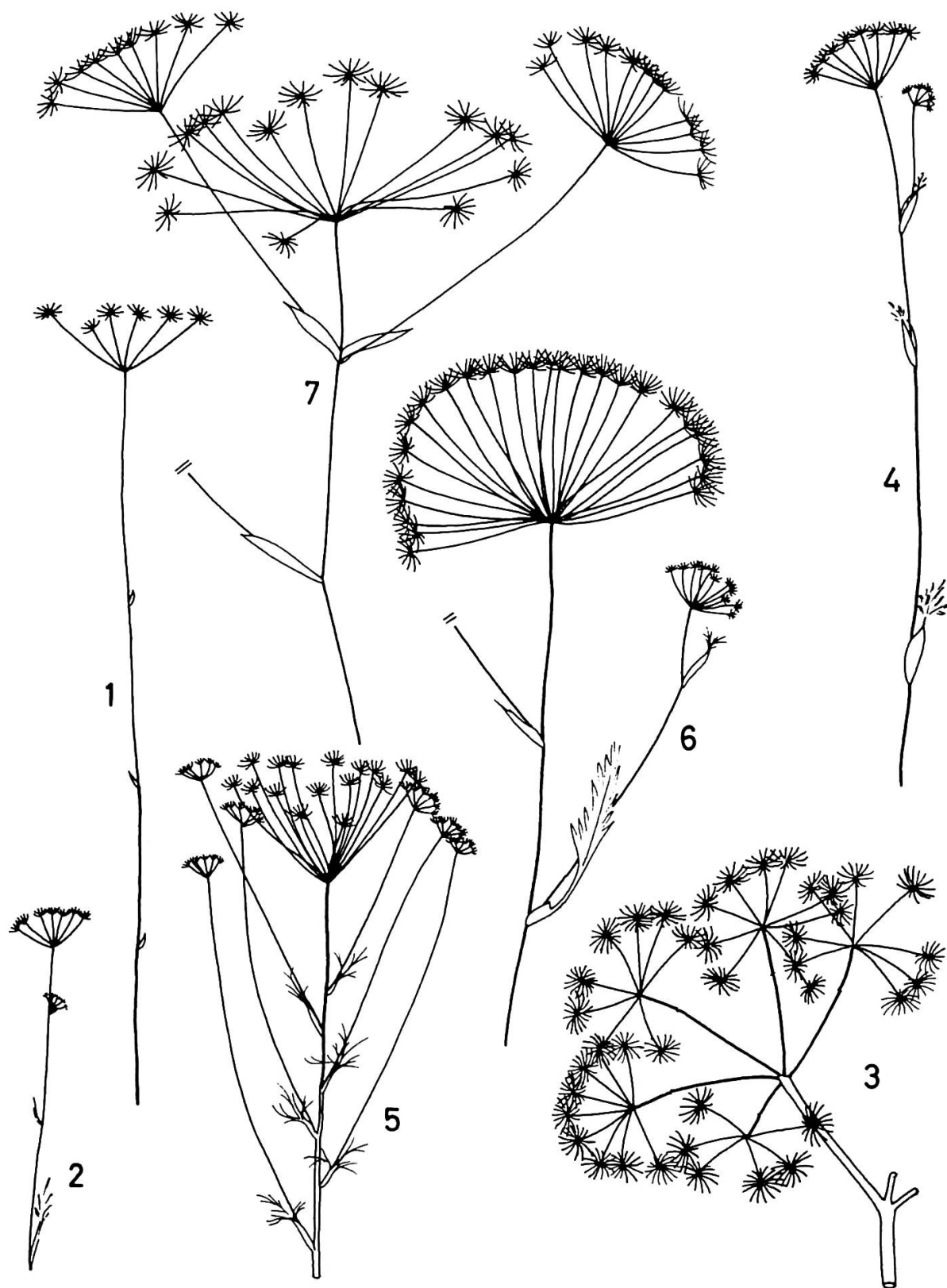


Fig. 3 (see explanation p. 26).

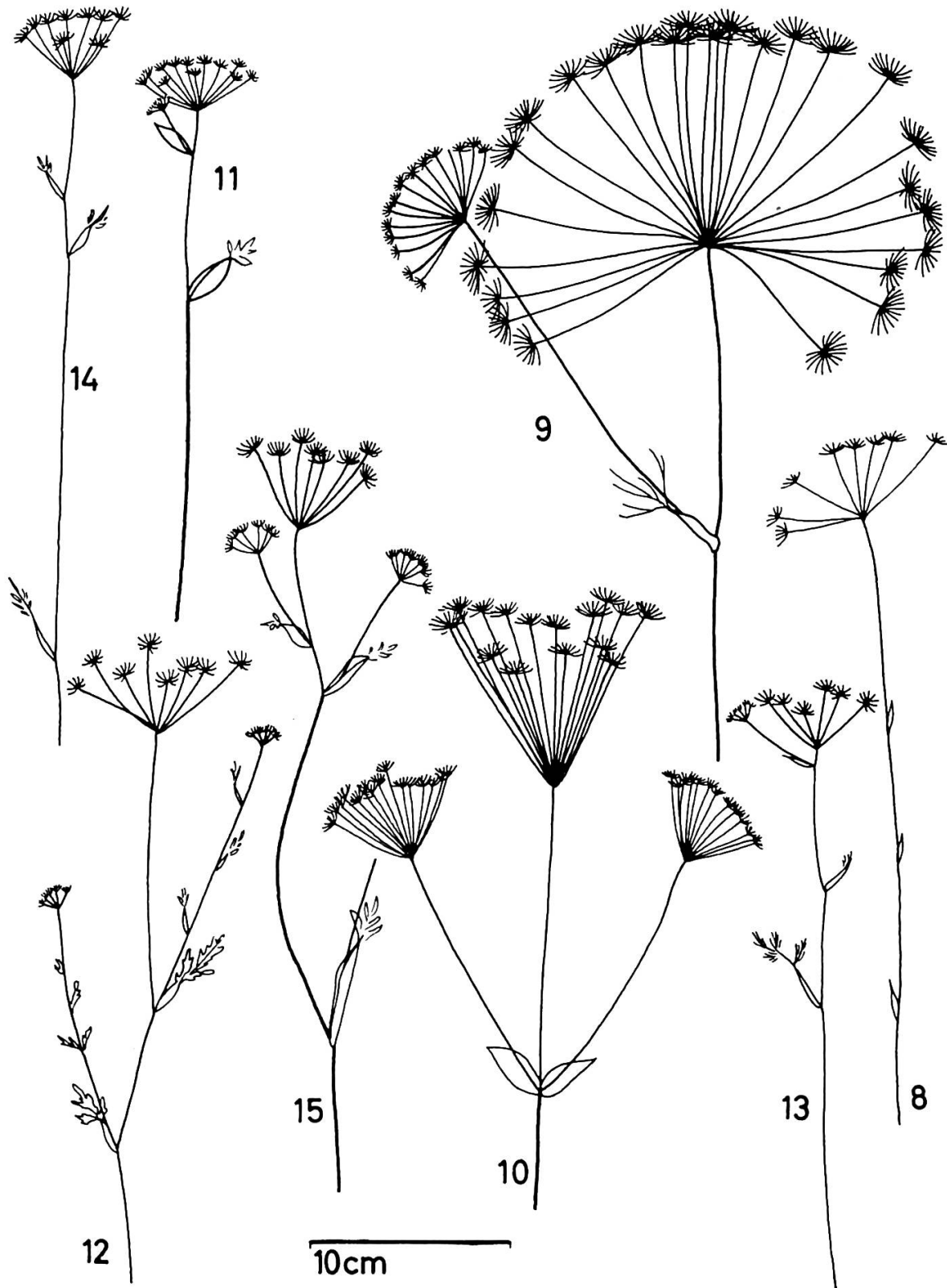


Fig. 3 (see explanation p. 26).

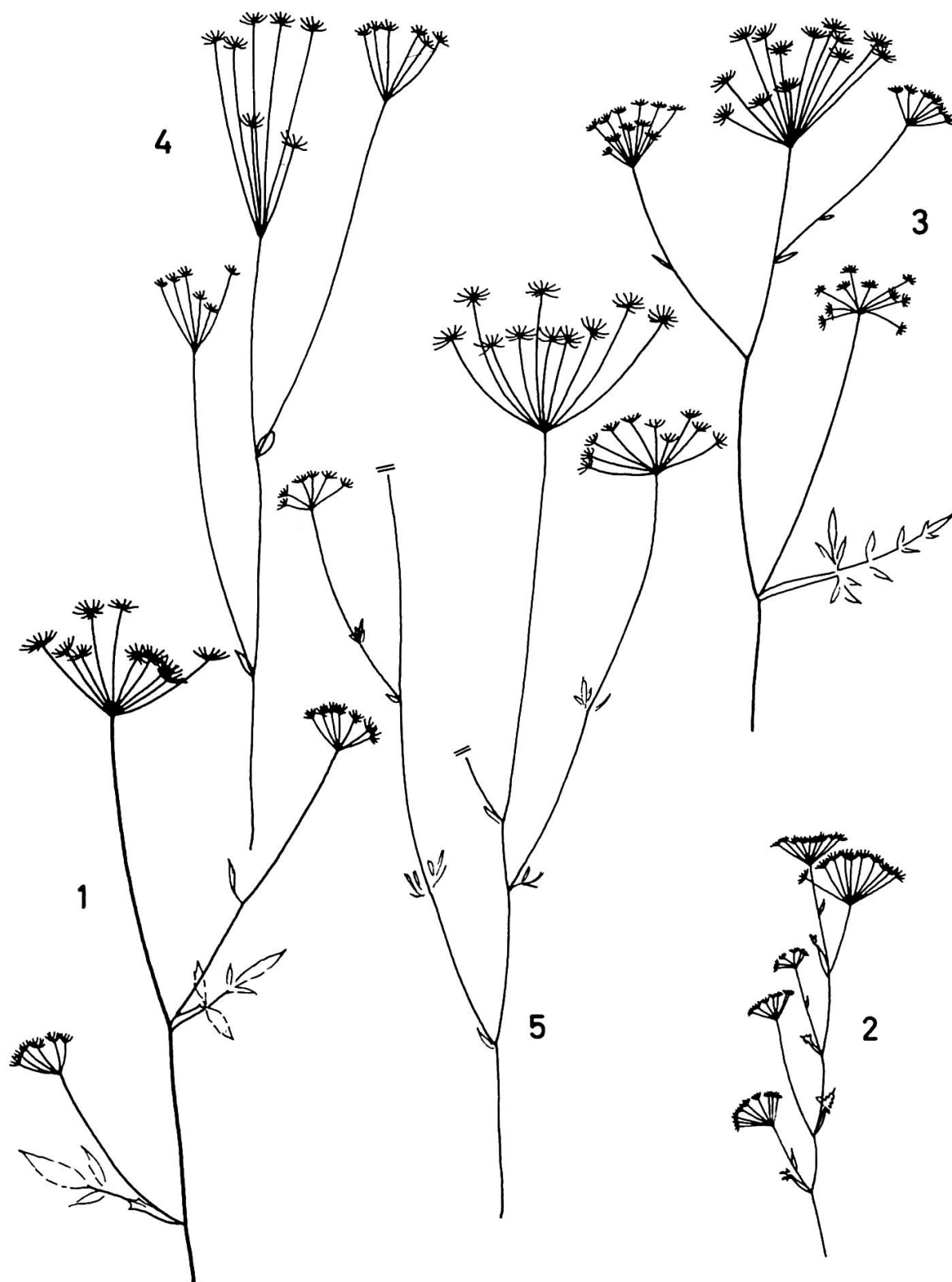


Fig. 4 (see explanation p. 26).

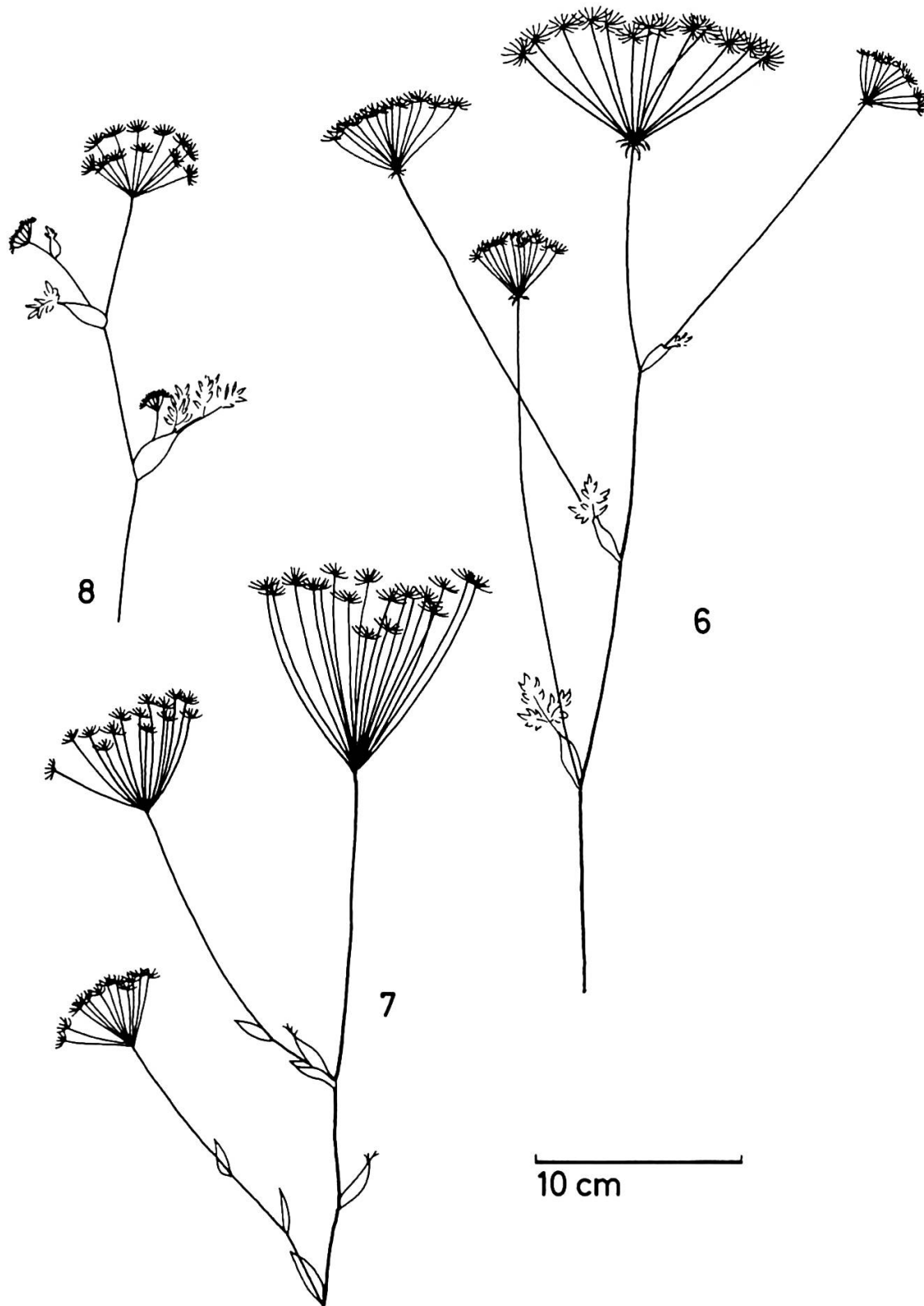


Fig. 4 (see explanation p. 26).

Fig. 1. — *Peucedanum*. Species with inflorescences of Type I. According to the evidence at hand, it seems that Type I is restricted to Europe and Africa, South of Sahara.

1. *P. hispanicum* (Boiss.) Endl. (Spain); 2. *P. verticillare* (L.) Koch ex DC. (Europe); 3. *P. welwitschii* (Endl.) Drude (West Trop. Africa); 4. *P. elgonense* Wolff (West Trop. Africa); 5. *P. kerstenii* Engler (West Trop. Africa); 6. *P. wilmsianum* Wolff (South Africa).

Fig. 2. — *Peucedanum*. Species with inflorescences of Type II, present throughout the area of distribution of the genus. These 16 examples, although only a small portion of the species with this Type of inflorescence, do however show its ample variation.

1. *P. adae* Woronin (Caucasus); 2. *P. alpinum* (Sieb. ex Schult.) Burt & Davis (Crete and Anatolia); 3. *P. arenarium* Waldst. & Kit. (East Europe); 4. *P. angustisectum* C. Norman (South Africa). 5. *P. baicalense* (Redow.) C. Koch (Siberia); 6. *P. chryseum* (Boiss. & Heldr.) Chamberlain (Anatolia); 7. *P. depauperatum* Boiss. & Balansa (Anatolia and Lebanon); 8. *P. ferulaceum* Thunb. ex Sond. (South Africa); 9. *P. lancifolium* Lange (Europe); 10. *P. munbyi* Boiss. (North Africa); 11. *P. neumayeri* Reichenb. (East Europe); 12. *P. palustre* (L.) Moench (Europe); 13. *P. petitiunum* A. Rich. (East Africa); 14. *P. polyscias* Boiss. (Iran); 15. *P. terebinthaceum* Fischer ex DC. (Siberia); 16. *P. venetum* (Sprengel) Koch (Europe).

Fig. 3. — *Peucedanum*. Species with inflorescences of Type III; they seem, from the available evidence, to be fewer than those of Type II, but as widespread. Lacking enough samples from the far North East, I could not verify if this Type is more frequent there than the Type II. The genus *Lomatium* of North America, surely closely akin to *Peucedanum*, seems to display only Type III.

It is worth observing that the species 3, 7, and 10 point to Type I, while the species 5, 12, and 15 to Type II. Ninth and tenth examples show inflorescences structurally of Type II, but as these are basipetous, they become blurred with Type III.

In *Ferulago*, on the other hand, the types of inflorescences are more sharply defined, with very few species whose inflorescences show a mingling of two different types.

1. *P. capillaceum* Thunb. (South Africa); 2. *P. falcaria* Turcz. (Central Asia); 3. *P. fraxinifolium* Hiern (East Trop. Africa); 4. *P. friesiorum* Wolff (East Trop. Africa); 5. *P. galbanum* Benth & Hooker (South Africa); 6. *P. isetense* Sprengel ex Schult. (Siberia); 7. *P. longifolium* Waldst. & Kit. (East Europe); 8. *P. magalismontanum* Sond. in Harv. (South Africa); 9. *P. multiradiatum* Drude (South Africa); 10. *P. ostruthium* (L.) Koch (Europe); 11. *P. praeruptorum* Dunn (China); 12. *P. rigidum* Bunge (China); 13. *P. salinum* Pall. ex Sprengel (Siberia); 14. *P. vaginatum* Ledeb. (Siberia); 15. *P. volkensii* Engler (East Trop. Africa).

Fig. 4. — *Peucedanum*. Species with inflorescences clearly built on Type II, but usually with only one fertile umbel; as a rule, that fruiting umbel is terminal either at the beginning or becomes so by differentiate growing, thus approaching Type III.

1. *P. aegopodioides* (Boiss.) Vandas (Anatolia and Balkans); 2. *P. deltoideum* Makino (Japan); 3. *P. latifolium* DC. (Caucasus to Europe); 4. *P. meisnerianum* McOwan ex Engler (South Africa); 5. *P. muriculatum* Welw. ex Hiern (West Trop. Africa); 6. *P. oreoselinum* (L.) Moench (Europe); 7. *P. stenocarpum* Boiss. & Reuter (Spain); 8. *P. ubadakense* Makino (Japan).

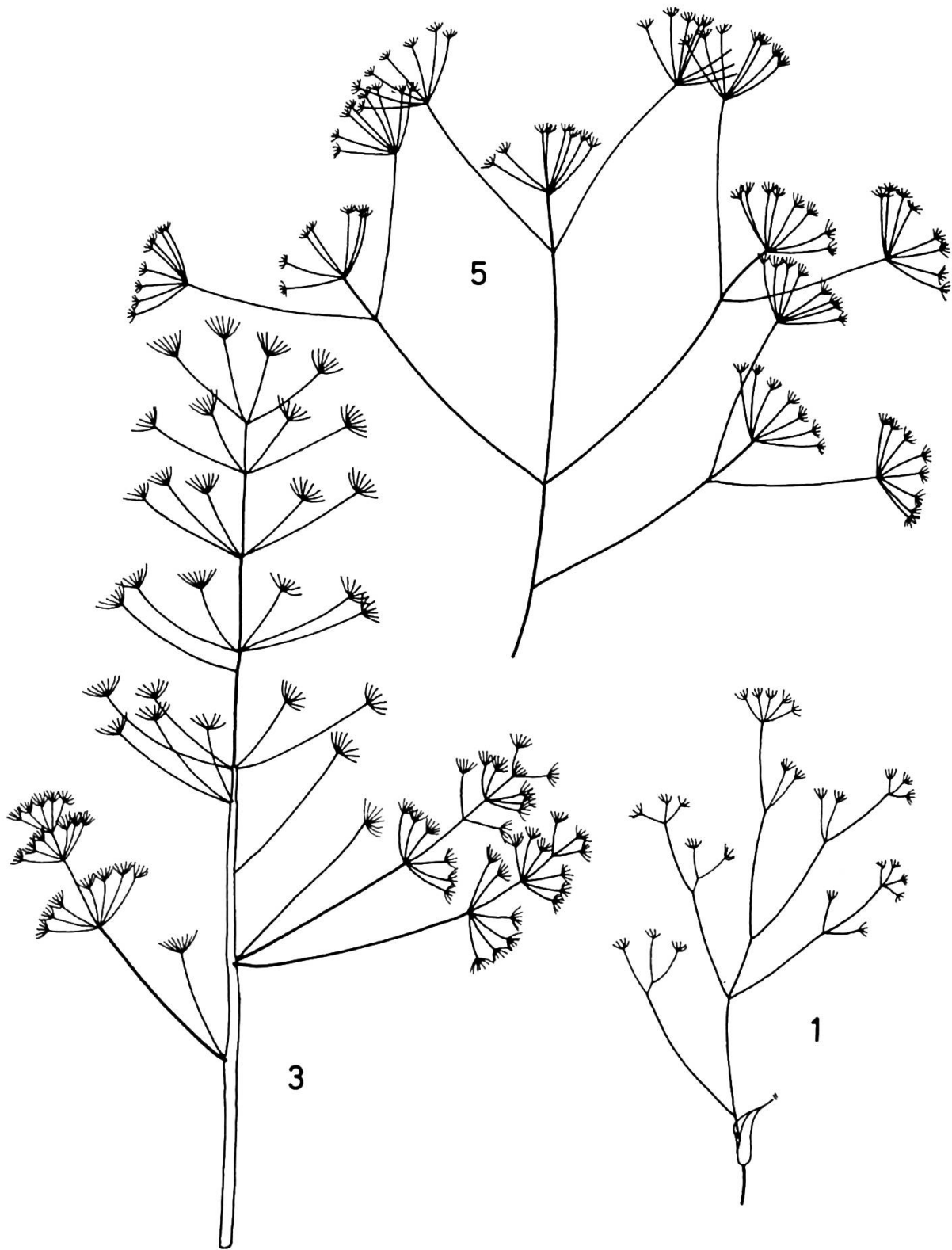


Fig. 5 (see explanation p. 37).

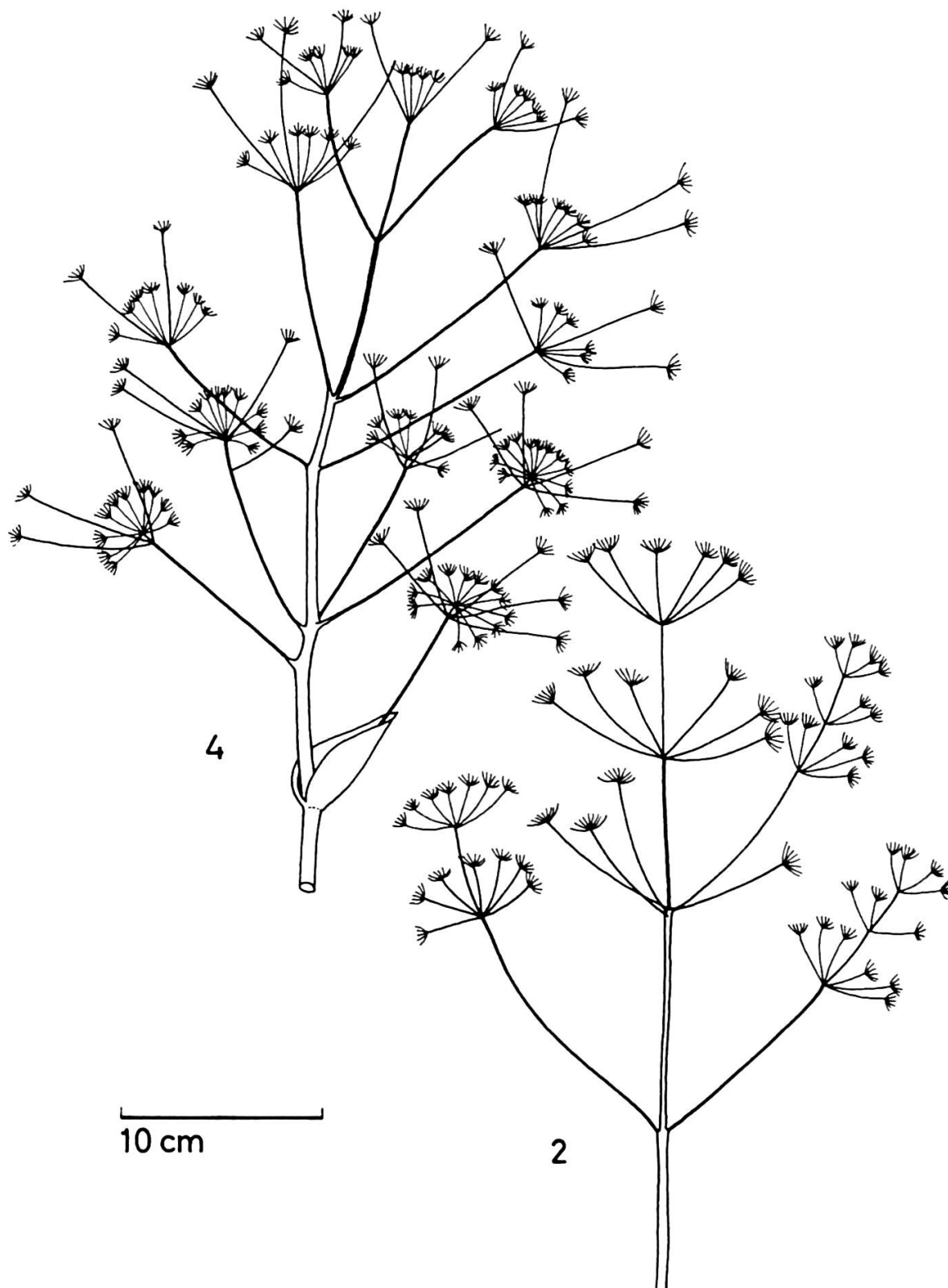


Fig. 5 (see explanation p. 37).

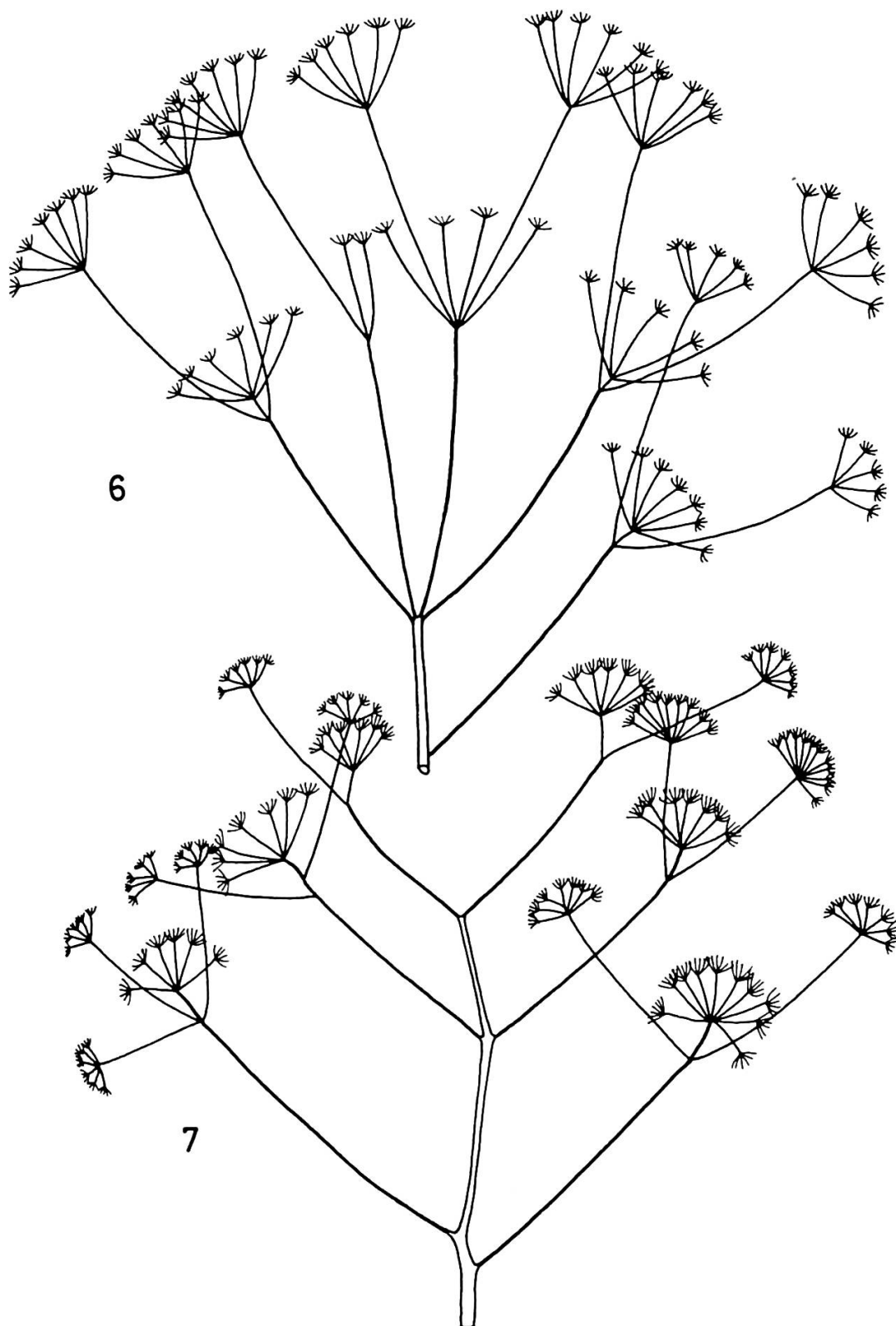


Fig. 5 (see explanation p. 37).

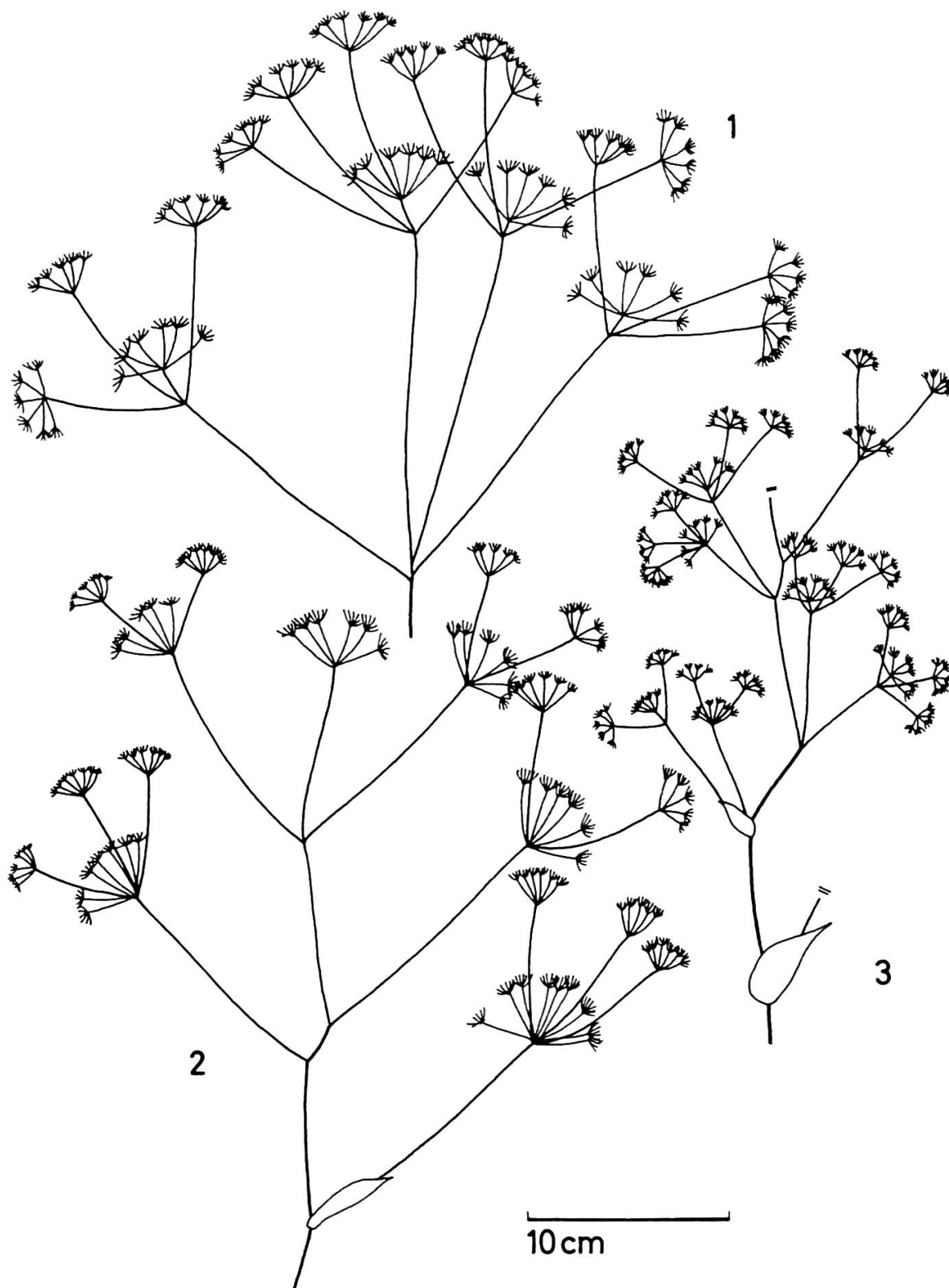


Fig. 6 (see explanation p. 37).

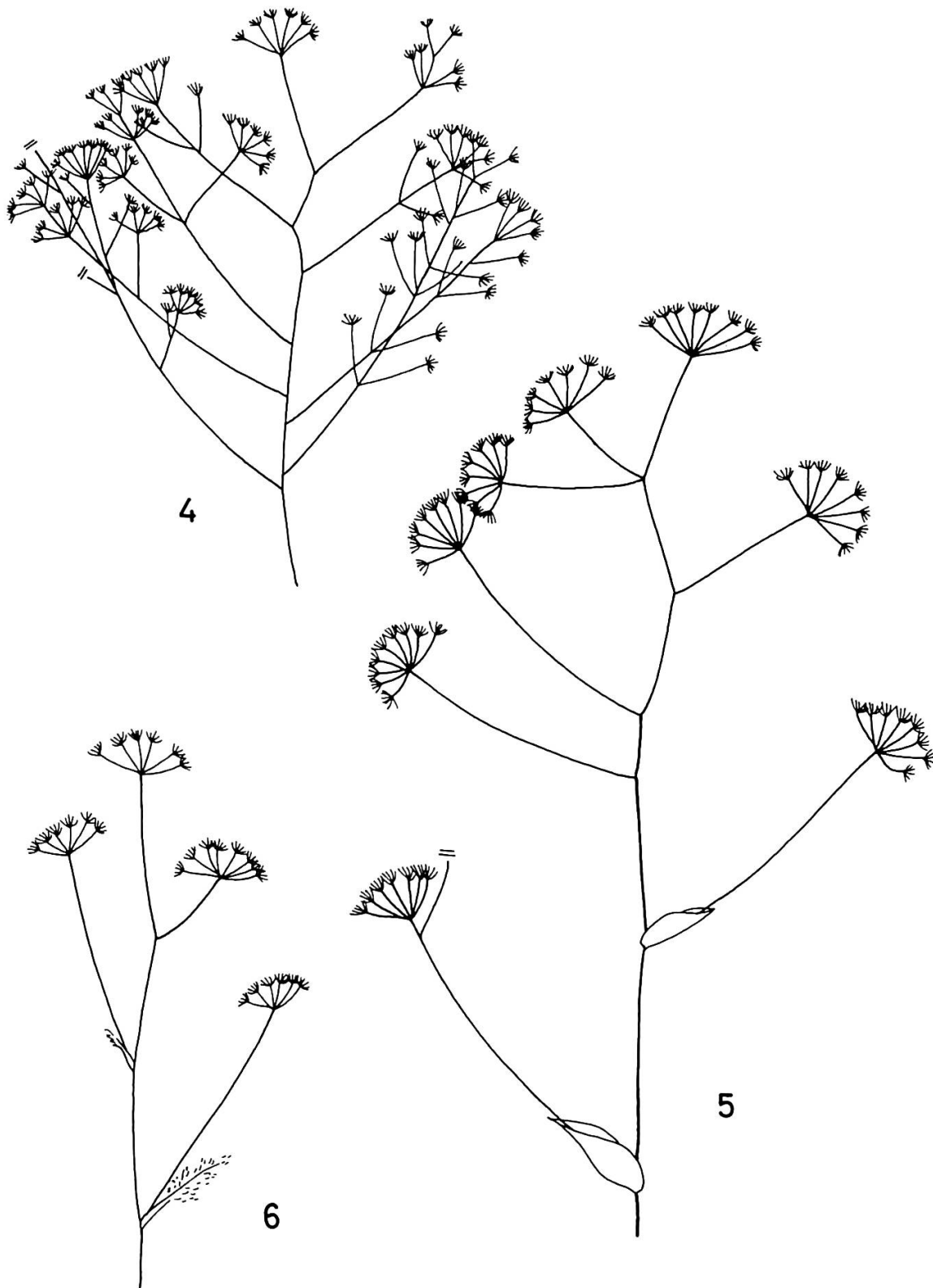


Fig. 6 (see explanation p. 37).

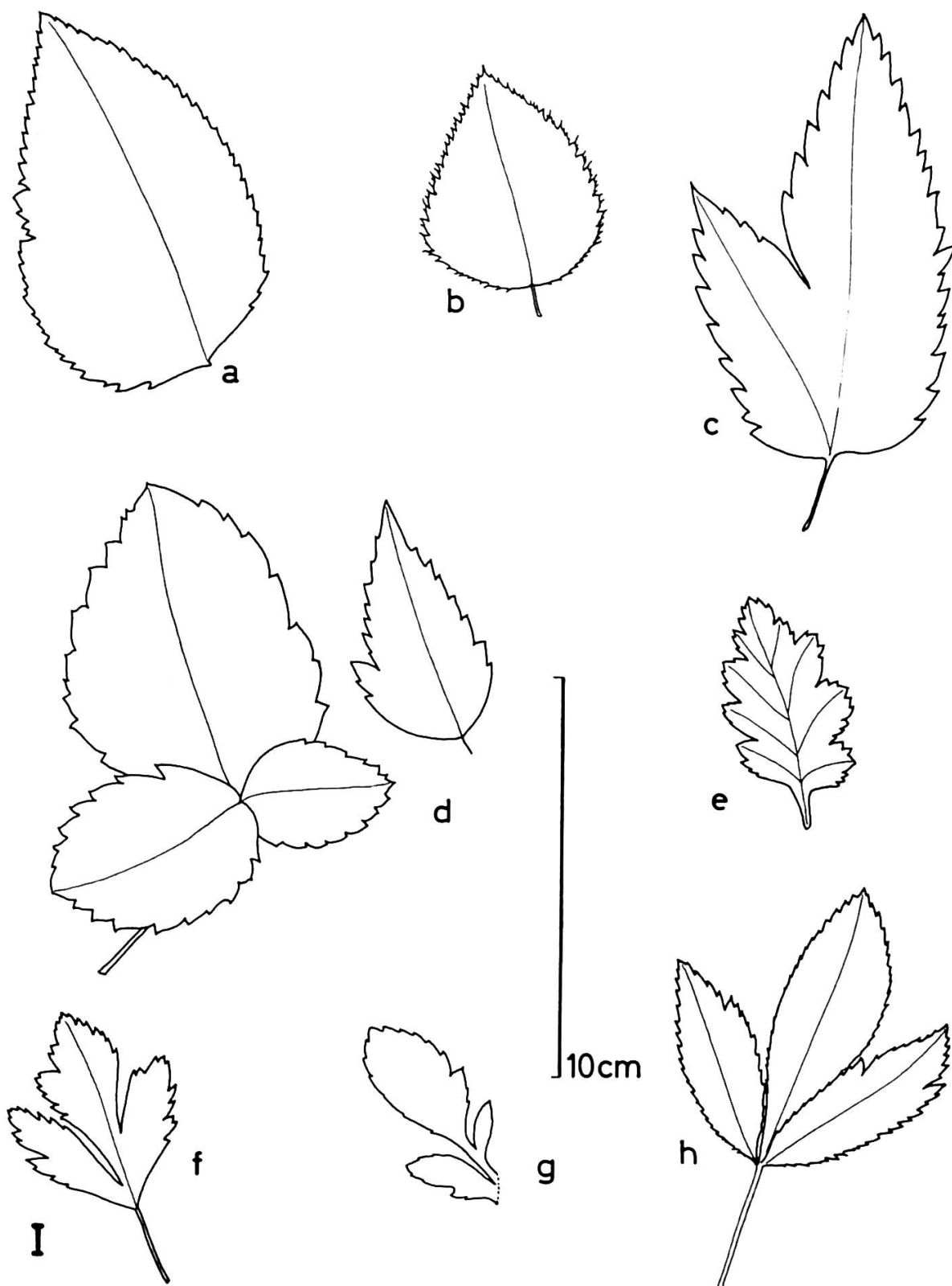


Fig. 7 (see explanation p. 37).

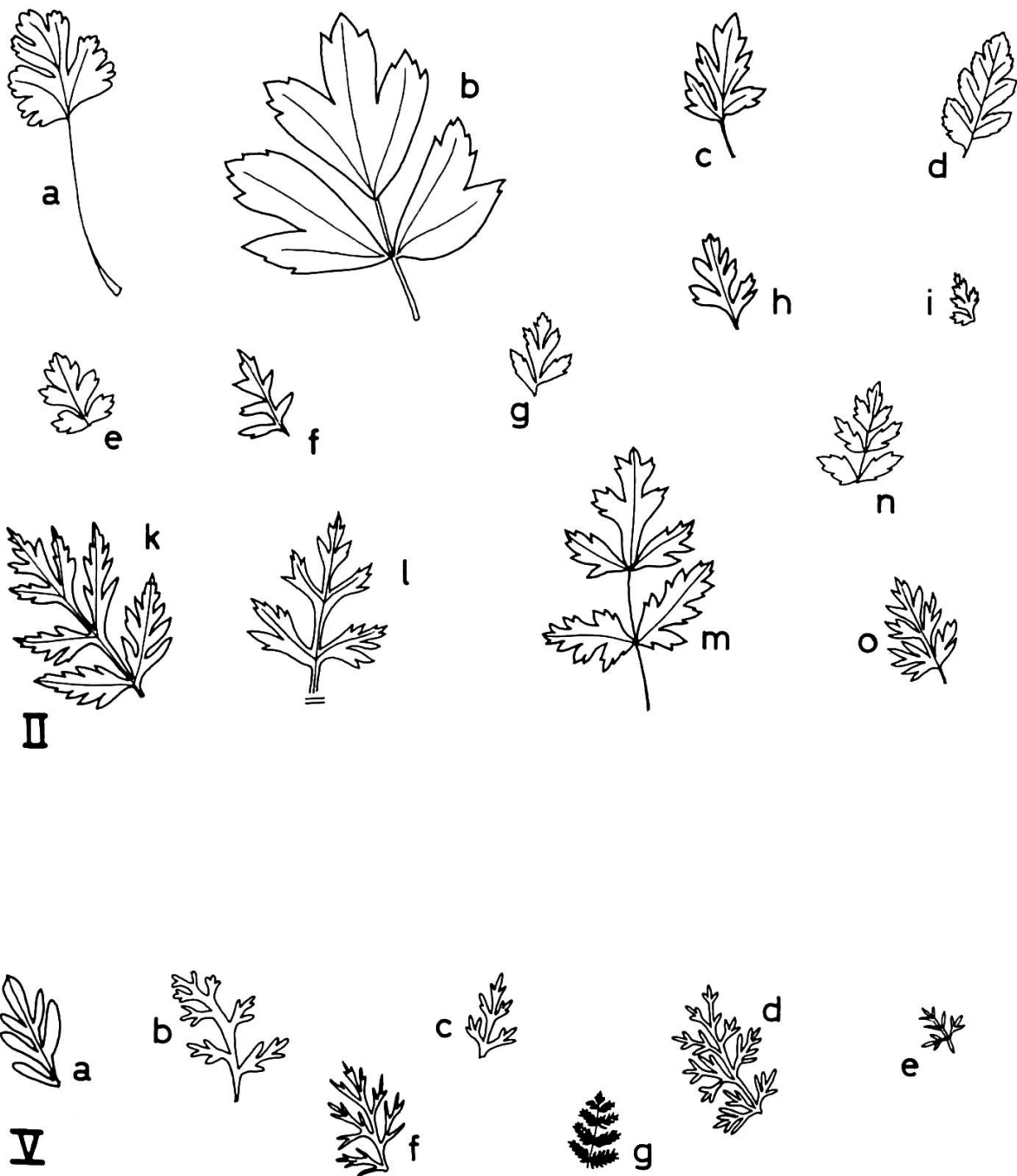


Fig. 7 (see explanation p. 37).

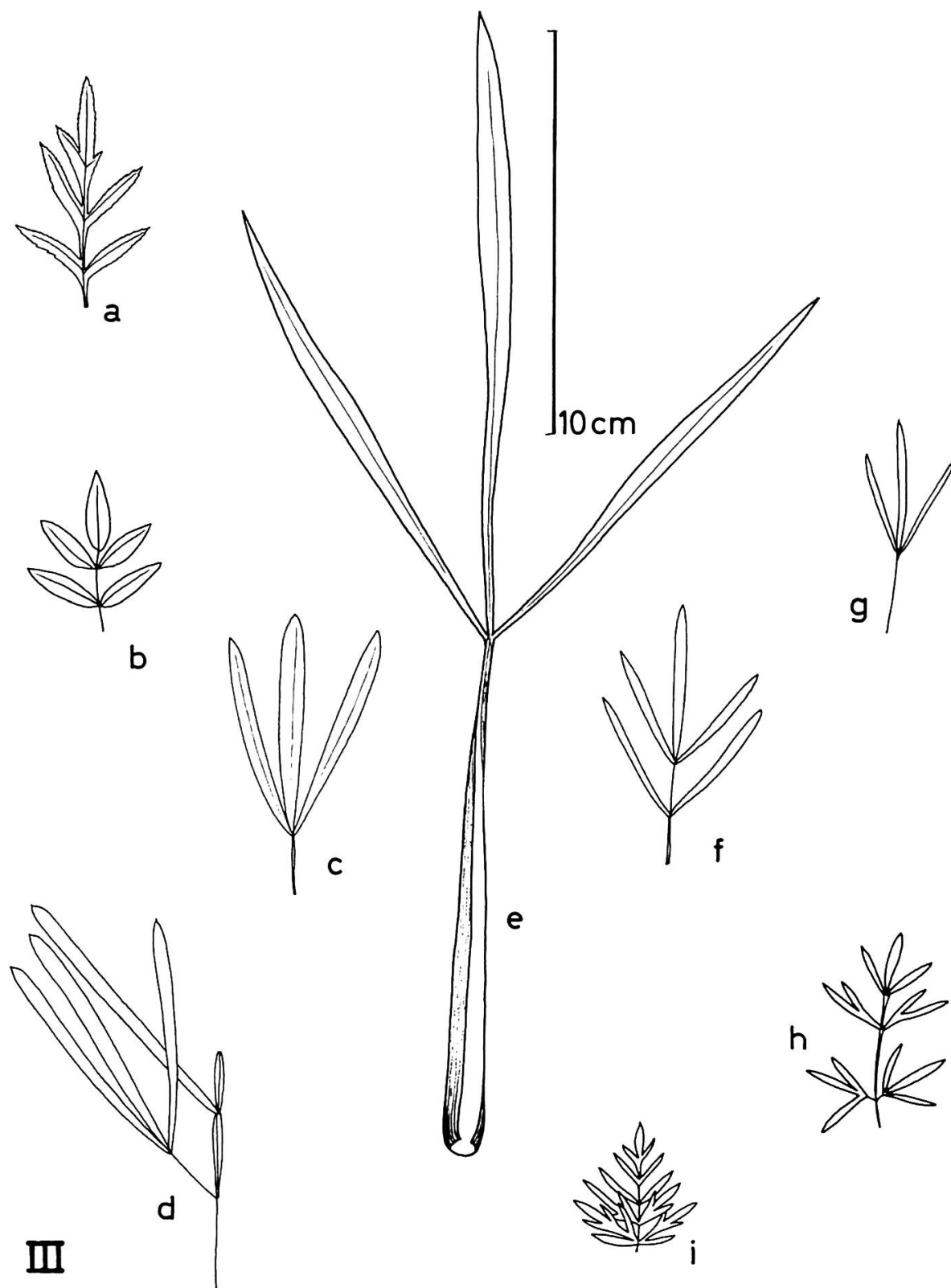


Fig. 7 (see explanation p. 37).

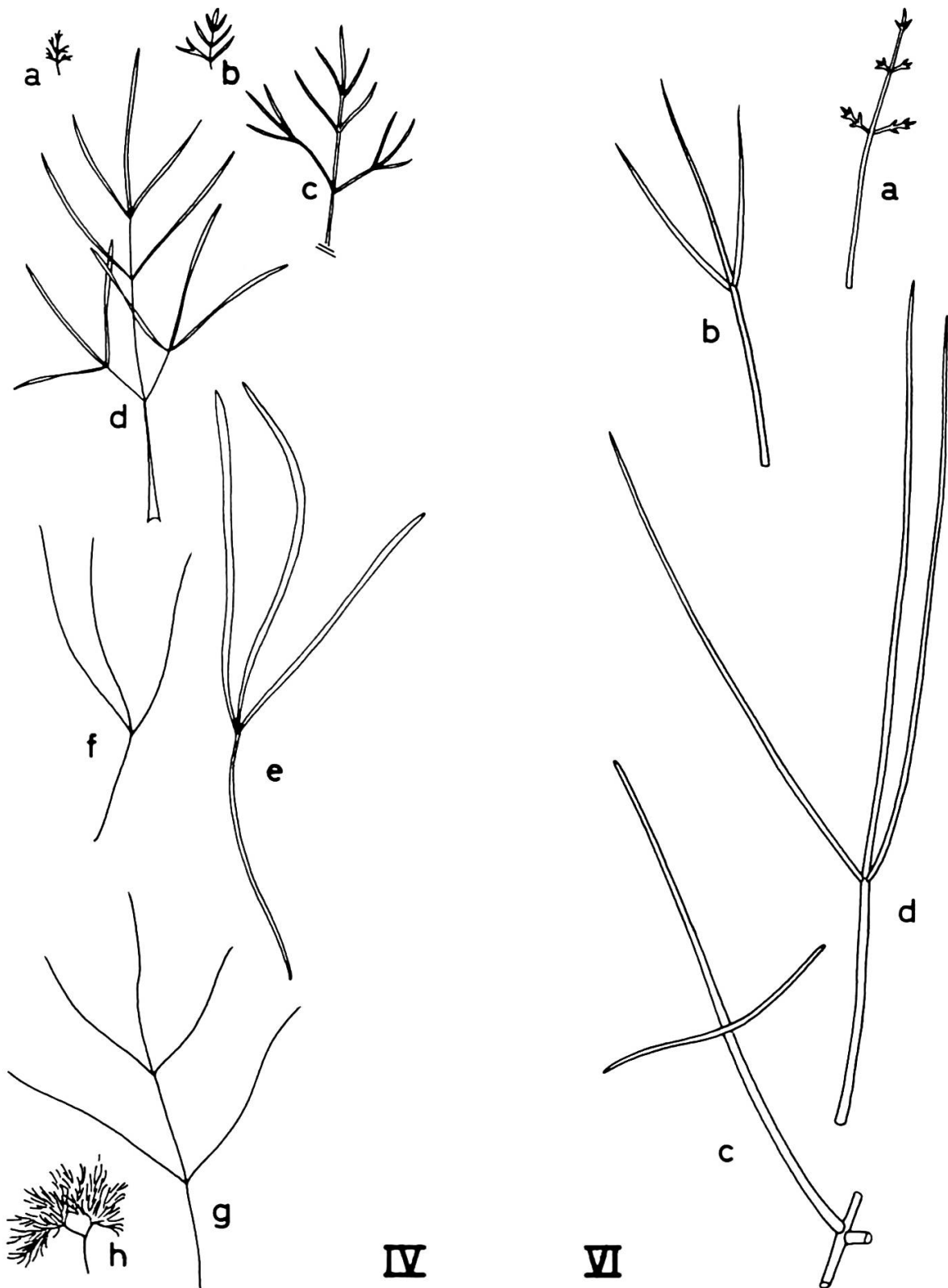


Fig. 7 (see explanation p. 37).

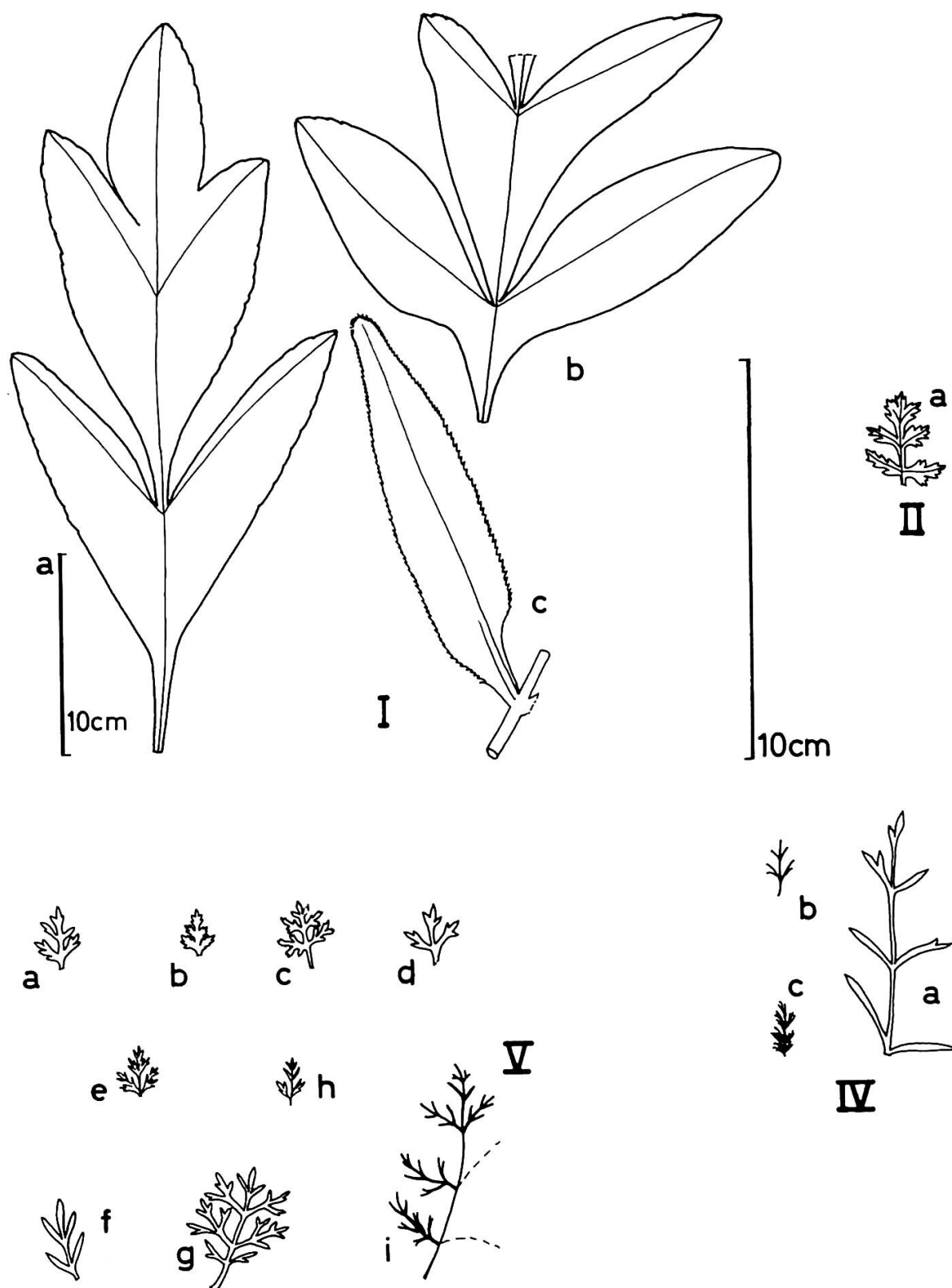


Fig. 8 (see explanation p. 38).

Fig. 5. — *Ferula*. Species with inflorescences of Type I. *Ferula blanchetii* Boiss. appears to be the best example of an erect and verticillate inflorescence. The botanical samples of very great size of *Ferula* species are more often than not deceptive and misleading, being as a rule fragmentary or too young.

1. *F. microcolea* Boiss. (Iran); 2. *F. heuffelii* Griseb. ex Heuf. (East Europe); 3. *F. blanchetii* Boiss. (Syria, Irak, Palestine); 4. *F. elaeochytris* Korovin (Anatolia and Syria); 5. *F. barbeyi* Post (Syria, Irak); 6. *F. szowitziana* DC. (Central Asia, Anatolia, Iran); 7. *F. ovina* (Boiss.) Boiss. (Central Asia to Pakistan).

Fig. 6. — *Ferula*. Species with inflorescences of a Type intermediate between I and II (Nos. 1-2-3), with others (Nos. 4-5-6) gradually approaching Type II.

1. *F. rigidula* DC. (Caucasus, Iran); 2. *F. sadleriana* Ledeb. (East Europe); 3. *F. hermonis* DC. (Anatolia and Syria); 4. *F. caspica* Bieb. (Central Asia, Anatolia and East Europe); 5. *F. ceratophylla* Regel & Schmalh. (Central Asia); 6. *F. canescens* Ledeb. (Central Asia).

Fig. 7. — *Peucedanum*, laciniae or terminal part of leaves. This genus shows a very rich spectrum of foliar forms: almost all types of leaves in the family! The subdivision of the foliar forms into six theoretical types indicated by roman numerals, notwithstanding the natural fact that they intermix (notably Type II tends toward Type V and Type IV toward Type VI) helps to a certain extent to visualize the three genera better (see also Fig. 9).

Type I and Type II are much more widespread and variable than in *Ferula*, but are lacking in *Ferulago*. Type III is peculiar to *Peucedanum*.

Type I. — a) *P. hispanicum* (Boiss.) Endl. (Spain); b) *P. fraxinifolium* Hiern (East Trop. Africa); c) *P. aegopodioides* (Boiss.) Vandas (Anatolia and Balkans); d) *P. verticillare* (L.) Koch ex DC. (Europe); e) *P. pastinacaefolium* Boiss. & Hohen. (Iran); f) *P. galbanum* Benth. & Hooker (South Africa); g) *P. muriculatum* Welw. ex Hiern (West Trop. Africa); h) *P. ostruthium* (L.) Koch (Europe).

Type II. — a) *P. alpinum* (Sieb. ex Schult.) Burt. & Davis (Anatolia and Creta); b) *P. japonicum* Thunb. (Japan); c) *P. oreoselinum* (L.) Moench (Europe); d) *P. petitianum* A. Rich. (East Trop. Africa); e) *P. achaicum* Halácsy (Greece); f) *P. meisnerianum* McOwan ex Engler (South Africa); g) *P. magalismontanum* Sond. in Harv. (South Africa); h) *P. munbyi* Boiss. (North Africa); i) *P. baicalense* (Redow.) C. Koch (Siberia); k) *P. terebinthaceum* Fischer ex DC. (Siberia); l) *P. deltoideum* Makino (Japan); m) *P. wilmsianum* Wolff (South Africa); n) *P. volkensii* Engler (East Trop. Africa); o) *P. adae* Woronin (Caucasus).

Type III. — a) *P. latifolium* (Bieb.) DC. (Europe); b) *P. capense* Sond. (South Africa); c) *P. coriaceum* Reichenb. (Europe); d) *P. officinale* L. (Europe); e) *P. graminifolium* Boiss. (Anatolia); f) *P. lancifolium* Lange (Europe); g) *P. ruthenicum* Bieb. (Anatolia and East Europe); h) *P. arenarium* Waldst. & Kit. (East Europe); i) *P. vaginatum* Ledeb. (Siberia).

Type IV. — a) *P. vittijugum* Boiss. (Balkans); b) *P. salinum* Pallas ex Sprengel (Siberia); c) *P. ferulaceum* Thunb. ex Sond. (South Africa); d) *P. angustisectum* (Engler) Norman (West Trop. Africa); e) *P. stenocarpum* Boiss. & Reuter (Spain); f) *P. longifolium* Waldst. & Kit. (East Europe); g) *P. paniculatum* Loisel. (Corsica and Sardinia); h) *P. capillaceum* Thunb. (South Africa).

Type V. — a) *P. obtusifolium* Sibth. & Sm. (Anatolia and Greece); b) *P. palimbioides* Boiss. (Anatolia); c) *P. paucifolium* Ledeb. (Caucasus and Iran); d) *P. chryseum* (Boiss. & Heldr.) Chamberlain (Anatolia); e) *P. friesiorum* Wolff (East Trop. Africa); f) *P. isetense* Sprengel ex Schultes (Siberia); g) *P. kerstenii* Engler (East Trop. Africa).

Type VI. — a) *P. petiolare* Boiss. (Iran); b) *P. cupulare* Boiss. (Iran); c) *P. sclerophyllum* Boiss. & Hausskn. (Iran); d) *P. polyscias* Boiss. (Iran).

Fig. 8. — *Ferula*, laciniae or terminal part of leaves.

They are sorted into Types as in *Peucedanum*, but Type III and Type VI are lacking and Type II seems very rare. The large foliar segments of Type I (the best known and most widespread example being *Ferula assa-foetida* L.) do not depend in any case on a moister climate, since the species with this foliar type grow in desert or semi-desert conditions where other *Ferula* species with foliar Type IV and Type V also thrive (together with *Peucedanum* and *Ferulago* species with Type VI). The foliar types of *Ferulago* are not presented here, but in "visiting cards" accompanying every species, the foliar laciniae are sketched to the same scale. Most of the species of *Ferulago* have foliar of Type IV and V.

Type I. — a) *F. assa-foetida* L. (Central Asia, Iran to West Pakistan); b) *F. diversivittata* Regel & Schmalh. (Central Asia and Iran); c) *F. jaeschkeana* Vatke (Central Asia to North India).

Type II. — a) *F. szowitziana* DC. (Central Asia, Anatolia, Iran).

Type IV. — a) *F. ceratophylla* Regel & Schmalh. (Central Asia, Anatolia and Iran); b) *F. rigidula* DC. (Caucasus, Iran); c) *F. hermonis* Boiss. (Anatolia and Syria).

Type V. — a) *F. heuffelii* Griseb. ex Heuf. (East Europe); b) *F. barbeyi* Post (Syria, Irak); c) *F. macrocolea* Boiss. (Iran); d) *F. caspica* Bieb. (Central Asia, Anatolia and East Europe); e) *F. canescens* Ledeb. (Central Asia); f) *F. sadleriana* Ledeb. (East Europe); g) *F. sinaica* Boiss. (Palestine and North Arabia); h) *F. microcolea* Boiss. (Iran); i) *F. ovina* Boiss. (Central Asia, Iran, Irak to West Pakistan).

Review of the second character: laciniae of the leaves

I have divided the laciniae of the leaves into six types; some are of course linked by almost imperceptible forms to others, as is so often the case in "rebus naturalibus". Nevertheless, it is hoped that the many illustrations (Fig. 7, 8) will render almost superfluous all verbal disquisition. *Peucedanum* is endowed with all six types; it is worthy of note that the third one is lacking in *Ferula* and *Ferulago*. The uncommon Type VI is distinctive of the § *Junceae* Boiss. The author of the "Flora orientalis" thus magistrally outlined that section: "Folia in lacinias rigidas cylindricas petioliformes secta (BOISSIER, 1872: 1014). *Ferula* has neither the third nor the sixth Types of laciniae.

Ferulago presents only the fourth, fifth and sixth Types. The sixth Type is peculiar to species of the § *Anisotaenia*, which have few vittae and a restricted geographical distribution, almost the same as that of the § *Junceae* of *Peucedanum*.

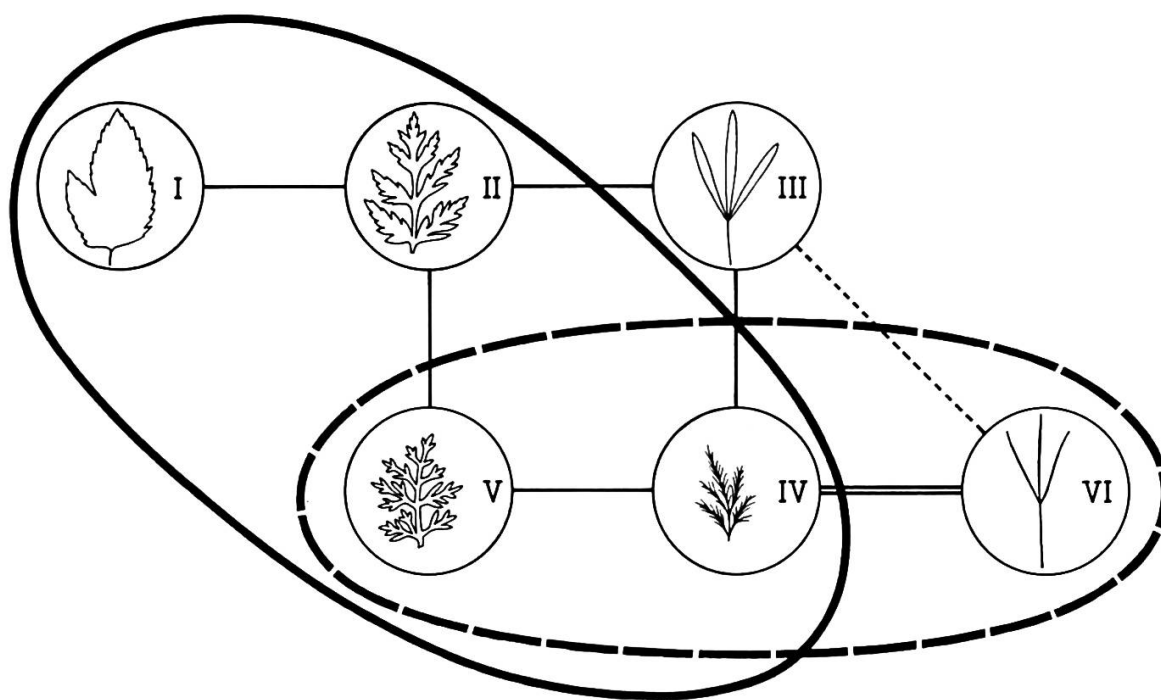


Fig. 9. — The six simplified Types of laciniae in *Peucedanum*.

The four Types in the ellipse surrounded by a solid line are present in *Ferula* (the Type II seems however very rare). The three Types (IV, V, VI) in the ellipse surrounded by a dashed line are only to be found in *Ferulago*. The type VI is encountered exclusively in the § *Anisotaenia* of *Ferulago* and § *Junceae* of *Peucedanum*. The largest number of species of both sections are in Iran.

Review of the third character: hypsophylls

The three genera in respect to this character show great differences, that is to say:

- a) *Peucedanum*. — There are species lacking hypsophylls completely; others lacking of involucre nevertheless have the involucre; there are species with both.
- b) *Ferula* on the whole is destitute of them. In some rare instances, the involucre is present, but scanty on the same verticil, but lacking under umbellulae of the same sample and usually deciduous; therefore they do not represent any reliable character, but a sort of "lusus naturae".
- c) *Ferulago*, on the other hand, always possesses involucre and involucre.

Peucedanum thus appears as the middle term between the "no" of *Ferula* and the unconditional "yes" of *Ferulago*. Owing to the fact that in this genus, the form of the involucre (as a rule, the involucre has a similar but reduced form) stands out as very valuable in characterising the species, I searched for similar evidence in *Peucedanum*. The material at my disposal was far from complete, but I found a few interesting trends, namely:

1. Species with neither involucre nor involucre are scattered on the three continents. For instance, we find:

In Africa: *Peucedanum aculeatum* Engler; *P. capense* Sond.; *P. fraxinifolium* Hiern; *P. galbanum* (L.) Benth. & Hooker; *P. hypoleucum* (Sond.) Benth. & Hooker; *P. megalismontanum* Sond.; *P. petitianum* A. Rich.; *P. zenkeri* Engler; *P. zeyheri* Sond.

In Asia: *P. aegopodioides* (Boiss.) Vandas (also in Europe); *P. alpinum* Burt. & Davis; *P. latifolium* (Bieb.) DC.; *P. ramosissimum* Dietr.; *P. salinum* Pallas; *P. vaginatum* Ledeb.

In Europe: *P. achaicum* Halácsy; *P. coriaceum* Reichenb.; *P. officinale* L.; *P. paniculatum* Loisel.; *P. paucifolium* Ledeb.; *P. verticillare* (L.) Koch ex DC.

2. When present, the hypsophylls are divided into three types by shape (in the same manner as in *Ferulago*):

Type I: lineate, without apparent veins;

Type II: oblong, with few, but easily visible veins;

Type III: deltoid, often cochleariform and (or) acuminate with a rich network of veins.

For the first type of hypsophyll, rather few species also present involucre: most of them possess only the involucels. From this evidence, it seems that this hypsophyll type is very rare in African species.

Referring to the *Peucedanum* species with hypsophylls of Type II, there are a fair number of species with both involucre and involucels and fewer with only involucels.

In the first case, we can ascribe:

- *Peucedanum adae* Woronin from Caucasus; *P. ferulaceum* Thunb. (South Africa); *P. kerstenii* Engler (East Trop. Africa); *P. oreoselinum* (L.) Moench (Europe); *P. triternatum* Eckl. & Zeyh. (South Africa); *P. wilmsianum* Wolff (South Africa), etc.

In the second instance (no involucre):

- *Peucedanum deltoideum* Makino (Korea); *P. depauperatum* Boiss. & Balansa (Asia minor); *P. neumayeri* (Viv.) Reichenb. fil. (Europe); *P. volkensii* Engler (East Africa).

In the first case, with the exception of the Caucasian *P. adae*, all the other species are found in western Caucasus and not in Asia.

Among the species with deltoid hypsophylls, there are almost the same number of species with and without involucre.

In the first instance (both involucre and involucels):

- *Peucedanum alsaticum* L. (Europe); *P. aucheri* Boiss. (Iran);¹ *P. isetense* Sprengel (East Europe and Siberia);² *P. pastinacaefolium* Boiss. & Hohen. (Iran); *P. palustre* (L.) Moench (Europe); *P. polyscias* Boiss. (Iran); *P. venetum* (Sprengel) Koch (Europe).

In the second instance we have:

- *Peucedanum arenarium* Waldst. & Kit (Europe); *P. baicalense* (Redow.) C. Koch (Asia); *P. japonicum* Thunb. (Asia); *P. meisnerianum* MacOwan ex Engler (South Africa); *P. mumbyi* Boiss. (North Africa) (sometimes with involucre); *P. obtusifolium* Sibth. & Sm. (East Europe and Asia minor); *P. rigidum* Bunge (Asia).³

¹As it appears from the specimens *Aucher* 4630, 4635 and *Stock* 951 indicated in "Flora orientalis...", excluding the others; from the samples in "Flora orientalis Herbarium" (G-BOIS), it seems to me a spurious species.

²To be found in "Flora SSSR" 16: 238 (1950) as *Aulacospermum isetense* (Sprengel) Schischkin: with the best of intentions I cannot see the "ubi consistam" of *Aulacospermum* in respect to *Peucedanum*.

³In "Iconographia Cormophytorum Sinicorum" 2: 1093, No. 3916 (1972) [no author's name] it is possible to read "*Ferula borealis* Kuan", which, following the index, would take the place of *Peucedanum rigidum* Bunge. I think that the contrary is right and that *Ferula borealis* Kuan can be taken to be a synonym of *P. rigidum*.

In sum, *Peucedanum* displays this character in a rich fashion with seven possibilities, namely: three types of hypsophylls for both involucre and involucels; three types for the involucels only, or a complete lack of bracteal apparatus.

Some more or less distinct geographical inferences are indicated. It might be worth using this character, perhaps as the most subordinate, in the systematics of this large genus.

Review of the fourth character: leaves sheaths

Here, *Ferulago* plays no role, since its leaf sheaths present very small growth, or none. In *Peucedanum* and *Ferula*, on the other hand, this character shows a very large variation, from species in which leaf sheaths are almost obsolete, to others in which this character is very noticeable. The illustrations (Fig. 10: 1-33) all to the same scale, are eloquent.

Ferula indeed, in several instances, is more peculiar than *Peucedanum*. AITCHINSON (1888: 67, tab. 18) affords one illustration of the most spectacular example of the supposed *Ferula oopoda* Boiss. (but by KOROVIN, 1947: 67, named *Ferula badghysi* Korovin, from Afghanistan). Aitchinson wrote "In the present specimens the larger of these sheaths is at least six inches across, and the largest, observed lower on the stem, was at least a foot across; and they more nearly resemble a bowl or cup than an egg". In *Ferula* then, this character is developed to its greatest extent. I am not inclined to believe that it is dependent on semi-desert conditions or other ecological reasons. Other *Umbelliferae* in quite different ecological surroundings, as for instance *Angelica ursina* (Rupr.) Maxim. from Kamtchatka and the more western *A. archangelica* L. and *A. sylvestris* L. display some leaf sheaths almost as large as the aforementioned *Ferula badghysi*. As this is then genetic character, in my opinion at least, it would be interesting to discover its possible correlation with other characters and to ascertain if some geographical trend exists in the distribution of the oversized leaf sheaths in *Peucedanum* and *Ferula*. But this is far from our narrow mole-hill *Ferulago*.

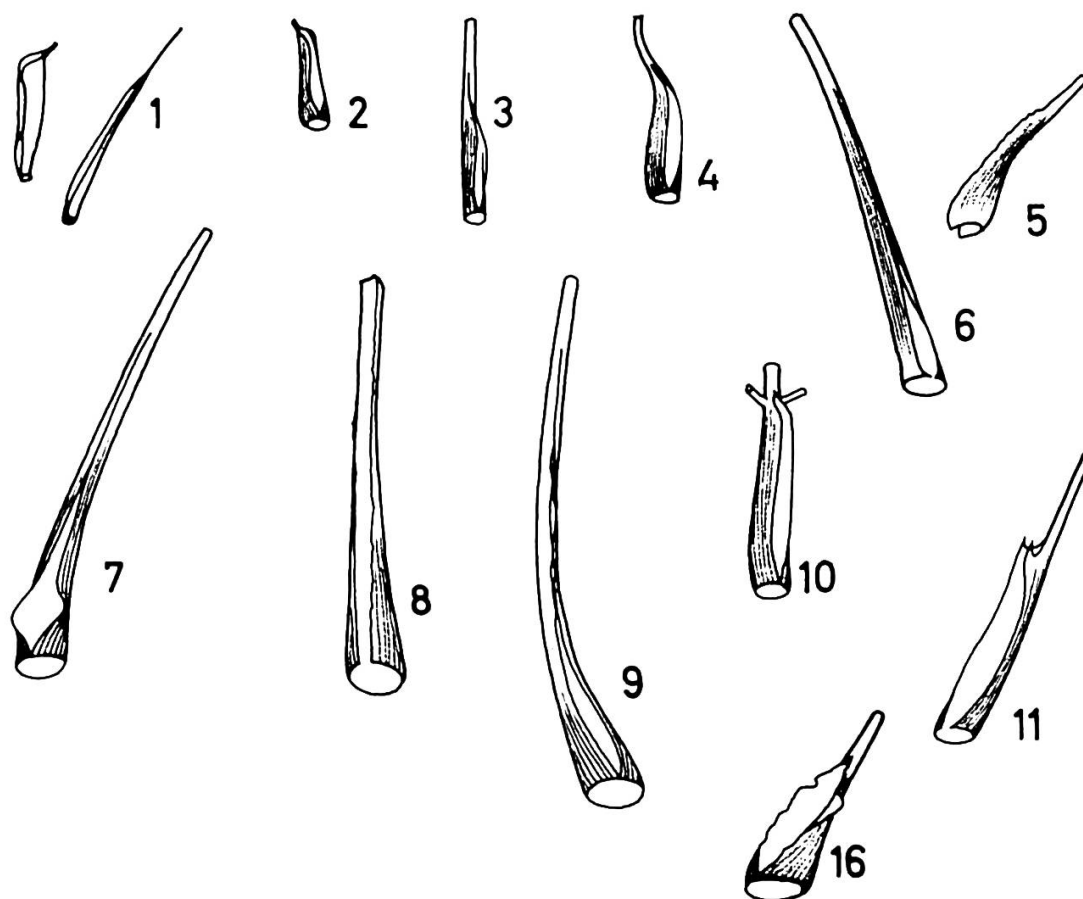


Fig. 10 (see also the following two pages). — Sheaths of the leaves in *Peucedanum* (Nos. 1 to 21) and in *Ferula* (Nos. 22 to 33). In the sixth to the ninth examples, it is only the petiole base which surrounds the stem, the rest of it becomes more or less canalliculate. Number 10 (*Peucedanum ferulaceum*) is homologous, in reduced scale, to number 26 (*Ferula sinaica*, suspected by me to be a *Peucedanum*) and also to number 28. The same is true to numbers 21 and 27. The examples 29 to 33 demonstrate the huge growth of the sheaths in *Ferula*.

1. *P. salinum* Pall. ex Sprengel (Siberia); 2. *P. rigidum* Bunge (China); 3. *P. vaginatum* Ledeb. (Siberia); 4. *P. oreoselinum* (L.) Moench (Europe); 5. *P. lancifolium* Lange (Europe); 6. *P. latifolium* DC. (Europe); 7. *P. ostruthium* (L.) Koch (Europe); 8. *P. alsaticum* L. (Europe); 9. *P. officinale* L. (Europe); 10. *P. ferulaceum* Thunb. ex Sond. (South Africa); 11. *P. paniculatum* Loisel. (Corsica and Sardinia); 12. *P. cervaria* (L.) Lapeyr. (Europe); 13. *P. stenocarpum* Boiss. & Reuter (Spain); 14. *P. hispanicum* (Boiss.) Endl. (Spain); 15. *P. obtusifolium* Sibth. & Sm. (Anatolia and Greece); 16. *P. multiradiatum* Drude (South Africa); 17. *P. ubadakense* Makino (Japan); 18. *P. galbanum* Benth. & Hooker (South Africa); 19. *P. volkensii* Engler (East Trop. Africa); 20. *P. arenarium* Waldst. & Kit. (East Europe); 21. *P. verticillare* (L.) Koch ex DC. (Europe); 22. *F. canescens* Ledeb. (Central Asia); 23. *F. barbeyi* Post (Syria); 24. *F. microcolea* Boiss. (Iran); 25. *F. sadleriana* Ledeb. (East Europe); 26. *F. sinaica* Boiss. (Palestine, North Arabia); 27. *F. eleaeochoytris* Korovin (Anatolia and Syria); 28. *F. rigidula* DC. (Caucasus, Iran); 29. *F. ceratophylla* Regel & Schmalh. (Central Asia); 30. *F. jaeschkeana* Vatke (Central Asia, Iran to North India); 31. *F. hermonis* Boiss. (Anatolia and Syria); 32. *F. ovina* Boiss. (Central Asia, Iran to West Pakistan); 33. *F. macrocolea* Boiss. (Iran).

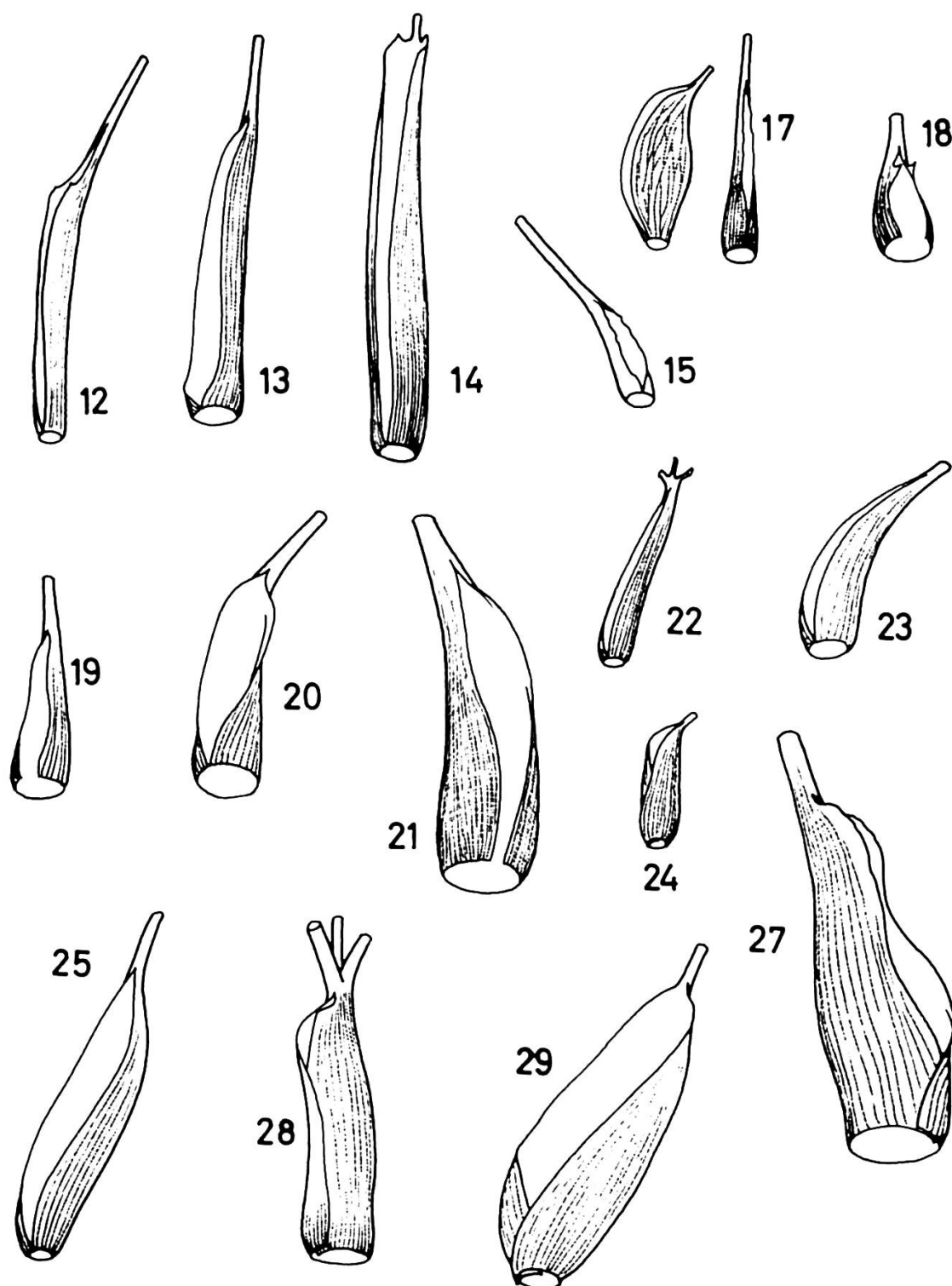


Fig. 10.

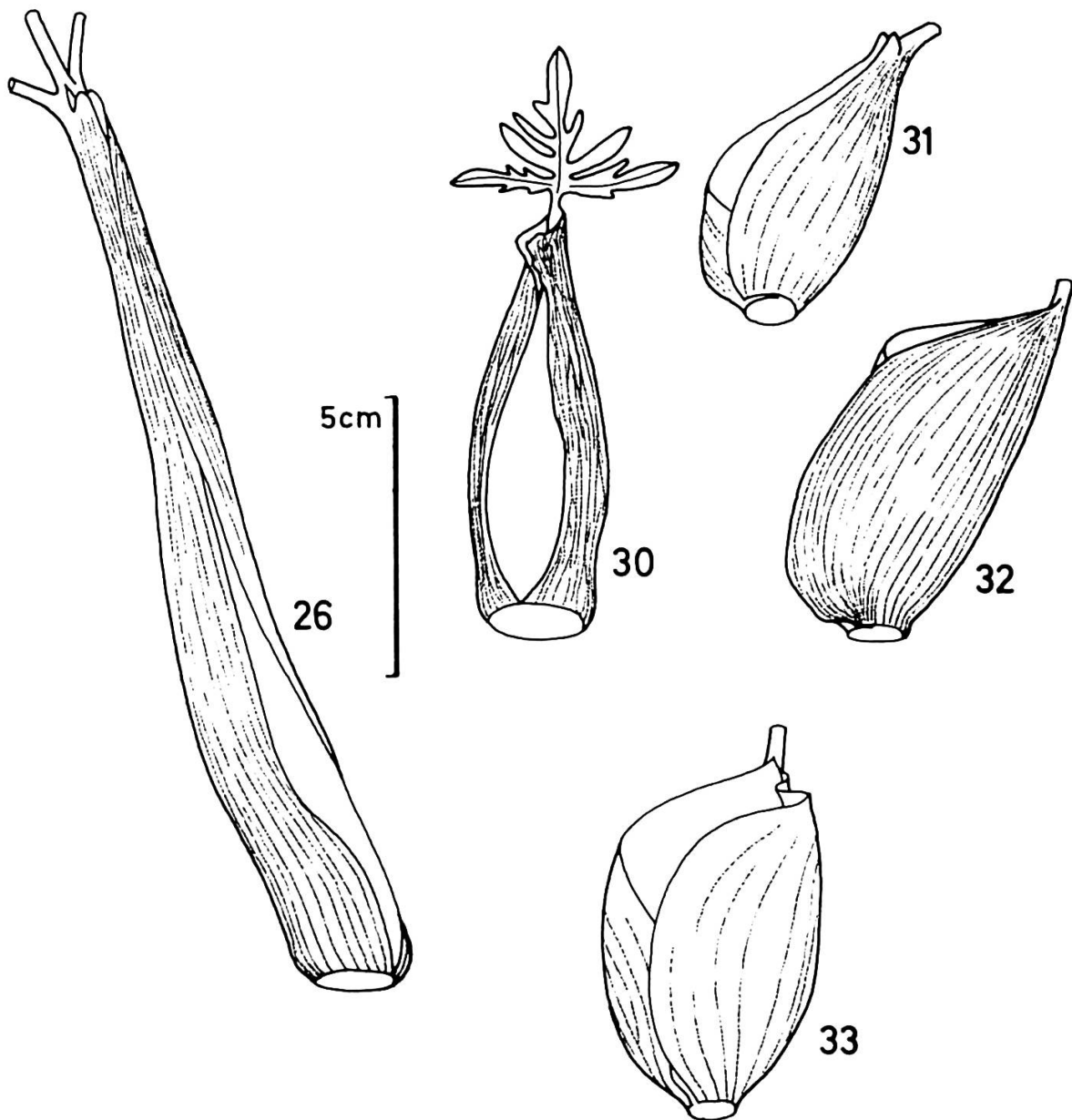


Fig. 10.



Fig. 11. — Distribution area of *Ferulago*, completely shadowed by those of both *Ferula* and *Peucedanum*.

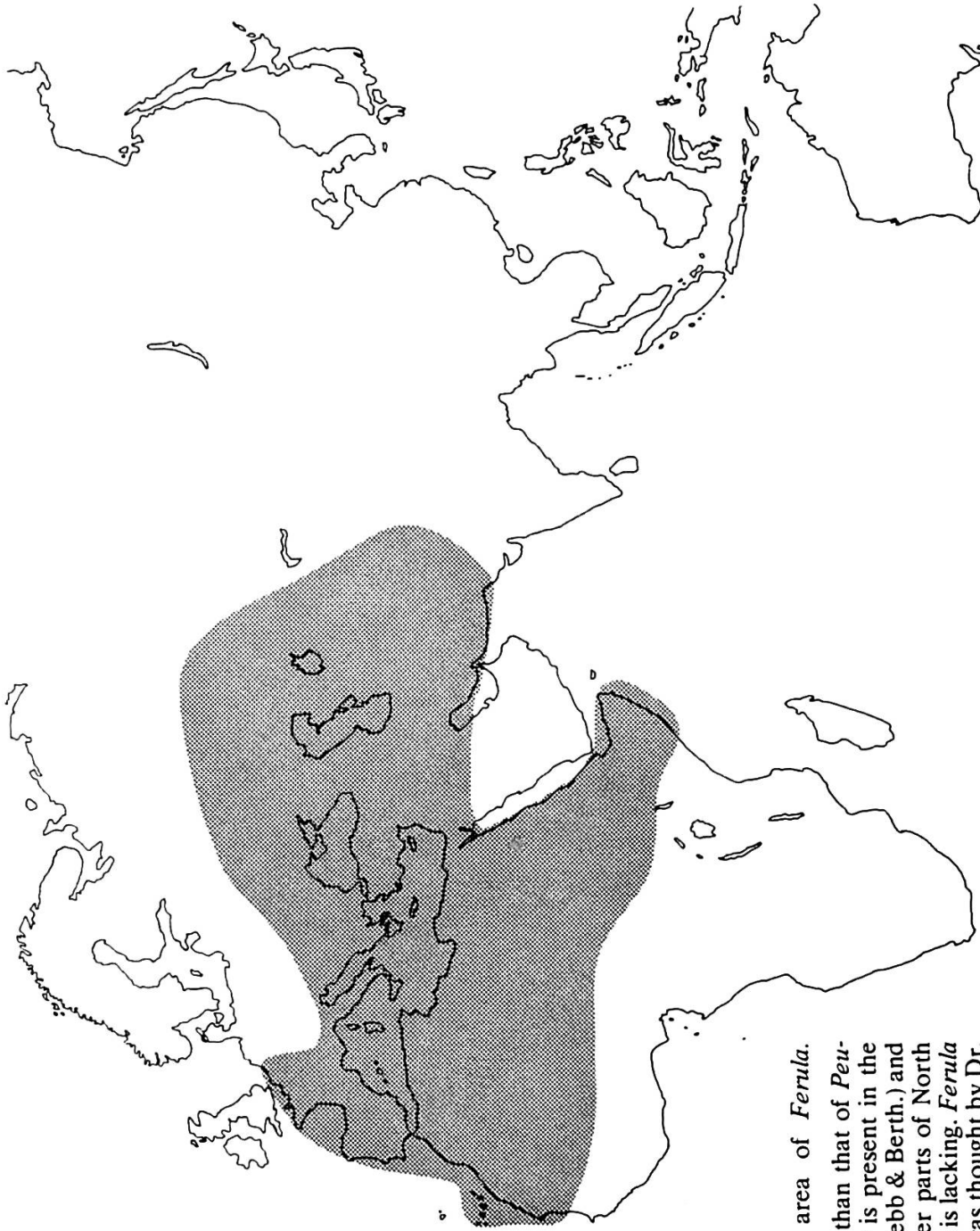


Fig. 12. — Distribution area of *Ferula*.
 This is noticeably smaller than that of *Peucedanum*. *Ferula* however is present in the Canary Islands (*F. linkii* Webb & Berth.) and (*fide auctorum*) in the drier parts of North Africa where *Peucedanum* is lacking. *Ferula linkii*, on the other hand, was thought by Dr. R. Maire (in sched., herb. MPU) to be present in North Africa but as subsp. of *Ferula communis* L.

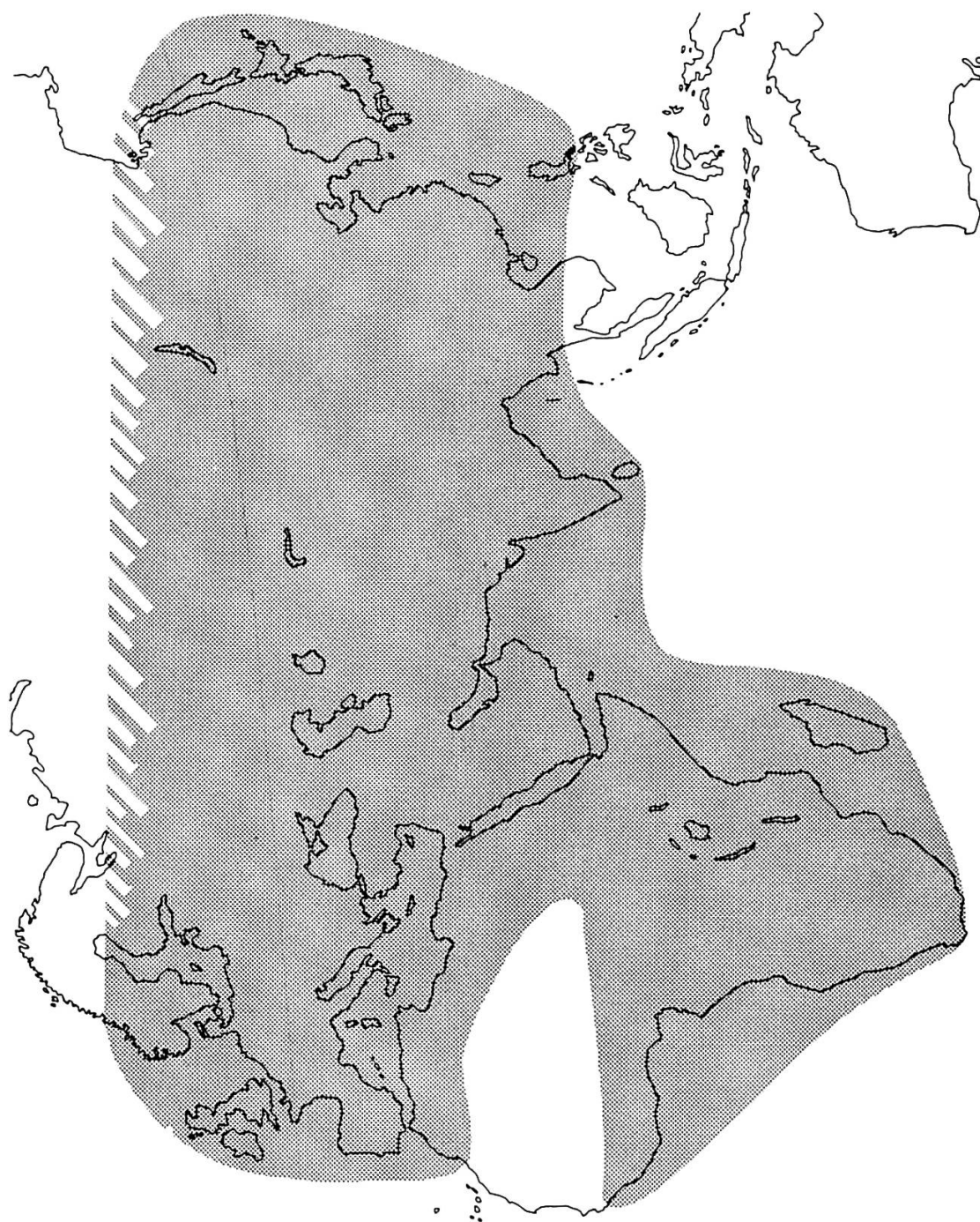


Fig. 13. — Distribution area of *Peucedanum*, as considered in DRUDE (1898) but excluding *Lomatium* Raf. These three generic areas are of course highly diagrammatic. In *Peucedanum* the northern borders are especially vague according to the available evidence and in the HIROE & CONSTANCE statement (see p. 11).

The taxonomic relations of *Peucedanum*, *Ferula* and *Ferulago*

I will now describe my theory (under the epigraphic shield of the Darwin quotation) concerning the three genera after the evaluation of the four characters.

Briefly: *Peucedanum* is richly endowed with all the four; the other two lack of one of them (but not the same one) or they exaggerate one of them (again not the same one): e.g. in: *Ferula*, the leave sheaths and in *Ferulago*, the hypsophylls.

The morphogenetic wealth of *Peucedanum* covers — in my opinion — both *Ferula* and *Ferulago*. I know very well that for explaining closely-related taxa are usually described as having a “common ancestor”. The pity is that the common ancestor is lying under some sediments still to be worked, or has disappeared, or is represented by a very small and puzzling vestige. I believe instead that *Peucedanum* is that “ancestor” but still full of life, ecologically even more fit than them and also nearer to each than they are to one another: in the same way that two branches divide from the same bole; they are immediate to it, but separated from each other. Paraphrasing G. K. Chesterton,¹ I confess to being attracted to the ideas of J. C. Willis at the start

¹He wrote in some part of his numerous writings about his long cruise in quest of the best religion, as it were the most beautiful Island, and on coming back he discovered that the Roman Catholic was that so-longed-for Island of St. Anselm (of Canterbury, for the English, of Aosta for the Italians).

of my study ("Age and Area", "The Birth and Spread of Plants") and now at the conclusion, I am even more Willisist.

Accepting the distribution of *Peucedanum* (see Fig. 13) to "only" three Continents, Asia, Europe and Africa (granting *Lomatium* to America, more for a kind of botanical Monroe Doctrine, than for other reasons), it remains, nevertheless, an overwhelming larger area than those of *Ferula* (Fig. 12) and *Ferulago* (Fig. 11).

It could be disappointing for an orthodox Willisist to find in the 8th edition of J. C. Willis "Dictionary" (1973) that *Peucedanum*, in spite of its vast area, amounts only to 120 species while *Ferula* 133, but these dubious figures will be discussed later.

In this respect, I have displayed doubts about several *Ferula*, which I think, are *Peucedanum* species; I also believe that E. Korovin, in his beautiful Monograph, described too many species from very few samples. It is an odd but acknowledged fact that with more material at hand, the revising botanist can put many insignificant and ill differentiated species into synonymy. It is even more strange however to find the total of the published *Peucedanum* spp. in "Index Kewensis" (up to date and excluding all the old American species) is 342 binomials!

The number of vittae as a useful aid to *Ferulago* systematics and geography

I never concealed from myself when I was surveying with an eagle's eye (or better, a goose's) the three genera, that a vital, possibly conclusive character was still to be dealt with: the fruit with its morphology and chiefly the number of vittae. KOCH (1825) fiercely trumpeted *Ferulago* as a new genus for its large number of vittae with respect to *Ferula*. That is only partially true, by the way, as I elucidated sometime ago (BERNARDI, 1975: 73). All the *Umbelliferae* authors, besides, see truly "Vittae number addicts", or at least very reverential toward them. But very soon, checking the number of vittae I had obtained in *Ferulago* species against the number given by different authors, I noticed that either I was always wrong or they were! This Hamlet's matter was instrumental in deciding me on an extended vittae count in more fruits of more samples of the same species. Eventually, I decided I was not wrong.

It is odd, on the other hand, that this easily ascertainable and helpful character is not taken into account at all in TUTIN & al. "Flora europaea" (vol. 2. 1968, passim) and very badly reported in the admirable DAVIS's "Flora of Turkey" (vol. 4: 453-471. 1972) where we can read at length: "Dorsal and commissural vittae more than 10... or more than 14"; this evidently contributed nothing to the systematics of a taxon. But I could not add the number of vittae to the four chosen characters for all the three genera: that would have been too burdensome. Restricted myself to *Ferulago*, I give in this paper the number of vittae in every case for the whole fruit, not for a

single mericarp, because it is common, mainly in dorsal vittae, to encounter a slight different number in the two mericarps. I noted also:

- a)* a restricted variation in the number of vittae for the same species after examining several specimens. This variation is always indicated on the “visiting card” of the species, and in the botanical key;
- b)* the dorsal vittae are as a rule more numerous than the commissural, even in the species with very flat fruits. *Ferulago humilis* Boiss. has however the same vittae number (36) for both.

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*.

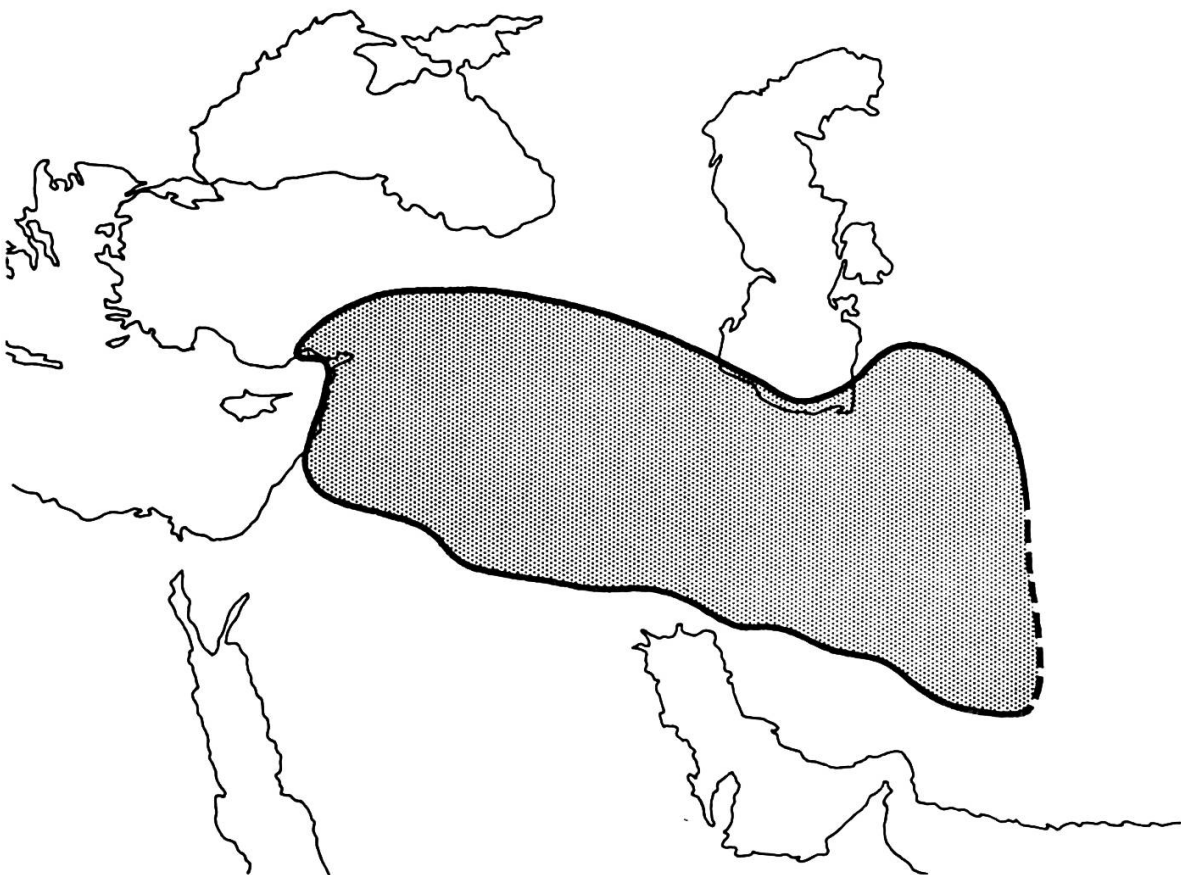


Fig. 14. — Area of the § *Anisotaenia* Boiss. of *Ferulago*: see p. 54 and 163 (*F. thyrsiflora*, ex Creta, omitta).

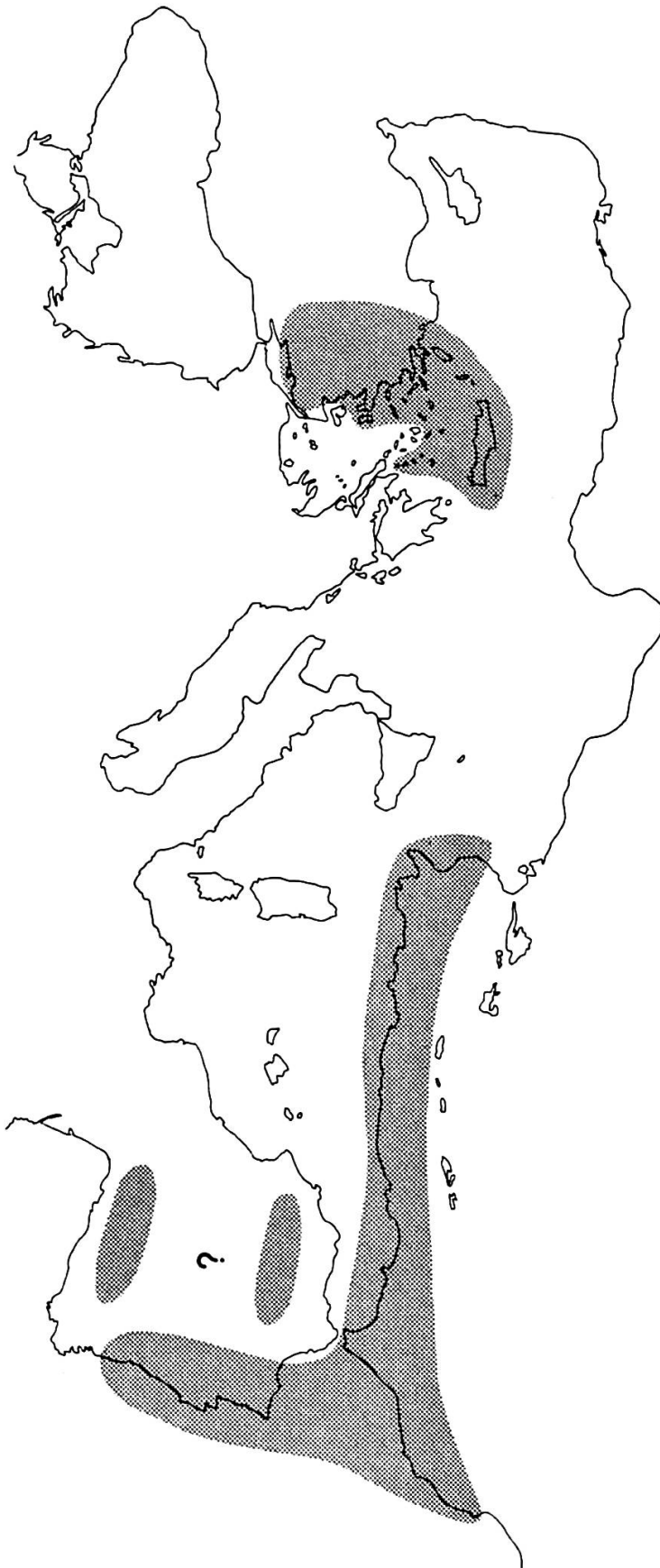


Fig. 15. — Distribution area of *Ferulago* species with lineate hypsophylls.

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*; *silafolia*; *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:

- | | |
|----------------------------|--|
| 1825 KOCH, G. D. E. | 1905 BORNMÜLLER, J. |
| 1826 REICHENBACH, H. G. L. | 1905 CALESTANI, V. |
| 1835 KOSTELETSKY, 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. | |

- | | |
|---------------------------|-------------------|
| 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:

- | | |
|----------------------------------|-------------------------------|
| 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 |

Clavis specierum

Clavis introitus

Specierum dispositio hic regitur imprimis ab involucrorum forma, quam reor facilem intellegi ex verbis usitatis, et ob inflorescentiarum formam, quae I^o, II^o vel III^o typi dicitur. Ut clarius hoc fiat, quamquam repetite in paginis istis de inflorescentiarum forma prolixè scriptum sit, nunc repeto hos inflorescentiae typos.

- Typus I: sic definitur: panicula umbellarum axi robusto erecto e quo umbellae verticillatae oriuntur, flores et fructus simul rite ferentes. Europae palam exemplum: *Ferulago campestris*.
- Typus II: panicula quam praecedentis typi gracilior, axi primario demunita, ramis alternis plus minusve assurgentibus umbellas ferentibus flores et fructus rite simul ferentes. Europae mediterraneae palam exemplum: *Ferulago nodosa*.
- Typus III: inflorescentia basipeta, umbella terminali majore confecta citius fructifera, umbellis lateralibus assurgentibus, gracilioribus et saepius sterilibus aequantibus raro superantibus. Europae, de Italia ad orientem, exemplum: *Ferulago sylvatica*.

1. Involucra lineata vel angustissime oblonga, involucella lineata nervis et venulis plerumque obsoletis 2
- 1a. Involucra et involucella haud lineata, latiora, nervis et venulis plus minusve notatis et numerosis ad involucra et involucella 6
2. Inflorescentia Typi I 3
- 2a. Inflorescentia Typi II aut III 4
3. Laciniae ultimae folii a regione petiolulari valde indistinctae, folia ideo flagelliformia; fructus ambitu oblongo-elliptico, sat spissus, 9×3 mm circa, stilopodium depresso-conicum vix 1.5 mm diam. stilis duplo longioribus. Vittae commissurales 16; vittae dorsuales 24 (ad fructum totum!) **38. Ferulago thyrsoflora**
- 3a. Laciniae distinctae, scabriusculae, oblongae, mucronulatae vix 5 mm longae; fructus ambitu obovato-elliptico (in typo, sed immaturus!) compressus, 9×4 mm, stilopodium patelliforme 2 mm diam. stilis vix longiusculis. Vittae commissurales 24-32, vittae dorsuales 40-48; juga et alae in fructibus maturis conspicua et suberosa **5. Ferulago biumbellata**
4. Inflorescentia Typi III. Laciniae oblongae saepius glabrae, raro scabridulae, mucronulatae 4-6 mm longae quandoque magis; fructus ex typo ambitu obovato, basi truncata, 15×8 mm sat crassus; stilopodium vix 1-1.5 mm diam., stilis subulatis apertis, ± 3 mm longis. Juga crassa, conspicua (totius generis ingentiora!), corticosa, alae inflato-corticosae. Vittae commissurales 24-32; dorsuales 40-48 septatae et irregulares **19. Ferulago lutea**
- 4a. Inflorescentia Typi II. Laciniae setaceae, glabrae, confertae, mucronulatae vix 3 mm longae 5
5. Fructus ambitu ovato, compressus 10×6 mm; stilopodium minimum, conicum stilis reflexis longiusculis. Juga filiformia, alae 1 mm latae, planae. Vittae commissurales integrae 36; dorsuales etiam 36 **17. Ferulago humilis**
- 5a. Fructus ambitu suborbiculato, 10×9 mm; stilopodium minimum, conicum stilis reflexis vix longiusculis. Juga filiformia, alae minimum 2 mm latae valde planae. Vittae commissurales septatae 28; dorsuales integrae 40 **21. Ferulago macrosciadia**
6. Involucra et involucella oblonga 7
- 6a. Involucra et involucella deltoidea, saepe cymbiformia 16
7. Inflorescentia Typi II. Laciniae setaceae glabrae 10 mm minimum longae. Fructus ambitu ovato $11 \times 3-4$ mm haud compressus; stilopodium parvum stilis reflexis valde productionibus. Juga cras-

siuscula et sat conspicua, alae parvae. Vittae commissurales septatae, inaequales saepe interruptae, 24-32; dorsuales 40-48

33. *Ferulago stellata*

- 7a. Inflorescentia Typi I aut III 8
8. Inflorescentia Typi I 9
- 8a. Inflorescentia Typi III 14
9. Lacinae foliorum glabrae a regione petiolulari indistinctae, folia igitur flagelliformia, vel lacinae stipitiformes 10
- 9a. Lacinae glabrae aut scabridae, lineato-oblongae aut elliptico-obovatae 11
10. Lacinae indistinctae (ut in *F. thyrsoflora*!); fructus ambitu ovato-oblongo 11 × 6 mm; stilopodium minimum patelliforme, stilis reflexis aequilongis. Juga conspicua, subalata, alae 2 mm latae. Vittae commissurales septatae, crassae 8(-12); dorsuales 16

6. *Ferulago blanchiana*

- 10a. Lacinae stipitiformes, valde crassae, obtusae raro mucronulatae. Fructus (ex typo aliquantum immaturus) ambitu elliptico, tenuis et compressus, 13 × 7 mm; stilopodium subconicum 2.5 mm diam. margine crenato, stilis divaricatis aequilongis. Juga laminacea, contigua, conspicua, alae parvae tenuesque. Vittae commissurales 4-8; dorsuales 12-16 24. *Ferulago pachyloba*

11. Lacinae scabridae, lineato-oblongae 10 mm longae, fructus ambitu late elliptico utrimque obtuso, compressus, 10 × 7 mm; stilopodium vix 1.5 mm diam. pateriforme stilis vix aequilongis. Juga crassiuscula, alae 1.5 mm latae, irregulariter vittatae. Vittae commissurales septatae 32; dorsuales 46-50

14. *Ferulago daghestanica*

- 11a. Lacinae glabrae 12
12. Lacinae elliptico-obovatae, crassiusculae 3-4 mm longae. Fructus ambitu late-elliptico utrimque obtuso 12 × 9 mm; stilopodium minimum, planum stilis vix longioribus. Juga filiformia vix notanda, alae conspicuae margine corticoso, 2 mm ut summum latae. Vittae commissurales septatae quandoque interruptae 24; dorsuales 40

4. *Ferulago aucheri*

13. Fructus ambitu obovato vel elliptico, compressus, 12 × 9 mm; stilopodium minimum stilis gracillimis apertis 2-3 mm longis. Juga inconspicua alae vix notandae. Vittae commissurales septatae, 28-32; dorsuales 44-50 9. *Ferulago campestris*

- 13a. Fructus ambitu anguste-ovato, compressus 12 × 6 mm; stilopodium patelliforme 1 mm diam. stilis productioribus. Juga filiformia,

alae notatae vix 1 mm latae. Vittae commisurales septatae saepe divaricatae et interruptae 20-24; dorsuales 32-36

3. *Ferulago asparagifolia*

14. Lacinae valde elliptico-scabrae falcatae acutae distincte mucronulatae. Fructus (ex typo aliquantum immaturus) ambitu elliptico, tenuis et compressus, 13×7 mm; stilopodium subconicum, 2.5 mm diam. margine crenato stilis divaricatis aequilongis. Juga inconspicua, alae minimae 1 mm vix latae crassiusculae. Vittae commisurales 32-36; dorsuales 40-50 **29. *Ferulago scabra***

- 14a. Lacinae setaceae, confertae, glabrae vel scabriusculae 15

15. Lacinae glabrae. Fructus ambitu elliptico 13×6 mm; stilopodium patelliforme vix 1 mm diam. stilis divaricatis aequilongis vel longiusculis. Juga subalata, alae conspicuae minimum 2 mm latae margine crassiore. Vittae commissurales septatae inaequales 16-20; dorsuales 20-24 **31. *Ferulago setifolia***

- 15a. Lacinae scabriusculae vix 5 mm longae. Fructus ambitu elliptico, compressus 9×6 mm; stilopodium parvum depresse conicum stilis divaricatis brevioribus. Juga contigua crassiuscula, alae sat conspicuae. Vittae commissurales inconspicuae fere obsoletae (an fructus immaturi causa?) 12-16; dorsuales 24-32

30. *Ferulago serpentinica*

16. Folia saepius glabra, raro scabridula, inflorescentiae semper glabrae 17

- 16a. Folia praecipue scabra vel pilosa, inflorescentiae et ovaria quandoque scabra vel pilosa 31

17. Inflorescentia Typi II 18

- 17a. Inflorescentia Typi I aut Typi III 24

18. Lacinae lineato-setaceae teretiusculae vel ellipticae, confertae per rhachidem 19

- 18a. Lacinae lineato-oblongae aut ellipticae et falcato-ellipticae, haud per rhachidem confertae 20

19. Lacinae lineato-setaceae, teretiusculae 5 mm longae raro duplo longiores. Fructu ambitu ovato-oblongo sat crassus, in typo 6×5 mm, in speciminibus tamen $10-12 \times 5-6$ mm; stilopodium sat conspicuum stilis arcuato-divaricatis longiusculis. Juga expansa margine undulato ita ut in alis. Vittae commissurales 20-24; dorsuales 36-48. Alae etiam vittatae, juga raro vittata. Caulis quandoque inflatus ad nodos! **11. *Ferulago cassia***

- 19a. Lacinae ellipticae crassiusculae vix 2 mm longae. Fructus ambitu oblongo, carnosus subteres circa 6×3 mm; stilopodium subconi-

- cum stilis aequilongis. Juga carnosae inconspicuae, alae obsoletae. Vittae commissurales 32, dorsuales 40-44, omnes rectae et aequales **27. *Ferulago sandrasica***
20. Lacinae lineato-oblongae, vix mucronulatae, minimum 5 mm longae, saepius scabridulae 21
- 20a. Lacinae ellipticae aut falcato-ellipticae, semper glabrae 22
21. Fructus ambitu elliptico utrimque obtuso, compressus; stilopodium parvum, stilis gracilibus longiusculis. Juga coriacea intus candida suberosa ad semen valde adnata ibique fructus evittatus. Dimensiones fructus ancipites, 20×10 mm in area occidentaliori, $10 \times 5-6$ mm in area orientali speciei. Vittae commissurales 20; dorsuales 24-32. Caulis semper suberoso-inflatus et lucidus ad nodos!
23. *Ferulago nodosa*
- 21a. Fructus ambitu oblongo-ovato, apice truncato, carnosus et teretiusculus 11×4 mm, stilopodium patelliforme, stilis gracilibus, reflexis duplo longioribus. Juga alaeque crassae et indistinctae. Vittae commissurales 24; dorsuales 32. Vittae marginales 40 et ultra!
25. *Ferulago phialocarpa*
22. Lacinae ellipticae utrimque acutae 5 mm minimum longae. Fructus ambitu obovato, compressus; stilopodium crenatum stilis arcuatis vix longiusculis. Juga expansa subalata, cristata, alae usque 4 mm latae margine serrato dentato. Fructus dimensione ancipites in area speciei: maximi 20×15 mm, at saepius 13×10 mm. Vittae commissurales 28-32; dorsuales 38-46
20. *Ferulago macrocarpa*
- 22a. Lacinae falcato-ellipticae, basi obtusa, 4 mm longae ut summum. Fructus ambitu elliptico circiter 11×7 mm; stilopodium parvum et planum. Juga filiformia inconspicua, alae fere obsoletae. Vittae commissurales 24-28; dorsuales 32-36 23
23. Stili divaricati, reflexi, duplo longiores quam diametros stilopodii
2. *Ferulago armena*
- 23a. Stili aperti diametro stilopodii breviores vel aequantes
7. *Ferulago brachyloba*
24. Inflorescentia Typi I. Lacinae lineato setaceae aut oblongae et obovato-oblongae 25
- 24a. Inflorescentia Typi III 27
25. Lacinae lineato-setaceae. Fructus ambitu ovato, compressus 10×7 mm; stilopodium conicum stilis brevibus erectis apice tantum divaricato. Juga crassa intus conspicue candido-suberosa, alae crassae et suberosae. Vittae commissurales 24-32; dorsuales 36-42
28. *Ferulago sartorii*

- 25a. Lacinae oblongae et obovato-oblongae 6-12 mm longae, mucronulatae. Fructus parum compressi, jugis et alis inconspicuis 26
26. Fructus ambitu oblongo, spissus, 13×5 mm; stilopodium patelliforme conspicuum stilis productionibus. Vittae commissurales valde septatae et inaequales, 20-24; dorsuales 24(-32)
22. Ferulago mughlae
- 26a. Fructus ambitu elliptico $8-9 \times 4-5$ mm, stilopodium depresso conicum stilis aequilongis vel brevioribus. Vittae commissurales valde irregulares 32-40; dorsuales etiam irregulares 44-60!
16. Ferulago granatensis
27. Inflorescentia Typi III. Lacinae falcato-ellipticae aut ellipticae . . 28
- 27a. Inflorescentia ut supra. Lacinae setaceae aut lineato-oblongae . . . 30
28. Lacinae ellipticae, carnosae, involutae, haud mucronulatae. Radii umbellarum ne 1 cm quidem longi, sulcati et scabri. Fructus desiderantur. Ovaria jugis et alis sat conspicuis (species parum nota sed certe ad § *Anisotaenia* adscribenda!) . **13. Ferulago contracta**
- 28a. Lacinae falcato-ellipticae, planae, mucronulatae, scabridulae 29
29. Involucra et involucella parum conspicua. Radii umbellarum minimum 8 cm longi teretes et glabri. Fructus (nondum maturus) ambitu elliptico 5×4 mm; stilopodium magnum stilis divaricatis duplo longioribus. Petala basi unguiculata reflexa, persistentia. Juga et alae conspicua et vittata! Vittae commissurales 28-32, dorsuales 36-40 **15. Ferulago fieldiana**
- 29a. Involucra et involucella maxima pro ut genere et persistentia. Fructus ambitu elliptico utrimque truncato, 10×6 mm; stilopodium parvum stilis vix divaricatis brevioribus. Juga corticosa, alata, alae tenues et conspicuae. Vittae commissurales diametro inaequales 16-20; dorsuales etiam inaequales et interruptae, 24-32
32. Ferulago silaifolia
30. Lacinae lineato-setaceae, glabrae 2-3 mm longae. Fructus ambitu late-elliptico utrimque truncato 10×8 mm; stilopodium parvum depresso-conicum, stilis brevioribus vel aequilongis. Juga conspicua, alata, crenata, alae conspicuae undulataeque. Vittae commissurales 26-32, irregulares; dorsuales 50 **12. Ferulago confusa**
- 30a. Lacinae lineato-oblongae, scabriusculae 4-7 mm longae. Fructus (nondum maturus) ambitu elliptico utrimque acuto, 6×4 mm; stilopodium patelliforme, stilis apertis aequilongis. Juga filiformia, alae vix 1 mm latae. Vittae commissurales 16; dorsuales 32
37. Ferulago thirkeana
31. Inflorescentia Typi II 32

- 31a. Inflorescentia Typi I aut III 33
32. Laciniae falcato-ellipticae, confertae, mucronulatae, vix 2 mm longae. Fructus ambitu late elliptico, compressus 10×8 mm; stilopodium parvum, patelliforme, stilis divaricatis aequilongis. Juga corticosa subalata sat conspicua, alae suberosae expansae 2.5 mm latae margine scarioso translucido. Vittae commissurales 16-28; dorsuales 40-44 **26. Ferulago platycarpa**
- 32a. Laciniae oblongo-obovatae 5 et ultra mm longae, haud mucronulatae. Fructus ambitu obovato 8×5.5 mm; stilopodium conicum stilis arcuato divergentibus productioribus. Juga spisso-carnosa, crasso-suberosa et intus candida in senectute, conspicua et contigua, alae crassae 1.5 mm latae. Vittae commissurales 16-24; dorsuales 28-32 **36. Ferulago syriaca**
33. Inflorescentia Typi III. Laciniae ellipticae et falcato-ellipticae, scabridulae et mucronulatae, ad basim late decurrentes, 3-5 mm longae. Fructus ambitu elliptico, utrimque obtuso, compressus, 11×6 mm; stilopodium parvum, pulvinatum stilis divaricatis aequilongis. Juga crasso-coriacea sat conspicua, alae corticoso-inflatae vix 2 mm latae. Vittae commissurales circa 24; dorsuales 40-44(-46) **35. Ferulago sylvatica**
- 33a. Inflorescentia Typi I 34
34. Laciniae a regione petiolulari indistinctae, trifido-appendiculatae quandoque ad apicem (folia ideo flagelliformia, ut *F. thyrsiflorae* et *F. blancheanae*) 35
- 34a. Laciniae distinctae a regione petiolulari 36
35. Inflorescentia, flores petala et ovaria glabra; fructus (vix maturus) 8×5 mm (10×6 fide Peşmen in *Fl. Turkey* 4. 1972) ambitu oblongo; stilopodium pulvinatum stilis gracillimis aequilongis. Juga dorsalia filiformia, alae angustae. Vittae commissurales 4-10; dorsuales 16 **1. Ferulago angulata**
- 35a. Inflorescentia, flores, petala ovariaque plus minusve tomentosa. Fructus ambitu late elliptico, 15×10 mm; stilopodium parvum, patelliforme, crenato, stilis gracilibus longioribus. Juga filiformia, alae corticosae expansae 3 mm latae. Vittae commissurales valde crassae 8; dorsuales 16-24 **10. Ferulago carduchorum**
36. Laciniae pilosae usque subvelutinae, oblongae, 3-5 mm longae ... 37
- 36a. Laciniae scabrae vel pilosulae 38
37. Fructus ambitu ovato sat crassus $7-8 \times 5$ mm; stilopodium pulvinatum stilis divaricatis duplo longioribus. Juga et alae crassa. Vittae commissurales 8-10; dorsuales 16 **34. Ferulago subvelutina**

- 37a. Fructus ambitu elliptico basi truncata, sat compressus, $7-8 \times 4-5$ mm; stilopodium pulvinatum vix 1.5 mm diam. stilis reflexis vix longioribus. Juga filiformia cristata, alae inconspicuae. Vittae commissurales crassae et distincte septatae 4; dorsuales 12-16

8. *Ferulago bracteata*

38. Laciniae oblongae, pilosulae, 5 mm minimum longae. Inflorescentia et fructus plus minusve tomentosi. Fructus ambitu oblongo $\pm 8 \times 4$ mm; stilopodium pulvinatum magnum, stilis reflexis subulatis vix longioribus. Juga crasso-carnosa sat conspicua, alae crassae. Vittae commissurales crassae, 4-12; dorsuales 16-24

39. *Ferulago trachycarpa*

- 38a. Laciniae oblongae, scabrae, 10 et ultra mm longae, haud mucronulatae. Fructus ambitu ovato-elliptico, spissus, 11×6 mm; stilopodium conspicuum, pulvinatum 3 mm diam., margine crenato, stilis apertis longioribus. Juga et alae inconspicuae. Vittae commissurales 24; dorsuales 32 **18. *Ferulago isaurica***

Animadversiones ad specierum affinitatum symbolum

Diutius cogitabam, hoc genus perscrutante, quo modo affinitates interspecificas una figura porrigere. Quodlibet genus anceps, ex hominum ratione, considerari licet:

primo: ut flatus vocis, id est ut congeries plantarum plus minusve similium ab aliis congerebus separata commodo studiosorum;

secundo: ut aliquid vivum, quod una vita fruitur per omnes plantas atque cujus dissimilitudines (species, varietates formaeque a nobis nuncupatae) considerandae ut vocis flexiones pro ut sententia perfecta vel ut unius corporis plurima membra.

Affinitates specierum, prima opinione secuta, aperiuntur in rerum infinitatem, igitur labiles et inconstantes, nubes quidem vel pelagi spuma.

Eaedem, altera opinione servata, licet intueri ut sanguinis cursus per corpus vivum; propter hoc optime convenit locutio frequentata "species consanguineae" vel "consanguinitas generum".

Affinitates tamen saepe depinguntur ut rami plus minusve divaricati, ex trunco communi orti: hoc, volens, nolens, ad primam opinionem adducit, quae a me falsa tenetur. Principio conatus sum species in spira inscribere, affinitate ex propinquitate et ex oppositione plus minusve manifesta; denique (et sic conspicitur in hac figura) "Moebius" vitta uti censebam.

Litterae, ut infra explicantur, adsunt ad species propinquiores, ternas praecipue, *Ferulagine lutea*, solitaria, excepta.

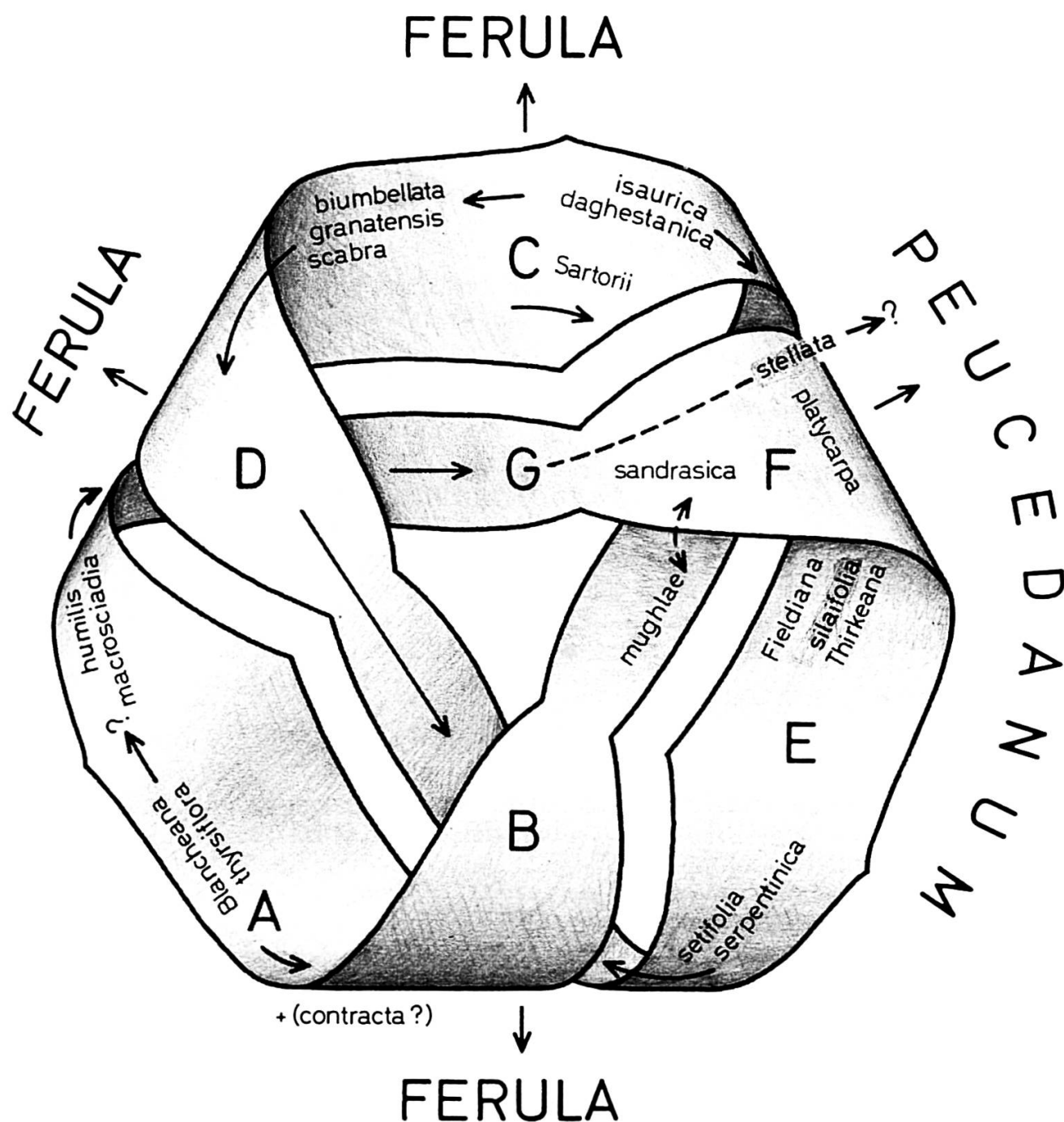


Fig. 17. — **A** = *Ferulago angulata*, *F. bracteata*, *F. carduchorum*. **B** = *Ferulago pachyloba*, *F. subvelutina*, *F. trachycarpa*. **C** = *Ferulago asparagifolia*, *F. aucheri*, *F. campestris*. **D** = *Ferulago lutea*. **E** = *Ferulago confusa*, *F. macrocarpa*, *F. sylvatica*. **F** = *Ferulago cassia*, *F. syriaca*, *F. nodosa*. **G** = *Ferulago armena*, *F. brachyloba*, *F. phialocarpa*.

Descriptio specierum

Notula ad specierum descriptiones

Descriptiones satis concisae pro ut majori parte hujus generis adsunt, id est ad species quae occurrunt in “Flora orientalis” (vol. 2) divi Boissierii et in “Flora of Turkey” (vol. 4) a claro Peşmen diligenter anglice scriptae. Utrumque opus obvium cogitabam botanicis qui de Ferulagine curiosi hanc opellam minimi pretii percurrerent, ideo in primum descriptiones ad illas species praetermisi, brevitatis gratia. Quas nunc (IX.1978) addo, instantia benigna clari Prof. K. H. Rechinger qui censet omnes species descriptas majori commodo lectoribus esse.

Ceterum species parum notae et descriptae in opusculis vel libris raro inveniendis in Bibliothecis et apud botanicos hic diffuse exponuntur quia longius eas pridie parabam.

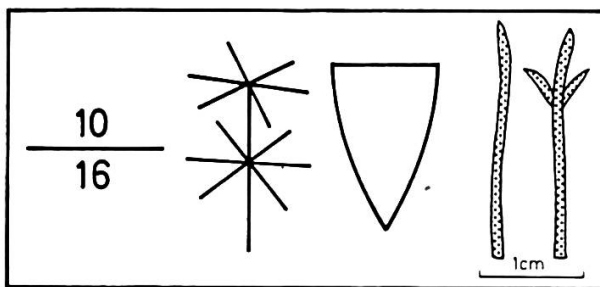
Lectores tamen mementote, quaeso, ad sententias in clavi specierum inscriptas ocula vertere quia illic de fructus forma et structura dicitur.

1. *Ferulago angulata* (Schlecht.)

Boiss., Fl. Or. 2: 1005. 1872 (Kotschy n^o Suppl. 728 excluso, quod ad *F. blancheanam* Post pertinet); Bornmüller, Plantae Straussianae in Beih. Bot. Centralbl. 19(2): 262. 1906; Peşmen in Davis, Fl. Turkey 4: 469, map 68: 467. 1972 $\equiv$ *Ferula?* *angulata* Schlecht., Linnaea 17: 125. 1843.

= *Ferulago linearifolia* Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 319. 1844, var. a et b $\equiv$ *Ferulago trifida* Boiss. var. *linearifolia* (Boiss.) Boiss., Fl. Or. 2: 1006. 1872.

= *Ferulago trifida* Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 318, 1844 et Fl. Or. 2: 1006. 1872; Bornmüller, Plantae Straussianae in Beih. Bot. Centralbl. 19(2): 262. 1906.



Typus: *Kotschy 403*, in hiatibus saxosis regionis m. Gara Kurdist., 6.8.1841, fl. et fr. ineunt (G, G-BOIS, H, HAL, JE, M, WU).

N. B. In "Linnaea" 17: 125, errate *Kotschy 603* inscribitur, 403 corrigendum. "Gara" ex quali Kurdistaniae parti hodie pertinere, nescio. In KOROVIN (1947: 56) Gara tribuitur Persiae; in PESMEN (1972) ad Iraq. Num "Gara" pro ut Gare Daği, in Kurdistania Turciae (37°20', 43°48'E.) censendum?

DESCRIPTIO

Planta magna, metralis usque 6-pedalis, scabra vel scabridula, erecta, caule fistuloso et sulcato. *Folia* ambitu oblonga, scabra 4-pinnata, 40-50 cm longa, 20-30 cm lata, petiolo robusto sulcato 10-15 cm longo incluso, laciniis productis linearibus involutis, 2 cm vel magis longis, nonnumquam apice trifido. *Paniculae* erectae conspicuae, umbellis verticillatis 10-15-radiatis, bracteis ovato-triangularibus, acutis. *Involucra* et *involucella* triangularia; *umbellulae* 10-12-florae pedicellis fructus longitudinem aequantibus. In sicco fulvescens.

ANIMADVERSIONES

Boissier species suas *F. trifidam* et *F. linearifoliam* a *Ferulago angulata* separari conatus est praecipue laciniarum causa; anno 1844 (p. 319) *Ferula?* *angulata* (ut specimen in Kotschy, Pl. Kurd. Exsicc., ne quidem ut species rite descripta!), ut var. b ejus *F. linearifoliae* consideraverat.

Ex conspectu speciminum typicorum tamen (G-BOIS), constantia in dissimilitudine foliis harum specierum varietatumque, minime adest. Laci-

niae ultimae a regione petiolulari indistinctae saepius conspiciuntur, sed nonnumquam ad apicem trifidae — i.e.: verbis optimi BOISSIER (1844: 318) “apice obtuse et breviter trilobis...” — apparent; hoc tamen quasi lusus naturae considerandum censeo, pro nihilo ut character discretivus ut species, subspecies vel varietates nuncuparentur.

Species haec magistrali manu d. Schlechtendali primum descripta est, in litteris mox invenitur apud PESMEN (1972). Statura egregia, inflorescentia procera, umbellis per axim optime verticillatis, caule insigniter angulato, compresso et sulcato, foliis dictis, glabris vel sparse et minutissima pube indutis, ergo non scabris nec scabridulis; vastas regiones montanas Kurdistaniae turcicae et persicae, ut species majoris nisi maximi momenti pro forma et pro origine aliarum specierum mihi videtur, sicut dudum scribebam (cf. p. 57).

AFFINITATES

Ut supra dixi, sectione *Anisotaenia* porrecta, species ad illam pertinentes inter sese affinitate profunda gaudent. *Ferulago angulata* autem affinior videtur imprimis cum *F. blanchiana* et cum *F. carduchorum*, q. v.

DISTRIBUTIO

Anatoliae orientalis, Iraq atque Iran borealo-orientalis; id est, ut olim dicebant, in terra Carduchorum!

SPECIMINA VISA

Obs. Plurima specimina hujus speciei nuper lecta vidi an. 1974 in hb. Kew, praecipue ex Iraq. Prae me Genavae adsunt tantum specimina infra dicta, fructibus maturis haud praeditis et ne unum quidem ex Iraq!

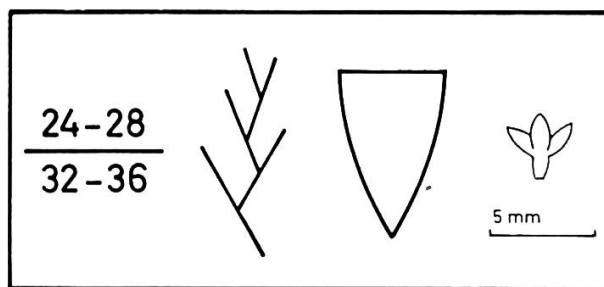
Anatoliae. *Davis* 31 253, prv. Tunceli, Monzur Dağı (39°18'-38°45'E.) above Ovacik, rocky limestone slopes, perennial, fl. luteis, 2700 m, 17.6.1957, fl. incip. (K). **Persiae.** *Archibald* 2763, Isfahan (Esfahan) Gugar-i-Khunsar, steep N.W. facing shale slopes, 2680 m, 15.7.1966, fl. (E, K); *Aucher-Eloy* 4592, in alpihus Elamout typus *F. trifida* Boiss.), fr. (G, G-BOIS); id., 4616, monte Dalmkou, Persiae borealis, fl. (G, G-BOIS); *Strauss*, Shuturunkuh, 2900 m, 20.7.1888, fl. (WU); id., in dit. urbis Hamadan (Ecbatana antiquorum), in montibus Wafs, VI.1899, fl. ad. fr. (JE).

2. **Ferulago armena** (DC.) Bernardi **comb. nova** $\equiv$ *Ferula armena* DC., Prodr. 4: 174. 1830.

= *Ferulago pauciradiata* Boiss. & Heldr., Diagn. Pl. Or. Nov. 1(10): 37. 1849; Boissier, Fl. Or. 2: 998. 1872; Peşmen in Davis, Fl. Turkey 4: 458. 1972.

= *Ferulago sintenisii* Gand., Bull. Soc. Bot. France 61: 31. 1918.

= *Ferulago phrygia* Bornm., in sched. hb.



Typus: “In Armenia, Oreoselinum Armenium Seseleos Massiliensis folio Tourn.” (P, fide DC. in Prodr. l. c.; fragmen in G-DC).

DESCRIPTIO

Planta gracilis, glauca in vivo, glabra, 3-4-pedalis, caule leve 4(-5) mm spisso, collo radicali fibroso. *Folia* ambitu triangularia 3-pinnata, vix 30 cm longa et lata, pinnis et pinnulis paucis, laciniis crassiusculis, mucronulatis, ellipticis, vix 4 mm longis. *Paniculae* amplae, valde divaricatae umbellis alternis saepius 6-radiatis, bracteis triangularibus, coriaceis. *Involucra* et *involucella* triangularia, acuta; *umbellulae* 6-florae, pedicellis gracilibus quam fructu brevioribus. In sicco pallide virido-fusca.

OBSERVATIONES

Descriptione candolleana sat brevi, typo tournefortiano (P) indicto fortasse a d. Boissiero non inspecto, *Ferula armena* obscure mansit in Prodromo. Species quidem a d. De Candolle in sectione *Ferularia* immissa, errore vel relaxatione, quia involucris et involucellis praedita et ab ipso auctore sic descripta “involucris utriusque foliolis brevibus oblongis” quamquam in § *Ferularia* “involucrum universale nullum” indicabatur.

Fragmen typi in hb. G-DC servatum, uno fructu et partibus parvis foliorum, absque dubio cum typo et omnibus speciminibus *F. pauciradiatae* convenit!

In Index Kewensis, *Ferulago platycarpa* Boiss. & Balansa idem quam *Ferula armena* DC. indicatur at errore manifesto. Descriptiones idoneae — tamen vittis pratermissis — in “Flora orientalis” et in “Flora of Turkey” adsunt.

AFFINITATES

Faciem *Peucedani* sp. pl. et speciatim *Peucedani spreitzenhoferi* Dingl. (= *P. junceum* Boiss. Mout.) haec species praebet praecipue ob caulis,

umbellulae et inflorescentiae apertae et laxae formam, sed causa validissima formae fructus et vittarum numeri a *Peucedano* abhorret.

PESMEN (1972) exposuit *F. pauciradiatam* inter *F. autumnalim* Thiébaud et *F. aucheri* Boiss. et affinem cum hac dixit, ideo BOISSIERI opinionem (1849 et 1872) secutus est. De *Ferulagine autumnali* a genere expellenda infra (p. 117) dicam; *Ferulago armena* inter species orientales affinior mihi videtur cum *F. phialocarpa* Rech. fil. patriae kurdistanicae. Miranda est contra similitudo fere omnibus partibus et etiam in vittarum numero, cum *F. brachyloba* Boiss. & Reuter ex Hispania, species adhuc non satis nota neque inspecta, vide ad ex. in CANNON (1968: 360), ubi haec in *F. granatensi* ut varietas vix notanda offertur, a qua vero toto coelo differt.

Similitudo ista inter species tam ample disjunctas explicatur modo ob inopiam characterum totius generis.

DISTRIBUTIO

Anatolia. Vide "Flora of Turkey" 4: 459, map 64. 1972.

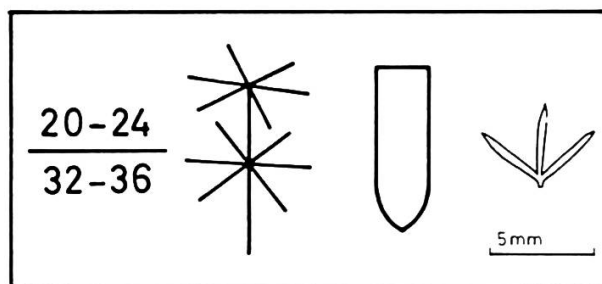
SPECIMINA VISA (secundum collectores ordine alphabetico dispositos)

Turcia. *Balansa* 401, versant septentrional Ali-Dagh à 7 km S.E. de Césarée (Cappadoce) vers 1300 m, 29.6.1856, fl. (G-BOIS); *Balansa* 1015, Ali-Dagh à 7 km au S.E. de Césarée (Cappadoce) vers 1400 m alt., VII-VIII.1856, fr. (G, G-BOIS); *Bornmüller* 4568, Phrygia, Sultandagh, 1200 m, 16.6.1899, fl. ad fr. (G); *Bornmüller* 14 128, Paphlagonia australis ad oppidum Çankiri (Tschagry, Germanicopolis) in vinetis derelictis vallis Çakmakiidere, ca. 800 m alt., VI.1929, fl. (G, K); *Czeczott* 320, Paphlagonia in fissuris praeruptorum rupium in arduo latere versus vallem fl. Devrezchai et mont. Ai-Dagh, supra viam, 21.7.1925, fl. ad fr. (G); *Davis* 13 107, Vilaret Ankara, Beydan ca. 300 m above Ankara, 5.7.1947 (K); id., 13 188, Vilaret Ankara i Hajikadur, 9.7.1947 (K); id., 19 145, Prov. Nigde-Kayseri, between Nevsehir and Urgup, steppe, 1200-1300 m, fl. yellow, VI.1952 (K); id., 20 456, Prov. Giresun, Sebinkarahi-sar, rare, 1400 m, 5.8.1952 (K); id., 31 925, Prov. Gümüşane, Erzincan-Kelkit, dry slopes, fl. yellow, 1.8.1957; id., 38 752, Prov. Kastamonu, W. of Kastamonu, 800 m, sandstone hills, with *Juniperus oxycedrus*, perennial, 2.8.1962 (K); id., 46 683, Kars, near Kötek, 1450 m, dry shaly yellow hills, perennial, fl. yellow, 16.7.1966 (K); id., 47 292, Erzerum, 10 km from Horasan to Eleskirt, 1700 m, dry hills in steppe, 24.7.1966 (K); *Haussknecht* 1160, monte Berytdagh Cataoniae (G-BOIS); *Heldreich* 955 (typus *F. pauciradiata*), in rupestribus calidis Anatoliae in Lycaonia ad Bounarpatchi inter Karaman et Ermenek, 26.7.1845, fl. (G, G-BOIS, M); *Huber-Morath* 17 253, Prov. Antalya, distr. Akseki, Manavgat-Akseki, *Pinus-brutia*-Wald, 26 km S.W. von Akseki, 3.7.1967, fl. (hb. Huber-Morath); id., 17 745, Prov. Antalya, distr. Manavgat, Phrygana am Meer beim Turtel Motel, 2 km N.W. von Side, 4.6.1969, fl. (hb. Huber-Morath); *Rechinger* 57 468, Prov. Kars in valle fl. Aras (Araxes), 30 km ad occ. pagi Kagizman, versus Kara Kurt,

1350 m, 3.7.1977, fl. (G); *Sintenis 2936*, Armenia turcica, Chama aid Euphratem, Ichtik prope Tuxla in herbidis, 15.7.1890, fr. inc. (WU); id., *3206*, Armenia turcica, Koesoe in pascuis mont. inter Aroschusch et Izadagh, 25.7.1890, fl. ad fr. (G); id., *4867*, Paphlagonia: Vilajet Kastambuli, Tossia, Giaourdagh, 29.7.1892, fl. ad fr. (G, WU); id., *6130* (= typus *F. sintenisii* Gand.), Armenia turcica, Szandschak, Gümüşkhan, 4.7.1894, fl. (E, G, M, WU).

3. ***Ferulago asparagifolia*** Boiss.,
Ann. Sci. Nat. Bot. ser. 3, 1:
321. 1844 et Fl. Or. 2: 998.
1872; De Stefani & al., Kar-
pathos: 110. 1894; Peşmen in
Davis, Fl. Turkey 4: 460.
1972.

= *Ferulago longistylis* Boiss.,
Ann. Sci. Nat. Bot. ser. 3, 1:
321. 1844 et Fl. Or. 2: 1001.
1872; Peşmen in Davis, Fl.
Turkey: 462. 1972.



Typus: *Boissier*, s.n. "Smyrne, Jun. 1842" (G).

DESCRIPTIO

Planta glabra, 4-6-pedalis erecta et robusta caule 10 mm spisso, tereti, levi. *Folia* 4-5-pinnata, bipedalia, ambitu late-ovata, gracilia, pinnis et pinnulis sat densis, laciniis setaceis 4-5 mm longis. *Paniculae* conspicuae, robustae, erectae, crebriflorae, umbellis verticillatis 15-20-radiatis, bracteis persistentibus navicularibus. *Involucra* et *involucella* oblonga, membranacea; *umbellulae* 8-10-florae, pedicellis quam fructu brevioribus. In sicco viridofusca.

OBSERVATIONES

Descriptiones boissierianae et peşmeniana perperam sinunt mea sententia duas species vocare ex characteribus allatis.

Peşmen specimen fructiferum: Karamanoğlu 66/42 ab eo in *F. longistylim* immissum vidit et sic descripsit: "mericarps (mature) elliptic-ovate 14 × 7 mm truncate at the base, dorsal ridges filiform-elevated (?) lateral wings ca. 1 mm wide: dorsal and commissural vittae more than 10". Haec descriptio quamquam nimis multum ambigua quoad vittarum numerum attinet (ut omnes peşmenianae pro ut hunc principem characterem!) perfecte cum illa fructus *F. asparagifoliae* ab eodem parata (PEŞMEN, 1972: 460) convenit.

AFFINITATES

D. BOISSIER (1844) pro ut *F. asparagifolia* indicavit tantum "distinctissimam a *F. galbanifera* et *F. campestris* et affinibus...", cui contra ob inflorescentiae vim et fructus formam externam aliquantum refert (cum *F. campestris*, dico). Peşmen affinem *F. asparagifoliam* dicit cum *F. cassia* et *F. longistylim* cum *F. stellata*. Affinitates inter species quidem generis tam angusti ut *Ferulago*, plurae sunt et saepius opinabiles. Fundamento hic oblato ex inflorescentiae forma et numero vittarum, affinitates pro ut *F. asparagi-*

folia sic expono: ad occidentem cum *F. sartorii* Boiss. ex insulis Cycladum et in Turcia cum *F. mughlae* et *F. aucheri*, dum ad N.E. cum *F. setifolia*.

DISTRIBUTIO

Anatolia, vide "Flora of Turkey" 4: map 65, p. 459, 1972.

SPECIMINA VISA

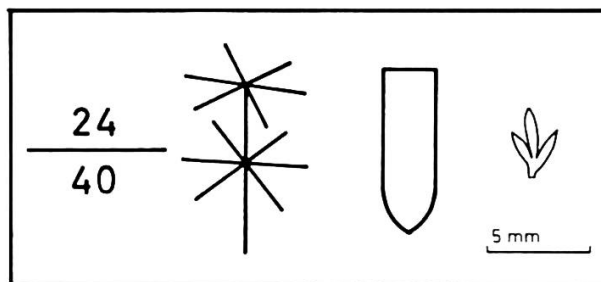
Aucher-Eloy 3739 (typus *F. longistylis*), Cappadocia ad Euphratem (G, G-BOIS); *Balansa 40*, Monte Sipyle au-dessus de Magnésie, fl. 15.6, fr. 17.8.1854 (G, G-BOIS); *Bocquet 2826*, s.l. (G); *Boissier*, s.n., Magnesia (G-BOIS); *Kotschy 502*, (suppl.) Iter cilicico-kurdicum, Alexandretta in rupestribus montium, 200', 17.4.1859, vix nata! (G-BOIS).

Nonnulla specimina in G-BOIS servantur sine schedula. Alia specimina in "Flora of Turkey" (l. c.) a me non visa indicantur. In hb. Kewensi a me inspecto XI.1974, hujus speciei specimina non inveni.

4. **Ferulago aucheri** Boiss.,
Ann. Sci. Nat. Bot. ser. 3, 1:
323. 1844 et Fl. Or. 2: 998.
1872; Peşmen in Davis, Fl.
Turkey 4: 460. 1972.

= *Ferulago galbanifera* Koch
var. *brachyloba* Boiss., Fl.
Or. 2: 997. 1872 ≡ *Ferulago*
nodiflora auct. var. *brachy-*
loba Thell. in Hegi, Ill. Fl.
Mitteleur. 5/2: 1359. 1926.

= *Ferulago taurica* Schischkin, Bot. Žurn. SSSR 31(6): 8. 1947 et Fl. SSSR
17: 152. 1951.



Typus: *Aucher-Eloy 3667bis*: In Phrygia (fl. et fr.) (G-BOIS; holo-: P).

DESCRIPTIO

Planta gracilis, glabra, sat debilis 2(-3)-pedalis, caule vix 3-4 mm spisso, tereti, parum sulcato, collo radicali fibroso. *Folia* 3-4-pinnata, ambitu angusto-triangularia, 20 cm circa longa, laciniis crassiusculis, oblongis, vix 3(-4) mm longis, mucronulo minimo. *Paniculae* graciles, sinuoso-erectae, umbellis verticillatis, 8-10-radiatis. *Involucra* et *involucella* oblonga, inconspicua; *umbellulae* 8-10-florae, pedicellis quam fructu brevioribus. In sicco fusca usque atro-fusca.

OBSERVATIONES

Descriptio pristina boissierana (1844) productior et accuratior omnibus insequentibus in synonymia hic porrectis conspicitur; vittae commissurales (unoquoque mericarpio 10 legitur in Boissier) 12 inveniebam (id est 24 ad totum fructum, ut constat in clavi, p. 63). In supplemento descriptionis dictae, d. Boissier addit: "*Ferula armena* DC. quae probabiliter *Ferulaginis* sp. est e fragmento hb. DC. huic quoque foliorum forma affinis est, sed certe differt laciniis minutissimis obtusis fructu juniori elliptico nec ovato-rotundato". Quo addam: et ob inflorescentiae formam et stilis productionibus; ut statim dixi, *Ferulam armenam* eandem quam *Ferulagine pauciradiatam* esse, anno 1849 a Boissier & Heldreich iterum descriptam.

Ferulago taurica saepe confusa cum *Ferulagine campestri* (ad ex. in CANNON, 1968), vel ut ejusdem varietatis salutata (vide synonymiam) certe et nitide ab ea differt ob vittarum numerum. Ceterum cum *F. aucheri* fundere haud diu cunctatus sum; folia quandoque majora et laciniae in nonnullis speciminibus *F. tauricae* hic atque illic apparent, sed in area tam valde increta *F. aucheri* omnibus characteribus scrutatis atque discrimine eorumdem et momento ponderatis, speciem unam vastam et solidam constitui patet!

AFFINITATES

Ut nunc ipsum dicebam, affinitatem cum *F. campestri* et *F. armena* (= *pauciradiata*) ut cl. Peşmen opinatur, parvi momenti esse opto.

F. nodosa (= *geniculata*) a d. Boissier "nulli affinior quam *F. geniculatae* Boiss. ..." a *F. aucheri* differt non solum ob characteres a ipso Boissier ibidem indicatos, sed etiam et praecipue ob inflorescentiae formam. Affinitates ergo e structura plantarum (ut spero) certiores factae, pro ut *F. aucheri* mihi videntur: ad occidentem cum *F. sylvatica*, ad orientem cum *F. asparagifolia*, dum in eadem area speciei cum *F. mughlae* et *F. isaurica* Peşmen.

Specimina dubia in Europa orientali characteribus et *F. aucheri* et *F. sylvatica* simul conspiciuntur; haec sub *F. sylvatica* infra exponam, notulis adjectis. Denique, quod suasit d. Boissier affinitatem maximam cum *F. nodosa* affirmare, puto nudos quandoque inflatos in *F. aucheri*. Hic character tamen quamquam nimis multum facilis visu, minoris momenti per totum genus mihi videtur et pro ut *F. aucheri* valde infidus.

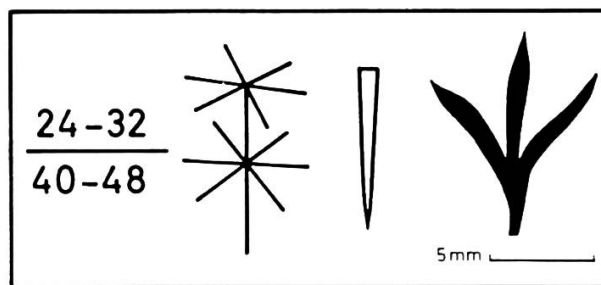
DISTRIBUTIO

Ad utramque Ponti Euxini oram et per Anatoliam occidentalim.

SPECIMINA VISA (schedula litteris claris tantum; specimina litteris obscurissimis negleguntur)

Europa orientalis: URSS. *Callier 610*, iter tauricum tertium, Karasubasar, in collibus cretaceis prope praedium Burultscha, 27.6.1900, fr. (G, G-BURN, M, WU); *Hort, Bobrov & al.*, s.n., Crimea, VIII.1968, fr. (LE); *Korsinski*, s.n., Sebastopol, 20.-25.6.1889, fl. (LE); *Rehmann*, s.n., iter tauricum a. 1874: auf den Taita bei Laspi, fl. (G-BOIS); *Schirajewsky*, s.n., Charkow, distr. Starobjelsk in steppis, 25.6.1905, fl. ad fr. (G-BURN); *Zelenetzin*, s.n., flora bessarabica, Slotz, 22.7.1890, fl. (G). **Asia (praecipue Anatolia).** *Aucher-Eloy 3667*, As. min., 1837, fr. incip. (G); *Bayern (?)*, s.n., Caucasia prope Rotszhni, Akop (G, M); *Bocquet 2748*, s.l. (G); *Boissier*, s.n., Sipyle, declivibus supra Magnesiam, VII.1842, fr. (G, G-BOIS, P); *Mouterde 3409*, Antioche, 1.4.1934, fl. vix incip. (G); *Wiedeman*, s.n., a. 1834, in Anatolia pr. Sojut, fl. (LE).

5. **Ferulago biumbellata** Pomel, Nouv. Mat. Fl. Atl.: 142. 1874
 ≡ *Ferula sulcata* Desf. var. *biumbellata* (Pomel) Batt. in sched. herb.
 = *Ferula granatensis* Pitard non Boiss., Contr. Fl. Maroc. 1918 (non vidi), cf. Jahandiez & Maire, Catal. Pl. Maroc. 2: 545. 1932.
 = *Ferula sulcata* Desf. var. *mouretii* Maire, Bull. Soc. Hist. Nat. Afrique N. 22: 293. 1931 ≡ *Ferula lutea* (Poir.) Maire var. *mouretii* Maire in Emberger & Maire, Catal. Pl. Maroc. 4: 1088. 1941.



Typus: *Pomel*, s.n., Dahra, Cherchell, Oued El Hachem (Algérie) (MPU; holo-: P).

DESCRIPTIO

Descriptione pomeliana gallica, sat proluxa et confusa quoad inflorescentiae formam, in libro nunc raro edita, fructu tunc haud descripto, iterum hanc bonam speciem adumbrare mihi licet decetque. *Planta* magna, metralis vel ultra, perennis (?); *folia* ambitu deltoideo tripinnata, 60 cm longa, petiolo 30 centimetrali incluso (in paucis speciminibus visis: in natura verosimiliter majora) 20-30 cm lata; *laciniae* ultimae oblongae, mucronulatae, scabrae vel potius scabriusculae, ca. 5 mm longae. *Involucra* lineato-oblonga usque 2 cm longa, acuta, margine scabro; *involucella* involucris similia, vix 1 cm longa. *Inflorescentia* robusta, ultra 30 cm alta (in typo ubi resecta; in natura major invenienda), axi primario robusto, lignoso, 5 mm diam. sulcato, lateralibus oppositis, gracilibus, compressis et sulcatis. *Umbellulae* floriferae et simul fructiferae pluries adsunt ex eadem inflorescentia (ergo plane Typi I). *Flores* more generico parvi, pedicellis angulato-striatis 3-6 mm longis ex eadem umbellula (productiores fiunt ad fructus); sepala minima, triangularia, acuta; petala ovata, apice obtuso et integro, 1.5 mm longa, inflexa; filamenta subulata, minimum 1.5 mm longa, inflexa; antherae crassae circiter 1 mm latae. *Stilopodium* (in flore mare) crassum, pulvinatum, hic stilis obsoletis; in floribus femineis, stilopodium etiam crassum, depresso-conicum, stilis vix 1 mm superantibus, apice stigmatico subgloboso. Fructus ambitu obovato-elliptico, compressus, ca. 9 × 4 mm, stilopodio patelliformi 2 mm diam., stilis reflexis vix longiusculis. Vittae commissurales 24-32, vittae dorsuales 40-48. *Fructus* e typo adumbratur, ut videtur vix maturus; fructus vetustiores, jugis et alis conspicuis, crasso-suberosis praediti observantur.

AFFINITATES

Proxima absque dubio ad *F. luteam* (Poirot) Grande, a qua tamen inflorescentiae forma et laciniis scabris facile separatur.

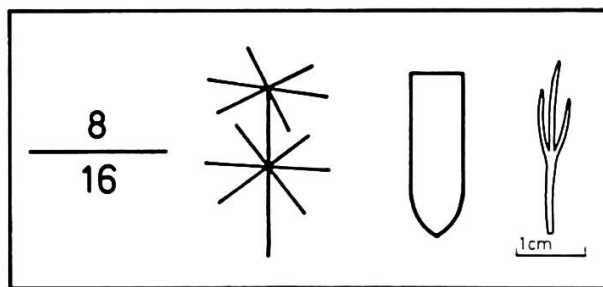
DISTRIBUTIO

Africa septentrionalis.

SPECIMINA VISA

Algérie. *Balansa* (?) ex hb. Cosson, Mostaganem, lieux incultes, 20.5.1848, fl. (P); *Choulette 50*, côteaux secs à Constantine, 3.7.1855, fl. (G); *Reboud 403*, Constantine, a. 1874, fl. et fr. (G). **Maroc.** *Mouret 1566*, Aïne Cheggay, VII.1913, fr. (MPU, P).

6. **Ferulago blancheana** Post in Boiss., Fl. Or. Suppl.: 265, oct. 1888; Post, J. Linn. Soc. Bot. 24: 430, déc. 1888; Post, Fl. Syria, Palestine & Sinai, ed. 1: 361, fig. 186. 1896; Post, ibidem, ed. 2, 1: 550. 1932; Peşmen in Davis, Fl. Turkey 4: 469, map 68, p. 467. 1972.



Typus: *Post 96*, in excelso montis Akkerdagh (Ahr Dağı) prope Marash (Germanicea antiquorum, 37°39'-36°56'E.) (G-BOIS).

DESCRIPTIO

Species minus nota. *Planta* ut videtur elata, metralis usque 2-metralis, erecta, glabra, caule robusto, sulcato. *Folia* robusta, scoparia, 4-5-pinnata, ambitu triangularia, bipedalia, laciniis linearis, productis, petioluliformibus, usque 5 cm longis (an magis?). *Paniculae* magnae et amplae, sulcatae, umbellis verticillatis 8-radiatis, *involucris* *involucellis* oblongis; *umbellulae* saepius 12-florae, pedicellis quam fructu manifeste brevioribus. Ex paucis speciminibus conspectis, folio virido-fusco, ceterum luteo-fusca observatur.

ANIMADVERSIONES

Species ab auctore quater describebatur, bis latine (1888), bis anglice, fere eisdem verbis at concinne quia, Minerva adiuvante!, numerus vittarum exactus offertur.

Inter *Ferulaginis* species sect. *Anisotaeniae* Boiss. §§ "laciniis linearibus rigidis, etc." (cf. BOISSIER, 1872: 1005) haec cito distinguitur forma involucrorum quae oblonga adsunt una cum involucella etiam oblonga; propter hoc a ceteris speciebus foliis talibus praeditis primo visu separatur. Character hic, "Artedianus" (liceat mihi semel iterumque, quasi Catunculus censorius hoc proclamare) minime ineptus atque spernendus ad *Ferulaginis* genus conspiciatur, at contra ut primus detectus, et numquam solus, quia, illo electo, mox ceteri characteres etiamque maioris momenti oculo intento ex speciebus emergunt ut dissimilitudines ergo definitiones inter easdem fiant!

AFFINITATES

A Post quater affinis cum *F. thyrsiflora* praedicatur, et a Peşmen quoque. Affinitas majuscula et terrarum propinquitate clarior mihi videtur cum *F. angulata*, involucris et involucellis distinctis separatur quoque stilis, in *F. blancheana* brevibus, valde productis in altera specie.

DISTRIBUTIO

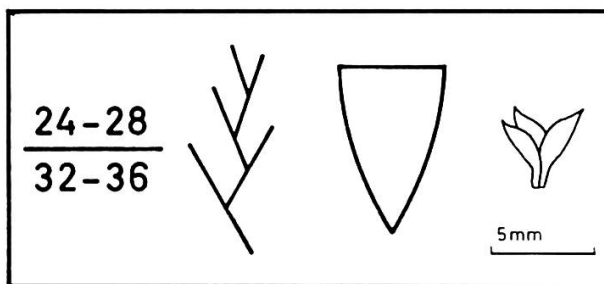
Anatoliae orientalis; investiganda in montibus Syriae borealis et in terris Carduchorum, in Iraq. *Obs.*: specimen *Rawi & al.*, ex Iraq, foliis omnino destitutum, determinationem aliquantum infirmam offert.

SPECIMINA VISA

Anatoliae. *Kotschy suppl.* 728, in valle Müküs, frequens, 3000', IX.1859, fr. incip. (G, G-BOIS); *Mouterde V-252*, Daz Tepe (= Daz Tepezi?, 36°33'-36°13'E.), 17.9.1936, fr., fol. destitutum (G); *Parry 183*, Niğde Vilayet, Aladağ (= Ala Daglari, 37°55', 35°13'E.) by Arpalik Cave and Narpiz, large green chumps with green flower spikes up to 2' 6'', 2000-2150 m, 28.6.1963, fl. ineunt. (E). **Iraq.** *Rawi & al.*, *No. Nat. Hb. Iraq 29 002*, Khantur mount, N.E. of Zakho (37°09'-42°40'E.) on mountain slopes, 1700-1800 m, 4.9.1959, fr. fol. destit. (K).

7. **Ferulago brachyloba** Boiss. & Reuter, in Boiss., Voy. Bot. Midi Esp. 2: 733. 1845 $\equiv$ *Ferula brachyloba* (Boiss. & Reuter) Nyman, Syll.: 150. 1855; Willkomm & Lange, Prodr. Fl. Hisp. 3: 38. 1874; Willkomm, Suppl. Prodr. Fl. Hisp.: 200. 1893.

= *Ferulago granatensis* Cannon in Tutin & al., Fl. europaea 2: 360. 1968, non Boiss. p.p.; non *Ferulago nodiflora* auct. var. *brachyloba* (Boiss.) Thell. ex Cannon, l. c., quod est *Ferulago aucheri* Boiss. q.v.



Typus: Reuter, s.n., Sierra de Toledo prope S. Pablo de los montes, 22.7.1841, fl. ad fr. (G).

OBSERVATIONES

Descriptio artis plena in opere boissieriano indicto adest, tamen libro illo rarissimo (cf. STAFLEU & COWAN, 1976) iterum adumbrare hanc speciem, mea sententia optimam, mihi liceat; WILKOMM & LANGE (1880) quidem verba boissiero-reuteriana partim repetiverunt, nullo specimine viso.

DESCRIPTIO

Planta gracilis, perennis, 60-120 cm alta, parum foliosa, collo radicali — more generico — fibroso, basibus veteribus aridis foliorum cincto, sed exile. *Folia* basalia ambitu deltoideo, tripinnata, glabra, ut constat ex speciminibus prae me, parva, petiolo basi expansa incluso vix 6-10 cm longo, laminis ca. 30 cm longis, 15 cm latis. *Laciniae* ultimae crassae in plantis adultis, ellipticae vel falcato-ellipticae, 4 mm plus minusve longae, mucronulatae, in sicco sulcatae vel canaliculatae, at folia novella laciniis tenuibus, fere membranaceis. *Caulis* ramosus, sulcatus, gracilis bracteatus (= “folia caulina ad vaginas lanceolatas reductas”, apud BOISSIER, 1845) bracteis 1 cm longis, triangularibus, acutis, margine scarioso. *Inflorescentia* paniculata, laxè ramosa quam folia valde major, 30-50 cm alta (an magis in natura?). *Umbellae* graciles 9-15 umbellulis confectae, involucris coriaceis triangularibus, acutis 2-3 mm longis, reflexis. *Umbellulae* 8-12 floridæ radiis inaequalibus usque 5 mm longis; involucella triangulari-acuta apice saepe incurvato. *Sepala* minima, late-ovata, acutiuscula et crassa; *petala* carnosa, basi valde lata, ca. 1 mm longa. *Filamenta* gracilia, 1 mm vix longa; *stilopodium* planum, *stilis* ad anthesim vix ortis. *Fructus* (perpauci adsunt!) ambitu elliptico, circa 11 × 7 mm, stilopodio parvo, patelliforme, *stilis* apertis diametro stilopodii haud superantibus. *Juga* filiformia inconspicua, *alae* parum notatae; *vittae* commissurales 24-28 (ad totum fructum), *vittae* dorsuales 32-36.

AFFINITATES

Auctores hujus speciei magnam affinitatem cum *F. granatensi* firmarunt quamquam vittarum numero commissuralium in *F. granatensi* tantum 10-12 (totius fructus, cf. BOISSIER, 1840: 251-252) contra 14-16 (pro mericarpio, id est 28-32 in toto: vidi quidem 24-28) et ob ceteros characteres minoris momenti e foliis praecipue desumptis, facile — docuerunt — haec duae species separantur.

Quoad vittarum numerum commissuralium in *F. granatensi*, maxime ab auctoribus discrepo, quia inter plurivittatas haec species firme adhaeret ac magis, 32-40 commissuralibus et usque 60 dorsualibus ex omnibus *Ferulaginibus* ut species creberrime vittata gloriatur! Discriminatur ergo a *F. brachyloba* quidem numero vittarum sed contrarie ab auctoribus, abundantia et non penuria.

Hoc dicto, *F. brachyloba* speciebus Europae affinis tantum cum *F. nodosa* (L.) Boiss.: eodem typo inflorescentiae, laciniis similibus, vittarum numero eodem gradu. De *F. armena* (DC.) Bernardi quae juxta hanc speciem in clavi accidit, dixi supra.

Vidite, quaeso, in *F. syriacae* observationibus quod censeo de hac affinitate.

DISTRIBUTIO

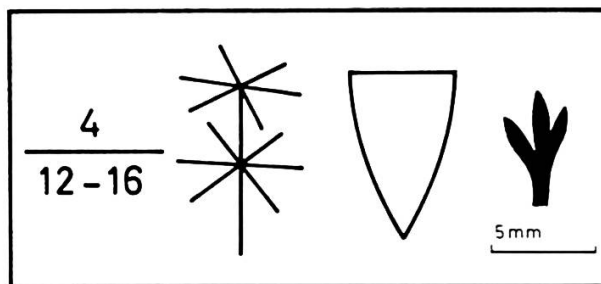
Certe per Hispaniam, ut videtur, rara. Ex Lusitania specimina desunt.

SPECIMINA VISA

Hispania. Blanco 376, Provincia de Jaén, Carrellana de Segura, an. 1849, fl. (G); Boissier, s.n., collines de Córdoba, X.1837, fr. (G); Charpin & Casas 10 504, Murcia, Sierra de Moratello in lapidosis calcareis, 1800 m alt., 16.7.1975, fl. (G); Porta & Rigo 466, iter 3^o hisp.: regn. murcianum, in pascuis petrosis intra pagum Segura, solo calcar., 700-1000 m, VII.1891, fl. (M, WU); Porta & Rigo 527, iter 2^o hisp.: Jaén in pascuis lapidosis infra pagum Segura, solo calcar., 1000-1400 m, VII.1890, fl. (G, G-BURN, K, WU); Reverchon, s.n., sierra de Miyas, Andalousie, rare, 4.7.1888, fl. (G); Rivas, s.n., prope cerro Mariano, Córdoba, 17.7.1953, fl. (G, M); Roivainen, s.n., Prov. Jaén, Despeñaperros, ad rupes, 13.6.1952, fl. vix ortis (H); Ysern, s.n., Torrelaguna, prov. Madrid, 45 km sept. urbis, VII.1862, fl. (G-BURN).

8. **Ferulago bracteata** Boiss. & Hauskn. in Boiss., Fl. Or. 2: 1008. 1872; Peşmen in Davis, Fl. Turkey 4: 470.

Typus: *Haussknecht* 906, in rupibus calcareis montis Ssoffdagh (Sufdagh) supra Behesne, 4000-5000', 7.9.-1865, fr. (G-BOIS).



DESCRIPTIO

Species minus nota. *Planta* erecta, robusta, ultra metralis, scabra, caule crassitudine pollicari, sulcato, fistuloso. *Folia* 5-pinnata, ambitu ovata, vix pedalia, dura, pallide viridia vel glaucescentia in vivo, laciniis crassiusculis oblongis, mucronulo minimo, 2-3 mm longis. *Inflorescentiae* thyrsoidae, erectae, robustae, angulatae; umbellae maturae verticillatae, 10-radiatae, bracteis cochleariformibus conspicuis persistentibus, radiis robustis etiam bracteatis. *Involucra involucellaque* cochleariformia, margine scarioso. *Umbellulae* 10-florae, pedicellis quam fructu ter brevioribus. In sicco fulvescens, axi inflorescentiae superne atro excepto!

OBSERVATIONES

Descriptiones in Boissier sine menda, in Peşmen commoda adsunt, quibus tantum fructus descriptio, ut legitur hic in clavi (p. 68), addenda est. Notanda haec species numero minimo, pro ut toto genere, vittarum commissuralium: duae unoquoque mericarpio!

AFFINITATES

Ad occidentem loci typici, cum *F. pachyloba* ex Cilicia antiquorum (C5 in folio distributionis specierum in "Flora of Turkey"); ad orientem cum magna specie *F. angulata*, *F. contracta*, iranica, parum nota fructu desiderato etiam affinis conspicitur. *F. trachycarpa* denique area vasta hanc parvulam speciem circumscribit et tam affinior mihi videbatur ut perplexus hanc quasi lusum illius nonnumquam inter me considerarem.

DISTRIBUTIO

Anatolia, Turcia, vide "Flora of Turkey" 4: map 68, p. 467. 1972.

SPECIMEN ALTERUM

Haussknecht, s.n., eodem loco, 27.6.1865, fl. incip. (G-BOIS).

9. *Ferulago campestris* (Besser)

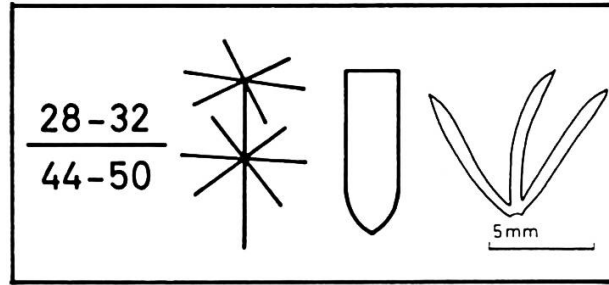
Grec., Consp. Fl. Roman.: 252. 1898 $\equiv$ *Ferula campestris* Besser in Schultes Syst. Veg. 6: 591-592. 1820 (observatio inter *F. nodiflora* et *strictam*); Besser, Enum. Pl. Volhyn.: 44. 1821 $\equiv$ *Ferula sulcata* var. *campestris* (Besser) DC., Prodr. 4: 172. 1830.

- = *Ferula nodiflora* Scop. (non L.), Fl. Carn., ed. 2, 1: 205. 1772; Jacq., Fl. Austr. 5: 28. 1778, app. tab. 5 (optima! ut d. BERTOLONI, 1837).
- = *Ferula nodiflora* Bieb. (non L.), Fl. Taur.-Cauc. 1: 220. 1808.
- = *Ferulago nodiflora* Koch, Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 12: 98. 1825.
- = *Ferulago dodonaei* Kostel., Allg. Med.-Pharm. Flora 4: 1158. 1835.
- = *Ferulago sulcata* (Desf.) Ledeb., Fl. Ross. 2: 299. 1844, p.p.
- = *Ferulago galbanifera* Koch, Syn. Fl. Germ., ed. 1: 302. 1835; Boiss., Fl. Or. 2: 997. 1872.

Non est:

Ferula ferulago L., Sp. Pl.: 247. 1753 (fide auctorum! Descriptio linnaeana ambigua ut Sybillae responsum. In Herbario Linnaeano (Linnean Society, London) ut videtur typus hujus speciei abest; in herbario Royeni, Lugduni Batavorum prae me ex mutuatione gratissima, sub hoc nomine duo specimina solum folium praebentia: unum ex *Ferula tingitana*, alterum ex *Ferula glauca*: hic schedula manu Linnaei synonymia *F. ferulaginis* ut in Sp. Pl. conspicitur).

Typus: Besser, s.n., an. 1820, e Podolia australi et Ucraina (G-DC).

**DESCRIPTIO**

Species nimis multum nota! *Planta* 3-6-pedalis, glabra, caule sulcato, 8-10 mm spisso. *Folia* 4-5-pinnata lamina ambitu triangulari, 20-40 cm longa, petiolo compresso 20-30 cm longo pinnis et pinnulis sat numerosis, laciniis lineato-oblongis, mucronulatis, saepius 10 mm longis, divaricatis. *Paniculae* conspicuae, erectae, umbellis verticillatis 8-10-radiatis. *Involucra involuellaque* oblonga haud conspicua; *umbellulae* 8-12-florae, pedicellis quam fructu dimidio brevioribus. In sicco fusca vel viridello-fusca, fructibus atris.

OBSERVATIONES

Ferula galbanifera Miller, Gard. Dict., ed. 8: 2 (1768) (basis nominis "*Ferulago galbanifera*" Koch, a plurimis botanicis usurpatissimum, usque ad

Peşmen, invalidum nomen quia ab auctore usum est adversus *Ferulam glaucam* L. prioritate tutam, igitur impotens ad restaurandam in litteris pristinam "*Galbanifera Ferula*" Lobelii (Plantarum seu stirpium historia: 451, 1576; ic. pp. 779, 1591). Hoc mihi cl. W. Greuter doctus et ductor in proeliis nomenclaturae firmabat.

Ferulago nodiflora Koch, nomen etiam usurpatum praecipue a phytographis germanicis (e.g. Thell. in HEGI, 1926, usque ad HESS & al., 1970) in nodo gordiano Linnaei "*Ferula nodiflora*" conditur quae apud plures auctores minime cum *Ferula nodiflora* Scop. (et Jacq.) convenit, sed verum *Ferula communis* L. eadem esset (vide KOROVIN, 1947: 48). Descriptiones typique C. Linnaei pro ejus *Ferula* quidem pessimi, fons lacrimosa perennis confusionis confutationisque!

Ferula campestris Besser tamen in descriptione misera et erronea sistitur: quod scripsit BESSER (1821) "foliolis... margine cartilagineo-serrulato" minime convenit speciei quae *Ferulago campestris* nobis vocatur. Ille margo cartilagineo-serrulatus nulli *Ferulagini* Europae adest; *Ferula sadleriana* Ledeb. ex Europa orientali, tantum mihi videtur foliis sic marginatis praedita. At dulcis in fundo: typus *Ferulae sulcatae* Desf. var. *campestris* (Besser) DC., in herbario candolleano schedula affixa manu Besseri descriptionem ejus verbatim referente, omnino congruit cum vulgatissima "*Galbanifera Ferula*" Lobeliana, id est cum "*Ferulago galbanifera*" et "*Ferulago nodiflora*" sensu auctorum.

Icon Jacquiniana, haud procul a perfectione, dimensione reducta, coloribus sat similibus opere originali, hic invenitur (initio libri).

Descriptio A. Bertoloni diligentissima inter ceteras a me censetur omnibus partibus, numero vittarum excluso, qui — ut legitur in clavi, sic adest: vittae commissurales 28-32, vittae dorsuales 44-50.

AFFINITATES

Ad orientem, ad mare Caspium, *F. daghestanica* Schischkin proprior conspicitur, quae tamen praecipue foliis scabridis et fructus dimensione minore et ambitu latiore cito distinguitur.

Nego affinem cum *F. latiloba* Schischkin esse, ut legitur in Peşmen (1972: 455 et 456), quae hic consideratur eadem esse cum *F. sylvatica*.

Quoad Hispaniam attinet, specimina prae me characteribus certis ad hanc speciem omnino desunt! Bene olim Willkomm & Lange (Prodr. Fl. Hisp. 3: 38. 1874) scripserunt (in *Ferula ferulago*) "Indicatur in Boetia (sic! certe pro Baetica)... locus autem specialis non indicatur neque specimina hispanica vidimus. Cum autem in tota regione Mediterranea occurrit, verosimiliter intra Hispaniae fini non deest, quare ulterius sedulo inquirenda". Saeculum diu peractum a verbis istis tamen nobis — Botanicis Europae — non sivit ut scientia certa sciamus hujus magnae speciei geographiam! (vide etiam sub *F. lutea* animadversionem, p. 113).

Quod in CANNON (1968: 359) noncupatur "*Ferulago campestris* group" Chimaera vel monstrum natum-mortuum mihi quidem videtur. In obs. *F.*

brachylobae Boiss. & Reuter dudum dissimilem a *F. granatensi* dixi; *F. lutea* ob fructus formam et involucrorum etiam a *F. campestri* abhorret. *Ferulago capillaris* eadem quam *F. lutea* infra considerabitur. Gradu mediocri affinitatis *F. campestris* cum *F. granatensi* tantum licet opinare.

DISTRIBUTIO

Quoad legitur in CANNON (1968: 360 n° 4) addendum vel emendandum: abest in Corsica et Sardinia; adest in Lusitania sed valde dubia in Hispania. Advena in Africa boreali (Maroc). Fide PESMEN (1972: 459, map 64) (specimina non vidi) in Turcia boreali (Anatoliae), an advena?

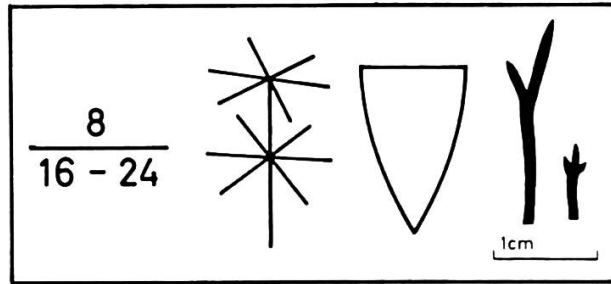
SPECIMINA VISA (nationes ordine alphabetico et in eis, lectores ordine alphabetico)

Bulgaria. *Urumoff* 114, bei Larvticha, an. 1895 (WU). **Gallia (France).** *Agoz* (Ayaz?), Fréjus, VII.1856, fr. (G); *Barla*, Alp. marit., Drap, 23.6.1881, fl., 18.7.1882, fr. (G-BURN); *Bélanger*, Draguignan, Var (G); *Burnat & Cavillier*, vallon des Châtaigniers, comm. de Tignet, 200 m, Alp. marit., 30.6.1900, fl. incip. (G-BURN); id., environs de Nice, près de Drap, 8.8.1901 (G-BURN); *Camus* (?), environs de Drap, 26.7.1867, fl. (G); *Chambeirou*, Le Luc, Var, fl. (G); *Consolat* 81, Bois de Gourdon, VII.1874, fl. (G-BURN); *Fauconnet* (hb.), Montpellier, fr. incip. (G); *Hanry* 673, bords des champs et friches des côteaux calc. près Le Luc, Var, VII. et VIII.1861, fl. et fr. (G, M); *Hanry* 3091 (hb. Billot), Le Luc, Var, 30.VII.-27.VIII., fl. et fr. (G); *Hanry*, s.n., côteaux incultes, Le Luc, VIII.1867, fl. et fr. (WU); id., ibidem, VII.1868, fl. et fr. (G-BURN); *Huet*, collines calcaires à Toulon, au cap Brun, 8.5.1871, fl. (!) (WU); *Jahandiez* (hb.), Cabasse, Var, bords des champs, 7.7.1911, fl. incip. (G); *Kannut* (?), Fréjus, VIII.1858, fl. (G); *Loret*, près de Grasse, 29.6.1837 (G-BURN); *Perreymond*, Fréjus, 1839, fl. (G); *Rodié* 20 et 21, Grasse, à Clavary, sur silice, 10.9.1924, fructibus, in n° 21 majoribus (G-BURN). **Graecia.** *Leonis* 199, in monte Parnasso prope Arachova, 7.7.1898, fl. ad fr. (WU): n. b. specimen dubiae determinationis quia foliis destitutum! **Italia (septentrionalis).** *Bentham* (hb.), Trieste, an. 1840 (G); *Burnat*, entre Alassio et Andora, Savona, 13.6.1879, fl. vix incip. (G-BURN); *Candolle*, Genova, 8.7.1808, fl. incip. (G); *Cimarolli*, Judicariis, prope Bondone, Trento, 6.6.1899, fl. ad fr. (G); *Colers*, San Canzian, Trieste, 15.7.1928, fl. incip. (M); *Duval*, Genova, an. 1834, fl. fr. (G); *Engelhardt*, Geröll am Mte Spaccato, Trieste, 6.7.1892, fl. ad fr. (M); *Fiori & al.* 472, Vittorio Veneto, prope pagum Cozzuolo, col di Stella, 400 m, solo calc., 22.7.1904, fl. ad fr. (G-BURN); *Frimmel*, Monte Sabotino, bei Gorizia, 9.7.1910, fl. (WU); *Frimmel*, Euganean, zwischen Galzignano und Battaglia, 13.7.1910, fl. ad fr. (WU); *Gelmi*, Monte Maranza, Trento, 27.7.1879, fl. et fr. (G, WU); id., ibidem, 2.9.1891, fr. (M); *Gibelli*, in montibus calcareis prope Montardone, pr. Mutinensis, Modena, VIII.-IX.1879, fl. et fr. (G, G-BURN, H); *Graf*, in pratis ad Savum fluvium = Savio, 1835, fl. ad fr. (G); *Greuter* 2289, Torre dei Ratti,

Cantalupo, Appen. lig., 27.7.1958, fl. (hb. Greuter); id., s.n., S. unterhalb Pian di Creto, bei Genua, 500 m alt., 8.8.1959, fr. (hb. Greuter); id., *E. 1111*, Righi, Forte Sperone, Liguria, 250-300 m alt., 3.8.1963, fl. (hb. Greuter); *Huguenin*, Monte Pastello, Verona (G); *Huter*, Lombardia, in pascuis montanis (G-BURN); *Lagger*, colline di Trento, fl. (G); id., Roveredo (G); *Mangornati*, Valleggio, Lombardia (?) (G); *Mattei*, Mte Paderno, Bologna (G, H); *Meebold 3619*, Opicina bei Trieste, VI.1922, fl. (M); *Merxmüller 12 975*, Bassaneser Alpen, Brentatal bei Solagna, Vicenza, 10.8.1956, fr. (M); id., *12 977*, Mediterraner Eichenwald bei Piantonia, südlich Parma, 260-300 m alt., 13.5.1951 (M); *Périer*, Brescia, an. 1882, fl. (G); *Porta*, in pratis siccis ad Benacum, 200-400 m, VIII.1900, fr. (G); *Poscharsky*, Mte Grappa, b. Crespano del Grappa, 19.7.1889, fr. (G-BURN, M); *Rigo*, Monte Pastello, Verona, VII.1902, fl. et fr. (G); *Schlyter*, Trieste (H); *Tommasini*, in pratis siccis Tergesti (Trieste), an. 1844 (G); *Venturi*, Trieste (WU). **Italia (centralis)**. *Bubani*, in agro florent., Mte Morello, 30.6.1834, fl. vix incip. (G); *Burnat*, près de Torrano, Carrara, 470 m alt., 5.7.1890, fl. (G-BURN); *Caruel*, in collibus fesolanis, Florentiae, VII.1863, fl. (G); *Gussone*, Sulmona, monte Morone, Abruzzo, an. 1841 (G); *Martelli*, saline di Volterra fra le siepi, 6.7.1892, fl. (G); *Sommier*, Mte Amiata, Toscana (G). **Italia (meridionalis)**. *Moricand*, Naples, fl. (G); *Cosson* (hb.), Nicosia, Sicilia, 5.8.1846, fl. ad fr. (G); *Lojacono 621*, in arvis montanis Petralia Soprana, pr. Palermo, 1147 m alt., VIII.1883 (G, G-BURN, WU); *Merxmüller 20 410*, Madonie, Westhänge des Mte Quacella, ca. 1600 m, pr. Palermo, 4.8.1965, fl. (M); *Tenore*, in apricis aridis Campaniae, Itri ad S. Marco, XI.1826, fr. (WU). **Portugalia**. *Fernandes & Sousa 2379*, Serra do Geres, leito a margene do R. Hoamem, pr. Albergaria, 2.7.1948, fl. (H); *Hoffmannsegg*, Lusit., fl. (HAL). **URSS**. *Boshniak*, Elisabethgrad (= Kirovograd, Ukraina), fr. (G); "*Acad. Petrop.*", Rossia merid., fr. (LE); *Schrader* (hb.), sine loco, fr. (LE); *Steven* (hb.), in steppa Koganensi, Charkovia, fl. ad fr. (H). **Yugoslavia**. *Burgeff 451*, Steppe bei Kriovolak, Macedonia, 22.5.1918, ster. (M); *Engelhardt*, Istria, 9.8.1899, fr. (H); *Frimmel*, Krain, Wiese bei Präwald am Fusse des Nanos, 3.6.1911, fl. vix incip. (WU); *Galvagni*, Dalmatien, scoglio Bobara bei Ragusa vecchia, 30.8.1908, fl. et fr. (WU); *Ginzberger 38*, Istrien, Gebiet des Monte Maggiore zwischen Draga und Krai, 30.7.1902, fl. (WU); id., Dalmatien, Ombla-Tal bei Ragusa, 7.6.1904 (WU); id., Istria, Gebiet des Monte Maggiore zwischen Draga di Moscanice und Krai, 17.9.1906, fr. (WU); id., Scogliere Bacili, Lukavci zwischen Lesina und Curzola, grösserer scoglio, 22.5.1911 (WU); *Graf*, in pratis montanis Carniola int. fl. ad fr. (G); *Grimm v. Grimbours*, Ragusa, fl. (WU); *Gugler*, Divača, Krain, 17.7.1900, fl. (M); *Höpflinger*, Bakar, am Strassenrand unweit des Ortes, 29.8.1964, fr. (G); *Hübl*, Omišalj d. Insel Krk (= Castelmuschio insulae Veglia), 21.7.1831, fr. incip. (WU); id., Spalato (WU); *Lorenz*, Wiesen bei Abbazia, Istria, VIII., fr. incip. (WU); *Merxmüller 12 976*, Karst, an der Küstenländischen Grenze südwestlich von Senzee, Karstwiese, Slowenien, 29.5.1955, fl. vix incip. (M); *Mayer*, Istrien, Kavoice ober Rakitovec, 9.7.1951, fl. (M); id., (hb. *LJB 55 984*): in graminosis lapidosis supra oppidulum Ilirska Bistrica, Nostranjko, 1000 m alt., Slowe-

nien, 29.8.1962, fr. parvis! (G); *Müllner*, Istrien, Mattuglia, 24.7.1898, fl. et fr. incip. (WU); *Noë* 759, Fiume, fl. (G, H, HAL, M); *Paulin* 667, Carniola, in pratis montis Vremsica, solo calc., 750 m, VII., fl. et fr. (WU); *Petter* 174, auf steinigem Boden um Fort Grippe bei Spalato u. um Clissa, V.-VI., fl. (M); id., 409, Dalmatia (G); id., Spalato, an. 1840 (G, HAL, M); *Podlech* 6555, Velebit an der Strasse von Obravac zum Mali Halan, ca. 350 m alt., 2.8.1960, fl. ad fr. (M); *Romieux*, Istrie, Divaca, 27.6.1905, fl. (G); *Romiger*, Istrien bei Mattuglie, VI.1901, fl. incip. (M); *Saint-Lager*, prairies près de la gare de Mattuglie-Abbazia, 17.6.1898, fl. vix incip. (G); *Senettner*, Veliki-Kostak, Dalmatia (M); id., Spalato, VIII.1847, fl. ad fr. (M); *Spencer*, in rupis maritimis Lovrana, Istria, 6.7.1899, fl. vix incip. (M); *Welden*, Dalmatia, an. 1840 (G); *Wettstein*, St. Peter in Krain, VI.1888, fl. (WU); id., Dalmatien, Ragusa, 15.7.1920, fr. incip., 26.9.1920, fr. (WU); id., 2584, in dumetosis prope Sessana, fl. (G, G-BURN, H, M, WU). **Africa septentrionalis. Maroc.** *Font-Quer* 450, in rupibus calc. ad pedem Yebel Malmusi, littore rhipaeo, 50 m alt., 18.5.1927, fl. (G, MPU).

- 10. *Ferulago carduchorum* Boiss.**
 & Haussk., in Boiss., Fl. Or.
 2: 1005. 1872, var. *salicornoides* inclusa; Bornmüller, Beih.
 Bot. Centralbl. 28: 238. 1911.
 = *Ferulago trifida* Boiss. subsp.
carduchorum (Boiss. &
 Haussk.) Bornm. var. *kermanensis*
 Bornm., Beih. Bot. Centralbl. 48:
 283. 1938.
 = *Ferulago abbreviata* Townsend,
 Kew Bull. 20: 79. 1966.



Typus: *Haussknecht 479b*, in monte Shahu supra Juanro, IX.1867, fl. (G-BOIS).

DESCRIPTIO

Planta elata, robusta, valde scabra, 6-pedalis (an major?) caule sulcato, sublignoso ita ut petiolo. *Folia* dura, scoparia, 3-pinnata, ambitu ovata, 45-60 cm longa, petiolo robusto 15-20 cm longo incluso, laciniis productis 3-5 cm longis, omnino involutis. *Paniculae* erectae, productae, multiflorae, vastae, umbellis verticillatis 8-12-radiatis, radiis ad maturitatem valde incretis; bractee insignes, cochleares, acuminatae. *Involucra involucellaque* triangularia, reflexa; *umbellulae* ut summum 10-florae, pedicellis quam fructu ter vel quater brevioribus. In sicco flavescens.

ANIMADVERSIONES

Species inter *Ferulaginis* omnes, quae viget in altioribus, usque ad 4000 m alt. fide collectorum, attamen planta perennis, valde robusta rectaque, 6-pedalis (an ultra?). Ut constat, austro-orientalior ex ceteris, lecta Persiae in montibus circa Kerman civitatem (sitam 30°18'-57°05'E.).

Indumento inflorescentiam nec non petala tegente cito separatur a *F. angulata*. Ut optime d. Boissier observabit, foliis robustioribus conspicitur, non solum laciniis, sed etiam petiolis rhachidibusque saepius crassioribus: saepius, dico, sed non semper!

A descriptione prima Boissier, ubi "ramis inflorescentiae brevibus" specimina postea lecta praecipue regionis Kerman, magnopere opponuntur. Vero haec species jam florifera, floribus clausis at grandiusculis, at ramis inflorescentiae parum vel minime evolutis observatur, sed rami illi tarde valde longiores fiunt. Ex quo cl. Townsend anno 1966 ex specimine immaturo, inflorescentiae ramis igitur valde abbreviatis, *Ferulaginem abbreviatam* scripsit, ex Kurdistaniae, Iraq, monte Qaradag, haud procul ab Avroman Dagh, Persiae, ubi Haussknecht anno 1867 *Ferulaginem carduchorum* inveniebat.

AFFINITATES

Ut legitur supra, ad *F. angulatam*, haec affinior videtur, a qua tamen nonnullis characteribus distinguitur: de indumento superne dicebatur, cui addenda sunt: dimensio fructuum, major in *F. carduchorum*, et vittarum numerus, ultra viginta dorsualium in hac species.

Propter hoc, affinitatem ancipitem *F. carduchorum* adesse opinor; unam, jam praebitam, alteram cum *F. trachycarpa*, cui inflorescentiae scabrae usque ad petala puberula observantur, una cum eodem numero vittarum! An liceret igitur utramque speciem "vicariam" *F. angulatae* putare? Prima (*F. carduchorum*) altioribus alpestribus incola et orientalioribus quoque; altera (*F. trachycarpa*) regiones ad mare et occidentales petens, ambae ortae ex regioni centrali ubi nunc *F. angulata* viget.

DISTRIBUTIO

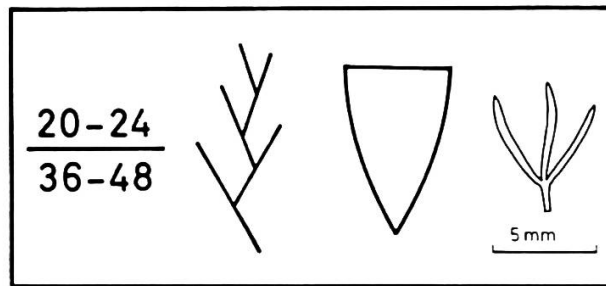
Ut constat, Persiae et Iraq.

SPECIMINA VISA

Persiae. *Archibald* 3020, Bakhtiari, Tang-i-Sirdan between the Kurang and Bazuft valley, coarse limestone scree and detritus in steep N. facing avalanche gully, yellow, perennial, 3990 m alt., 7.8.1966, fl. (E); *Bornmüller* 3830, prov. Kerman in reg. alpina montis Kuh Lalesar, 4-6 pedalis!, 3200-3800 m, 18.7.1892 (P); id., 3831, Kerman, in monte Kuh-i-Hasar, inter Kerman et Bender-Abbas, 3400 m, 12.8.1892, fl. ad fr. (G); id., 3832, Kerman, in montis Kuh-i-Nasr regione superiore, 2700-3800 m, 4.7.1892, fl. incip., n. vern. Gardshi (G, K, P, WU); id., 3832bis, Kerman in regione subalpina montis Kuh Dsihupar, 2900 m, 10.6.1892, fl. (G, K); id., 3833, Kerman in monte Kuh-i-Sirdsch, 3000 m, fl. incip. (G, K, P, WU); *Hausknecht* 479, in rupibus calcareis montis Parrow supra Kirmanschah, Dschimuhr distr., 9000', IX.1867, fr. (G-BOIS); id., 479a, in monte calcareo Dalechani supra Sungur, 8-9000', X.1867, fr. (G-BOIS); id., 480, in gramin. et supra calc. m. Avroman et Schahu, 7-10 000', VII.1867, fl. incip. (G-BOIS); id., s.n., frequentissima in omnibus montibus Kuh Ğelu, Djevil distr. (Kurdistan Djinour), 7-12 000', VII.1868 (G-BOIS); id., s.n., in montibus secus flumen Chyrsan, Elymais, VIII.1868, fr. (G-BOIS); id., s.n., Selschuh (?) et Kellal, distr. Bachtiariorum (= Bakhtiari), IX.1868, fr. incip. (G-BOIS); id., s.n., Kuh Nur, 10-13 000'!, 1868, fr. (G-BOIS); id., s.n., in m. Kuh Sawurk (?) inter Tschinar et Sakawa, an. 1868, fl. (G-BOIS). **Iraq.** *Wheeler Haines* 2095, Kopi Qaradagh, open rocky slope near summit of ridge, 14.7.1961, fl. incip. (K), typus *F. abbreviatae* Townsend.

11. *Ferulago cassia* Boiss., Diagn. Pl. Or. Nov. sér. 1, 10: 38. 1849 et Fl. Or. 2: 999. 1872; Post, Fl. Syria, Palestine & Sinai, ed. 1: 360. 1896 et ed. 2, 1: 549. 1932; Thiébaud, Fl. Libano-Syrienne 2: 164. 1940; Mouterde, Nouv. Fl. Liban & Syrie 2: 645. 1970; Peşmen in Davis, Fl. Turkey 4: 461, fig. 12 n° 10 p. 463, map 65 p. 459. 1972.

= *Ferulago amani* Post in Boiss., Fl. Or. Suppl.: 264. 1888; Post, Fl. Syria, Palestine & Sinai, ed. 1: 360. 1896 et ed. 2, 1: 549. 1932; Thiébaud, Fl. Libano-Syrienne 2: 164. 1940; Mouterde, Nouv. Fl. Liban & Syrie 2: 645. 1970; Peşmen in Davis, Fl. Turkey 4: 461, fig. 12 n° 10 p. 463, map 65 p. 459. 1972.



Typus: *Boissier*, s.n.: bords de la chaîne du Cassius (unde epithetum *boissierianum*) versant du Latatheh, Syrie, mai-juil. 1846 (G, etiam LE).

DESCRIPTIO

Planta gracilis, glabra, saepius 2-pedalis, raro 3-pedalis vel metralis, caule vix 4-5 mm spisso, flexuoso, leve, collo radicale fibroso. *Folia* 4-pinnata ambitu deltoidea, ut summum 40 cm longa saepius dimidio breviora, petiolo et rhachide exilibus, pinnis separatis pinnulis sparsim congestis, laciniis setaceis 5 mm longis, raro duplo longioribus. *Paniculae* debiles, divaricatae, umbellis alternis 5-6-radiatis, bracteis conspicuis. *Involucra involucellaque* triangularia acuta; *umbellulae* 6-8-florae, pedicellis fructum aequantibus vel eo parum brevioribus. In sicco fusca.

OBSERVATIONES

Descriptiones sat accuratae, nuper indictae, exstant usu commodae, quibus licet vittarum numerum addere sic: commissurales 20-24, dorsuales 36-48. Vittas extraseminales indicare hic oportet, 5 circiter uniuoque alae; raro etiam in jugis conspiciuntur, sed omnes vittae extraseminales vix inchoatae apparent, in fructibus maturis quoque. Fructus tam magnos ut legitur in PESMEN (1972) (usque 14×7 mm) non inveni; in typo fructus $6-7 \times 4-5$ mm adsunt.

AFFINITATES

BOISSIER (1849, 1872) et PESMEN (1972) inter hanc et *F. asparagifoliam* affinitatem majusculam tribuunt: num forma laciniarum causa? Hoc minoris

momenti ad propinquitatem specierum *Ferulaginis* discernendam reor! *Ferulago asparagifolia* Boiss. quidem et forma inflorescentiae atque involucri et maxime numero inferiore vittarum discrepat. BOISSIER (1872) *F. nodosam* affinem cum hac indicat: an vero caulibus in *F. cassia* raro nodosis? Haec affinitas valde obsoleta videtur, praecipue fructu compresso in *F. nodosa* at crassiusculo in *F. cassia*, jugis et alis distinctissimis, vittis paucioribus. Mea ratione invicem *Ferulago cassia* affinis, ordine decrescente, conspicitur ergo:

- *Ferulago sandrasica* Peşmen & Quézel;
- *F. fieldiana* Rech. fil. (cui etiam vittae extraseminales adsunt);
- *F. macrocarpa* Boiss.;
- *F. platycarpa* Boiss. & Balansa;
- *F. confusa* Velen.;
- et porro cum *F. stellata* Boiss.

BOISSIER (1849) hanc speciem *F. pumilae* (= *Ferulago humilis* Boiss.) visu similem, ob folia praecipue, scripsit, a qua tamen et involucris, stilopodii forma et numero vittarum expedite separatur.

DISTRIBUTIO

Turcia et parte Syriae proxima; vide PEŞMEN (1972: 459, map 65).

SPECIMINA VISA

Turcica. *Akman 50*, Mt. Amanus, 1880 ca., 18.6.1967, fl. inc. (E); *Akman 123*, Osmaniye, Amanos Daylan, ca. 1450 m alt., 19.6.1967, fl. (E); id., 3353, Seguk Oluk, Iskenderun, Amanos Daylan, 24.7.1966, fl. (hb. Huber-Morath); *Albury & al. 670*, Prov. Hatay, Amanus Mt. hills around Belen pass, W. side, 800 m, 2.4.1966, fl. incip. (K); *Darrah 663*, Adana near Hasanbeyli, 900-1200 m, 17.8.1969, fr. (E); ***Davis & al. 19 842*, Prov. Adana, distr. Feke, Goksu gorge below Himmetli, 700-800 m, old vineyards, perennial, s. die, fr. (BM, E, K); *Davis & al. 27 011*, Prov. Hatay, distr. Belen (Amanus), Belen, 450 m, rocky slopes, perennial, 23.4.1957, fl. (E, K); *Eig & Zohary*, envir. of Gozne, N.W. of Mersina, rocks, 1200-1300 m, 17.8.1931 (HUI); *Haradjian 3689*, Adana, Amanus Mt., Dumanli, 700-1200 m, VII.1911, fl. (G); *Hausknecht*, Maras, in rupestr., 16.7.1865, fl. (G-BOIS, JE); *Hennipman & al. 1380*, Prov. Maraş, 25 km W. of Fevzipaşa, along the road Adana Maraş, open *Quercus* shrub, 24.5.1959, fl. (K); ***Huber-Morath 11 742*, Prov. Adana, Distr. Sambeyli, Bachufer, 2 km N. vom Sambeyli, 1010 m alt., 20.6.1951, fr. (!) (hb. Huber-Morath); id., 12 023, Prov. Hatay (Amanus), Karlik Tepe ob Sogük

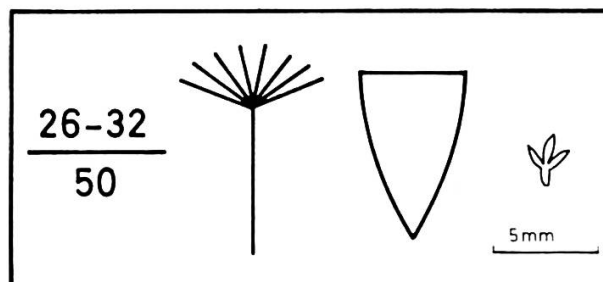
** = Specimina nodis praedita.

Oluk, Karkgeröll in *Pinus brutia*-Wald, 16.6.1953, fl. (hb. Huber-Morath); id., 13 668, Prov. Seyhan (Amanus), Distr. Osmaniye, Yarpuz, *Quercus macchia*, 550 m alt., 27.5.1956, fl. (hb. Huber-Morath); id., 13 669, ibidem, *Pinetum pallasianae* ob Yarpuz, gegen Yağlipinar, 1300-1400 m, 27.5.1957, fl. incip. (hb. Huber-Morath); id., 16 862, Prov. Seyhan, Distr. Karnisali, Pozanti-Azmancik Yagla, *Pinus brutia*-Wald, Kalkfelsen, 29.6.1959, fl. (hb. Huber-Morath); id., 17 512, Prov. Adana, Distr. Karaisali, Kalkfelsen, 6 km N. von Pozanti, beim Seker Kahve, 700 m alt., 29.5.1956, fl. ad fr. (hb. Huber-Morath); *Kotschy* 49, in praeruptis argillo-schistosi inter Beilan et Japaraklik, alt. 2600-3000', fructu, VI.1862 (BM, C, G-BOIS, JE, LE); ***Kotschy* 214, in monte Tauro, aestate 1836, fr. (E, G, G-BOIS, H, M, P); **Kotschy*, suppl. 2, Mt. Nur, ad rupes supra fontem, 2000', 28.4.1859, fl. (G, G-BOIS, P); *Kotschy*, s.n., Iter orient. 1859, fl. (JE); *Mitchell & al.* 2696, Prov. Hatay, Kizil Dag, traverse via road Arsuz Antakya, trackside past first shoulder of mountain, N. side of massif, 11.5.1967, fl. ad fr. (K); **Siehe* 81, İçel, Giosna (Gözne), N. of Mersin, 900 m, VI.1895, fl. (BM, E, G, P, WU); id., 155, zwischen Sis u. Adana, Kalkplateau, 200 m alt., IV.1896, fl. incip. (BM, E, G, JE, LE, WU). *Syriaca*. *Eig & Zohary*, Amanus Mt., ascent to Achagi Zarkoun from the Karakisieh side, *Pinetum halepense*, 800-1000 m, 30.5.1932, fr. (HUJ); id., Amanus Mt., between Achagi Zarkoun and Bagajak, *Pinetum laricio & halepense*, 1.7.1932, fl. (HUJ); id., Amanus Mt., W. slopes between Karagouz und Bagajak, *Pinetum halepense*, 800-1000 m, 1.7.1932, fr. (HUJ); *Haradjian* 2959, Mont Cassius, 1000-2000', VI.1909, fl. ad fr. (E, G, K, W); *Mouterde* 4326, Aïr el Haranuyé, au S. de Kessab, 2.7.1935, fr. (G); id., 12 912, Slenfé, pente E., 4.6.1964, fl. (G); *Norris*, Kessab forest, open places, 2000-2500', 11.5.1945, fl. (BM); *Pabot*, forêt de Kessab, 40 km N. de Lattaquié, 18.4.1952, fl. (G); id., Kessab, 25.4.1953, fl. (G); id., sud de Kessab, 5.5.1954, fl. (G); id., Slenfé, *Quercus cerris*, 1200 m, 26.6.1955, fr. (G); id., Jabal Mattai versant E., zone de cèdres, 25.7.1955, fr. aegrotis (G); id., vallée de Nahr el Kebir, 6.4.1956, ster. (G); id., cèdres de Jabal Mattai, Slenfé 1400 m, 14.7.1956, fr. (G); *Post*, 10 km S. of Kessab near base of Cassius range, 7.6.1884, fl. (BM); *Walh* 203, Djebel Ansarerech, Halfa-Slenfé, 700 m, 8.4.1933, fl. (LD); *Zohary*, Beilan, 8.5.1931, fl. (HUJ); id., Soukluk, 10.5.1931, fl. ad fr. (HUJ).

* = Specimina inflorescentiis erectis, foliis majoribus, laciniis longioribus, sat affinia videntur cum *Ferulago mughlae* Peşmen.

** = Specimina nodis praedita.

12. **Ferulago confusa** Velen., Fl. Bulg.: 203. 1891; Hayek, Prodr. Fl. Balc. 1: 1029. 1927; Peşmen in Davis, Fl. Turkey 4: 468. 1972 $\equiv$ *Ferulago meoides* L. (sic!) var. *confusa* (Velen.) Stojanov & Stefanov, Fl. Bulg.: 837. 1925.



= *Lophosciadium meifolium* DC., Mém. Ombell.: 57, Pl.

2, fig. P (ubi sphalm. "*millefolium*") 1829 et Prodr. 4: 207. 1830; Endl., Gen. Pl.: 784, n° 4493, 1839; Griseb., Spicil. Fl. Rumel. 1: 373. 1843; Boiss., Pl. Aucherianae: 327. 1844; Bentham & Hooker, Gen. Pl. 1: 905. 1867; Nyman, Consp. 1: 279. 1879 et Consp. Suppl. 2: 135. 1889; Drude in Engler & Prantl, Natürl. Pflanzenfam. 3/8: 227, fig. 69, K. 1898; Kos.-Pol., Bull. Soc. Imp. Naturalistes Moscou, n.s. 29: 161. 1916, ex parte, quoad specimina in herbario DC.

= *Ferulago meoides* Boiss., Fl. Or. 2: 1004. 1872; Grecescu, Consp. Fl. Rom.: 252. 1898; Săvulescu, Fl. Rom. 6: 572. 1958.

= *Lophosciadium meifolium* DC. var. *microcarpum* Velen. (1886: non vidi) fide Velen., Fl. Bulg.: 203. 1891; Stojanov, Stefanov & Kitanov, Fl. Bulg., ed. 4, 2: 802. 1967.

= *Ferulago confusa* Velen. var. *rhodopea* Velen., Sitzungsber. Königl. Böhm. Ges. Wiss. Prag, Math.-Naturwiss. Cl., 10.7.1903: 5. 1903 (var. *longicarpa* Velen. (l. c.) exclusa).

= *Lophosciadium meoides* (L.) Calestani, Webbia 1: 258. 1905; Grossh., Fl. Kavkaza, ed. 1, 3: 176. 1932.

= *Ferulago meoides* (L.) Calestani (sic!) in Bormüller, Fedde Repert. Beih. 89, 2/6: 284. 1941.

= *Ferulago sylvatica* (Besser) Reichenb. sensu Cannon, p.p., in Tutin & al., Fl. europaea 2: 360, n° 8. 1968.

= *Laserpitium orientale*, *Mei folio*, *flore luteo* Buxbaum, Pl. Minus Cogn. Cent. 1: 27, T. 42, 1728.

An *Laserpitium orientale* *Mei folio flore luteo* Tourn. (Josephi Pitton Tournefort Corollarium...: 23. 1719)?

Typus: *Velēnovský*, in graminosis collinis siccis prope Vetova, Razgrad, Varna (PR, non vidi) (*Lophosciadium meifolium* DC. cujus typus: Castagne, an. 1822, ad Constantinopolim, fl., G-DC).

Descriptio Tournefortiana nimis multum brevis, mea sententia, ergo infida; in hb. Tournefortii (P), n° 2911 specimen adest sic schedulatum: *Laserpitium ponticum*, *Mei folio*, *flore luteo*; hujus speciminis copiam photographica tantum videbam (IDC, Zug, CH) sat confusam: inflorescentiae a insectis conspiciuntur erosae, forma foliorum quidem ut in specie hic

inquisita sed laciniis copiae causa confusissimis, sicut macula atra compactaque.

J. C. Buxbaum (1693-1730) contra, auctor obscurus opere ejus rarissimo, nisi erro, quia diligentissimi STAFLEU & COWAN (1976) dudum eum atque istud obliti sunt, descripsit speciem — icone quamquam squalida valide comprobante — quae absque dubio cum *Ferulagine confusa* Velen. perfecte quadrat. Confusio majoris et ardui momenti tamen adest in nominibus a De Candolle et Boissier usurpatis, id est, primi *Lophosciadium meifolium*, alteri *Ferulago meoides*. Uterque auctor speciem suam ad *Ferulam meoidem* L. (Sp. Pl.: 247, n° 6. 1753) attulerunt. Linnaeus ipse "*Laserpitium orientale*... Tourn. Coroll." memoraverat pro sua *Ferula meoide*.

Sed auctores novelli qui certe typos Linnaeanos acerrime scrutarunt, videlicet CANNON (1968) et PEŞMEN (1972) *Ferulam meoidem* L. minime ad genus "*Ferulago*" pertinere asseverant. Cannon statuit illam *Ferulam meoidem* eandem quam *Ferulam communim* L. esse! Hoc permirum mihi sonat.

Ille auctor sic anglice scripsit: "Small plants... have been wrongly identified as *Ferulago meoides* (L.) Boiss... a synonym of *Ferula communis* L." Clariora verba leguntur in PEŞMEN (1972: 468, ad finem et p. 469): "The type of *Ferula meoides* L. (hb. Cliff.) differs from Boissier's concept of that species in the presence of membranous amplexicaul sheaths, linear and smaller bracts and bracteoles (= involucra et involucella) more rayed umbels, etc.; the Linnean plant is neither a *Ferula* nor a *Ferulago*".

Quid ergo erit?

Praestantissimi Peşmen docti etiam in *Ferula* (cf. PEŞMEN, 1972) observationem negligere minime mihi licet. *Ferulago confusa* Velen. haec species pleno jure nuncupari, ratione cl. Peşmen servata, mihi conspicitur.

Ex adumbratione ejusdem Peşmen, *Ferula meoides* L. mihi videtur *Elaeoselino asclepio* (L.) Bertol. pertinere, speciei distributae etiam in "oriente" sensu antiquorum, id est Graecia et insulis maris Aegaei, attamen haud "pontica" sicut geographia licet vocari, quemadmodum schedulam vetustam Tournefortii.

DESCRIPTIO

Planta erecta, glabra, 2-3-pedalis, angusta, caule sulcato parum compresso, collo radicali brevi et crasso, fibroso. *Folia* tripinnata, ambitu oblonga vel lineato-oblonga, 20-30 cm longa, petiolo plano 6-8 cm incluso, 2-4 cm lata, laciniis setaceis per rhachim sparsim confertis, mucronulatis. *Umbellae* ad apicem praecipue congestae, 10-15 (raro magis) radiatae, bracteis per caulim inspersis, obovatis vel oblongis et conspicuis. *Involucra involucellaque* ovata, conspicua; *umbellulae* 15-florae, pedicellis quam fructu aequilongis vel parum brevioribus. In sicco atrofusca, fructibus pallide lutescentibus.

Descriptiones diligentes, in libellis botanicis dudum indictis pro hac specie superfluunt, nonnullae usu facillimae, quibus tamen numerum vittarum addere oportet: vittae commissurales 26-32, vittae dorsuales plus minusve 50 adsunt.

AFFINITATES

BOISSIER (1844: 326) *Lophosciadium* DC. increvit *Lophosciadio silaifolio* et genus descriptione locupletata perfecit.

Affinitatem tunc generis *Lophosciadium* referebat erga *Ferulaginem*, minime cum tribu *Thapsieae* ut proposuerat CANDOLLE (1829 et 1830), speciminibus quidem fructibus vix maturis.

Serius BOISSIER (1856), *Lophosciadium thirkeanum* scribens hoc intermedium *L. meifolii* DC. et *L. "carvifolii"* (lapsus calami invicem "*silaifolium*") indicabat. Nonnullam similitudinem inter *Lophosciadium thirkeanum* et *Ferulaginem sylvaticam* tunc concedebat. Ille ipse denique (1872: 1003) dextro pede et cito *Lophosciadium* in *Ferulaginem* immittebat et species proximae considerandae ex verbis auctoris, sunt:

Ferulago macrocarpa (Fenzl) Boiss.; *F. lophoptera* Boiss. (eadem cum praecedente); *F. silaifolia* (Boiss.) Boiss.; *F. thirkeana* (Boiss.) Boiss.; *F. meoides* Boiss. (= *F. confusa* Velen.).

Pesmen quoque *F. confusae* affinitas anceps cum *F. thirkeana* et *F. silaifolia* tribuit.

Lophosciadium supervacaneum et recte a Boissier in *Ferulaginem* inductum patet ex affinitatis vinculo quod reor verum et sic expongo: valde ad *F. macrocarpam* proxima: fere eodem numero vittarum, uterque similis in fructus forma. Talis propinquitas ad *Ferulaginem cassiam* admovet, numquam ab auctoribus generis *Lophosciadii* censitam et simul ad *F. fieldianam*. Ceterum e conspectu foliorum ambitus et inflorescentiae, *F. thirkeana* cursim ei similis conspicitur, at fallaciter quia discriminatio profunda utramque separat, ex fructus forma et numero vittarum. Eadem causa, *Ferulago silaifolia*, quamvis jugis et alis similibus — e quo *Lophosciadium* olim nuncupatum — sat remota a *F. confusa* a me censetur et propinqua *F. sylvaticae* forma inflorescentiae, ambitu foliorum et numero vittarum. Quo dicto, hujus speciei immissionem in *F. sylvaticam* ut legitur in CANNON (1968) quasi scelus vel nequitiam in rebus herbariis et in intelligentia generis firme credo! *Ferulago sylvatica* nimis multum characteribus dividitur de *F. confusa*, quos repetere summatim haud inanem censeo: foliis, ambitu et laciniis distinctissimis; inflorescentiae forma et fructu; vittarum numero. Num oportet quidnam addere?

DISTRIBUTIO

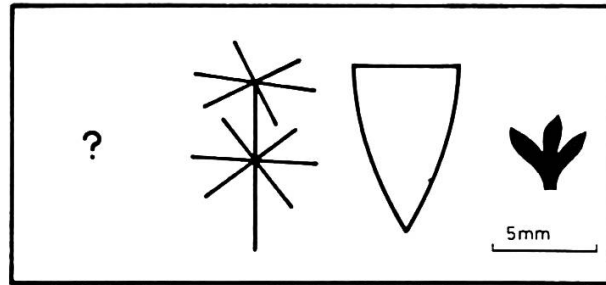
Peninsula Balcanica; Turcia Europae et Asiae. Vide PESMEN (1972: 467, map 67). *Obs.*: CALESTANI (1905) errate Italiam meridionalim ad Manfredoniam ut patriam etiam ejus *Lophosciadii meoidis* indixit, ex confusione — reor — cum *Elaeoselino meoide*.

SPECIMINA VISA

Europae. Bulgaria. *Adamović*, in apricis collinis ad Haskovo, VII.1904, fl. (WU); id., in herbidis planitie ad Haskovo, VI.1906, fl. (G, WU); *Janka*, in

monte Rhodopes (= Despoto-Dagh) declivitatis borealis herbidis inter vineas prope Stanimak, 6.7.1871, fr. (G-BOIS, M); id., prope Kalofer, Thraciae borealis, frequentissima, 7.7.1872, fr. (G-BOIS); *Peev* 947, Promuntaris Haemi, in pratis silvaticis prope Goljan isvor, urb. Teteven; *Ronniger*, Obraszov-Tschiflib b. Russe, 17.7.1930, fr. (hb. Greuter); *Schneider* 213, prope Varna in fruticetis ad Euxinograd, 22.5.1907, fl. (G-BURN); *Stribrny*, sud Bulgarien, Nova Mahala in Walde, 22.7.1893, fr. (G, G-BURN, M); id., in graminosis ad Nova Mahala, 3.7.1900, fl. ad fr. (G-BURN); id., in nemorosis ad Papazlii, VI.1909, fl. ad fr. (G, H, M, WU); *Wagner* 52, in monte Kara-Tepe, prope Burgas, 6.7.1892, fl. ad fr. (G, WU); id., 57, in declivibus supra pagum Stanimaka, 8.7.1892, fr. (G). **Graecia. Insula Thasos.** *Bernardi* 17 898 (= *Charpin & al.* 14 695), in conspecto pagi Prinos in siccis ad muros calcareos, 80 cm alta, 29.7.1977 (G); *Sinten* & *Bornmüller* 612, Theologos in fruticetis 31.5.1891, fl. (G). **Romania.** *Päum* 250, Oltenia, distr. Bals, in pratis prope pagum Buzduc loco Valea Dosului dicto, alt. ca. 90 m, 11.6.1963, fl. (G, H, M, WU). **Turcia (olim Rumelia).** *Aznavour* 1016, Beicos, Mont du Géant, Roumeli-Feneri, 19.6.1892, fl. ad fr. (G); id., 1016 ter, Kilios-koï, Yerli-koï, 7.6.1896, fr. (G); *Baytop*, Saray to Midye, behind the cemetery of Güngörmaz Koï, under *Quercus*, 28.6.1973, fr. (G); *Fontenay* 2837 (hb. Heildr.), Constantinople, 26.5.1853, fl. (G, G-BOIS); id., an. 1857, Constantinople, fl. ad fr. (G-BOIS); *Noé* 183, an Felsen im Thal der süßen Wasser, VI.1844, fl. (G, HAL, M); *Noé* 185, in montosis aquarum dulcium, Constantinople, 16.6.1844, fl. ad fr. (G-BOIS); *Olivier*, Constantinople, montagne du Géant, VI.1821, fl. (G, G-DC); *Pichler*, in collibus aridis ad Bosporum, pr. Bujukdere, V.1874, fl. (G, WU); *St. Lager*, entre Messarbournou et Zékeré Koï, vilajet de Constantinople, 20.7.1907, fr. (G). **Asiae. Turcia Anatoliae.** *Aucher-Eloy* 3669, herbier d'Orient, fr. (G-BOIS); id., 3750, an. 1837, fr. (G); *Aznavour*, Caïchedagh, 15.6.1902, fl. (G); *Post*, Aydos Mt., 21.5.1937 (G); id., Polomskoy-Alembdach, 25.5.1939, fl. (G); id., Hills Kirfer-A-Hissar, 4.6.1939, fl. ad fr. (G); id., Hills above Çubuklu, 16.7.1939, fr. (G); id., Alemdag, 25.7.1940, fl. ad fr. (G).

13. *Ferulago contracta* Boiss. & Hausskn. in Boiss., Fl. Or. 2: 1007. 1872.



Typus: *Haussknecht*, in rupestribus montium calcaleorum Dilegun, Tchinan et Maregun distr. Kuh Kilouyeh Elymaitidis (Susianae), Persiae austro occidentale, VIII.1868, fl. vix ortis (G-BOIS).

DESCRIPTIO

Species minus nota. *Planta* scabridula, erecta, ut summum bipedalis, collo radicali parum fibroso, caule 4-5 mm spisso, sulcato. *Folia* ambitu triangularia vix 30 cm longa, tripinnata, pinnis et pinnulis perpaucis, laciniis crassiusculis involutis haud mucronulatis, 2-3 mm longis. *Inflorescentia* erecta, axi robusto umbellis immaturis radiis abbreviatis praedita sed denique radii longiores fiunt et propter hoc hic character "contractus" valde infidus considerandus est! *Bractee*, involucra involucellaque triangularia, obtusa et spissa. *Umbellae* 8-radiatae, 12-15-florae ex speciminibus inspectis (quidem nimis multum paucis). In sicco virido-fusca, axi inflorescentiae atro-fusco.

OBSERVATIONES

Species minus nota, fructibus desideratis, ex forma ovarii in typo, jugis conspicuis atque alis grandibus fortasse inveniendis.

An paucivittata et propinqua *Ferulagini angulatae*? Num multivittata et affinis *F. fieldianae*? Hoc solum specimina fructibus maturis responsum dabunt! Inflorescentia hujus speciei verumtamen nonnulla verba meretur. Axis principalis erecti causa, e quo umbellae graciliter et sat brevipedatae oriuntur, inflorescentia Typi I, quamquam umbellis praecipue alternis, raro oppositis, haud verticillatis, haec species praedita diceretur conspectu Typi e quo omnes umbellae simul florentes conspiciuntur. In speciminibus tamen recentioribus (*Archibald* 2794, *Davis* 778) quae mea sententia in hac specie sine controversia continentur, umbella umbellularum terminalis multum magis evoluta quam ceterae inferae observatur, ideo inflorescentia basipeta (id est plus minusve Typi III) adscribenda esse?

Quod observandum liceat in speciminibus futuris florae iranicae.

BOISSIER (1872) affinitatem cum *F. cinerea* Boiss. supposuit, errate, quia *F. cinerea* e *Ferulagine* expellenda est (an expulsa in Fl. iranica fasciculo jam edito vel mox edendo?) et in genere *Echinophora* immitenda est.

DISTRIBUTIO

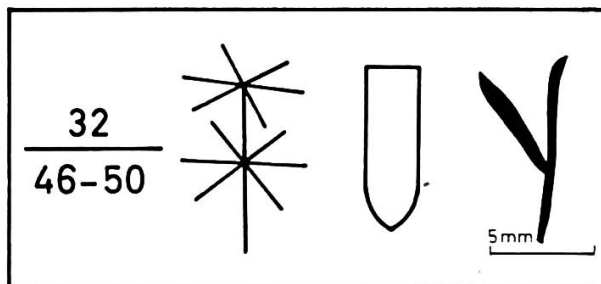
Iranica.

SPECIMINA VISA

Davis 778, Shir Kuh, above Dehbala in rocks, 10 000', 12.8.1939, fl. vix
ortis (E); *Archibald 2794*, Yezd, Kuh Rud N.E. of Deh Bala, in clay among
volcanic boulders, open slopes, greenish yellow, ca. 2315 m alt., 18.7.1966, fl.
vix incip. (E).

14. *Ferulago daghestanica*

Schischkin, Bot. Žurn. SSSR 31(6): 8. 1947 et Fl. SSSR 17: 151. 1951 (ed. anglica, Jerusalem, 1974: 108).



Typus: *Alexeenko 8695*, ad viam inter Petrowsk (= Makhachkala) et pagum Atly-bujun, 1.7.1897, fl. ad fr. (LE).

DESCRIPTIO

Planta bipedalis, gracilis, scabridula vel scabra. *Folia* ambitu ovato-oblonga, tripinnata in toto 30-40 cm longa, 7-12 cm lata, petiolo producto 15-20 cm longo incluso, laciniis oblongis, scabris, mucronulatis usque 10 mm longis vix 0.5 mm latis. *Panicula* umbellis verticillatis (7-)10-15-radiatis; involucra involucellaque oblonga, reflexa. *Umbellulae* 10-12-florae pedicellis quam fructu aequilongis. In sicco fusca.

OBSERVATIONES

Concise dicam hanc speciem simillimam *F. campestri* (Besser) Grec. a qua praecipue ob folia scabra distinguitur. Dissimilitudo parvuli momenti invenitur in fructus dimensione (vide in clavi p. 63). Eodem numero vittarum tamen propinquitas utriusque speciei magnopere sustinetur. In *F. daghestanica* denique, alae irregulariter vittatae observantur.

Specimina prae me nimis pauca exstant, e quo ut species rara considerari liceret; tamen area tam vasta, de Dnieper per Caucasum ad mare Caspium, limitibus borealibus adhuc incertis, haec species fit magna et cogito, si vero rara in herbariis, crebra in natura. Reor porro pleraque specimina herbariorum ex URSS Europae *F. campestris* nuncupata, ad hanc speciem scabram pertinere. Character iste ex foliorum glabritate aut scabritis desumptus, haud humilis vel spernendus in hoc genere a me putatur, quia, e media Europa ubi folia glabra adsunt, ad limina, id est Hiberiam Hispanorum atque Hiberiam caspicam et Persiam, paulatim folia scabra fiunt.

DISTRIBUTIO

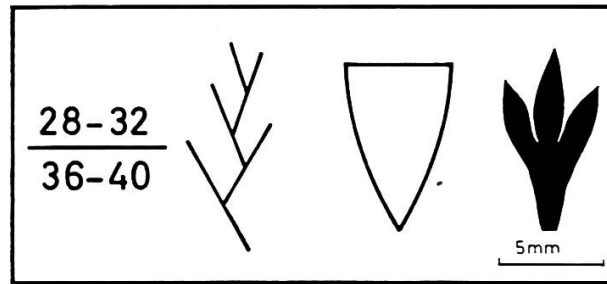
URSS. Ukraina, Caucasus, Daghestan: species pleno jure europea!

SPECIMINA VISA

Lipsky, Czir-jurt Daghestan, 1.9.1895, fr. (LE); *Meyer 1099* (Enum. cauc. casp.): prope thermas Constantinomontanas (= Constantinogorsk) et in

planitiebus versus castellum Georgiewsk (id est: haud procul ab urbe Pyatigorsk, Caucasus) an. 1829.-1830, fl. (G-BOIS); *Steven*, ad Borysthenem (= Dniepr), talis omnino e campis elatis Kalt...(?) ubi schola agriculturari, VIII.1807, fr. (H).

15. *Ferulago fieldiana* Rech. fil.,
Österr. Akad. Wiss. Math.-
Naturwiss. Kl. Anz. 89: 242.
1952 (27.XI).



Typus: *Field & Lazar 545*, Iraq. Meer Khasim between Balad Sinjar and Tell Afar, 30.5.1934, fl. ad fr. (W).

DESCRIPTIO

Species minus nota, semel lecta, descripta in opere pluribus artibus dicato, ergo infrequente in bibliothecis botanicis, quare iterum hic descriptionem succinctam porrigere, vix verbis clari auctoris mutatis, mihi liceat. *Planta* erecta ut videtur ultra metralis, caule tereti, laevi, 5 mm crasso circa basim; in sicco cinerascanti-pallida virens apparet, ut plurae species hujus generis ex Anatoliae orientali ad Iran. *Folia* ex fragminibus tantum adstantibus, an ternatim composita? *Laciniae* ultimae ellipticae, mucronulatae, carnosiusculae, scabridulae, circiter $5 \times 1.5(-2)$ mm. *Bractee* caulinares ("folia" ab auctoribus dicuntur) integrae, ovatae, acutae, coriaceae, glabrae, basi adnata ad caulem, 2 cm longae. *Involucrum* conspicuum, hypsophyllis deltoideis, coriaceis, glabris, persistentibus et reflexis, vix 1 cm longis, 0.4 cm latis. *Involucellum* involucro simili at minus, hypsophyllis ovato-acutis, margine tenui, plerumque erectis. *Umbellae* 10-16-radiatae; radii exiles, teretes, inaequales ex eadem umbella, 5-8 cm longi, arcuato-ample-ascendentes. *Umbellulae* multiflorae (usque 15), radiis valde recte-ascendentibus, ad fructus 7 mm longis. *Petala* persistentia, basi unguiculata, limbo late-ovato, patente, apice tamen inflexo, flava. *Fructus* indicatur in clavi specierum (supra, p. 66) quare hic non repetam. Laconice tamen addam: species egregia ob vittas crebras in alis et in jugis.

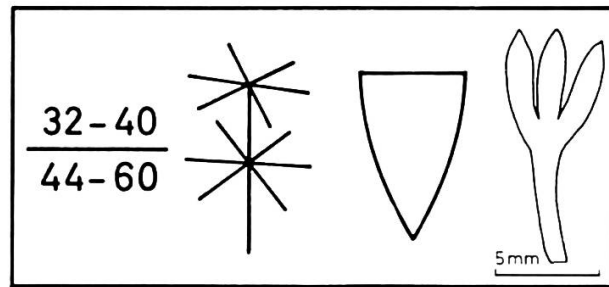
AFFINITATES

Adsunt cum speciebus olim generis *Lophosciadii*; affinior mihi videtur cum *F. macrocarpa* (Fenzl) Boiss.

DISTRIBUTIO

Nota tantum e typo!

- 16. *Ferulago granatensis*** Boiss., Elenchus 85. 1838 et Voy. Bot. Midi Esp. 2: 251. 1840, tab. 73 (1839); Nyman, Consp.: 284. 1879 et Consp. Suppl. 2: 136. 1889; Cales-tani, Webbia 1: 237. 1905 $\equiv$ *Ferula granatensis* (Boiss.) Steudel, Nomencl. Bot., ed. 2, 1: 627. 1841; Nyman, Syll.: 150. 1854; Willk. & Lange, Prodr. Fl. Hisp. 3: 38. 1874.



Typus: *Boissier*, sept. 1837, in arvis Sierra Nevada, alt. 4500'-5000', fl. ad fr. (G).

DESCRIPTIO

Imprimis nonnullae notulae de *F. brachyloba* Boiss. & Reuter (vide p. 85) utrique specie Hispaniae maxime conveniunt, quas hic non repetam. Descriptio tamen princeps et altera d. Boissierii, utraque ex libris rarissimis, verbis novellis hic praebetur ad lectorum commodum: *Planta* elata, erecta, ultra metralis usque 5-pedalis, caule sulcato praecipue infra (mementote: *Ferulago campestris* (Besser) Grec. caule levi praedita; *F. lutea* (Poiret) Grande, sulcis valde conspicuis per totum caulem observatur). *Folia* tripinnata, glabra, "circumscriptione ovata" (ex Boissier, 1840). *Foliola* primi et secundi ordinis saepe inter sese valde separata, igitur folia in toto sat exigua apparent, quidem quam folia *F. campestris* pauperiora! *Laciniae* ultimae oblongae, centralis recta, laterales saepius falcatae vel subfalcatae et breviores, mucronulatae, quam *F. campestris* spissiores et paullum latiores, (6-)10-12 mm longae. *Bractee* caulinae coriaceae, triangulares acutae, 2 cm longae. *Inflorescentia* Typi I (ut in *F. campestri*), involucro 6-octonario, coriaceo, hypsophyllis plerumque reflexis, ovato-triangularibus, acutis, 6-8 mm longis, 2-2.5 latis. *Umbellae* 10 et ultra radiatae, radiis plerumque rectis et assurgentibus, floriferis 3(-4) cm longis, fructiferis usque 7 cm, gracilibus et striatellis. *Umbellulae* plus minusve 10-florae, involucello senario plerumque assurgente, hypsophyllis ovato-acutis quam pedicellis valde ($1/2$ usque $1/4$) brevioribus; pedicelli sulcati usque 2 cm longi. *Sepala* minima, in typo perfecte triangulari-aequilatera, tenua; petala ovata, basi lata, apice inflexo, flava, mox decidua. *Stilopodium* crassum, sat conspicuum, depresso-conicum; stili saepe delapsi, ceterum aperti usque prostrati, vix diametrum stilopodii aequantes. *Fructus* in sicco atri, jugis et alis inconspicuis, circa 9×5 mm, sat compressi. De vittis crebris (commissurales in toto fructu usque 40; dorsuales usque 60!) dicitur in notula ad *F. brachylobam*, p. 85.

AFFINITATES

Jam in notula *F. campestris*, p. 89, utraque species inter sese affinis indicatur; affinitatem, addo, majusculam, numeri vittarum consimilis causa. A *Ferulagine brachyloba* contra cito separatur prima inspectione inflorescentiae typi. Ad *Ferulaginem scabram*, quam Pomel ex Africa boreali descripsit, at mea sententia etiam ut species iberica ideo Europae adest, haec species propinqua videtur forma inflorescentiae, foliorum et laciniarum (scabritie excepta quidem!) a qua tamen involucro (in *F. scabra* oblongo) et numero vittarum plane recedit.

DISTRIBUTIO

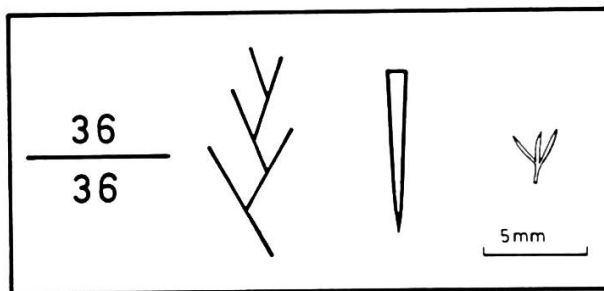
Hispania; Lusitaniae adhuc haud inventa.

SPECIMINA VISA

Hispaniae. *Bourgeau 1194*, Sierra Nevada, région montagneuse supérieure, au Cortijo de S. Geronimo, 23.8.1851, fr. (G, G-BURN); *Lippert 9949*, Prov. Jaen, Sierra de Cazorla, Felsschutt an der Forststrasse westlich der Cabanas, Kalk, ca. 2000 m alt., 21.8.1969, fr. (M); id., 9967, Prov. Granada, Sierra Nevada, offener Rasen an der Strasse, östlich des Trevenque, ca. 1800 m, 22.8.1969, fl. (M); *Huter, Porta & Rigo 428*, Regnum granatense, Sierra de Alfacar et Nevada, Cortijo de la Vibora, sol. calcareo, 1200-1600 m, 1-19.7.1879, fl. (G, G-BURN, M); *Porta & Rigo 206*, Regnum granatense, in pascuis saxosis supra Guejar de la Sierra Nevada, sol. calcareo, 500-700 m, 17.7.1895, fl. (G, M); *Willkomm 300*, Sierra Nevada, an. 1847, fl. ad fr. (G); *Winkler*, s.n., Bereguil de S. Geronimo, Sierra Nevada, 22.7.1876, fl. (M, WU).

17. *Ferulago humilis* Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 322. 1844 et Fl. Or. 2: 1000. 1872; De Stefani & al., Samos...: 43. 1892; Forsyth-Major & al., Bull. Herb. Boissier 2: 409. 1894; Boissieu, Bull. Soc. Bot. France 43: 285. 1896; Rech. fil., Fl. Aegaea: 412. 1943; Peşmen in Davis, Fl. Turkey 4: 456. 1972.

= *Ferulago pumila* Boiss., Diagn. Pl. Or. Nov. ser. 1, 10: 39. 1849 (*F. cassia* descripta, auctor comparavit eam cum "*pumila*", lapsus calami pro *F. humilis*).



Typus: *Boissier*, in collibus Lydiae, Budja, V.1842, fl. ad fr. (G-BOIS).

DESCRIPTIO

Planta saepe 15-20 cm in toto alta, glabra, raro usque 40 cm, collo radicali valde fibroso, caule exili vix 2-3 mm spisso, saepe circa basim divaricato. *Folia* parva tripinnata, ambitu lineato-oblonga, 15(-20) cm longa, vix 2-4 cm lata, pinnulis sparsim confertis per rhachim, petiolo gracili 1-2 cm tantum longo, laciniis setaceis 1.5-2 mm longis. *Panicula* debilis, aperta, ad nodos saepe inflata, umbellis alternis, bracteis lineatis et labilibus 6-8(-10)-radiatis. *Involucra* et *involucella* lineata, acuta, reflexa et undulata; *umbellulae* 8(-10)-florae, pedicellis in fructu haud incretis, ter vel quater quam eodem brevioribus. In sicco saepius atro-viridis, fructibus lutescentibus.

ANIMADVERSIONES

Species singularis et forma et geographia: incola plurimum insularum maris Aegaei atque Anatoliae. Statura pro genere humili, vel pumila, ut epitheta d. Boissierii indicunt, tamen plantae hujus speciei ex specimenibus visis multo variant, de circa 15 cm (*Lüdtke* 587) ultra 40 cm in typo.

Character Artedius ex involucris (cf. BERNARDI, 1975), pro tota familia fortasse irridendus, fide acerrimorum auctorum, pro *Ferulagine* genere tamen non luget inopia sed lucet, mea opinione, optimus ad hoc taxon intelligendum. Species quidem involucris et involucellis angustissimis, circum oram maris olim Nostrum nuncupatum, id est Mediterraneum apparent et saepius in insulis (vidite Fig. 15-16 cum notula adscripta) et contra involucra et involucella oblonga, ovata et deltoidea, in terris et montibus saepius observantur a hoc mare plus minusve remotis.

AFFINITATES

Maxima cum *F. macrosciadia*: specimina tantum florifera utriusque speciei quidem aegre separantur. Optimus Boissier (1872) radiis productioribus *F. macrosciadiam* a *F. humili* discriminandam suadet, sed Pichler 77 — tantum ut exemplum inter aliis — adest radiis praeditum admodum *Ferulaginis humilis*; solum ob fructus latiusculos, ineuntes, hoc specimen jure ad *F. macrosciadiam* pertinet! Fructibus maturis, denique, specimina facile uni vel alterae speciei adsignabantur, ut indicatur in clavi, p. 62.

Peşmen hanc affinem cum *F. sandrasica* — quidem adhuc parum nota — opinatur, at hanc affinitatem nego his causis: *a)* fructus forma: hic compressus (ut in *F. macrosciadia*) et in *F. sandrasica* (ut in *F. cassia*) carnosus et spissus; *b)* stili hic longiores quam diametri stilopodii, illic aequilongi; *c)* involucrum, hic lineare, illic deltoideum.

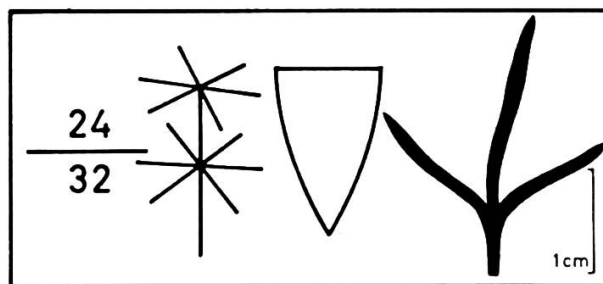
DISTRIBUTIO

Anatolia occidentalis et insulis Aegaeis.

SPECIMINA VISA

Anatoliae. *Balansa* 48, Smyrne, parmi les broussailles, 12.5.1854, fl.; 22.6.1854, fr. (G, G-BOIS); *Bocquet* 2299, Izmir? (G); *Boissier*, collines de Magnesia, VII.1842, fr. (G, G-BOIS); id., legi Lydiae circa Trianda, lapidosis, majo 1842, fr.! (G-BOIS); id., Smyrnes, colles, V.1842, fl. et fr. (G, G-BOIS, G-BURN); *Brummitt* 6488, Izmir, near village of Givzel Camli on north coast of Samsun Dagi penins., 12 miles S. of Kusadasi, 5.5.1969, fl. (K); *Fleischer*, s.n., in mont. Smyrnae, V.1827, fl. ad fr. (M). **Insulae Aegaeae** (ordine alphabetico). **Amorgos.** *Runemark & al.* 41 300, Tournalia, schists, 25.9.1969, folia (LD). **Chios.** *Denis* (frère), 6.7.1911, fr. (G); *Frères des Ec. Chr.* 28, collines boisées, primavera 1910, fl. et fr.! (G); *Lüdtke* 587, ca. 2 km N.E. Volisos am Rand der Strasse nach Potamia, Grauwacke, ca. 200 m, 16.6.1966, fr. (M); *Orphanides* 894 et 3192 (ut videtur ex eadem planta et die!), ad radices montis Provatas et supra Neo Moni, rara, 2000', 30.4.1856, fl.; 12.5.1856, fr. (G, G-BOIS, WU). **Kithnos.** *Runemark & al.* 38 237, S. of Driopis, 7.6.1968, fl. et fr. (LD); id., 40 568, Driopis, 13.4.1969, fl. (LD). **Kos.** *Forsyth-Major* 887, prope pagum Asphendiu in incultis, 21.4.1887, fl. ad fr. (G). **Rhodos.** *Rechinger* 7349, in saxosis calc. montis Attairo versus Embona, ca. 600 m, 16.5.1935, fl. et fr. (G, M). **Samos.** *Forsyth-Major* 887, Mons Ambelos in apricis regionis inferioris, 18.5.1887, fl. (G); *Wegner* 3802, in valle fluvii Rhevma Mytilinon, IV.1934, fl. inc. (G). **Sifnos.** *Runemark & al.* 40 450, E.S.E. of Apollonia, 200 m, 10.4.1969, fl. (LD).

18. *Ferulago isaurica* Peşmen,
Notes Roy. Bot. Gard. Edinburgh 31: 73. 1971 et in Davis, Fl. Turkey 4: 457. 1972.



Typus: Davis 14 277, Antalya, Kargi Çayı near Kozlu Dere, 1000 m, in *Pinus nigra* forest, 26.8.1947, fr. (E).

DESCRIPTIO

Planta erecta, robusta, scabridula, usque 6-pedibus alta, caule compresso, sulcatulo. *Folia* 5-pinnata, ambitu deltoideo, pedalia, laciniis oblongis scabris vel scabridulis, apiculatis, parum revolutis (10-)25 mm longis vix 1(-1.5) mm latis. *Paniculae* rectae, umbellis verticillatis longe pedunculatis, 5-8-radiatis, radiis 3-5 cm longis (ex eadem umbella variantur). *Involucra involucellaque* triangularia, acuminata; *umbellulae* 8-14-florae pedicellis fructiferis quam fructu aequilongis vel paulum brevioribus. In sicco fusca.

ANIMADVERSIO

Descriptio princeps cl. Peşmen latine adest et diligens. Discrepo tamen de vittarum numero, quem auctor, ad mericarpium, sic indicat: "vittis dorsalibus 12-16, commissuralibus 14-18", id est, ad totum fructum: 24-32-vittae dorsuales et 28-36 commissurales. Inveni, omnibus speciebus *Ferulaginis* inspectis, vittas dorsuales semper numerosiores quam vittas commissurales (solum in *F. humili* aequales: 36). In *F. isaurica* vittae commissurales circiter 24, dorsuales 32 a me numerabantur.

AFFINITATES

Forma inflorescentiae, numero vittarum propinquior haec species *F. sylvaticae* mihi videtur a qua tamen facile separatur laciniae foliorum forma et fructus, in *F. sylvatica* alis manifestis, 2 mm latis, hic fere obsoletis, nec non longitudine stilorum, qui vero productiores in *F. isaurica* et contra vix aequales diametro stilopodii in *F. sylvatica* observantur (vide clavim p. 67 et 68).

Affinis etiam (an gradu aliquantum minore?), cum *F. mughlae* videtur: haec species, fere eodem numero vittarum, differt praecipue in laciniarum forma et earumdem glabritate. Fructus crassiusculos haud multum dissimiles, nisi ob stilopodiorum formam, utraque species fert. Porro, *Ferulago syriaca*, quam a cl. Peşmen similim vel affiniorem cum hac indicabatur, differt nitidissime inflorescentiae forma. Videte, quaeso, sub affinitatibus *F. trachycarpae* infra indictis.

DISTRIBUTIO

Anatolia.

SPECIMEN VISUM

Davis 15 358, Antalya distr., Lycie, Calbali Dagħ near Festiken Youla, 14.7.1949 (tantum folium!) (E).

19. *Ferulago lutea* (Poiret)

Grande, Bull. Orto Bot. Regia Univ. Napoli 4: 366.

1914 $\equiv$ *Ligusticum luteum*

Poiret, Voy. Barb. 2: 136.

1789; J. F. Gmelin, Syst. Nat.

ed. 13, 3: 481. 1791; Poiret,

Encycl. Suppl. 3: 481. 1813;

Roemer & Schultes, Syst.

Nat. 6: 591. 1820 $\equiv$ *Ferula*

lutea (Poiret) Maire, Contr. n° 2031 in Bull. Soc. Hist. Nat. Afrique N. 27: 237. 1938; Quézel & Santa, Nouv. Fl. Algérie 2: 668. 1963.

- = *Ferula sulcata* Desf., Fl. Atlant. 1: 252, t. 1798; Poiret, Encycl. Suppl. 2: 650. 1811; DC., Prodr. 4: 171. 1830, pp. et excl. var. *campestris*; Willk. & Lange, Prodr. Fl. Hisp. 3: 38. 1874; Batt. & Trabut, Fl. Algérie 1: 367. 1889 et Fl. Algérie et Tunisie: 148. 1905; Durand & Baratte, Fl. Libycae Prodr.: 110. 1910 $\equiv$ *Ferulago sulcata* (Desf.) Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 321. 1844; Pomel, Fl. Atlant. 142. 1874; Nyman, Consp. 1: 284. 1879; Calestani, Webbia 1: 237. 1905 (non *Ferulago sulcata* Ledeb., Fl. Ross. 2: 299. 1844, quae maiore parte *F. campestris*, minore *F. daghestanica* et *F. aucheri* Boiss. q.v.).

- = *Ferula nodiflora* Brotero non L. nec aliis, Brotero, Fl. Lusit. 1: 432. 1804.

- = *Ferula capillifolia* Link in Schrader, Neues J. Bot. 1/3: 143. 1806 $\equiv$ *Ferulago capillifolia* (Link) Franco, Nova Fl. Portugal 1: 535 et 554. 1971.

- = *Ferula capillaris* Link ex Sprengel, Spec. Umbell. 85. 1818 $\equiv$ *Ferula capillaris* Hoffmans. & Link, Fl. Portugal 2: 417, t. 108b. 1820 $\equiv$ *Ferulago capillaris* (Link ex Sprengel) Coutinho, Fl. Portugal 1: 452. 1913.

- = *Ferulago crassica* Pomel, Fl. Atlant.: 143. 1874.

- = *Ferulago leptocarpa* Pomel, Fl. Atlant.: 143. 1874.

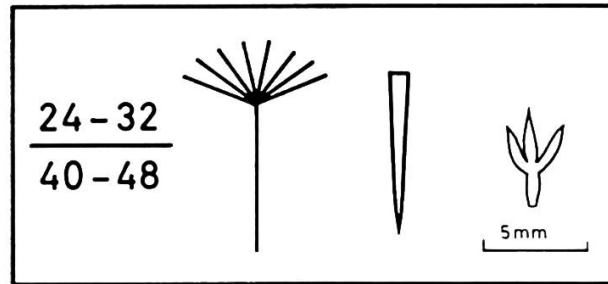
- = *Ferulago parvifolia* Pomel, Fl. Atlant.: 311. 1875.

- = *Ferula sulcata* Desf. var. *parvifolia* Jahandiez & Maire, Catal. Pl. Maroc 2: 545. 1932.

- = *Ferula sulcata* Desf. var. *microcarpa* Maire, Bull. Soc. Hist. Nat. Afrique N. 26: 206. 1935.

- = *Ferulago galbanifera* Silva & Sobrinho non Koch nec aliis, Agron. Lusit. 12/2: 300. 1950.

Typus: *Poiret*, *Ligusticum luteum* n. foliis multiplicato-pinnatis... ex Numidia, 2.XI, fr. (P).



ANIMADVERSIONES ET DESCRIPTIO

Specimina hujus speciei a botanicis gallicis lecta, saepius, nisi semper, male servata, partem mutilam plantarum tantum ferentia et ab insectis haud raro erosam, nulla notula de statura, colore, visu et societate, minime ad

intelligentiam *F. luteae* auxilium validum afferunt. Hoc tamen ut exemplum adest inter speciminum legiones sic paratorum!

Optandum magnopere est, reor, labore et diligentia specimina ex novo legenda esse ex Africa boreali, et "Optima" (= Organisation for the Phyto-Taxonomic Investigation of the Mediterranean Area, Genavae) optimum ageret maxima vi et virtute ad operam diuturnam praebendam pro scientia botanica hujus perlongae orae maris Mediterranei.

Quo dicto, ex novo hanc speciem magni momenti describam, oculo intento simul ad *Ferulaginis campestris* structuram, quare olim utraque specie confusa mansit et nunc errate similis consideratur (cf. CANNON, 1968).

Planta erecta, fide Poiret vix 0.6 m alta, apud Desfontaines usque metralis dicitur; ceteri auctores et lectores staturam ejus plane omiserunt. Ex speciminibus tamen minor quam *F. campestris* videtur. Caulis sulcatus. *Folia* basi vaginante (multum magis quam *F. campestris*) vagina lineis atris in sicco saepe distincta, petiolo dilatato, 5(-7) cm longo (contra in *F. campestri*, petiolus teres et (-10)-15 et ultra cm longus adest). *Folia* glabra (rarissime scabrida) tripinnata, folioris sat dense approximatis, laciniis oblongis, mucronulatis, 4-6 mm longis (raro magis et in speciminibus ibericis) ad apicem saepe parum incurvatis. *Inflorescentia* Typi III, id est umbella magna terminali fertili, dum umbellae laterales graciles plerumque steriles, raro et tardius fructiferae conspiciuntur!, vix pedalis (omnino ab inflorescentiis *F. campestris*, 2-3-pedalibus, umbellis verticillatis plurimis simul fructiferis abhorret!). *Umbellae* terminales numero radiorum sat variant (10-12, usque 20); in speciminibus Hispaniae Lusitaniaeque, radii numerosiores et productiores saepius adsunt. *Involucris* hypsophylla lineata, membranacea, 1-2 cm longa, omnino reflexa; *involucellum* simile sed dimidio minus, quandoque caducum. *Umbellulae* 15-20-florae, denique modo 10 vel minus fructus ferentes, pedicellis rite crassis, quam fructu dimidio brevioribus. *Fructus* longe describitur in clavi, p. 62). Fructus insignis jugis et alis valde crassioribus ceteris *Ferulaginis* speciebus; in speciminibus ibericis tamen fructus maturi prae me desunt.

AFFINITATES

Maxima cum *F. biumbellata* Pomel, autem boreali-africana.

Nonnulla specimina hispanica ex herbariis Boissier et Reuter (G), *F. granatensis* vel *F. galbanifera* ab eisdem nuncupata, me diu haesitantem redegerunt, ob characteres ad tales species non idoneos et ob auctorum virtutem. Denique omnibus characteribus iterum atque iterum perscrutatis, ex caule, ex involucris, ex inflorescentiae forma, ex numero vittarum, meme ipsum confirmavi illa specimina in *F. luteam* immittere.

DISTRIBUTIO

Hispania, Portugalia, Marochium, Algeria, Tunisia.

SPECIMINA VISA

Hispania. *Gandoger*, Leon, V. del Vierzo, 18.6.1905, fl. (G); *Leresche*, Sierra de Gredos, broussailles en montant de Naval Peral à la lagune, 12.8.1878, fr. incip. (G-BURN); *Levier*, Sierra de Gredos, supra pagum Naval Peral, 12.8.1878, fl. ad fr. (G); *Reuter*, pinar de Hoyoquecero, en los montes de Avila, IX.1841, fr. (G); id., Sierra Nevada supra Dehesa de Dylar, VII.1849, fl. (G). **Portugalia.** *Silva & al.* 2304, Minho, Serra do Geres, in fissuris rupium rivi Homem infra Bouca do Mó, 500 m, 2.7.1948, fl. (G); *Sousa & Santo 6*, Serra do Geres, Albergaria, margem do rio Homem, 17.8.1948, fr. (H). **Marochium.** *Maire*, iter mar. 12°, in montibus Zaianicis, Harcha in *Querceto suberi*, solo siliceo, 900 m, 10.7.1926, fl. et fr. (MPU); id., in Atlante medio prope Aït-Lias, solo schistaceo, 1000 m, 15.7.1926 (MPU); id., in lapidosis calcareis Montis Simiarum supre Saldas, 400 m, 19.6.1937, fr. (MPU); id., in lapidosis schistaceis inter Aït-Lias et Ain Leuh, 1200 m, 1.7.1938, fl. ad fr. (MPU); *Wilczek & al.* 1028, près Souaber, route Rabat-Meknès, champs, 15.4.1926, fl. (G). **Algeria.** *Allard 403 bis*, Plateau de Hamma près d'Alger, V.1889, fr. (G); *Battandier*, Edough près Bone, fr. (MPU); id., Teniet-el-Had, fl. et fr. (MPU); *Battandier & Trabut 149*, Alger, V.1880, fl. ad fr. (G); *Bourgeau*, Ain-el-Turc, près Oran, 16.4.1856, fl. (G, P); *Bové*, collines près de Kouba, VI.1837, fr. (G); *Chabert*, côteau St. Eugène près Alger, 4.6.1887, fr. (G); *Charoy 299*, dans les broussailles au bord des champs près l'Oued Rhabat, environs d'Aumale, 4.5.1856, fl. (P); *Chevallier*, Mustapha supérieure près d'Alger, friche au-dessus de la villa Schérif, 14.4.1893, fl. (P); *Cosson*, montagne de Tizi-Ouzou près d'Alger, 12.6.1854, fr. (P); *Desfontaines*, Algeria in collibus incultis, fl. (G); *Durando*, environs d'Alger, coteaux argillo-calcaires du Hamma, V.1854, fl.; IX.1854, fr. (G); id., collines de Hamma environs d'Alger, printemps 1855, fr. incip. (G); *Durieu*, Alger, janvier 1840, fruits de l'année précédente (P); id., Constantine, 18.7.1840, fr. (P); id., La Calle, 7.6.1841, fr. (P); *Faure*, Le Nador de Terny, broussailles vers 1400 m, 29.6.1930, fr. (MPU); id., Oran à Sta Cruz, broussailles, 10.6.1933, fr. incip. (MPU); *Faurel*, pentes rocailleuses, flanc sud du Babor, vers 1300 m, massif des Babors, 19.7.1937, fr. (MPU); *Jamin 29*, bords de la route à Hussein Dey près Alger, IV.1850, fl. (G); *Joly*, Constantine, Kef Sidi Meid, forte odeur résineuse agréable, 7.7.1911, fl. et fr. (MPU); *Maire*, Babor, 5.7.1912, fr. incip. (MPU); id., Oran, Djebel Santo, IV.1919, fl. ad fr. (MPU); *Monard*, commun sur les montagnes aux environs d'Alger, 29.4.1831, fl. (G); id., n° 439, Alger, fl. et fr. (G); *Munby*, Oran, VI.1849, fl. (G); *Mutel*, Bone, (P); *Pomel*, collines boisées Bon Ksaïba, près Jemmapes, 23.5.1874, fr. (P), typus *F. parvifolia* Pomel; id., Beni Zenthis et Médiouna au Dahra, fr. (MPU), typus *F. crassica* Pomel; *Reboud*, col entre Cordjali bey et la maison forestière Side Messaoud près La Calle, 1864, fl. (P); id., Khaneg près Constantine, 1882, fl. (P); *Reverchon 44*, Monts Babors, lieux arides sur le calcaire, 1800 m, VII.1897, fr. incip. (G); *Roussel*, in collibus Algeria, V.1836, fl. ad fr. (P); *Saint-Lager*, route du col de Tirourda, Kabylie, 9.7.1909, fl. ad fr. (G); ?, n° 2884, entre la ferme Lacombe

et le lac Boukmirak, Bone, 16.6.1880, fl. ad fr. (H); ?, "Elaeoselinum meoides", Constantine, fr. incip. (P). **Tunisia.** *Cuénod*, Boukournine, 25.4.-1909, fl. et fr. (G); *Cosson*, Zaouiet-el-Mgaïz, 18.5.1883, fl. (P); *Kralík*, in montosis Djebel Zaghouan, 13.7.1852, fr. parvis! (G); *Letourneux*, inter segeta in planitie infra Kef La Rezaï, 23.5.1887, fl. (G); *Murbeck*, Ain Bon Saadia, 22.5.1903, fl. (H); *Vierhapper*, Djebel Bon Kournia bei Tunis, 12.4.1913, fl. (WU).

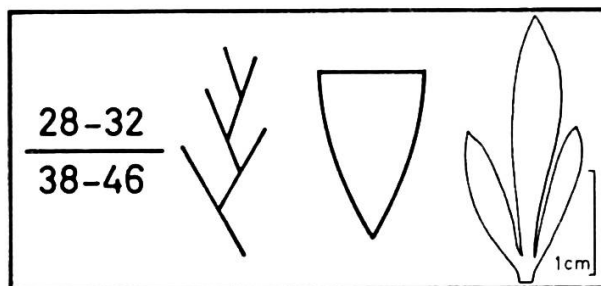
20. *Ferulago macrocarpa* (Fenzl)

Boiss., Fl. Or. 2: 1003. 1872;
Mouterde, Nouv. Fl. Liban &
Syrie, 2: 645. 1966; Peşmen
in Davis, Fl. Turkey 4: 466.
1972 $\equiv$ *Uloptera macrocarpa*
Fenzl, Flora 26: 460. 1843
(28.VII); Endl., Gen. Pl.
Suppl. 3: 83. 1843 (post 4.X);

Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 325. 1844 (in notula ad *Ferulaginem lophopteram* Boiss.).

= *Ferulago lophoptera* Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 325. 1844 et Fl. Or. 2: 1003. 1872; Bentham & Hooker, Gen. Pl. 1: 917. 1867 (ima pagina, ad *Ferulam*) $\equiv$ *Lophosciadium lophopterum* (Boiss.) Voronin in Grossh., Fl. Kavk. ed. 1, 3: 176. 1932.

= *Ferula* sp. n. "*F. rigidulae* ut videtur affinis..." Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 317, n° 134. 1844.



Typus (ex Fenzl): Mesopotamia et Kurdistania, inter Orfa et Suerek, stirpem floriferam, trans Tigrim prope Bauerd fructiferam, legit *Kotschy* (W, non vidi): specimen fructiferum ut lectotypum salutandum. In hb. Boissier, ex herb. Vindobonae specimen vetustum fructiferum, notulis amissis, valde probabiliter est typicum, ut dixit cl. PEŞMEN (1972); BOISSIER nam in Fl. Or. (1872) specimina Kotschyana implicite tenere asseverat, et tantum hoc "*Uloptera macrocarpa*" nuncupatur in schedula.

DESCRIPTIO

Planta gracilis, glabra, glauca 60-120 cm alta, caule junceo 3 mm spisso vix compresso, leve, collo radicali fibroso. *Folia* tripinnata, ambitu triangularia, saepius 30 cm longa 20 cm lata, petiolo 2-4 cm incluso; *laciniae* crassiusculae, ellipticae, mucronulatae, parum revolutae, 10(-20) mm longae 2-3 mm latae. *Paniculae* valde divaricatae, bracteis anguste-triangularibus acuminatis, umbellis alternis 6-10-radiatis; *involucra involucellaque* ovata, sat spissa. *Umbellulae* 8-12-florae, pedicellis quam fructu parum brevioribus. In sicco pallide viridis, caulis tamen quandoque purpurascens observatur.

ANIMADVERSIONES

Descriptiones *F. macrocarpae* et *F. lophopterae* leguntur in BOISSIER (1872); anglice sed usu commodo scripsit PEŞMEN (1972) et bene unam speciem ex *F. macrocarpa* et *F. lophoptera* confecit, quia, sententia Peşmeni secuta, opinio optimi Boissieri sic redacta "*F. lophoptera*... valde affinis *F. macrocarpae*, an sat distincta fructus majoris obovati 7-10-lineas longi alis margine valde undulatis nec tantum crispatis, jugis dorsalibus latius alatis?", quidem haud idonea mihi videtur ad speciem servandam. Quippe ex

speciminibus recentioribus, a cl. Pabot, Syriae, lectis, fructus jugis dorsualibus "latius" alatis observantur, ceterum haec specimina minime distincta ab illis manu ipsius Boissierii "*F. macrocarpa*" inscriptis: character variabilis non facit speciem.

AFFINITATES

Maxima ratione opt. BOISSIER, jam anno 1844 (pp. 325-326.) affinitatem inter ejus *F. lophoteram* cum speciebus tunc generis *Lophosiadii* DC. exposuit et scripsit etiam de *Uloptera macrocarpa*, statuens speciem similim vel varietatem *F. lophopterae* esse. Serius hic celebrer auctor ut videtur cunctatus est quin *Lophosciadium* idem cum *Ferulagine* esset, et specie nova descripta (*Lophosciadium thirkeanum* Boiss., in Diagn. Pl. Or. Nov. 2/2: 94. 1856), judicium de vanitate *Lophosiadii* et *Ulopterae* postposuit ad annum 1872. *Ferulago macrocarpa* (= *lophoptera*) tamen adest praestantissima ad hoc perficiendum, forma fructus media inter *F. confusam* (olim *Lophosciadium meifolium* DC.) et *F. sylvaticam*.

Quo dicto, affinitas majuscula hujus speciei patet anceps, mea sententia, primum erga *F. fieldianam*, atque cum *F. armena*, simillima inflorescentia aperta laxaque, at numero vittarum minore.

DISTRIBUTIO

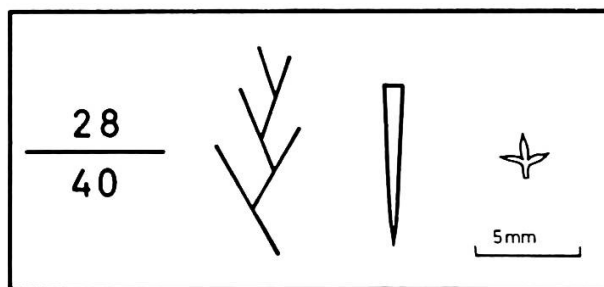
Iran, Irak, Syria, Anatolia austro-orientali (fide Peşmen, specimina non vidi).

SPECIMINA VISA

Iran. Aucher-Eloy 3662, an. 1837, fr. (G); id., 3751, 1837, fr. (typus *F. lophoptera*) (G, G-BOIS); Haussknecht, in declivis graminosis montium calc. secus flumen Chyrsan (Khersan), Susianae, VIII.1868, fr. (G-BOIS); Jacob 6792, S. Lorestan-Schesom, dry limestone hills with scattered shrubs and herbs. Not aromatic, plant to 1.3 m tall with only primary branch, flowers dark yellow all over, fruits young, greenish, 5.6.1963, fr. incip. (K). **Irak.** Bornmüller 1264, Kurdistania (Assyria orient.) in montis Kuk-Sefin reg. infer. supra pagum Scaklava (dictionis Erbil), 1000-1100 m alt., 27.5.1893, fl. ad fr. (G, WU); id., 1265, ibidem, 1200 m, 4.6.1893, fr. (G, WU); Haussknecht 476, inter Kerkak et Derbent i Basian, in arenosis et calcar. Erbil (= Arbil) Altun Köprü, VI.1867, fr. (G-BOIS); Rechinger 9613, distr. Dyala ad confines Persiae in collibus conglomeraticis ab oppido Mandali ca. 10 km orientem versus, ca. 33°40'N., 45°40'E., ad ripam sinistram fluvii, 2.6.1937, fl. ad fr. (G, K). **Syria.** Haussknecht 478, in gram. calidis deserti Ras El Ain; Dhlub Abdul Asis, Sindhhar, Tell Afar, V.1867, fl. (G-BOIS); Pabot 356, près du lac Khatouniyé sur terrain gypseux, 14.5.1955, fl. (G); id., 357, Jabal Abd el Aziz, sur éboulis, 17.5.1955, fl. incip. (G); id., 778, col de Qaratchok dagh, sur terrains volcaniques arénacés, entre Demir Kapou et Deirik, 25.6.1956, fr.

(G); id., 779, entre Derbassiyé et Ras el Ain, 26.6.1956, fr. (G); id., 780, base du Jabal Abd el Aziz, ouadi pierreux, 22.6.1956, fr. (G); id., 781, entre Ras el Ain et Tell Abiad, limite d'une zone à *Artemisia herba-alba*, 26.5.1956, fr. (G).

21. *Ferulago macrosciadia* Boiss.
 & Balansa in Boiss., Diagn.
 Pl. Or. Nov. ser. 2, 6: 82. 1859
 et Fl. Or. 2: 1000. 1872; Peş-
 men in Davis, Fl. Turkey 4:
 457. 1972.



Typus: *Balansa* 223, Ouchak (= Uşak) Phrygie, vers 910 m, vignes, VII.1857, fr. (G-BOIS).

DESCRIPTIO

Planta 40-50 cm alta, glabra, collo radicali anguste-fibroso, caule exili 3-4 mm spisso leve, procul e basi (circa 30 cm) divaricato. *Folia* tripinnata, ambitu elliptico-oblonga, 20-25 cm longa 2-3 cm lata, pinnulis per rhachim inspersis, petiolo gracili 2-4 cm longo, laciniis setaceis 3-4 mm longis. *Panicula* corymbosa umbellis alternis 6-8-radiatis, assurgentibus, bracteis acuminatis basi dilatata, sat persistentibus. *Involucra* et *involucella* lineata, acuta; umbellulae 10-15-florae pedicellis dimidio brevioribus quam fructu. In sicco virido-fusca, fructibus quandoque castaneis.

ANIMADVERSIONES

Vide quod scribebam in *F. humili* (p. 109) de magna affinitate inter utramque speciem.

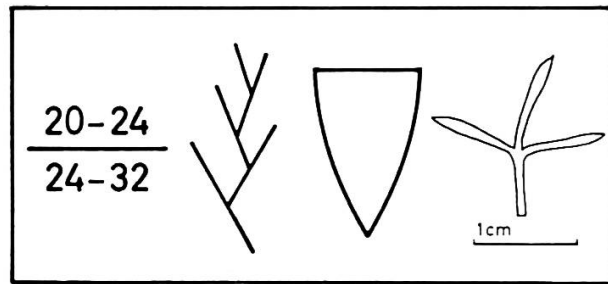
DISTRIBUTIO

Anatoliae parte occidentali; vide PESMEN (1972: 459, map 63).

SPECIMINA VISA

Balansa 1238, collines incultes situées au N. d'Ouchak, Phrygie, vers 920 m alt., VII.1857, fr. (G); *Boissier*, s.n., jardin de Valeyres e seminibus Balansaniis, (Helvetiae, culta) VI.1863, fl. ad fr.; id., ibidem, VII.1865, fl. (G-BOIS); *Bornmüller* 4570, in regione inferiore montis Keschisch-dagh (Olympi), supra Brussa, 900-1100 m, 18.5.1899, fl. (G, WU); *Pichler* 77, Bithynie in collibus apricis prope Brussam, VI.1874, fl. ad fr. (G, WU); *Sinten* 101, Kareikos, Mt. Ida (Kaz-dagh) 5.7.1883, fl. (G, WU).

22. *Ferulago mughlae* Peşmen, Notes Roy. Bot. Gard. Edinburgh 31: 73. 1971 et in Davis, Fl. Turkey 4: 466, fig. 12, n° 7 (haud bona!), map 66, p. 467. 1972.



Typus: *Huber-Morath 14 676*, Muğla-Fethye, macchie, 120 km sudöstlich Muğla, 20 m alt., 20.6.1954, fr. (hb. Huber-Morath).

DESCRIPTIO

Planta erecta, glabra 2-4-pedalis, caule terete 4-5 mm crasso, striatulo. *Folia* 4-5-pinnata ambitu triangularia in toto usque 60 cm longa, 40 cm lata, petiolo 15 cm longo incluso, *laciniis* linearibus 10-15 mm longis 1 mm ut summum latis, mucronulatis, planiusculis sive herbaceis. *Paniculae* apertae, umbellis alternis longe pedunculatis 8-16-radiatis, radiis plus minusve 5 cm longis. *Involucra involucellaque* triangularia; *umbellulae* 8-15-florae pedicellis fructus longitudinem aequantibus. In sicco virido-fusca.

ANIMADVERSIONES

Conspicitur distincta a ceteris speciebus regionibus contiguis praecipue ob folia glauca, inflorescentias graciles, caulem foliis destitutum et forma fructus oblonga, stilopodio conspicuo et stilibus productis. Quoad inflorescentiae formam refertur, specimina haud clare offerunt paniculas graciles umbellarum ut videtur verticillatarum (ideo infl. Typi I); tamen specimina opulentiora et ex vivo delineationes valde desiderantur.

AFFINITATES

Laconice dicuntur sic: magis cum *F. syriaca*, cujus affinitates longe exponuntur infra, quae etiam ad hanc parvulae geographiae speciem conveniunt. Affinis igitur a me consideratur cum *F. nodosa*.

Nonnulla affinitas cum *F. armena* (= *F. pauciradiata*) a cl. PEŞMEN (1972) majoris momenti indicata, quidem adest sed a me ponderatur minor quam ea vigens cum *F. syriaca*.

DISTRIBUTIO

Anatoliae austro-occidentalis.

SPECIMINA VISA

Davis 41 282, Muğla, d. Marmaris, Mt. Yarimadasi, 300 m, rocky serpentine northern slopes, perennial, glaucous, 14.6.1965, fl. (E); *Dudley 35 451*, Muğla, Datça Marmaris, 20 km from Emecik, 100 m, serpentine cliffs, 7.6.1962, fl. ad fr. (E); *Huber-Morath 14 675*, Muğla, Kalkfelsen, 3 km of Muğla, 800 m alt., 19.6.1954, fl. (hb. Huber-Morath); id., *16 861*, Muğla-kale, Pinetum, Serpentschutt, 30 km N.O. Muğla, 880 m alt., 28.5.1962, fl. (hb. Huber-Morath); *Pichler 1002 (= 307)*, Beidagh in rupestribus subalpinis, 9.7.1883, fl. (G).

23. *Ferulago nodosa* (L.) Boiss.,

Diagn. Pl. Or. Nov. ser. 1/10: 37. 1849 et Fl. Or. 2: 1001. 1872; Nyman, Consp. 1: 285. 1878; Baldacci, Nuovo Giorn. Bot. Ital. 1: 96. 1894, Malpighia 8: 178. 1894 et Malpighia 9: 261. 1895; Drude in Engler & Prantl, Natürl. Pflanzenfam. 3/8: 232. 1897;

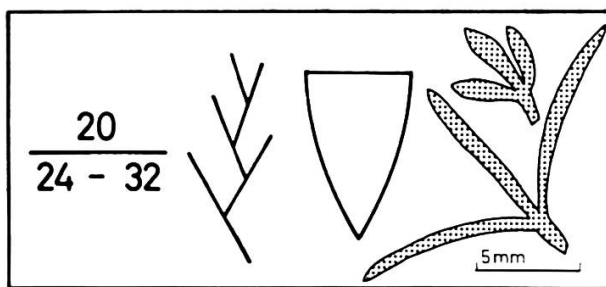
Halácsy, Consp. Fl. Graec. 1: 644. 1901; Calestani, Webbia 1: 237. 1905; Maire & Petitmangin, Etude Pl. Vasc. Réc. Grèce: 22. 1907; Gandoger, Fl. Cret.: 43. 1916; Vierhapper, Verh. Zool.-Bot. Ges. Wien: 227. 1919; Hayek, Prodr. Fl. Penins. Balcan. 1: 1030. 1927; Stojanov & Jordanov, Jahrb. Univ. Sophia Phys.-Math. Fakult. 34/3: 55. 1938; Rech. fil., Fl. Aegaea: 412. 1943; Zángheri, Fl. Ital. 1: 466. 1976 $\equiv$ *Peucedanum nodosum* L., Sp. Pl.: 246. 1753; Willdenow, Sp. Pl. 1/2: 1407. 1798; Poirlet in Lam., Encycl. Méth. Bot. 5: 229. 1804; Roemer & Schultes, Syst. Veg. 6: 570. 1820 $\equiv$ *Selinum nodosum* (L.) Crantz, Cl. Umbell. Emend.: 61. 1767 $\equiv$ *Ferula nodosa* (L.) Benth. & Hooker ex Jacks. in Index Kew. 1895; Fiori & al., Fl. Ital. 2: 176. 1900; Trotter in Atti Real. Inst. Incoragg. Sci. Nat. Napoli, ser. 6/44: 191. 1913;¹ Sommer & Caruano, Fl. Melit. Nova; 160. 1915; Fiori & al., Nuova Fl. Ital. 2: 64. 1925; Borg, Descr. Fl. Maltese Isl.: 421. 1927.

= *Ferula rigida* Ten., Fl. Neap. Prodr. Append. 4: 15. 1823 et Fl. Nap. 3, Prodr. Suppl. 4: 7. 1829.

= *Ferula geniculata* Guss., Fl. Sic. Prodr. 1: 366. 1827; DC., Prodr. 4: 171. 1830; Bory & Chaubard, Expéd. Sci. Morée, Bot.: 90. 1832. T. 9. 1835; Bory & Chaubard, Nouv. Fl. Pélop.: 20. T. 10. 1838; Bertoloni, Fl. Ital. 3: 378. 1838; Archangeli, Comp. Fl. Ital.: 291. 1882; Parlato & Caruel, Fl. Ital. 8: 303. 1888 $\equiv$ *Ferulago geniculata* (Guss.) Guss., Fl. Sic. Syn. 1: 355. 1843; Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 324. 1844; Fraas, Syn. Pl. Fl. Class.: 142. 1845; Delicata, Fl. Melit.: 16. 1853; Nyman, Consp. 1: 284. 1878; Tornabene, Fl. Sic.: 269. 1887; Calestani, Webbia 1: 238. 1905.

= *Peucedanum creticum* DC., Prodr. 4: 182. 1830 (epithetum fundatum ex: "*Ligusticum creticum folio foeniculi caule nodoso* Tourn.").

= *Hammatocaulis cretica* Tausch, Flora 17/1: 347. 1834; Benth. & Hooker, Gen. Pl. 1: 918. 1867; Drude in Engler & Prantl, Natürl. Pflanzenfam. 3/8: 232. 1897.



Typus: Tournefort "*Ligusticum creticum folio foeniculi, caule nodoso*" (P, non vidi).

¹Opusculum d. A. Trotter, minime spernendum mea sententia, at parum notum sic nuncupatur: "Gli elementi balcanico-orientali della Flora italiana e l'ipotesi dell'Adriatide, studio fitogeografico".

DESCRIPTIO

Planta robusta (2-)4-6-pedalis, caule leve terete, sat lucido, saepe e basi divaricato, geniculis conspicuis pallidioribus praedito, collo radicali longe fibroso. *Folia* 4-pinnata, 30(-40) cm longa, petiolo 10(-15) cm incluso, ambitu triangularia, glabra scabridula vel scabra, pinnis et pinnulis sat separatis, laciniis oblongo-ellipticis, 10-15 mm longis, planiusculis vel involutis, glaucis. *Paniculae* conspicuae, amplae et divaricatae, geniculatae, *umbellis* alternis 10(-15)-radiatis, *bracteis* oblongis saepe deciduis. *Involucra involucellaque* triangularia, sat conspicua; *umbellulae* 8-14-florae pedicellis quam fructu aequilongis vel duplo longioribus. In sicco foliis pallide fuscis, caule rhachideque nitidis et lutescentibus, fructibus castaneis.

ANIMADVERSIONES

1. Species haec caule inflato vel geniculato ad nodos et etiam in inflorescentia, nodis intus amylo-spongiosis et candidis, cito separatur a reliquis ejusdem generis. Hic character peculiaris ad totam hanc speciem patet de exemplaribus totiens inspectis. Notandum contra in nonnullis speciminibus (non in omnibus, repetam!) *F. cassiae* Boiss., *F. asparagifoliae* Boiss., *F. aucheri* Boiss. et *F. humilis* Boiss. nodi plus minusve globosi per caulim conspiciuntur.

2. Omnes auctores ab antiquo convenerunt *Peucedanum nodosum* L. idem cum *Ferula geniculata* Guss. esse, Boissiero excepto (cf. BOISSIER, 1844 et 1872). Species haec quidem ut conspicitur ex crebris speciminibus lectis, constantia nodis caulinibus crassis et lucidis primo visu valde uniformis apparet: at oculo intento ditissima (in liminibus certe pauperculae *Ferulaginis*!) variatione animadvertitur et ob characteres in *Ferulagine* plerumque sat fixos, v.g.:

- a) laciniarum longitudo;
- b) glabritas aut scabrities foliorum. In *F. nodosa* quippe folia glabra, scabriuscula et usque scaberrima (ex: *Barbey*, s.n. ex Corcyra) adsunt;
- c) fructus dimensiones: ut legitur in specierum clavi, p. 65, fructus majores fiunt in area occidentaliore speciei, id est Siciliae; specimina tamen in parte orientale raro fructibus valde maturis et aridis lecta sunt, saepius fructibus ineuntibus.

Quo dicto, frangere *F. nodosam* in speciebus, una graeca, altera sicula, suadente Boissiero, aut varietates ex scabritie vel glabritate foliorum nuncupare... hoc consilium maxime procul a veritate in natura et simul a commodo in rebus herbariis a me putatur.

3. Addendus denique est ad illum nodorum qui tam peculiarim hanc speciem efficiunt et tam facilim dignoscendi, alter character in hac sola

species a me observatus, magni pretii igitur ponderandus: in exemplaribus et sicutis et graecis *F. nodosae*, juga fructus tam adnata ad semen adsunt, ut vittae sub eis omnino desunt! Omnes *Ferulagine*s autem a me diligenter inspectae seriem continuam vittarum dorsalium per totam faciem mericarpii ostentant!

4. Quoad epithetum Gussonii pro *Ferulagine geniculata*, magnopere admiratus sum auctorum globum, qui hanc speciem "geniculatam" vocarunt, minime *Ferulam rigidam* Tenore, priorem et pleno jure editam perperam neglexisse, et principem inter eos ipsum Gussonium.

5. De origini et fine nodorum hujus speciei in sententia dd. MAIRE & PETIT-MANGIN (1907) legitur, quae minime idonea mihi videtur, at melius nimis multa simplicitate imbuta.

AFFINITATES

Ad orientem cum *F. mughlae*, *F. syriaca* et *F. armena*; ad occidentem, cum *F. brachyloba*, Hispaniae.

DISTRIBUTIO

Albania (an Dalmatia?); Graecia et insulae indictae; Italia: Sicilia; Yougoslavia, Macedonia? (ex specimine sterile).

SPECIMINA VISA

Albania. *Baldacci*, in herbidis montium supra Radina in territorio Valonensi, 1.7.1889, fr. incip. (G, G-BURN, M); id., 17, in herbidis, sub monte H. Vasilios versus Capo Linguetta, opp. Valona, 20.6.1892, fl. ad fr. (G, M, WU); id., 175, iter alban. 5°, in saxosis prope Zogai, distr. Scutari, 1.8.1897, fl. (G, G-BURN, WU). **Graecia.** *Adamović* 43 (?), in submontanis ad Vodenam (= Edessa!) an. 1905, fl. (G-BURN); id., 419, Macedonia, 28.5.1905 (WU); *Aucher-Eloy* 3748, in Olympi Thessali radicibus, VII.1837, fr. (G); *Baldacci* 355, in Kurenta, distr. Janina, Epiro, in pratis, 25.6.1896, fl. ad fr. (G, WU); *Boissier*, Hymettus, V.1842, fl. (G); *Bornmüller* 746, Phokis, ad basin montis Parnassi in rupibus prope Delphi, 600 m alt., VI.1926, fr. (G); *Chaubard*, Morée, fr. (G); *Grimus* 471, Achaia, Jatopyrgos, VI.1893, fr. (WU); id., 472, in lapidosis prope Kakis Kula Aetoliae, 1.6.1893, fr. (WU); *Halácsy*, Doris in dumosis montanis supra urbem Amphisam, 10.7.1888, fr. (WU); id., Achaia in rupestribus calcareis prope pagum Lopesi, 400 m alt., 11.6.1893, fl. ad fr. (G, WU); id., Epiro in rupestribus calcareis ad radices montis Peristeri prope pagum Kalarytae, 1000 m alt., 12.7.1893, fr. (WU); *Heldreich*, Trikala, 3500', VII.1848, fr. (H: hb. Steven); id., 643, in rupestribus montium Atticae, Hymetto, Parnethi, VI.1857 (G, G-BURN, M);

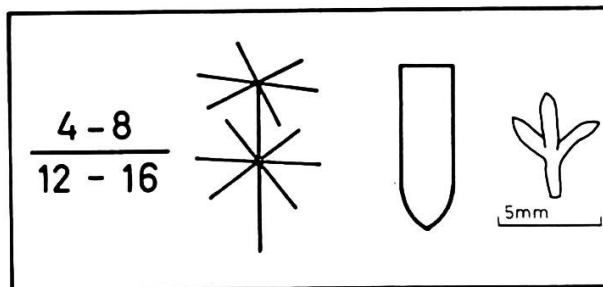
id., *Agrapha*, Dolopia veterum, in regione inferiore montis Pindi circa monasterium Koróna, in nemorosis quercinis, 3500-3700' alt., substrato calcareo supra Portitza, VI.1885, fr. (G, G-BURN); *Orphanides*, in Killenae Achaiae, regione media, prope Trikala, 3500' alt., 17.6.1852, fr. (G, G-BURN, WU); *Peterman*, Phokis, Delphi Ruinengelälde, V.1967, fl. (hb. Greuter); *Pfadenhauer*, ex eodem loco quam praecedenti et tempore (M); *Pichler*, Attica ad viam prope Mandra, V.1876, fr. ineunt. (G, G-BURN, WU); *Podlech*, Phokis, Delphi, V.1967, fl. (M); *Rechinger 21 275*, Epirus, montes Timphi in saxosis calcareis supra pagum Papingo, 900-1500 m, 14.7.1958, fr. (G, M); *Runemark & Snogerup 20 521*, Laconia, 2 km E.N.E. of Areopolis, cliffs, ca. 650 m, 21.5.1964, fl. (LD); *Saint-Lager*, Zachlorou, Achaïe, 23.7.1901, fr. (G); *Sartori 249*, Attica, Parnes, fl. (G); *Snogerup 20 407*, Xilokerisa, hard calcareous rock, cliff, 350 m alt., 4.6.1963, fr. (LD); *Spruner*, Hymettus, 1842, fl. et fr. (G, G-BOIS, G-BURN). **Insulae graecae. Corcyra.** *Baenitz 58*, grasige Abhänge unterhalb des Passes vor St. Theodoros, 250 m alt., 24.5.1896, fl. (HAL, WU); *Barbey*, "Corfou" (G, G-BURN); *Bicknell*, près de Kastillanos, 24.5.1891, fl. ad fr. (G-BURN); *McCubbin 16*, near Rovinia, summer 1967, fl. ad fr. (E). **Creta.** *Baldacci 67*, in vineis supra Lakkus kitr. Khaniotika, 6.7.1893, fr. (G, G-BURN, WU); id., *317*, in pratis supra Kastelli Padhiadha, 2.7.1899, fr. (WU); *Gandoger 8378*, Prov. Canée, Koraki, 22.3.1915, fl. incip. (G); id., *10 578*, Prov. Candia, Boni, 4.5.1915, sterile (G); id., *11 582*, Candia, Daphoras, 19.5.1915, fl. (G); id., *12 716*, Prov. Rathymo, Sybrita, 4.6.1915, fr. incip. (G); *Greuter 4508*, Ep. Sitia, bei Néa Pressos zw. Epano Episkopi u. Chandras, 450 m, Phrygana an Feldrändern längs der Strasse, häufig, 20.5.1962, fl. ad fr. (hb. Greuter); *Heldreich 1504*, in collibus Chataea et Petiada, 18.5.1846, fl. (G, G-BOIS); id., in collibus prope Petiada, VI.1846, fl. ad fr. (G); *Rechinger 12 713*, Distr. Sitia in saxosis calcareis inter Maronia et Chandra, ca. 400 m alt., 8.5.1942, fl. (G); id., *13.632*, Distr. Solinos in saxosis calcareis supra Kandanos, ca. 600 m, 5.6.1942, fr. (M); *Reverchon*, Kissamos, lieux arides, 18.6.1844, fr. (G); *Runemark & Snogerup 17 435*, Sitia, S.W. of Turloti, 200-250 m alt., 13.5.1962, fl. (LD). **Cyclades. Cea.** *Heldreich*, in insula Cea, solo schistoso, vulgatissima in insula, V.1898, fr. ineunt. (G, WU). **Euboea.** *Rechinger 17 027*, Euboea septentr., Montes Kandili, in declivibus borealibus in ascensu ab Achmet Aga (Prokopion), versus Hag. Sotir, substr. serpentini, 300-800 m alt., 30.5.1955, fr. incip. (G, M). **Sporades. Gyaros.** *Leonis*, 5.6.1896, fl. (G, WU). **Italia. Sicilia.** *Bianca 1046*, in collibus calcareis sterilibus Avola, VI., fr. (G-BURN); *Citarda*, e Sicilia meridionali, culta in H. B. Panormitano, 13.8.1874, fr. (WU); *Gussone*, an. 1831, fl. (G); *Huet du Pavillon*, in collibus aridis supra Avola, VI.1855, fl. (G); *Lojacono*, in dumetis collinis Siracusae al Belvedere, V.1901, fr. (G-BURN); *Rigo 4331 (= 145)*, in collibus prope Siracusa, Avola, Noto, solo calcareo, IV.1898 (G, G-BURN, H, M, WU); *Spencer*, in collibus saxosis Siracusae, 100 m alt., 14.4.1904, fl. incip. (G); *Todaro*, Avola in aridissimis collibus calcareis, fr. (WU). **Yugoslavia. Macedonia.** *Adamović 420*, iter graeco-turcum 1905, prope Veles (Kuprulu), 6.VII., fl. (WU); id., *483*, Felsentriften bei Veles, sterile (WU).

24. *Ferulago pachyloba* (Fenzl)

Boiss., Fl. Or. 2: 1006. 1872;
Peşmen in Davis, Fl. Turkey
4: 469. 1972 $\equiv$ *Ferula pachy-*
loba Fenzl, Pug. Pl. Nov. Syr.:
18. 1842 et. Ill. Descr. Pl.
Nov. Syr.: 77. 1843 (descrip-
tio auctal!); Tchihatcheff,
Asie Min. Bot. 1: 433. 1860.

= *Ferulago cappadocica*
Bornm., Feddes Repert. 49:
237. 1940.

= *Ferulago cilicica* Bornm., Feddes Repert. 49: 238. 1940 (ut distincta a
F. trachycarpa legitur, typo nuncupato, sed haud rite descripta).



Typus: *Kotschy 227*, "In faucibus alpis Maaden-Tepessi Tauri occidenta-
lis" (ex Fenzl, 1843; W: non vidi).

DESCRIPTIO

Species parum nota! *Planta* robusta erecta, glabra, 4(-6?)-pedalis, opaca, caule valde sulcato, 10(-14?) mm spisso, medullato. *Folia* 4-pinnata, ambitu ovata, pinnis et pinnulis valde separatis et patentibus, 30(-40) cm longa, 20-30 cm lata, petiolo 10-20 (an magis?) cm longo, *laciniis* oblongis, crassis, involutis, 3(-4) mm longis, apiculo minimo. *Paniculae* erectae, robustae, procerae, *umbellis* verticillatis 12-15-radiatis ex pedunculis productis arcuato ascendentibus 12(-25) cm longis orientibus, bracteis oblongis 4-5 cm longis. *Involucra involucellaque* oblonga, reflexa; *umbellulae* 10-12(-15)-florae, pedicellis quam fructu ter, quater brevioribus. Omnino in sicco flavo-fulvescens.

ANIMADVERSIONES

1. Species quidem cito visu forma inflorescentiae, foliorum, caulis et ob staturam et lacinias ultimas, valde proxima *F. trachycarpae* apparet. A qua tamen distingui potest et facile ob foliorum glabritatem et inflorescentiarum, et formam involucrorum et involucellorum, quae anguste oblonga hic observantur, at in *F. trachycarpa* autem triangularia (et involucella nonnumquam acute-ovata) et saepe plicata nec non insigniter hirsutula. Praeterea et majoris momenti, in *F. trachycarpa* vittae quam in *F. pachyloba* numerosiores inveniuntur (dorsuales 16-24, at in *F. pachyloba* 12-16).

2. *Ferula cappadocica* Bornm. omnino quadrat cum descriptione hujus speciei, ut legitur in FENZL (1843). Specimen typicum *F. cappadocicae*, ex hb. Haussknecht (JE) infra indictum et nunc Genavae mutatione, hoc adfirmat.

Specimen contra *Kotschy 137* (= *279b*), an. 1853 lectum, ab optimo Boissier in *F. pachylobam* immissum ab eadem magnopere abhorret foliis scabridis (et ovariis scabridulis) forma involucrorum et in *F. trachycarpa* infra inveniendum. *Balansa 562* (= *608* in hb. Boissier) foliis vix scabrosellis ita ut involucris ad *F. trachycarpam* aliquantum accedit, sed ovario solemniter glabro, in *F. pachyloba* denique servandum (consilio cl. Peşmen secuto) reputabam. Hoc specimen ab oculatissimo BORNMÜLLER (1940) ut *F. cilicica* nuncupatum est, tamen, mea sententia, causis evanidissimis!

3. Quoad specimen *Parry 183* a cl. PEŞMEN (1972: 470) in notula postica *F. pachylobae* citatum ut affine sed dubium et fortasse ad speciem novam adscribendum, in conceptu speciei Postianae *F. blancheanae* haud procul inventae et rariae, insignis ob glabritatem, lacinias productas et vittas paucas, mihi videtur contineri.

AFFINITATES

Certae adsunt cum speciebus sectionis *Anisotaenia*; *Ferulago trachycarpa*, quae quasi pons inter *Anisotaenia* et *Eutaenia* conspicitur, vero affinis cum *F. pachyloba* reputanda est.

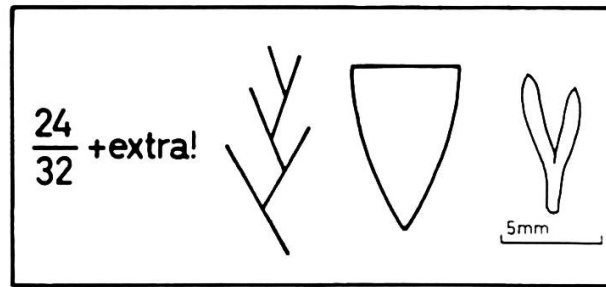
DISTRIBUTIO

Anatolia.

SPECIMINA VISA

Balansa 562 (= *608*), versant septentrional de la montagne où est situé le château en ruine dominant le défilé des Portes Ciliciennes, à dix lieues au nord de Tarsous, 26.7.1855, fl. (G, G-BOIS = *608*, JE); *Davis 16 470*, Prov. Mersin, distr. Karnish, Cilicia, Gulek boğar, rocks, 31.8.1949, fr. (E, K); *Ellenberg 521*, Ala-dagh (Taurus), Emli Boğazi, 1780 m alt., 6.9.1938, fr. incip. (JE); *Findlay 102*, Niğde in Ala Dağlari, 8500', 27.8.1865, fr. incip. (E).

- 25. *Ferulago phialocarpa* Rech.**
 fil. & Riedl, Anz. Österr.
 Akad. Wiss. Math.-Nat. 98:
 250. 1961.



Typus: *Rechinger 14 758*, Persia occidentalis, Kurdistan, 20 km a Saquez occidentem versus, inter Saquez et Miandoab, subtr. Tonschiefer, 30.8.1957.

DESCRIPTIO

Descriptio semel adhuc patet in opera indicta, verosimiliter haud frequens in bibliothecis botanicis, sed mox ex novo et anglice legetur in "Florae iranicae" fasciculo *Umbelliferarum*. Commodum adumbrationem tamen iterum hic porrigere reputo hujus speciei quae singularis etiamque exemplaris a me consideratur, quamquam solum duobus speciminibus prae me, sat depauperatis, sistitur. Verbis meis sequar saepe ea auctorum, sed brevius atque praesertim referentibus ad illos characteres selectos in hac revisione.

DIAGNOSIS

Planta vix metralis, rhizomate lignoso, pollicari, collo copiosissime fibroso. *Folia*, ex typo, basalia parva, vix 15 cm longa et ± 4 cm lata, glaucescentia, ambitu dicitur ovato vel potius deltoideo, petiolo rachidique teretiusculis et sulcatulis. *Laciniae* ultimae foliorum crassiusculae, minime planae, oblongae, 4-6 mm longae, minus quam 1 mm latae, mucronulatae, glauco-flavescentes. Caulis ut videtur erectus e medio foliorum basaliū denudato assurgens, crassitie maxima 4-5 mm diam. sed duro-lignosus; superne desinit in panicula laxe-umbellata ramis alternis (inflorescentia ergo Typi II ut in hoc libello definitur) gracilibus et glabris, bracteis venosis suffultis (haec bractee dicuntur saepe "folia caulina", appellatione sat ambigua mea ratione). *Umbellae* homochronae (vel synchronae) videlicet eodem tempore florescentes mox fructificantes, radiis gracilibus involucro coriaceo hypsophyllis deltoideo-cochlearibus ut videtur partim deciduis. Qualibet umbella efformatur septem-octo umbellulis valde divaricatis, radiis rectis plus minusve 2 cm longis, hypsophyllis ovato-acutis haud reflexis. *Flores* desunt. *Fructus*, epitheto sagaciter ab auctoribus excogitato bene adumbrati, ambitu oblongo-ovati, apice tamen truncato, carnosi, leves et sat spissi, minime compressi more plerumque generico, 11×4 mm; stilopodium patelliforme vix 1.5(-2) mm latum, stilis gracillimis reflexis duplo longioribus. Alae juaque crassa, indistincta primo visu obsoleta. *Vitae* commissurales

24, dorsuales 32; vittae marginales (= extra seminales) quadraginta et ultra (ad totum fructum videlicet).

ANIMADVERSIONES

1. Princeps dicenda subito. Fructus causa: forma et vittis marginalibus, rarissimis in genere, haec species tam misella in herbariis, an tam rara in natura?, certe ex locis haud facilibus inspectu, inter eas quae paucae egrediunt ex *Ferulaginum* mediocritate extollitur.

2. Altera animadversio ad haec germanica verba auctorum refertur: "Hauptsprosse und Zweige sind vom Weidevieh verbissen" (hoc dicitur de specimine non typico *Rechinger 14 751*) quod concise sonat: a pecudibus manducata. Hoc comparandum, quaeso, cum animadversione tertia *F. trachycarpae*, a pecudibus ut videtur indemnitas!

AFFINITAS

Praecipue cum *F. armena* a qua fructus causa facile separatur.

DISTRIBUTIO

Kurdistaniae persicae adhuc tantum nota: optatissimum a peregrinatoribus Kurdistaniae turcicae et Mediae veterum (= Iraq) detegendam esse.

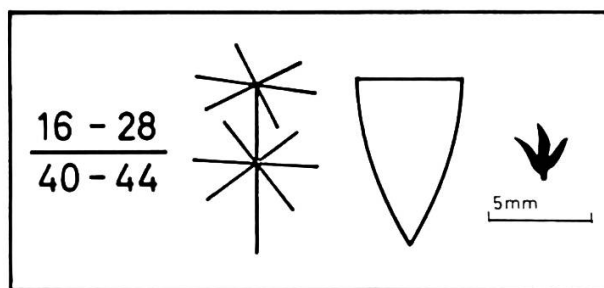
SPECIMEN VISUM

Rechinger 14 751, ex eadem regione, 19 km a Dwandere septentriones versus, in altoplanitie argillosa, 30.8.1957, fr., (W).

26. *Ferulago platycarpa* Boiss. & Balansa in Boiss., Diagn. Pl. Or. Nov. 2/6: 82. 1859; Tchihatcheff, Asie Min. Bot. 1: 432. 1860; Boiss., Fl. Or. 2: 1000. 1872 (excl. syn. *Ferula armena* DC.); Peşmen in Davis, Fl. Turkey 4: 464; fig. 10 n° 19, p. 443; fig. 11 n° 2, p. 447.

= *Ferulago asperula* Freyn & Sintenis, Österr. Bot. Z. 42: 122. 1892.

Typus: *Balansa* 405, très abondant sur le versant sept. de l'Ali-dagh à 7 km au S.E. de Césarée de Cappadoce, vers 1500 m alt., 12.7.1856, fl. ad fr. (G-BOIS).



DESCRIPTIO

Planta vix 40-50 cm staturae, scabra, caule sulcato 3 mm spisso, collo radicali crasso et fibroso. *Folia* 3-pinnata, ambitu anguste triangularia vel oblonga 10-12 cm longa, 2(-3) cm lata, pinnulis sparsim confertis, *laciniis* ellipticis planiusculis acuminatis, 2-3 mm longis, scabridulis. *Paniculae* corymbosae bracteis anguste triangularibus acuminatis, umbellis alternis 5-6-radiatis. *Involucra involucellaque* ovato-triangularia, acuta. *Umbellulae* 5-6-florae, pedicellis quam fructu dimidio brevioribus. In sicco virido-fusca, fructibus atro-fuscis.

ANIMADVERSIONES

Glabra errate indicta bis ab opt. Boissier, contra foliis asperulis vel scabridulis praedita (ex typo et ex omnibus speciminibus inspectis); quam ob rem optima ratione cl. Peşmen *Ferulaginem asperulam* supervacaneam censebat. Ceteris characteribus ut legitur in BOISSIER (1859 et 1872) et in Peşmen praedita, et etiam vittis commissuralibus (10-12 cuilibet commissura, id est 20-24 in fructu) sat exacte a Boissier & Balansa descripta (inveniebam quidem 16-28 commissurales et 40-44 dorsuales pro quolibet fructu) hanc speciem in litteris commodam et apte expositam puto.

AFFINITATES

A BOISSIER (1859) affinis dicebatur *F. humilis*, cujus fallaciter similitudo tantum vegetativa adest (ex statura pro genere patula, et ambitu foliorum) sed plurimis characteribus majoris momenti, qualibus: involucris, scabritie adversus glabritatem, vittarum numero, forma fructus etc., pro nihilo affinis conspicitur; eisdem causis affinitas cum *F. macrosciadia* Boiss. & Balansa a me denegatur, contra opinionem BOISSIERI (1872: 1001). Pariter, mihi haud

videtur "related to *F. thirkeana*" ut legitur in Peşmen, a qua vero forma inflorescentiae et laciniarum, numero vittarum, fructu (alis et jugis in *F. thirkeana* sat inconspicuis) valde amovetur.

Species denique a me affinior, cum haec, *Ferulago cassia* Boiss. putatur, his causis:

- inflorescentiae formae et involucri atque fructus! nec non numero vittarum; differunt in ambitu foliorum, scabritie versus glabritatem et stilorum longitudine stilopodio comparata. Ceterum, affinitates ex *Ferulagine cassia* ad nonnullas species referuntur sub ejusdem speciei notula, p. 95.

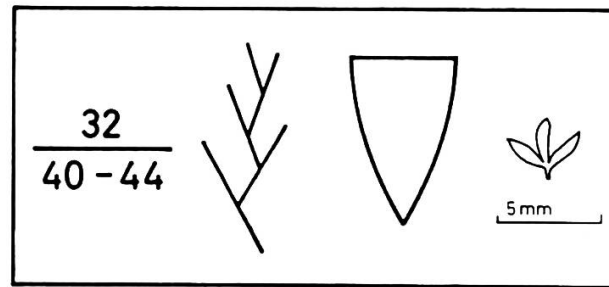
DISTRIBUTIO

Anatolia, vide PESMEN (1972: 467, map 66).

SPECIMINA VISA

Balansa 1010, eisdem verbis quam in n° 405, sed "vers 1430 m, 25.6.-7.1856, fr. (G, G-BOIS, P); *Bourgeau 93*, champs incultes près Baibout (= Bayburt!) et Pasapom, 27.7.1862, fl. (G-BOIS); id., 99, in campis incultis ad Pasapom prope Baibout (Bayburt), 27.7.1862, fl. ad fr. (P); *Sintenis 1112*, Armenia turcica, Erzinghan (= Erzincan) Sipikordagh, in fruticetis, 5.7.-1889, fl. (WU); id., 2860, Erzincan, Egin, Maghara-dagh, 5.7.1890, fl. (WU); id., 2860b, Sipikor in pratis silvaticis, 8.8.1890, fl. et fr. (G, WU); id., 4128 et 4182 (probabiliter errore notae numeri!) Paphlagonia, vilajet Kastambuli (= Kastamonu) Tosya, Gavur-dagh, 1892, fl. et fr. (G, HAL, M, WU); id., 6221, Armenia turcica, Szandschak Gümüşchkhan, Stadodopi in collibus, 10.7.-1894, fl. (G, WU); *Tchihatcheff 246bis*, Armenia turcica borealis inter pagum Sagipor et urbem Erzindjan (= Erzincan), ± 2000 m alt., aest. 1858, fl. (G-BOIS, P); *Zederbauer*, Reise nach dem Erdschias-dagh (= Erciyas Dag), Al-dagh, 1400-1800 m, VII.1902, fl. (WU). *Obs.*: specimina nuper lecta a cl. Huber-Morath in Peşmen citantur, sed Genavae non vidi neque in Herbario Kewensi.

- 27. *Ferulago sandrasica*** Peşmen & Quézel, Candollea 25: 386. 1970; Peşmen in Davis, Fl. Turkey 4: 456, map 63, p. 459. 1972.



Typus: *Contandriopoulos & al.*, été 1968, Sandras Dağ, rocailles, 2000 m (ca. 37°04'-28°51'E.) (E).

DESCRIPTIO

Species minus nota. *Planta* debilis, glabra, vix pedalis, caule exile sulcatulo. *Folia* ambitu anguste oblongo 10-15 cm longa, 1-2 cm lata, pinnulis sparsim confertis, laciniis ellipticis vix 2 mm longis, apiculatis. *Paniculae* corymbosae, *umbellis* alternis 6-7-radiatis. *Involucra* et *involucella* triangularia; *umbellulae* 5-8-florae, pedicellis quam fructu dimidio brevioribus. In sicco fusca.

ANIMADVERSIONES

Species nota tantum e typo sat misello; ut constat, inter species *Ferulaginis* staturae mediocris vel parvulas adest, quae Anatoliae sunt: *F. cassia*, *F. humilis*, *F. macrosciadia* et *F. platycarpa*.

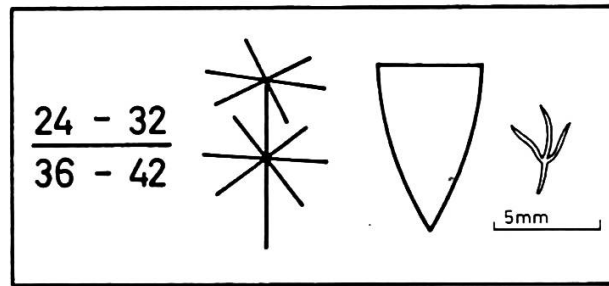
AFFINITATES

Ab auctoribus valde similis *F. humilis* dicitur; PESMEN (1972) etiam *F. macrosciadiae* proximam declarat. A *F. humili* quidem plurimis characteribus hic magni pretii censitis separatur, videlicet involucri forma, stilopodii dimensione, minima in *F. humili*, sat conspicua in *F. sandrasica* ita ut in *F. cassia*. Fructus compressi adsunt in *F. humili* et *F. macrosciadia* et contra carnosiusculi et spissi in *F. sandrasica* et *F. cassia*. Denique, inter species minus notas adscribenda, characteris tamen sat peculiaribus ut distinguatur a ceteris.

DISTRIBUTIO

Anatoliae occidentalis.

28. *Ferulago sartorii* Boiss., Fl. Or. 2: 999. 1872; Halácsy, Consp. Fl. Graec. 1: 646. 1901; Hayek, Prodr. Fl. Pénins. Balcan. 1: 1030. 1927; Rech. fil., Fl. Aegaea: 412. 1943.



Typus: *Sartori 3619*, in petrosis ad viam inter Brachnon et coenobium Pangia Panachrantos ins. Androi, 22.7.1857, fr. (G-BOIS).

DESCRIPTIO

Planta gracilis, glabra, ut summum bipedalis, caule 3-4 mm spisso, sulcatulo, ut videtur flexuoso. *Folia* tripinnata, ambitu anguste-triangularia, pinnis et pinnulis approximatis, 20-25 cm longa, petiolo 5-7 cm incluso, 8 cm lata, *laciniis* setaceis 3-4 mm longis, mucronulatis. *Paniculae* corymbosae, *umbellis* verticillatis 10-radiatis, *bracteis* ovato-acuminatis conspicuis, ita ut *involucris* et *involucellis*. *Umbellulae* 8-9-florae, pedicellis quam fructu brevioribus. In sicco fulvescens, fructibus lutescentibus.

ANIMADVERSIONES

Ex descriptione pristina Boissieri, in Halácsy et Hayek fere immutata, quidquam corrigendum mea sententia convenit. Ad exemplum, apud auctores, involucri oblonga describuntur, attamen hypsophylla involucri ovato-triangularia adsunt plurimis venis notatis atque involucelli hypsophylla quamquam acuminatiora, tamen ovato-triangularia, minime oblonga. Glabra haec species legitur in auctoribus dictis, sed ex typo ipso folia scabridula observantur. In altero specimine, *Heldreich 931*, quod censeo ex aliquot plantis confectum esse, folia omnino glabra et folia scabridula in paginis distinctis herbarii conspiciuntur.

AFFINITATES

Nonnullae species *Ferulaginis* laciniis foliorum setaceis ornantur; hoc facile suaderet affinitatem inter eas imputandam sed, mea ratione, procul a certitudine.

Quoad hanc speciem attinet, ob involucria, inflorescentiae formam, fructus structuram (jugorum et alarum, stili et stilopodii) ob numerum quoque vittarum, affiniore videtur cum *F. sylvatica*.

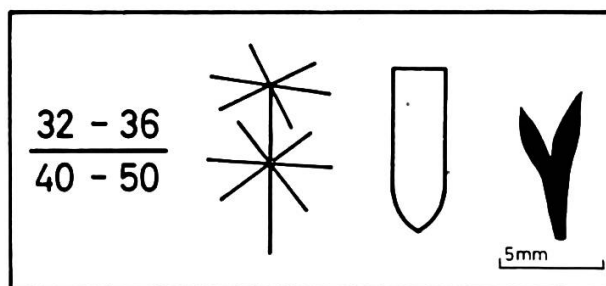
DISTRIBUTIO

Insulae Andros Cycladum; dubiose etiam in insula Keas? (specimen infra dictum, frutu destitutum, floribus vix natis non sufficit).

SPECIMINA VISA

Andros. *Heldreich 931*, ad margines vinetorum in submontosis inter coenobium Panagia Panachrantos et pagum Brachno, loco classico unico hucusque noto, ubi Jos. Sartori hanc speciem primus detexit, 24.7.1886, fr. (G, G-BURN, WU). **Kea.** *Runemark & al. 40 730*, 1-3 km S. of Chora, 16.4.1969, fl. incip., (LD, cf. supra).

29. *Ferulago scabra* Pomel,
Nouv. Mat. Fl. Atl.: 143. 1874;
Batt. & Trabut, Fl. Algérie:
368. 1888 $\equiv$ *Ferula sulcata*
Desf. var. *scabra* (Pomel)
Batt. ex Maire in sched. herb.



Typus: *Choulette*, côteaux secs à Constantine, 3.7.1855, fr. (haud bene maturis) (MPU).

DESCRIPTIO

Species mea sententia valida, a botanicis Africae boreali operam praestantibus (etiamque Europae ut dicetur infra) omnino neglecta; descriptio originalis Pomel tantum gallica et in libro infrequente in Bibliothecis, quas ob res hic succincte iterum exponitur sic.

Planta erecta, statura? (ex speciminibus imperfectis, minimo metralis diceretur), caule compresso, sulcato, inflorescentia in paniculis umbellarum ad nodos verticillatarum; involucra involucella hypsophyllis oblongis. *Folia* basalia tripinnata, pedalia vel ultra, ambitu late deltoidea, petiolo plus minusve 10 cm longo, basi dilatata, pinnis inter sese sat remotis, pinnulis contra confertis, *laciniis* elliptico-falcatis vix coriaceis, acutiusculis et distincte mucronulatis, valde scabris! *Fructus* tenues in typo atri, elliptici, compressi, 13×7 mm, stilopodio subconico, 2.5 mm diam. margine crenato, stilis aequilongis. Juga inconspicua, alae 1 mm minimum latae, crassiusculae. *Vitae* commissurales 32-36, dorsuales usque 50.

AFFINITATES

In Africa boreali, botanici tantum *Ferulaginem sulcatam* Desf. (nomine valido *F. lutea* (Poiret) Grande) notarunt, POMEL excepto qui in opera supra dicta, quinque species descripsit (1874: 142-144 et 311).

Haec certe ad *F. luteam* non accedit, nimis multis characteribus magnii pretii separata, videlicet: fructus structura, involucri inflorescentiaeque forma, laciniis, etc. Affinitates veras ancipites inveniendas puto cum *F. granatensi*, Hispaniae, et cum *F. campestri* vastae Europae distributionis.

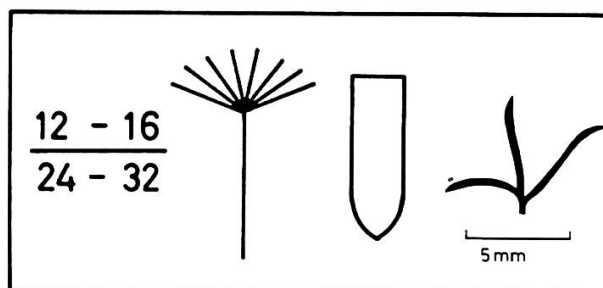
DISTRIBUTIO

Africae borealis: certe incola Algeriae et Regni Maroccani; Tunisiae inspicienda! Hispaniae! Portugaliae ut constat deest. Cum haec species absque dubio Hispaniae adest, addenda est Florae Europae.

SPECIMINA VISA

Hispaniae. *Bourgeau 676*, Sierra de Segura, 12.7.1850, fl. ad fr. (G); *Reverchon 1262a*, Prov. de Grenada, Sierra del Cuarto, lieux arides sur le calcaire, 1900 m, rare, VII.1902, fl. (G, H); id., *1262b*, Prov. de Jaen, Sierra de la Malessa, lieux arides sur le calcaire, 1800 m, rare, VII.1904, fl. (G); id., *1262c*, Prov. de Jaen, Sierra de la Cabrilla, lieux arides sur le calcaire, 1800 m, rare, VII.1905, fl. (G). **Regnum Maroccanum.** *Maire*, iter marocc. XII, in Atlante medio, in silva Djaba, prope Ito, solo calcareo, 1500 m, 14.7.1926, fl. ad fr. (MPU). **Algeria.** *Boissier & Reuter*, Prov. Oran, grand ravin du Djebel Santo, IV.1849, fl. (G); *Cosson*, versant sept. des montagnes du Djurdjura, territoire des Beni-bou, Addou, cercle du Dra-el-Mizan, Prov. Alger, 23.-27.4.1854, fl. (G).

30. *Ferulago serpentinica* Rech.
 fil., Fl. Euboea in Bot. Jahrb.
 Syst. 80: 367. 1961.



Typus: *Rechinger 19 257*, Euboea septentrionalis in pinetis (*P. halepensis*) a pago Papades meridiem versus, substr. serpent., 28.6.1958, fr. ineunt. (Holo-: W, non vidi; G, M).

DESCRIPTIO

Planta gracilis, erecta, scabridula, angusta, bipedalis, caule sulcatulo foliis deminutis praedito, collo radicali fibroso. *Folia* tripinnata ambitu anguste oblonga, 15(-25) cm longa, 3(-5) cm lata, petiolo vix 2 cm longo terete; pinnulae sat separatae, laciniis setaceis mucronulatis 4-5 mm longis. *Inflorescentia* corymbiformis, *umbellis* ad apicem congestis 12-15-radiatis; *involucra* *involucellaque* oblonga, membranacea, reflexa; *umbellulae* 8-16-florae pedicellis quam fructu dimidio brevioribus. In sicco fusco-viridis.

ANIMADVERSIONES

Descriptio concinna offertur in opere botanico primi ordinis, cujus series certe non deest a Bibliothecis. Tantum dicam folia scabrida adesse et involucra ut constat, sat variabilia: in specimine isotypico Genavae, certe oblonga et contra, ex eodem numero in (M), latiora, fere ovato-triangularia observantur.

AFFINITATES

A claro auctore comparabatur cum *F. sartorii* a qua distincta dicebatur fructu minori, foliorum laciniis brevioribus magis confertis. Quo addam, ob structuram jugorum alarumque, corticosam in *F. sartorii* at tenuem in *F. serpentinica*. Fructus tamen in nimis paucis speciminibus prae me, haud perfecte maturi, adsunt ex quibus ergo de structura plenae maturitatis certior non sum. Vittae commissurales quoque pene efformatae conspiciuntur. Quas ob res. affinitates certe vix manifestantur!

An affinior cum *F. thirkeana* (Boiss.) Boiss., ob eundem numerum vittarum, fructu jugis plus minusve alatis (secundum conceptum pristinum Boissieri *Lophosciadii thirkeani*?). Speciminum novellorum auxilio, sententia affinitatum hujus speciei declaranda est. Distincta recte a cl. auctore dicebatur de *F. confusa* Velen., involucris involucellisque angustioribus,

acutioribus atque liceat mihi addere, ob vittarum numerum in *F. serpentinica* valde minorem.

DISTRIBUTIO

Insulae Euboeae; ob specimen Pinatzi infra dictum, ex Attica, monte Parnes, Graeciae quoque incola! *Obs.*: Mt. Parnes, teste cl. W. Greuter acerrimo in rebus naturalibus Graeciae, praeruptis calcareis omnino confecto, substrato serpentinitico destituto. Notandum tamen *F. mughlae*, Anatoliae, et in lapidosis serpentiniticis et in praeruptis calcareis viget, fide collectorum.

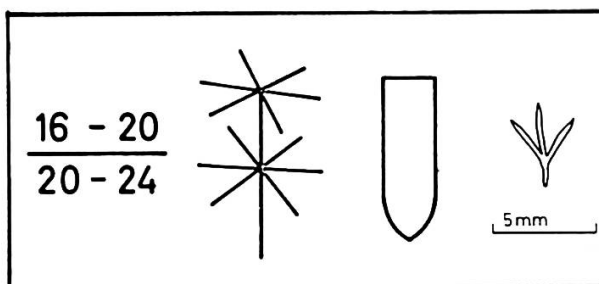
SPECIMINA VISA

Rechinger 17 026, Euboea septentr., montes Kandili in declivibus borealibus in ascensu ab Achmet Aga (Prokopion) versus Hag. Sotir, substr. serpent. 300-800 m, 30.5.1955, fl. (G, M). **Graecia.** *Pinatzi*, Attika, Mt. Parnes, VI.1937, fl. (M).

31. *Ferulago setifolia* C. Koch, *Linnaea* 16: 358. 1842; Ledeb., *Fl. Ross.* 2: 299. 1844; Tschischkoff, *Asie Min. Bot.* 1: 432. 1860; Boiss., *Fl. Or.* 2: 999. 1872; Grossh., *Fl. Kavk.* 3: 179. 1932; Schischkin in *Fl. SSSR* 17: 153. 1951; Pesmen in Davis, *Fl. Turkey* 4: 462; fig. 8 n° 15, p. 281; map

65, p. 459. 1972 $\equiv$ *Lophosciadium setifolium* (C. Koch) C. Koch, *Linnaea* 19: 39. 1846 $\equiv$ *Ferula setifolia* C. Koch, *Linnaea* 19: 39. 1846 (lapsus calami).

= *Ferulago oxyptera* Boiss., *Ann. Sci. Nat. Bot. ser. 3*, 1: 320. 1844.



Typus: Ex descriptione et ex titulo opusculi C. Koch, ab eidem lectus "In Armenia boreali" (non vidi).

DESCRIPTIO

Planta bipedalis raro altior, glabra, caule striato, terete, foliis deminutis praedito, collo radicali dense fibroso. *Folia* tripinnata ambitu oblonga 15 cm circiter longa, petiolo 3-4 cm incluso, 3-4 cm lata, pinnulis confertis, laciniis setaceis involutis, mucronulatis, 4-5 mm longis. *Paniculae* corymbosae bracteis oblongis acutis, umbellis 12-15-radiatis; *involucra* et *involucella* oblonga, conspicua, reflexa; *umbellulae* 8-12-florae, pedicellis quam fructu dimidio brevioribus. In sicco virido-fusca, fructibus castaneis.

ANIMADVERSIONES

KOCH (1842) *Ferulaginem setifoliam* distinctam a *Ferulagine pauciflora* ipsius C. Koch (nomine nudo) asseruit atque ibidem illam *Ferulaginem paucifloram* eandem esse cum "*Ferula pauciflora* DC." scripsit, haud dubie lapsu calami pro ut *Ferula paucijuga* DC. (*Prodr.* 4: 171. 1830) quae, fide Schischkin (*Fl. SSSR* 17: 49. 1951), est vero *Johrenia paucijuga* (DC.) Bornm. ex eadem regione caucaso-armenica. *Ferulago pauciflora* C. Koch nom. nud. expellenda igitur a synonymia *Ferulaginis* est, et in illam *Johreniae paucijugae* liceret immittere.

Descriptio diligens opt. BOISSIER (1844) "albumine utrimque copiosissime vittato" hui speciei tribuit; PESMEN (1972) etiam scribit de hac: "vittae more than 12 on both sides" et contra speciei insequenti *F. stellatae* "dorsal and commissural vittae more than 10". *Ferulago setifolia* vero, pro ut genere mediocriter vittata conspicitur atque certe ei vittae dorsuales dimidio numero adsunt quam in *F. stellata*: 24 in illa, 48 in ista!

Ab antiquo viatore et recollectore Sovitz ut *Ferulago sylvatica* in schedulis nuncupata, quod fortasse duxit C. Koch proferre "maxime accedit ad *F. sylvaticam*..." a qua tamen abhorret, praecipue involucro et laciniis.

AFFINITATES

BOISSIER (1844: diffuse, breviter in 1872) fructus valde similes cum eis *F. sulcatae* Desf. (*F. lutea*) scripsit. Similitudo talis, quae mihi videtur nimis multum parvula, affinitatem veram minime comprobaret. Peşmen ceterum hanc speciem "related" cum *F. stellata* retinet. De hac sententia maxime discrepo quia utraque species differt forma inflorescentiae, numero vittarum, longitudine stilorum, etc. Species valde affines cum hac denique mea sententia absunt: nonnulla similitudo occurrit cum *F. serpentinica*.

DISTRIBUTIO

Armeniae Rossiae et Armeniae Turciae.

SPECIMINA VISA

Obs.: plurima specimina nuper lecta ex Armenia Turciae a cl. Peşmen indicata, vidi in hb. Kew, at hic non indicabo. Prae me tantum adsunt pauca, plerumque vetera, schedulis saepius imperfectis.

Armeniae Rossiae. *Frick*, Transcaucasia in m. Alagios (= Alagez = Aragats?), fl. (G); *Greuter* 12 956, supra oram boreo-occid. lacus Sevan, 1950-2000 m, in pratis subalpinis in clivis siccioribus, 17.7.1975, fr. incip. (G); *Schuller* (?) 29, Erivan, fl. et fr. (H); *Sovitz* 456, Nakitschiwan (39°12', 45°24'E.), fr. (G-BOIS); id., in valle Koschadova prov. Karabagh (= Karabakh), fr. (G); id., in herbidis Kamadaxa (quid?), 1.7.1829, fr. (H); *Fischer*, sine loco, fr. (G-BOIS).

32. *Ferulago silaifolia* (Boiss.)

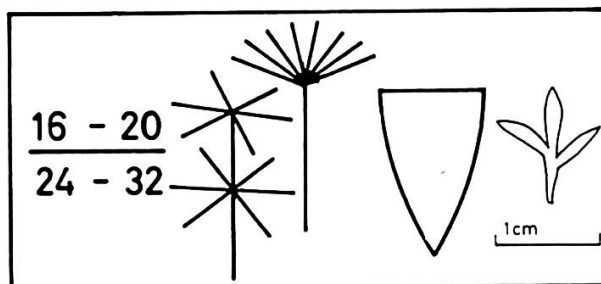
Boiss., Fl. Or. 2: 1004. 1872;
Bornmüller, Feddes Repert.
Beih. 89, 2/6: 284. 1941; Peş-
men in Davis, Fl. Turkey 4:
468, fig. 10 n° 24 p. 433, map
67 p. 467. 1972 $\equiv$ *Lophosciad-*
dium silaifolium Boiss., Ann.
Sci. Nat. Bot. ser. 3, 1: 326.

1844 $\equiv$ *Lophosciadium car-*
vifolium Boiss., Diagn. Pl. Or. Nov. 2/2: 94. 1856 (ubi *Lophosciadium*
thirkeanum, lapsu calami).

= *Lophosciadium barrelieri* Gris., Spicil. Fl. Rumel. 2: 510. 1846 (sed non
l. c. 1: 372. 1843, quod est *Ferulago sylvatica* q.v.); Tchihatcheff, Asie
Min. Bot. 1: 445. 1860.

= *Lophosciadium olympicum* C. Koch, Linnaea 19: 38. 1847.

= *Laserpitium orientale foliis Seseleos Massiliensis flore luteo* Buxbaum
(non Tourn.! Cent. 1: 27, t. 43. 1728 (*notula ad hoc*: ut bene scripsit C.
Koch (l. c.) ad hanc speciem "ohne Zweifel" absque dubio descriptio et
tabula Buxbaumi pertinent. Iste vero ejus plantam ad illam concisissime
porrecta a Tournefort (Corollarium... p. 23) referebat, tamen errate quia
typo Tournefortiano inspecto (n° 2912 ejus herbarii, schedula sic
confecta: *Laserpitium armenum foliis seseleos massiliensis, flore luteo*)
hunc minime adscribendum generi *Ferulagini* comprobavi.



Typus: *Boissier*, silva castanearum ad radices Olympi Bithiniae supra
Broussam, VIII.1842, fl. et fr. (G-BOIS).

DESCRIPTIO

Planta erecta, glabra 40-60 cm alta, caule levi, tereti, foliis deminutis
praedito, collo radicali parum fibroso. *Folia* tripinnata ambitu late triangu-
laria, petiolo producto gracili usque 20 cm longo, lamina circa 25 × 20 cm,
laciniis ellipticis mucronulatis 7-10 mm longis, 1.5-2 mm latis. *Paniculae*
corymbosae bracteis ovatis reflexis pro genere maximis, *umbellis* verticillatis
8-14-radiatis; *involucra involucellaque* late ovata valde conspicua; *umbellu-*
lae 10-15-florae pedicellis quam fructu parum brevioribus. In sicco saepe
atro-fusca.

ANIMADVERSIONES

Descriptio in Peşmen commoda et concinna, cui tantum addam:

- a) *Lacinae* foliorum in speciminibus visis margine scarioso-scabrido obser-
vantur, quamquam in typo opt. Boissier margo fere omnino levis adest!

- b) Sola species mihi nota, *Ferulaginis* cui involucella longiora quam flores sunt!
- c) Optime statuit BOISSIER (1844: 327): "involucro eis *Euphorbiae exulae* et affinium involucella eis *Bupleuri similia*": ipse, p. 326 pro ut *Lophosciado* "char. reformatus": "herbae orientales, facie *Ferulaginis*,... involucri involucellique phyllis latis viridibus ea *Tithymalorum* referentibus". *Ferulago silaifolia* quidem, quamvis una cum contigua *F. thirkeana* distributione parvula fruitur, tamen caractere hoc involucrorum egregie extollitur non solum ex *Ferulaginibus*, sed etiam, nisi error, ex omnibus *Peucedaneis*. Stirpus tam pulchra in hortis botanicis desideratur!

AFFINITATES

Quod de affinitatibus *F. sylvatica* scribo, magnopere ad hanc speciem accomodatur. Inter specimina *F. sylvaticae* quae magis ad *F. silaifoliam* petunt, hic memorabo: *Orphanides 3633*, ad radices montis Corfiati Macedoniae, 7-19.7.1857, fr. (G-BOIS); *Sintenis & Bornmüller 730*, Peninsula Hagion Oros, Kerosia in fruticetis, VII.-VIII.1891, fr. (G, M, WU). Ambo specimina fructibus jugis alato-cristatis alisque plus minusve undulatis vel crispis praedita sunt, similibus eis *F. confusae* et *F. silaifoliae*.

F. silaifolia igitur, area geographica parvula, morphologia peculiari, potissime studium commodum offerret curiosis Naturae ad totum genus melius intellegendum, praecipue de ejus fertilitate aut sterilitate erga species contiguas et forma plus minusve similes, quales *F. thirkeana*, *F. sylvatica* et *F. confusa*.

DISTRIBUTIO

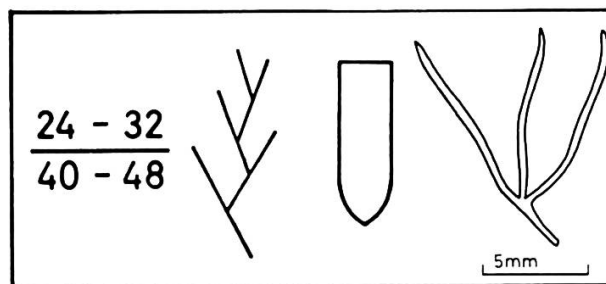
Ut legitur in Peşmen: "N.W. Anatolia, very local".

SPECIMINA VISA

Bornmüller 4573, Bithynia in siccis collium prope Mudania, 14.5.1899, fl. (G, WU); *Burnat*, près de la ville de Brousse, fréq., collines, 5.6.1889, fr. (G); *Dudley 34 713*, Prov. Bursa on road from Bursa to Uledag, 10 km from hotel at Uledag, sandy cliffs along road, very dry, uncommon, 16.5.1962, ster. (K); *Haussknecht*, VIII.1879, fr. (WU); *Pichler 28*, in Wäldern ob Brussa, VII.1873, fl. ad fr. (G, G-BOIS); id., 76, Bithynie, in montosis ad Mudaniam (auch am Mte Santo), VI.1874, fl. (G, WU); id., s.n., in dem Voralpen und Abhängen der Gegend von Brussa, VI.1874, fl. (G-BOIS); *Thirke*, Turquie d'Europe (at vero, fide Boissier 1872, ex Turcia Asiae, ad Broussam) an. 1845, fl. (G-BOIS).

33. **Ferulago stellata** Boiss., Ann. Sci. Nat. Bot. ser. 3, 1: 323. 1844 et Fl. Or. 2: 1001. 1872. Bornm., Beih. Bot. Centralbl. 28/2: 237. 1911; Zohary, Fl. Iraq: 112. 1950; Peşmen in Davis, Fl. Turkey 4: 462, fig. 10 n° 18 p. 443, fig. 11 n° 1 p. 447, map 65 p. 459. 1972.

= *Ferulago keolziana* Rech. fil., Anz. Österr. Akad. Wiss. Math.-Nat. an. 1952, n° 12: 196.



Typus: *Aucher-Eloy 3660*, Persia, fr. (G, G-BOIS).

DESCRIPTIO

Planta gracilis, glabra, 3-4—pedalis, caule 3-4 mm spisso, tetragono et sulcato foliis deminutis praedito, collo radicali fibroso. *Folia* 3-4-pinnata pinnis sat separatis, laciniis capillaceis 1-2 cm longis. *Paniculae* ramosissimae et gracillimae, *bracteis* ovatis, *umbellis* alternis 6-8-radiis filiformibus ad anthesim, robustioribus ad fructus. *Involucra* et *involucella* oblonga, inconspicua; *umbellulae* 8-10-florae pedicellis longitudinem fructus aequantibus. In sicco foliis virido-fuscis, caule inflorescentiaque fulvescentibus.

ANIMADVERSIONES

Species nonnullis characteribus in ceteris raro vel numquam unitis insignitur; imprimis inflorescentia valde ramosa, cum flores novellos ferente, gracillima, herbacea, radiis exilissimis valde ramoso-divaricata. Haec inflorescentia demum, cum fructifera, robustior, tenacior fit atque, ut optime observarunt et Boissier et Rechinger (ad suam *F. koelzianam*, quae omnino cum *F. stellata* congruit), nodosa conspicitur, in medio radiorum umbellarum umbellularumque. Saepius deinde illorum nodorum causa, involucra et involucella partim vel omnino delabuntur. Folia non solum basalia, sed per caulim etiam insperguntur, formae similia sed parviora; bractee etiam observantur, oblongo-acuminata, ad basim et per axim inflorescentiarum.

AFFINITATES

Quod legitur in BOISSIER (1844), de *Ferulagine stellata* diu comparata cum *F. humili*, mea sententia procul ab affinitate propria adducit. Species ceterum proximae ad *F. stellatam*, in expressione vel scriptura generis a Boissier in Fl. Or. (l. c.) confecta, sunt: *F. platycarpa*, *F. humilis*, *F. macrosciadia*, *F. setifolia*, *F. cassia*. *Ferulago stellata* fructu distinctissimo praecipue — alia tacebo concisionis gratia! — a *F. platycarpa* longe amovetur. *F. humilis* et *F. macrosciadia* inter sese peraffines, valde differunt de hac, forma compressa

fructus, numero vittarum, stilorum longitudine, foliorum ambitu et laciniis, involucris; *F. sartorii* et *F. setifolia*, primo visu ex inflorescentiae forma, ceteris omissis. *Ferulago cassia* tamen sola aliquot affinis cum *F. stellata* mea sententia manet. Similitudo in fructu exponitur in clave; folia etiam caulina ad basim inflorescentiae in *F. cassia* conspiciuntur, ad ex. in ipso typo (cf. G ex hb. Reuter). Utraque species nodis deturpantur: *F. stellata* saepe in inflorescentiis vetustis; *F. cassia* raro in caule. Differunt involucellorum phyllis, oblongis et debilibus in *F. stellata*, deltoideis, brevibus et robustis in *F. cassia*. *F. longistylis* (= *F. asparagifolia*) a Peşmen "related" cum hac, toto coelo ab ea abhorret!

DISTRIBUTIO

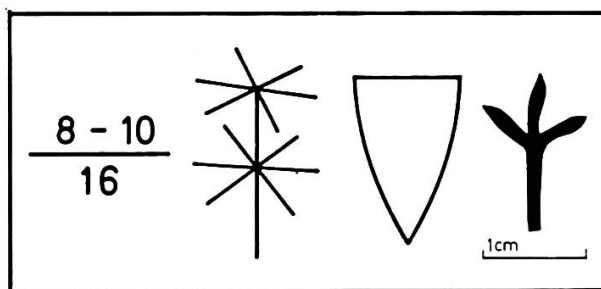
Anatoliae, Iraq, Persiae.

SPECIMINA VISA

Anatoliae. *Davis* 23 244, Prov. Van, Satak, Gorentas, Micingersuyu river, 2000 m, rocky slopes, perennial, 25.7.1954 (K); id., 22 385, Prov. Bitlis, Kotum, Resadiye, 2000 m, dry hillside, stems much longer than basal leaves, fl. aurea, 6.7.1954 (K); id., 23 897, Prov. Hakkari, Cilo Dağ in Diz Deresi, 5400', gravel terrace, peren. fl. lutea, 6.8.1954; id., 23 938, Prov. Hakkari, below Cilo yayla, 9200', 7.8.1954; id., 24 564, Prov. Bitlis, Kotum: Karz Dağ above Kamer, 2200 m, limestone ravine, 24.8.1954 (K); id., 44 971, Prov. Hakkari, 8 km from Semdinli to Yüksekova, 1700 m, rocky slopes, perennial up 1 m, fl. yellow, 16.6.1966, fl. incip. (K); id., 45 759, Prov. Hakkari, Zap gorge, 6 km N. of the junction of the Van-Hakkaria and Yüksekova roads, 1800 m, rocky slopes, 2.7.1966, fl. ad fr. (K); id., 46 068, Prov. Bitlis, 4 km W. of Reşadiye, 1800 m, steep N. slopes in *Quercus* scrub, 7.7.1966, fl. (K); *Rix* 349, Van, 15 km E. of Tatvan, 6000', among oak scrub, VII.1965, fr. incip. (K). **Iraq.** *Cuckney* 3829, MRO, Marmaruk Mt. near Rowanduz, Kursistan, 4000', 10.5.1933 (K); *Gillett* 7784, MSU, Qarachitan-Zewiya, limestone, coppiced *Quercetum*, 1400 m, n.v. kurdish: Halila, 19.4.1947, fl. (K); id., 9716, MRO, valley above Ari, 2000 m, fl. yellow, occasional, 18.8.1947, fr. (K); id., 11 756, MSU, N. of Biyara, Avaman Dagh, limestone mt. coppiced *Quercetum aegilopsis*, fl. deep yellow, occasional, 1300 m, 7.6.1948, fl. ad fr. (K); id., 11 786, Avraman of Bayar, fl. yell., abundant, 1800 m, *Quercus aegilopsis* forest on limestone, n. vern. Loh, 1.5 m tall, the leaves are collected for winter fodder (K); *Guest* 2145, MRO, Ravanduz gorge, 1500', 20.4.1932, fl. (K); *Haines* 1154, MSU, Amart (?) near Qaradagh, 4500', dry oak forest, 3 feet high, 21.1.1957, fr. (K); id., 1561, MSU, Kopi Qaradagh, rocky slopes in oak forest, 4500', 17.6.1959, fr. (K); *Rawi* 12 072, MSU, Zewiya, 1800 m, n. vern. Zia kawla, 6.6.1948, fr. (K); *Rawi & al.* 29 356, MSU, Hawraman mountain, Hawara Bizzu, near the top, rocky-clay land, 1900 m, 24.6.1960, fl. (K). **Persiae.** *Belibuti* (?) 26, Kermansbah, Mono Ghaladjeb, 15.5.1958, fl. (W); *Haussknecht* 477, in rup. calc. m. Avraman et Schahu,

Mesopotamia, 5-7000', planta 6' alta, II.-V.1867, fl. (G-BOIS); *Koelz 15 988*, Kalvar, Luristan, plant 4' high, fl. yellow, 5000', 5.6.1940, fr. incip. (W), typus *F. koelziana*; *Lamond 4525*, Kordestan, 80 km from Sanandaj on road to Dezh Shahpur, Marivan, 1600 m, 5.7.1971, fr. (E); *Noë 1161*, in subalpinis Persiae Kurdistaniae, versus Mendeli, V.1851, fl. (G-BOIS); *Sabeti 932*, Luristan, Pal-el Kalhor, fl. (W).

- 34. *Ferulago subvelutina* Rech.**
 fil., Feddes Repert. 48: 129.
 1940.
 = *Ferulago turcomanica*
 Schischkin, Bot. Žurn. SSSR.
 31(6): 8. 1947 et Fl. SSSR 17:
 154. 1951.



Typus: *Rechinger 1919*, Korashan Persiae, steile steinige Hänge eines Tälchens in dem Bergland westlich von Budjnurd, jenseits der Passhöhe gegen Morawe Tappeh (Bojnürdo = $37^{\circ}28'$, $57^{\circ}20'E.$; Tappeh-ye Morāveh = $37^{\circ}52'$ - $55^{\circ}40'E.$), 26.7.1937, fl. (holo-: W, non vidi; GAELLEN, K, LD).

DESCRIPTIO

Species insignis a ceteris distinguitur ob indumentum sat densum, folia et inflorescentias tegens.

Perennis, robusta, erecta, ultra metralis, foliis ambitu triangularibus, 40-50 cm longis, 20 cm latis, laciniis crassiusculis, involutis, pilosis, mucronulatis, involucris valde similibus *F. trachycarpae*, ciliatis. *Paniculae* umbellularum erectae, *umbellis* verticillatis per rhachidem (= Typi I). *Fructus* characteres qui adstant in clave specierum, desumpsi ex specimine Borassova infra indicato.

AFFINITATES

Haec species sectionis *Anisotaenia* cum ceteris ejusdem sectionis certo affinis; etiam *F. trachycarpae* similis conspicitur. Haud inutile censeo redicere hanc speciem limitem boreo-orientalem totius generis tangere.

DISTRIBUTIO

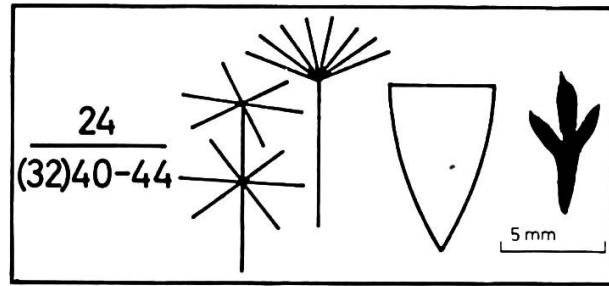
Persiae Korashan et Turcomaniae Rossiae meridionalis haud procul a civitate Achkhabad.

SPECIMINA VISA

Turcomaniae Rossiae. *Borissova*, in ditione Bacharden, mons Czish-Tapa, 1.9.1934, fr. (LE); *Litvinov*, montes prope urbem Ashkhabad, in detriticis, 27.6.1897, fl. (LE).

35. *Ferulago sylvatica* (Besser)

Reichenb., Icon. Pl. Crit. 4: 53, n° 555, t. 371. 1826; DC., Prodr. 4: 171. 1830; Ledeb., Fl. Ross. 2: 298. 1844 (excl. C. A. Meyer, Verz. Pfl. Caucasus: 126. 1831, quod ad *Ferulaginem daghestanicam* Schischkin refertur); Heuffel, Verh. Zool.-Bot. Vereins



Wien 8: 116. 1858; Fuss, Fl. Transs. Excurs.: 268. 1866; Schur, Enum. Pl. Transs.: 263. 1866; Neilreich, Diagn. Ung. u. Slav. Gefässpfl.: 56. 1867 et Veg. Verh. Croat.: 154. 1868; Boiss., Fl. Or. 2: 1002. 1872; Simonkai, Enum. Fl. Transs.: 263. 1887; Murbeck, Beitr. Kenntn. Fl. Sudbosn. u. Herceg.: 118. 1891; Velen., Fl. Bulg.: 202. 1891; Halácsy, Consp. Fl. Graec. 1: 644. 1901; Beck von Mannagetta, Fl. Bosnae 3: 459. 1927; Soó, Syn. Syst. Geobot. Fl. Veget. Hungar. 2: 477. 1966; Cannon in Tutin & al., Fl. Europaea 2: 360. 1960 (excl. *Ferulago meoides* (L.) Boiss. = *Ferulago confusa* Velen., species valde distincta!); Nikolič in Josifovič, Fl. Serbie 5: 276. 1973 ≡ *Ferula sylvatica* Besser ex Roemer & Schultes, Syst. Veg. 6: 492. 1820; Besser, Enum. Pl. Volhyn. 44: 1822; DC., Prodr. 4: 171. 1830; Rochel, Pl. Banat. Rar.: 63. 1828; Fuss, Mant. ad Baumgarten Enum. Stirp. Transs.: 26. 1846; Visiani, Fl. Dalm. 3: 49. 1851; Schloss & Vukotinović, Syll. Fl. Croat.: 109. 1857; Reichenb. fil., Icon. Fl. Germ. 21: 54, t. 106 (= 1947), 1867; Schloss & Vukotinović, Fl. Croat.: 470. 1869; Arcangeli, Comp. Fl. Ital.: 291. 1882; Parlatore & Caruel, Fl. Ital. 8: 302. 1889; Fiori & Paoletti, Fl. Ital. 2: 176. 1900.

= *Peucedanum officinale* Besser non L., Prim. Fl. Galiciae Austriacae 1: 208. 1809.

= *Ferula nodiflora* Baumg. non L., Enum. Stirp. Transs. 1: 218. 1816.

= *Ferula barrelieri* Ten., Fl. Nap. Prodr. App. 4: 13. 1823, Fl. Nap. 3: 342, t. 133. 1824 (cum var. A et B) et Sylloge: 139, n° 5. 1831; Bertoloni, Fl. Ital. 3: 377. 1838; Cocconi, Fl. Prov. Bologna: 236. 1883 ≡ *Ferulago barrelieri* (Ten.) Guss., Fl. Sic. Syn.: 354. 1842; Nyman, Consp. 1: 284. 1879; Calestani, Webbia 1: 237. 1905; Degen, Fl. Veleb. 2: 503. 1937 (cum synonymia locupleta et diligenter confecta!) ≡ *Lophosciadium barrelieri* (Ten.) Gris., Spicil. Fl. Rumel. 1: 372. 1843.

= *Ferula ferulago* Rochel non L. var. *commutata* Rochel, Pl. Banat. Rar.: 63, t. 24. 1828.

= *Ferula communis* Petter non L., Bot. Wegweiser Spalato, n° 408. 1832 (non vidi); Visiani, Fl. Dalm. 3: 49. 1851; Reichenb. fil., Icon. Fl. Germ. 21: 55. 1867; Schloss & Vukotinović, Fl. Croat.: 470. 1869.

= *Ferulago athamantifolia* Schur, Verh. Mitth. Siebenbürg. Vereins Naturwiss. Hermannstadt 4: 95. 1853 (non vidi); Fuss, Fl. Transs. Excurs.: 268. 1866; Simonkai, Enum. Fl. Transs.: 263. 1887.

- = *Ferulago monticola* Boiss. & Heldr., Diagn. Pl. Or. Nov. 2/2: 91. 1856; Janka, Öst. Bot. Wochenbl. 7: 329. 1857; Heuffel, Verh. Zool.-Bot. Vereins Wien 8: 116. 1858; Nelreich, Diagn. Ung. u. Slav. Gefässpfl.: 56. 1867; Boiss., Fl. Or. 2. 1002; Janka, Természetrázi Fü. 3, parte 4, 1879; Velen., Fl. Bulg.: 202. 1891; Halácsy, Consp. Fl. Graec. 1: 644. 1901 ≡ *Ferula monticola* (Boiss. & Heldr.) Neilr., Nachtr. Maly's Enum.: 199. 1861; Nyman, Suppl. Syll. Fl. Eur.: 26. 1865; Reichenb. fil., Icon. Fl. Germ. 21: 55, t. 210 (= 2051), 1867 ≡ *Ferulago sylvatica* var. *monticola* (Boiss. & Heldr.) Hayek, Prodr. Fl. Pénins. Balcan 1: 1029. 1927.
- = *Ferulago sylvatica* (Besser) Reichenb. var. *orphanidis* Boiss. & Heldr., Diagn. Pl. Or. Nov. 2/2: 91. 1856.
- = *Ferulago sylvatica* var. *stenocarpa* Borbas et var. *commutata* (Rochel) Borbas, Fl. Közlem.: 291. 1878; Beck von Mannagetta, Fl. Bosnae 3: 459. 1927; Hayek, Prodr. Fl. Pénins. Balcan. 1: 1029. 1927.
- = *Ferulago rocheliana* Nyman, Consp. Suppl. 2: 137. 1889.
- = *Ferulago commutata* Degen, Fl. Veleb. 1: 364. 1936, ibid. 2: 504. 1937 (nomen nudum).
- = *Ferulago latiloba* Schischkin, Bot. Žurn. 31(6): 9. 1947; Peşmen in Davis, Fl. Turkey 4: 456 et map 63, p. 459. 1972.
- = *Ferula verticillaris* "Kit. 1829", in Soó, Syn. Syst. Geobot. Fl. Veget. Hungar. 2: 477. 1966 (quid significant Kit. et 1829, omnino nescio!).

* * *

- = *Libanotis tenuifolia foeniculi semine*, Boccone, Mus. Piante Rare: 171, t. 123, fig. 1. 1697.
- = *Libanotis tenuifolia foeniculi semine ital.* Barrelier, fig. 836 (= *Ligusticum italicum*, *Ferulae folio brevior*, p. 63), Barrelier, Pl. Gall. Hisp. etc., opus posth. edit. Ant. de Jussieu, 1714.

Notum est ab antiquo P. Boccone (1633-1704) nonnullas plantas describisce in "Mus. Piante Rare" ex iconibus et notis quas ei J. Barrelier (1606-1673) sua sponte donavisse. Hoc impulit Antonium Jussieum qui opus postumum J. Barrelieri edidit, iudicium severissimum adversus Boccone proferre (vide Praefationem operis indicti). Boccone quidem minime "ejus (= Barrelieri) nomine praetermisso ut plurimum... etc. sibi arrogavit... levioribus parumque accuratis plantarum Siciliae et Norciani Montis descriptionem autopsiam minime redolentibus, furtum detexit..." minime, repitam, hoc confecit, sed contra in 52 plantarum descriptionibus (Mus. Piante Rare) memoriam J. Barrelieri attulit et gratum animum palam exposuit. Contentionem hanc G. BRIGNOLI DI BRUNNHOF (1847), probe explanavit.

Typus: Specimen typicum Besseri indicare non possum: quid Genavae in herbario candolleano servatum, supra scripsi, a quo lectotypum inferre non decet! Num in quodam herbario Germaniae, Austriae, Rossiae vel Poloniae, exemplar hujus speciei besserianum, haud spurium et dubium

servetur, nescio. Specimina hujus auctoris custodiuntur, (fide Index Herbariorum II, Collectors, 1954) etiam in: B, BR, BP, CGE, CW, FI, K, KW, L, LE, LZ (quid? nescio), M, MO, OXF, P, WAG.

DESCRIPTIO

Planta pedalis usque bipedalis, scabra, caule tereti 4 mm spisso, foliis deminutis praedito. *Folia* 4-pinnata saepius ambitu triangularia, raro oblonga, petiolo producto 20 cm longo, lamina 30 cm longa 8-20 cm lata, pinnis et pinnulis sat dense per rhachim inspersis, laciniis oblongis, mucronulatis, planiusculis, 4-8 mm longis. *Paniculae* corymbosae bracteis triangularibus vel oblongis, umbellis verticillatis 10-12-radiatis. *Involucra* et *involucella* ovato-triangularia, acuminata, conspicua; *umbellulae* 10-12-florae, pedicellis fructum aequantibus vel eo parum brevioribus. In sicco fusca, fructibus castaneis.

ANIMADVERSIONES

1. Synonymia formidulosa, quamvis haud completa quia alia opuscula et numerosa, nomina in eadem indicta ferunt, sed leviter nulloque commentario, quam ob rem a me pratermissa sunt, patefit speciem vastam distributione et forma nunc prae nobis ad explicandam adesse.

2. *Ferula sylvatica* a BESSER (1821) valde inepte descripta, sistitur in speciminibus ab eodem auctore inaccurate distributis mihi videtur, an forsitan a receptoribus male paratis; videlicet, in herbario Candolleano sub *Ferula sylvatica* in pagina herbarii servatur inflorescentia robusta (Typi hic dicti I) cum schedula ad eam affixa, charta caerulea "*Ferula sylvatica* mihi... Besser 1820"; ad eam sunt fructus haud bene maturi, et solum ex involucris haec inflorescentia characterem *Ferulaginis sylvaticae* (ut ab auctoribus in globo in synonymia superne digessis, consideratae) porrigit! In eadem pagina herbarii pars folii minime ejusdem speciei servatur, sed ad *Ferulaginem aucheri* Boiss. (syn.: *Ferulago taurica* Schischkin) pertinens. In eodem fasciculo herbarii DC. tamen nonnulla folia rite *Ferulae sylvaticae* (ut ab omnibus auctoribus censetur) observantur, schedulis omnino destituta. In herbario Helsingforsiae (H), alium specimen (ex hb. Steven) eadem schedula caerulea sic inscripta: "*Ferula sylvatica* mihi... Besser 1829" servatur, quod vero *Ferulagini setifoliae* C. Koch ex Armenia ("Erivan") pertinet. Quis in hoc erravisset, nescio et valde arduum invenire denique inutile puto. Ceterum hoc specimen Besseri, foliis suis restitutum ex plantis vigentibus in limitibus borealibus extremis non solum speciei sed etiam generis, characteres etiam extremos quippe ostentat, igitur ex illo interpretatio totius speciei eccentricos, partialis, deformis oritur. Ei sunt quidem, inflorescentia typi infrequentis ad speciem, folia latiora et laciniis gracilioribus. Hoc a me

censetur causa princeps longarum haesitationum botanicorum erga hanc speciem

3. Primus VISIANI (1851) unam esse *Ferulam barrelieri* Ten. et *Ferulam sylvaticam* Besser, maxima cum ratione statuit.

4. *Ferulago monticola* Boiss. & Heldr., forsitan ob nimis multam reverentiam optimi Boissierii, a botanicis magni tunc imperii Austriae servabatur et separabatur a *F. sylvatica* (Besser) Reichenb. Characteres nam futes et fluctivagi, ad exemplum parvulae dissimilitudines formae dimensionisque fructuum, invocabantur ut specimina transsilvanica et banatica (nunc Romaniae) vel bulgarica, distincta ab illis Graeciae essent. Labor quidem Sisypheus, quia haec species, quamvis a characteribus clavis circumscripta, attamen "mire ludibunda" (ut optime dixit illustris VISIANI, 1851: 2, de *Vincetoxico*) conspicitur in statura, ambitu foliorum, inflorescentiae forma, etc., ex crebris exemplaribus saepe ex eodem loco vel regione.

5. Sagacitas antiqui botanici, R. P. Jacobi Barrelieri O. P. patet in icone 836 ejus operis posthumi, ubi haec species (ex Italia centrali) bis offertur: ut planta majuscula, panicula umbellularum praedita, bracteis et involucris magnis et etiam ut planta gracilior, folio ambitu angustiore, debilior et umbellis ad apicem paucis.

6. Quoad *Ferulaginem monticolam* denique attinet, ejus descriptio anno 1856 confecta ex specimine Heldreichii "in dumosis prope Rachova ad radices Parnassi", foliis destituto, fructibus ambitu "oblongo-ellipticis", vittis commissuralibus paucis (ut legitur in BOISSIER, 1856), valde discrepat a descriptione Fl. Or. 2: 1002. 1872 et a speciminibus ibidem ad eam assignatis ab auctore: specimina quae diligenter iterum iterumque inspiciebam. Ex omnibus ex Graecia a me visis, tantum ex duobus commixtis (id est, ex exemplaribus sub eodem numero et notulis distributis, sed clare ex plantis distinctis lectis!), videlicet *Heldreich 2698*, 2.8.1852 (hb. G-BOIS) et *Orphanides 356* (quoad specimen in hb. G-BURN servatum), vittae pauciores, id est commissurales 16, dorsuales plus minusve 24 a me numerabantur. Cetera specimina, ad ex. *Guicciardi*, s.n. (an. 42?), ex Parnasso (WU); *Guicciardi 42* (G); *Orphanides 356* (G-BOIS); *Orphanides 2511* (G-BOIS) (omnia ex Parnasso); *Orphanides 3723* (G-BOIS), Olympo Thessaliae; *Orphanides*, s.n., 17.7.1857 (G), Macedonia; *Sintenis & Bornmüller 1249* (G), Macedonia, Olympo, vittis commissuralibus 24 et magis, dorsualibus 40 minimo, adsunt. Hoc certior me fecit ut considerarem *F. monticolam* (sensu BOISSIER, 1872) supervacaneam esse.

7. *Ferulago latiloba* Schischkin, ex Artvin, Turciae boreo-orientalis (cf. PESMEN, 1972: 459, map 63), fructu adhuc desiderato, a cl. Peşmen valde similis considerabatur *F. campestris*. Mihi contra, typo inspecto (ex LE) foliis

scabridis, pro nihilo a *F. sylvatica* differre conspicitur, quam ob rem in eam immisi.

8. De *Ferulagine confusa* Velen. quae perperam synonyma *F. sylvaticae* in CANNON (1968: 360) invenitur, supra scripsi.

AFFINITATES

Ferulago thirkeana ut statuebat quondam acerrimus BOISSIER (1856: 94) atque cl. PESMEN etiam indicat (1972: 465, n° 18) similis *F. sylvaticae* apparet. Uterque auctor tamen de glabritate vel scabritia ambarum specierum errabant, quia et *F. sylvatica* et *F. thirkeana* scabridae adsunt. Haec, parum lecta, ut videtur rara in area parva, fructibus in exemplaribus a me visis haud bene maturis, a *F. sylvatica* tantum ob numerum vittarum dubiose separatur. Nam inflorescentiis, tam in *F. sylvatica* variantibus, atque involucris consimilibus vix utraque species distingui potest. Lacinae tamen lineato-oblongae in *F. thirkeana*, saepius productiores quam in *F. sylvatica*, adiuvant cito specimina utriusque speciei nuncupanda.

Affinis autem cum *F. sylvatica* haec species:

1. *Ferulago sartorii* Boiss., ex nonnullis insulis Cycladum, fere eodem fructu (stilopodium conicum quandoque observatur etiam in *F. sylvatica*!) eodem numero vittarum, laciniis tamen angustioribus id est setaceis facile separatur.
2. *Ferulago silaifolia* (Boiss.) Boiss., laciniis similibus, involucris nonnumquam majoribus, quando sterilis vix primo visu distincta, tamen jugis fructus alato-crenatis, alis productulis et undulatis cito ab ea segregatur!
3. *Ferulago confusa*, ambitu foliorum et laciniis setaceis etiam sterilis facillime a *F. sylvatica* distinguitur. Fructifera vero, numero vittarum numerosiore et forma fructus, similis *F. silaifoliae*, discrimen profundum exhibet.

DISTRIBUTIO

Europae orientalis, usque Italiam centro-meridionalim, insulis exclusis, et Anatoliae borealis. Specimina lecta Albaniae et quondam sic nuncupata, mihi contra videntur a *F. sylvatica* abhorreere, et *F. nodosae* (L.) Boiss. pertinere.

SPECIMINA VISA

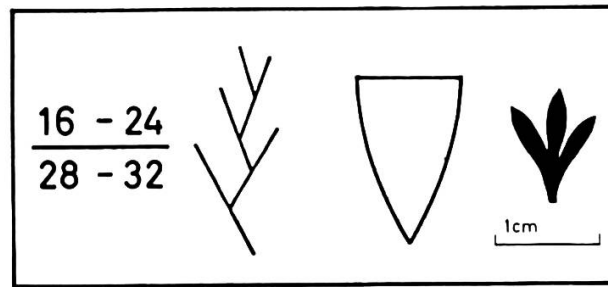
Bulgaria. Janka, in mt. Rhodopes pratis subalpinis inter Stanimaka (= Asenovgrad) et pag. Dolaschlar, 14.7.1871, fr. (WU). **Graecia.** Burdet & Charpin 10 270, Epirus, Ioannina, Metsovo, bords de la route Krania-Milea, près de la rivière Stenoporio, 1050 m, 20.6.1973, fl. (G); Dimonie, in regione

media Hagion Oros prope Prodhromos, Macedonia, VII.1908, fl. et fr. (WU); *Grimus* v. *Grimburg* 473, inter Patras et Lopesii, Achaiae, 12.6.1893, fl. (WU) = laciniis minimis!; *Guicciardi* 42, in monte Parnassi veg. inf., loco dicto Pagna ad vias inter vineta, Rachova, 2000', 23.6.1857, fl. et fr. (M); *Guicciardi* 42b = 2698, Fl. graeca exsicc. Heldr., in mt. Parnassi reg. inferiori, VII.1855, fr. (G, G-BOIS, M, WU); *Halácsy*, Arcadia in dumosis prope pagum Kalavryta, 700 m alt., solo calcareo, 13.6.1893, fl. (WU); *Heldreich* 2456, in regione sylvatica mt. Olympi Thessaliae pr. coenobium Hag. Dionysii et supra, 20.-31.7.1851, fl. (G-BOIS, M); *Heldreich*, s.n., Agrapha (Dolopia veterum) in regione inferiori mt. Pindi, circa monasterium Korona in nemorosis quercinis, 3500'-3700', substrato schistoso, 20.-28.6.-1885, fl. ad fr. (G, G-BURN); *Heldreich*, s.n., Flora Aetoliae, 12.5.1878, fl. (G); *Orphanides* 356, in regione infer. mt. Parnassi, prope Pania Rachovae, rara, 2500', 8.7.1854, fr. (G, HAL, WU); id., 2104, in monte Chelmos, prope Castraki, Achaiae, rara, 17.-29.6.1852, fl. (G-BOIS, G-BURN); id., s.n., in monte Chelmos, supra Klukiny, 4000', 26.6.1852, fl. (G); id., 2511, in mt. Parnasso prope Rachovam, 2000', fl. et fr. (G-BOIS); id., 3723, in reg. inf. mt. Olympi Thessaliae supra Hagios Dionysios, 17.-29.7.1857, fr. incip. (G-BOIS); id., s.n., in mt. Korthiati, prope Thessalonicam, Macedoniae, 17.7.1857, fr. (G); *Phitos* 3082, Macedoniae, mons Pangaeon, in silva *Fagus*, supra pagum Rodolivos, 26.6.1965, fl. (M); id., 7516, Phokis, mons Parnassus, inter Delphi et Arachova, in saxosis calc., 17.5.1967, fl. incip. (M); *Podlech*, Buschige Hänge östlich von Arachova an der Strasse Levadia-Delphi, 900 m, 14.-18.5.1967, fl. (M) = laciniis involucrisque angustis!; *Rechinger* 17454a, Macedoniae, distr. Kozani in mt. Vourinon, in declivibus orient., substr. serpent. in pinetis saxosis, 1400-1600 m, 5.8.1956, fl. ad fr. (M); *Roessler*, prov. Katerini, Olymp. Enipeus, Schlucht, 1500-1600 m, 5.7.1968 (M); *Sintenish & Bornmüller* 1249, Macedoniae Olympus, Hag. Dionysios in silva, 29.7.1891, fl. et fr. (G, WU); *Topali*, Mt. Ossa, versant sud, Selistani, 1000 m, 14.6.1938, fl. (G). **Hungaria.** *Barth*, in collibus Hévis (= Heves), 4.7.1885, fl. (G-BURN); *Janka*, prope pagum Hl. Gottard, frequens, 18.7.1862, fr. (G); id., in collibus graminosis praecipue ad silvarum margines prope pagum Hl. Gottard, frequens, 2.8.1862, fr. (HAL); id., ibidem, 14.8.1875, fl. et fr. (G, G-BURN, WU); id., ibidem, Hl. Gottard = Szengotthard, 23.8.1879, fr. (G, G-BURN). **Italia.** *Gavioli*, s.n., Lucania, Potenza in silva Pallareta dicta, 900-1200 m, solo calc. argilloso, frequens in regione indicta usque 1200 m, superius abesse dicitur, 4.8.1923, fl. (G); *Groves*, Vallée de Vozzi, Pettarana dans les Abruzzes, broussailles, VII.1879, fl. ad fr. (G-BURN, M); *Groves*, in dumetis Valle Vozzi, prope Sulmonam in Aprutio, 4000', VII.1879, fl. ad fr. (G-BURN); *Gussone*, Campobasso, Molise, fr. (G); *Martelli*, Iter garganicum, bosco Umbro, 21.5.1893, fl. (G); *Porta & Rigo*, Apulia (Puglie), Gargano in silvis Di Vico, solo calcareo, 100-2000', 13.6.1874, fl. (G, G-BURN, M, WU); *Sieber*, monte Gargano ex Apulia, rarissima stirps, an. 1817, fl. (H ex hb. Steven); *Tenore*, in Lucania, an. 1833, fl. ad fr. (M); id., in Vulture et Samnio, an. 1840, fl. incip. (G); id., in montibus Lucaniae, an. 1841, fl. ad fr. (G). **Jugoslavia.** *Adamović*, Süd-Serbien, Vranja, 1893, fr. (WU); id., in alpinis ad

Vranja, VII.1893, fl. (WU); id., in apricis subalpinis mt. Basara (= Basarski Kamen), solo calcareo, VII.1893, fr. (M); id., in subalpinis circa Knjaževac (= Kneževac), VII.1894, fl. (WU); id., in pratis siccis ad pedes montis Krstilovica, ca. 700 m alt., solo schistoso, 2.6.1896, fl., 25.6.1896, fr. incip. (G-BURN); id., in dumetis ad Knjaževac, VII.1896, fl. ad fr. (WU); id., in fruticetis et dumetis montis Basara, VII.1896, fl. (WU); *Beck*, in monte Poprenik prope Sarajevo, ca. 800 m, VI.1885, fl. (WU); *Burgeff 451b*, Steppe bei Krivolak, Macedonia, 23.5.1918, ster. (M); id., 1524, Nicolice a. Dojran See, Popovnich-Höhe, VI.1917, fl. (M); id., 1718, Belašica Planina, ca. 1600 m, VII.1917, fl. (M); id., 197, Steppe bei Stip, V.1918, fl. ad fr. (M); *Daenen 260*, auf dem Mte Beljack (= Beljanica?, 44°8'-21°43'E.), V., fr. (G); *Dimitrich*, Rtany (Rtanj) 43°47'-21°54'E., VII.1893, fr. (WU); *Fenzl*, Dalmatia, 30.8.1834, fr. (G); *Ginzberger*, Bosnien, Nordosthang der Treskavica Planina oberhalb Turovi bei Trnovo, Wiesengelände, ca. 1000 m, 13.7.1929, fr. incip. (WU): radiis productionibus!; *Handel-Mazzetti*, am Wege von Prusac nach Koprivnica bei Bugojno, auf Schiefer über dem Savraski Potok, 1200 m, 10.7.1904, fl. ad fr. (WU); *Herzog 177*, im Eichengebüsch des Smeretlivez, Macedoniae, VI.1917, fl. (M); *Ilić*, Umgebung des Dorfes Kamenitza, 1889, fl. (WU); *Ivanović*, in graminosis collinis ad Vranja, VI.1894, fr. (G); *Lindberg*, Dalmatia, Zelenizca prope Castelnuovo, 27.5.-1905, fl. (H): in *Ferulaginem silaifoliam* incumbens!; *Maly*, in pratis montanis mt. Igman ad oppidum Sarajevo, 1180 m, 20.7.1908, fr. (WU); id., in valle Koševo ad oppidum Sarajevo, 680 m, 18.7.1920, fr. incip. (WU); *Moellendorff*, Moščanicathal b. Sarajevo, VI.1872, fl. (G-BURN); *Oberwinkler 16 928*, Treskavica-Planina, Karst-Plateau bei Krbljine südlich v. Sarajevo, Kalk, 1400 m, 20.7.1970, fr. incip. (M); *Pančić*, in silvestr. saxosis mt. Greben, Serbiae borealis, fl. (G); id., in silvestr. ad Tekija, Serbiae australis, VIII., fr. (G); *Pantocsek*, in gram. mt. Deuntor (?), prope Trebinje, 21.5.1872, fl. (G-BURN); *Petter 408*, Dalmatia, an. 1840, fl. ad fr. (G); id., Dalmatia, fr. (M); *Saint-Lager*, bois à Ruište près Mostar, Hercegovina, 20.7.1898, fl. ad fr. (G); *Schiller*, Bosnie, Bič plateau, Kalk, 1200 m, VII.1903, fl. ad fr. (WU); id., Wiesen bei Ifsar, Bosnien, 24.7.1903, fl. ad fr. (WU); *Sendtner 605*, Bosnie, 1847, fl. incip. (G); id., 979, ad praecipites montis Vlassich versus Travnik, 26.5.1847, ster. (M); id., 1782, in monte Vlassich supra Oreshaz, 19.6.1847, fl. (M); id., an. 1848, fl. (G); *Stadlmann & al.*, Wiesen zwischen Podosoje und Napodovi, West-Bosnien, Kalk, ca. 800 m, 11.7.1904, fl. ad fr. (WU); *Wijičić*, Ceršak, 46°42', 15°41'E., VI.1896, fl. (WU). **Polonia.** *Blocki*, Cygany, S.E. Galitiae, an. 1883, fl. et fr. (G-BURN); id., Galitia orient., Dubienko, Monasterzyska, in pratis silvaticis copiosa, an. 1886, fl. ad fr. (G). **Romania.** *Barth*, in dumetis, Deva, 1.7.1855, fl. et fr. (G-BURN, H); id., in Siebenbürgen, fl. ad fr. (G-BURN, WU); id., in pratis siccis montanis ad Taterloch, Transs., 10.6.1880, fl. (G, G-BURN, M); id., in silvis N. Enyed, 300 m, 19.7.1895, fl. ad fr. (M); *Beauverd*, Mt. Allion sur Orsova, vers 200 m, bas Danube, 22.6.1905, fl. ad fr. (G); id., rochers au sommet du Verfu-Suscului, vers 1300 m, Carpathes du Banat, 24.6.1905, fl. (G); *Borbas*, in silvis montis Allion infra oppid. vetus Orsova ad Danubium, 29.5.1874, fl., 3.5.1875, fr.

(WU); *Borza*, Transs. distr. Turda-Aries, in pratis silvaticis ad pagum Borzesti, 420 m, solo humoso calcareo, 17.6.1923, fl. (G, WU); *Buttler & al.* 8811, Cluj, Cheja Turzii bei Turda, Trockenbuschwald am Südosthang, 3.8.1965, fl. ad fr. (M); *Csató*, Siebenbürgen bei Nagyenyed (= Aiud) in pratis montanis, fl. (G, G-BURN, M, WU); *Czetz*, in der Umgegend von Nattais, fl. (G); *Filanszky*, in Mte Suskului ad Thermas Herculesfürdo, 24.6.1905, fl. (H); *Freyn*, Kolosvar (= Cluj), Bergwiesen bei Boos, Miocen, 420 m, 4.7.1871, fl. ad fr. (WU); *Haynald*, ad Reismarkt, Transs., VII., fl. (M); *Häyrén*, Baile Herculani Mt. Domuglad, regio alpina, 2.7.1931, fl. ad fr. (H); *Heuffel*, in pratis montis Domuglett ad Thermas Herculis in Banat, VII.1838, fl. ad fr. (G); id., in pratis merid. Banatus, VI.-VII.1853, fl. ad fr. (G); id., 55, in silv. locis graminosis montis Domuglett ad Thermas Herculis, V.-VI., fl. (HAL); *Hübl*, bei Turda in Siebenbürgen, 11.7.1908, fl. ad fr. (WU); *Janka*, environs de Clausenburg (Cluj) en Transs., VII.1854, fl. ad fr. (G); *Kováts* 155, in graminosis Mezoseg in Transs., fl. (M, WU); *Lindberg*, comitatus Krassó-Szörény, Herkulesbad, mt. Domoled (= Domuglad, Domuglett) in saxosis silvaticis, ca. 400 m, 24.6.1905, fl. ad fr. (H); *Nagy*, in graminosis Mervség, VI.-VII., fl. ad fr. (WU); *Pavai*, Transs., VII.1861, fl. ad fr. (G); *Prodan*, distr. Cojocno, in pascuis montanis Făget, ad opp. Cluj, 550 m alt., VII.1921, fl. (G, WU); *Richter*, Herculesfürdo, Schnellermagarlat, 12.5.1892, fl. (G-BURN); id., Herculesfürdo-Schnellerpiheno, 28.5.1892, fl. (G-BURN, HAL, M); id., in regione Kolozvar (Cluj) Malomvolgy, 19.8.1901 (G); id., Szvinicza, 20.5.1910, fl. (G); *Rochel*, e Banatu ad Thermas Herculis, an. 1815, fl. ad fr. (LE); *Rochel*, in flore in pratis montis Alibek Banatus, fruct. in pratis ad pedes montis Domoglett in valle Thermarum Herculis, Banatus, 30.7.1815, fl. et fr. (M); *Schneider*, Porta Orientalis (ad Danubium), fl. (G); *Wagner*, in dumetis pr. Orovicza, Krassó-Szörény, 5.6.1896, fl. ad fr. (G); id., in dumetis ad urbem Orovicza, 7.6.1896, fl. (WU); id., Fl. v. Marmaros, an mit Gestrüpp dicht bewachsenen Wiesen-Csere gennant-, bei Bustyaháza, VII.-VIII., fl. et fr. (WU); *Watzl*, am Waldrande bei Drenkova, a. d. Donau, 1.6.1909, fl. (WU); id., Suscului bei Herkulesbad, 5.6.1909, fl. (WU); *Wierzbicki*, Banat, steinige Waldplätze b. Sciklowa und Orawicza, an. 1841, fl. et fr. (G, G-BOIS, H, HAL); *Wolff*, Turda, VII.1889, fl. et fr. (G-BURN, M, WU). **Rossia.** *Buček*, Rossia subcarpatica in declivio meridionali m. Cernà hora (Fekete hegy) ad oppidum Sevluš (= Vinogradov), 250-300 m, 8.6.1930, fl. (G, M, WU); *Hohenacker*, prata sylvatica Volhyniae, VII.1839, fl. ad fr. (G); *Schmalhausen*, Podolia in silva prope stationem Shmerinka, 29.6.1884, fl. (G, H); *Steven* (ex hb. an ipse legit?), Podolia, fr. (H); *Wolozozak*, in Waldränden an der Skala Haluszczyniacka, Miodoborg, Ost-Galizien, 24.6.1890, fl. (WU). **Anatolia turcica.** *Davis & Hedge* 30 041, prov. Çoruh (Artvin) above Artvin, 800 m, steep fallow fields, 25.6.1957, fl. (E); *Voronov* 5780, in abruptis prope oppidum Artvin, 27.7.1911, fl. (LE): ante *Ferulago latiloba* Schischkin nuncupata). *Obs.*: specimina anatolica occidentalia a cl. PESMEN (1972: 465 et map 66, p. 467) indicata pro ut hac specie non vidi.

36. *Ferulago syriaca* Boiss.,
Diagn. Pl. Or. Nov. 1/10: 38.
1849; Tchihatcheff, Asie
Min. Bot. 1: 432. 1860; Boiss.,
Fl. Or. 2: 1002. 1872; Post,
Fl. Syr. Pal. Sin.: 360. 1896;
Temple, Flowers and Trees
of Palestine: 92. 1907; Hand.-



Mazz., Mesopotamien in
Karsten & Schenck, Veg. Bilder 10/5, t. 28. 1912 (errate *F. pauciradiata*
Boiss. & Heldr. nuncupata sed ibidem ab eodem auctore correcta);
Hand.-Mazz., Ann. K.K. Naturhist. Hofmus. 27: 91. 1913; Holmboe, Stud.
Veg. Cyprus: 140. 1914, in Bergens Mus. Skr. ser. 2, 1, 2; Eig & al., Plants
of Palestine: 267. 1931; Post, Fl. Syr. Pal. Sin., ed. 2: 350. 1932; Thiébaud,
Fl. Libano-Syr. 2: 164. 1940 (in Mém. Inst. Egypte 40); Mouterde, Nouv.
Fl. Liban et Syrie 2: 646. 1969; Peşmen in Davis, Fl. Turkey 4: 465, map 66
p. 467. 1972; Zohary, Fl. Palaestina 2: 440, pl. 638. 1972.

- = *Ferulago cypria* Wolff, Feddes Repert. 20: 67. 1924.
- = *Thapsia foetida* Sibth. & Sm., Fl. Graec. Prodr. 1: 201. 1806, quoad
specimen Cypri, fide Holmboe (1914).
- = *Thapsia foeniculacea* Sibth. in Walpole, Mem. Relat. Europ. et Asiat.
Turkey, ed. 2: 26. 1818, nomen nudum (non vidi), fide Holmboe (1914).

Non est:

Ferulago cypria (Post) Lindb., Iter Cyprium: 25. 1946, in Acta Soc. Sci.
Fenn., Nov. ser. B, t. 2, n° 7; Tafall & Seraphim, List Vasc. Pl. Cyprus: 79.
1970.

Ferula cypria Post, Mém. Herb. Boissier 18: 94. 1900, ex descriptione
idonea atque typo inspecto, *Ferulae* pleno jure pertinet; vide etiam
KOROVIN (1947).

Typus: *Boissier*, montagnes d'Antioche, Syria, mai-juil. 1846 (fr.)
(G-BOIS).

DESCRIPTIO

Planta scabra dimensione variabilis: pedalis usque bimetralis!, caule leve,
terete, lucido, ad basim 7-8 mm spisso, collo radicali producto, fibroso. *Folia*
3-4-pinnata, ambitu triangularia, pinnis et pinnulis sat numerosis, saepe parva
15 × 5 cm, raro duplo longiora et latiora, petiolo et rhachide angulatis,
laciniis scabris, oblongis, margine vix revoluta, 10-15 mm longis, 1-2 mm latis,
acutis, haud mucronatis. *Paniculae* corymbiformes productae et vastae,
umbellis alternis, divaricatis, longe pedunculatis 8(-12)-radiatis. *Bracteeae*,
involucra et *involucella* triangularia, inconspicua, acuminata. *Umbellulae* 8-

12-florae, pedicellis quam fructu longioribus vel aequilongis. In sicco fusca, fructibus etiam obscuris.

ANIMADVERSIONES

Haec species oram orientalem Mediterranei tenet atque insulam Cyprī, inter omnes creberrimas hujus maris, orientaliorem!

Descriptiones aptae et usu commodae inveniuntur apud plurimos ex auctoribus in synonymia dudum dictis. Ceterum *F. syriaca*, quamvis vastae areae, tamen characteribus sat constantibus, ut neque varietates neque formae ab antiquo ex speciminibus Asiae minoris descriptae essent.

Ferulago cypria Wolff nullo modo distingui potest a speciminibus *F. syriacae*.

AFFINITATES

BOISSIER (1849) nonnullam affinitatem in foliis inveniebat cum *F. aucheri* Boiss. et *F. lophoptera* Boiss. (= *F. macrocarpa* (Fenzl) Boiss.). Similitudo foliorum in *Ferulagine* tamen affinitati verae saepius illudit: hoc patet etiam in *F. humili* erga *F. cassiam*, ut supra refertur. *F. syriaca* a *F. aucheri* magnopere amovetur ob inflorescentiae et involucris formam et etiam stilibus (in *F. aucheri* brevibus); a *F. macrocarpa* autem abhorret fructu toto coelo distincto et vittis in *F. macrocarpa* numerosioribus.

Ipse BOISSIER (1872) similitudinem fructus hujus speciei cum *F. sylvatica* (et *F. monticola*, ab eodem auctore tunc distincta) consignabat; sed talis similitudo curta mihi videtur: in jugis et alis quidem adest, at in numero vittarum, in stilopodio et in stilorum longitudine abest. Affinitas majoris momenti a me consideratur cum *F. nodosa* cujus distributio insulam Cretam attingit, quae fere omnes characteres in hoc revisionis tentamine majoris ponderis, censitos, consimiles cum *F. syriaca* praebet. Liceat mihi hos exponere: utraque species inflorescentiis Typi II, laciniis eodem typo ita ut involucris, eodem numero vittarum, jugis et alis corticosis, in fructu maturo intus candidis, stilibus quam stilopodio valde productionibus et exilibus... quippe multa dixi, tamen quidquam addam: *Ferulago syriaca* ex terris pro nostro genere pristinis, vel aliis verbis dictum, ex terris propioribus ad generis originem, insulas et terras occidentales petens (in temporibus valde peractis!) ut *Ferulago nodosa* hoc perfecit, id est paucis characteribus mutatis.

Ferulaginis nodosae valde affinis a me indicabatur *Ferulago brachyloba* Hispaniae; pariter, in Anatolia procul a Mediterraneo usque ad Armeniam, species affinis *F. syriacae* a me putatur *Ferulago armena* (= *F. pauciradiata* Boiss. & Heldr.). Haec, ut manifeste conspicitur in clave specierum (p. 65) valde propinqua cum *F. brachyloba* adest!

Hoc mea sententia bene explicatur, quasi rami secundi ordinis ex uno trunco (*F. syriaca*) orti et quamquam oppositi et remoti, tamen similiores.

DISTRIBUTIO

Anatoliae austro-orientalis, Syriae, Libani atque Palaestinae. Cypri insulae.

SPECIMINA VISA

Anatoliae Turcia. *Balansa* 955, Cilicie, Bouluktli près de Mersina, région chaude, 9.6.1855, fr. (G, G-BOIS); *Boissier*, Antioche, V.-VII.1846 (G-BOIS); id., ruines de Seleucia, eodem tempore (G-BOIS); *Huber-Morath* 15 474, Prov. Içel, distr. Anamur, Brachfeld am Meer, 5 km westlich Anamur, 5.6.1950, fl. (hb. Huber-Morath); *Kotschy*, s.n., Pl. syriae borealis ex Amano occidentali supra Arsus, 1862, ster. (G-BOIS); *Muschler*,... ad camporum margines, II.1904, fr. vet. (G). **Cyprus.** *Lindberg*, distr. Kyrenia, Hagios Hilarion in decliv. lapidosis siccissimis, 7.6.1939, fl. (H, LD); id., 45, distr. Kyrenia, specimen unicum in ripa rivuli, 7.7.1939, fr. (H); *Merton* 3051, Rigopoulos Akamas, abundant in pine-juniperus woods, up to 7' high fruiting stems. Also seen on N. coast, 7.4.1957, str. (K); id., 3222, Lekkoniko Pass, on marly banks of mixed hard limestone and clay, under pines. Hardy to 3'. A flat rosette of leaves; stem-leaves sheathing for 4-5''. Flowering stem much branched, fl. greenish yellow. Deep fusiform root up to 3' long, 24.5.1957, fl. et fr. aegrotis! (K); *Sintenish & Rigo* 610, in mont. inter Corignia et Dikomo (typus *F. cypria* Wolff), 1.4.1880, fl. ad fr. (BM, G, K, LD, LE, M). **Syria.** *Boissier*, entre Suadie et Antioche, V.-VII.1846, fl. et fr. (G-BOIS); id., Antilibano, eodem tempore (G-BOIS); id., Syria septentrionalis, e. t. fl. ad fr. (G); *Ehrenberg*, Anissa, an. 1824, fl. (H); *Handel-Mazzetti* 1752, prope vici ruinas Gharra in medio pedis septentrionalis montium Dschebel Abd Asis, calcareo-argilloso, 500 m, 22.6.1910, fr. incip. (WU); *Labillardière*, Syria (G, H); *Mouterde* 3386, Jabal Semaane, W. d'Antioche, VIII.1934, fr. (G); id., 3418, ibidem, 3.8.1934, ster. (G); *Pabot*, sud de Kessab, 5.5.1954, fl. incip. (G); id., sud du Lattaquié, route de Baniyas, 7.5.1954, fl. et fr. incip. (G); id., Sleufé (ou Slenfé?), 26.5.1955, fr. (G); id., sud de Tschagrouane (= Chakrouane), Bassit, *Quercus cerris*, 21.7.1955, fl. et fr. (G); id., S.E. Lattaquié, talus gréseux, 3.6.1956, fl. ad fr. (G); id., route Qadmam-Baniyas, maquis, 4.6.1956, fl. et fr. (G); id., N. de Massiaf, bois de cyprès, 4.6.1956, fl. et fr. (G). **Libanus.** *Blanche* 721, Broummana, 25.7.1849, fr. (G-BOIS); id., 3935, versant ouest des collines en allant à Bahsas, Tripoli, VI.1859, fr. (G-BOIS); *Bornmüller* 656, in siccis regionis inferioris ad Broummana, VII.1897, fl. et fr. (G, WU); *Mouterde* 89, Nahr el Mott, V.1931, ster. (G); id., 1256, Nahr Beyrouth, 24.5.1932, fl. (G); id., 2291, Nahr el Mott, 30.5.1933, fl. (G); id., 3469, Dlepta, 20.8.1934, fl. et fr. (G); *Pabot*, sous Qarnayel, au N. de Hammane, folioles à marge revolutées, bords rudes, 14.7.1953, fl. (G); *Peyron* 1372, in rupestribus Beyrouth, 27.5.1882, fl. ad fr. (G); *Peyron*, Ras Beyrouth, 15.7.1879, fr. (G). **Palaestina.** *Gaillardet* 2699, environs St. Jean du désert, Aïn Karem, S.O. de Jerusalem, an. 1859, ster. (G-BOIS); *Meyers* B-1082, rocky places, 2-3 m, Bittir, 12.6.1913, fl. ad fr. (G).

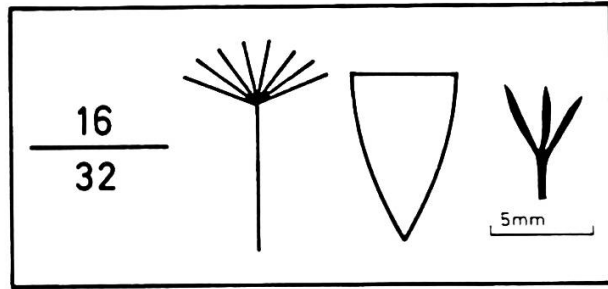
37. *Ferulago thirkeana* (Boiss.)

Boiss., Fl. Or. 2: 1004. 1872;
Peşmen in Davis, Fl. Turkey
4: 464, map 66 p. 467. 1972.

(*Notula*: invenitur etiam
in opere inedito nihilominus
impresso, cujus plagulae de
prelo, Genavae (G) exstant,
auct. A. & B. V. D. Post, p.
190, sine titulo, probabiliter

in pectore auctorum "Prodrome de la Flore de Constantinople", cf.
Aznavour in Bull. Soc. Bot. France 44: 165. 1897) $\equiv$ *Lophosciadium*
thirkeanum Boiss., Diagn. Pl. Or. Nov. 2/2: 94. 1856; Tchihatcheff, Asie
Min. Bot. 1: 445. 1860; Calestani, Webbia 1: 239. 1905 $\equiv$ *Ferulago*
meoides Boiss. var. *thirkeana* (Boiss.) Aznav., Bull. Soc. Bot. France 44:
170. 1897, quoad specimina anatolica.

= *Lophosciadium meifolium* C. Koch non DC., Linnaea 19: 38. 1847.



Typus: *Thirke*, Asia minor, litus austr., Pontus Euxini (holo-: LE, G-BOIS).

DESCRIPTIO

Planta gracilis, angusta, scabra vel scabridula, 1-2-pedalis, caule tetragono, sulcato, 3-4 mm spisso, foliis deminutis praedito. *Folia* bipinnata ambitu oblonga, 10-15 cm longa, 2-3 cm lata, petiolo 4-5 cm longo incluso, pinnis sparsim per rhachim inspersis, laciniis scabris, oblongis 5(-10) mm longis, mucronulatis, margine revolutello. *Umbellae* ad apicem caulis congestae, (10-)12-radiatae, subcorymbosae, *bracteis* conspicuis late triangularibus, acutis, cymbiformibus. *Involucra* et *involucella* valde conspicua, triangularia et reflexa; *umbellulae* ultra 20-florae, pedicellis quam involucellis brevioribus. In sicco fusca, caule partim atro-rubro.

ANIMADVERSIONES

Caulis compressus nonnumquam fere tetragonus et sulcatulus, folia per caulim inspersa, quam folia radicalia certe minora sed conspicua; involucra magna, tantum *F. silaifoliae* minora similiaque cum eis *F. sylvaticae*, faciem specificam et peculiarem afferunt.

AFFINITATES

Primo visu consimilis videtur *F. sylvaticae*, ut supra scripsi. PEŞMEN (1972) affiniorem censebat *F. platycarpam*: quod nego et forma inflorescentiae imprimis, et numero vittarum et laciniis, etc. Fundamento igitur numero vittarum et inflorescentiae forma, affinior adest *F. silaifoliae* atque *F.*

serpentinicae, prima cito distinguenda laciniis latiusculis et involucris maximis, altera contra, involucris minoribus (et ut constat in typo, oblongis) stilibus brevioribus. Fructus maturus et aridus *Ferulaginis thirkeanae* adhuc desideratur.

DISTRIBUTIO

Anatoliae occidentalis.

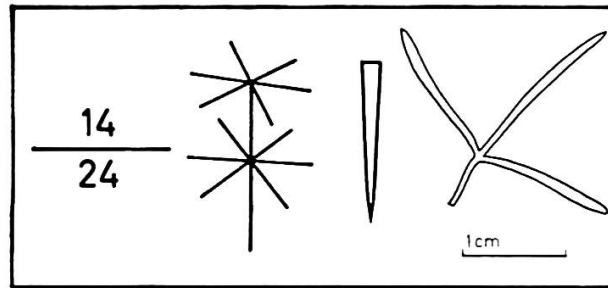
SPECIMINA VISA

Aznavour 1016bis, au-dessus de Büyük Elmaly, à Alemdag, lieux découverts, 24.5.1891, fl. (G) (*obs.*: PESMEN (1972: 465), qui intermedium esse inter *F. thirkeanam* et *F. platycarpam* hoc specimen asseverat. Mea sententia tamen integre ad *F. thirkeanam* pertinet); *Davis 38 993*, prov. Zonguldak, Keltepe above Karabük, 800-900 m, dry *Pinus nigra* woods, 4.8.1962, fr. incip. (E); *Tchihatcheff 405a*, Ponto merid. inter pagos Agatchbachi et Sarybaba, ca. 1800 m, fl. (G-BOIS); *Tobey 286*, Vilayet Samsun, Ankara new road 5 miles inland, scrub, clay over shale 2 feet h., carrot-like foliage, 8.6.1963, fl. (E); (de) *Wrieden 35* (?), Sofia (?) et Marsivan (Merzifon), 1835 (?) fl. (LE).

38. *Ferulago thyrsiflora* (Sibth.

& Sm.) Koch, Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 12: 98. 1824; Raulin, Descr. Phys. Crète: 703. 1869; Boiss., Fl. Or. 2: 1005. 1872; Halácsy, Consp. Fl. Graec. 1: 665. 1901; Gandoger, Fl. Cret.: 43. 1916; Hayek, Prodr. Fl. Pénins. Balcan. 1: 103. 127 (in Repert. Spec. Nov. Beih. 30, 1); Rech. fil., Fl. Aegaea: 412. 1943; Cannon in Tutin & al., Fl. Europaea 2: 359. 1968 $\equiv$ *Ferula thyrsiflora* Sibth. & Sm., Fl. Graec. Prodr. 1: 191 1806 et Fl. Graec. 3: 73, t. 280. 1819; Roemer & Schultes, Syst. Veg. 6: 589. 1820 (descriptione ex novo ab opt. Schultes ex specimine Sieberiano); DC., Prodr. 4: 171. 1830.

= *Ferulago cretica* Boiss. & Heldr. in sched. hb. Reuter, G.



Typus: *Sibthorp*, in insula Cretae rupibus (OXF, non vidi; icon pulcherrima confirmat).

DESCRIPTIO

Planta robusta et vasta glabra 3-4-pedalis (an major?) caule tetragono valde sulcato 10 mm spisso, fistuloso, foliis deminutis praedito. *Folia* magna, tripinnata, ambitu triangularia 30 cm longa, 15-20 cm lata, petiolo terete vix sulcato, 8-10 cm longo incluso, pinnis valde separatis, laciniis filiformibus omnino involutis, glabris 3-4 cm longis. *Paniculae* amplae, divaricatae, umbellis verticillatis, 10-15-radiatis, *bracteis* lineato-triangularibus acutis. *Involucra* et *involucella* lineata vel anguste triangularia, saepe ad nodos radorum inflatos decidua. *Umbellulae* 10-15-florae, pedicellis sulcatis quam fructu dimidio brevioribus. In sicco foliis virido-fuscis, caule luteo-fulvo, fructibus castaneo-fuscis.

ANIMADVERSIONES

1. Haec species cito et facile ab Europae ceteris distinguitur caractere foliorum verbis concisis et idoneis cl. RECHINGER (1943: 411) in ejus clavi specierum sic porrecto: "Foliorum costae in lacinias lineares rigidas ab eis subindistinctas abeuntes".

2. A nonnullis auctoribus foliis scabriusculis praedicatur, sed ex inspectione diligente foliis omnino glabris praedita mihi constat.

3. Character etiam facile visu ex involucris desumitur, quia inter europenses tantum ista phyllis lineatis vel perlonge lineato-oblongis adest; pedicellis autem quam fructibus duplo brevioribus insignita.

4. Denique: in inflorescentiis ad basim umbellarum umbellularumque, nodi crassiores globosi ad maturitatem fructuum apparent, e quo saepius tunc involucra et involucella delapsa sunt: hoc observamus etiam in *Ferulagine stellata*.

Quas ob res, et patria insulari et forma ab aliis occidentalioribus pro nihilo indiscreta.

AFFINITATES

Forma inflorescentiae, longitudine pedicelli fructu comparata et numero vittarum erga *F. trachycarpam* Anatoliae vigentem haud procul a mare et insulae Samos, respicet. Per eam, ad *Ferulaginem angulatam* (quae a me salutatur species pristina vel verbo ponderoso, "Proto-Ferulago") appropinquat; sed ab utraque forma involucrorum et fructuum et glabritie separatur. *F. trachycarpa* nam laciniis distinctissimis, stilibus brevioribus; *F. angulata* contra, laciniis similibus sed fructu majore et vittis crassioribus et paucioribus.

DISTRIBUTIO

Creta.

SPECIMINA VISA

Baldacci 121, in rupestr. supra Kroussona versus Nida, distr. Malevisi, 10.6.1899, fl. (G, G-BURN, WU); id., 258, in rupestr., défilé Nipros distr. Sphaxia, 12.7.1899, fl. ad fr., fl. et fr. (G, G-BURN, WU); *Gandoger 7260*, Prov. Canée, Malaxa, 2000', 11.6.1915, ster. (G); id., 8519, Prov. Canée, Mt. H. Pneumon, 5000', 16.6.1915, fl. (G); id., 11 716, Pr. Candia, Nida, semper sterilis!, 5000', 17.5.1915 (G); id., 12 323, Prov. Rethymo, Petramero, 29.5.1915, ster. (G); *Greuter 2774*, Ep. Sfakia, Kavi-Schlucht nwl. Chora, 100-200 m, Kalk-Wände, selten, stets steril, 27.4.1960 (hb. Greuter); id., 4155, Ep. Kidonia, Schlucht zw. Perivolio u. Thérissos, 200 m, Kalk, Vereinz. ster. an schattiger Felswand, 15.5.1962 (hb. Greuter); id., 4742, Ep. Rethimni, b. der Abzweigung nach Aj. Konstandinos an der Str. zw. Episkopi u. Gonia, 120 m, Tripolitsa-Kalk, Zahlr. auch fertil in Ritzen N.W. exp., 22.6.1962, fr. (G, hb. Greuter); *Heldreich 1666*, la plante en feuilles est très commune dans les gorges des montagnes Sphakiotes sur les rochers, mais il paraît qu'elle ne fleurit que très rarement parce que je n'en ai pu trouver que deux échantillons en fruits dans la Gorge de Nipro, le 16.7.1846, fr. (G, G-BOIS); *Reverchon 53*, an. 1883, rochers calcaires de Malaxa, 18.VI., fl. (G, G-BURN); *Sieber*, Mte Sphak, Therisso, fr. (HAL).

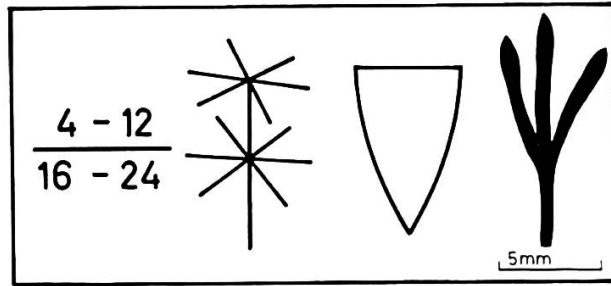
39. *Ferulago trachycarpa* Boiss.,
Ann. Sci. Nat. Bot. ser. 3, 1:
319. 1844, cum var. *libano-*
tica, ibidem p. 320 et Fl. Or.
2: 1006. 1872; Peşmen in
Davis, Fl. Turkey 4: 470.
1972.

= *Ferulago frigida* Boiss.,
Diagn. Pl. Or. Nov. 1/10: 39.
1849 et Fl. Or. 2: 1007. 1872;
Post, Fl. Syria, ed. 1: 361. 1896 et Fl. Syria, ed. 2, 1: 550. 1932; Thiébaud,
Fl. Libano-Syr. 2: 165. 1940 (in Mém. Inst. Egypte 40); Mouterde, Nouv.
Fl. Liban & Syrie 2: 645. 1969.

= *Ferulago frigida* var. *laxa* Post, Fl. Syria, ed. 1: 361. 1896 et Fl. Syria, ed. 2,
1: 551. 1932.

= *Ferulago insularis* Wolff, Feddes Repert. 21: 110. 1925.

= *Ferulago brachycarpa* Wolff (sph. pro ut *trachycarpa*!) var. *trojana* Wolff,
Feddes Repert. 21: 111. 1925.



Typus: *Boissier*, Sypilus (= Sipylus) supra Magnesiam, VII.1842 (G-BOIS).

DESCRIPTIO

Planta erecta, scabra saepe 3-4-pedalis (tantum pedalis quandoque dum fructifera, foliis fere destituta!) caule compresso subtetragono, sulcato, collo radicali producto valde fibroso. *Folia* tripinnata, ambitu ovata, 40-50 cm longa 15-20 cm lata, petiolo robusto sulcato 15 cm longo incluso; pinnis et pinnulis paucis, laciniis scabris crassiusculis, 5-15 mm longis, apiculatis. *Paniculae* erectae, robustae, umbellis verticillatis 10-15-radiatis, bracteis triangularibus acutis, sat conspicuis. *Involucra* et *involucella* triangularia, cymbiformia, acuminata; *umbellulae* 8-12-florae pedicellis quam fructu valde brevioribus. In sicco fulvescens, bracteis et involucris stramineis.

ANIMADVERSIONES

1. Species haec vasta, elata et pulchra, ut legitur in synonymia hic oblata quae parum differt a qua invenitur in Fl. Turkey (PEŞMEN, 1972).

In *F. trachycarpa* ut hic consideratur, forma laciniarum praecipue variat, quae in nonnullis speciminibus valde similis *F. pachylobae* conspicitur, id est lacinae adsunt crassiusculae, teretiusculae, plicatae, mucronulo parvo, scabritie sparsim et minutissima (mementote quippe *F. pachylobam* ex conceptu Fenzliano et Boissierano omnino glabram esse!); lacinae istae per specimina et praecipue in foliis juvenilibus longiora fiunt. In nonnullis exemplaribus contra, praesertim libanoticis et syriacis, quae *Ferulaginem frigidam* Boiss. constituissent, folia aspera, scabritie fere spinulosa, laciniis

crassis, ovato-ellipticis, saepius haud per medium plicatis observantur. Haec foliorum plurimae conformationes, mea ratione, tantum cum auxilio ceterorum characterum inter sese discrepantium permetterent species vel varietates validas sive naturales persistentes in litteris et inveniendas in natura. Hoc minime patefit ex speciminibus quae speciem unam eisdem characteribus palam, videlicet caule elato, denudato, compresso, sulcatulo, sublucido, involucris margine aspero albulo, inflorescentiis robustis, radiis elongatis assurgentibus, fructibus scabridis, numero vittarum, etc., ostentant.

2. Inveni curiose in BOISSIER (1844: 320), eundem suam varietatem *F. trachycarpae*, "libanoticam" cum *Ferula scabra* Fenzl (Flora 26: 461. 1843) comparatam et sat similim adumbratam. *Ferula scabra* autem, ab ipso Boissier fere triginta annis post (Fl. Or. 2: 933. 1872) *Hippomarathrum scabrum*, recta ratione, vocabatur. Propter hoc, liceat mihi addere *F. trachycarpam*, unam ex omnibus *Ferulaginibus* multis characteribus vegetativis qualibus, foliis, scabritie partium, bracteis caulinis, involucris patentibus et duris, laciniis, etc., usque ad speciminum herbariorum colorem, aliquantum simulat nonnulla *Hippomarathra*! Quod, tot versa vice considerandum est, quidem: specimina nam sterilia vel floribus incipientibus fructibus desideratis *Hippomarathri* generis saepe ab antiquo inter *Ferulaginis* exemplaria indeterminata servantur! Fructus utriusque generis, ut palam constat, inter sese diversissimi adsunt.

3. C. Pabot notulam pusillam manu scriptam addidit specimine "doit être négligé par les troupeaux" (videtur a pecudibus neglecta, id est non edulis) magni pretii considerata est. Per Asiam totam Minorem reor pondus ovium atque capellarum per saecula avide vegetationem paulatim depascentium usque ad deserta, immane hoc pondus, repetam, et letale crebris speciebus plantarum. Si vero *Ferulago trachycarpa* a morsu perseverante ovium servatur, causa adhuc obscura ejus saporis, clarior distributio ejusdem tam vasta et frequens testimonio nemerosorum speciminum herbarii, fit.

4. Mementote hanc speciem vegetantem insulae Samos, adscribendam esse Florae Europae.

AFFINITATES

Ut dicebam in notula *F. pachylobae*, haec species certe affinior cum ea, a qua differt praecipue ob formam involucrorum et scabritiem, vittis pratermissis. Eisdem causis, addam, separantur *F. blancheana*, rara ac melius rarior quam *F. pachyloba*, a *F. angulata* tam obvia (et vastiore distributione) ut *F. trachycarpa*. Haec ipsa species omnibus speciebus sectionis *Anisotaenia* affinis adspicitur, ergo quasi cardo vel vertebra totius generis reputanda est, quare affinis etiam cum *F. isaurica* et per eam utraque sectio *Anisotaenia* et *Eutaenia* committitur. Hoc certe haud mirandum neque monstrosum, quia quodlibet genus ut textura specierum plus minusve densa considerari licet.

DISTRIBUTIO

De monte Hermon, Syriae et Libani australis, usque ad montem Idam, Ilii vel Troiae veterum, in montanis abruptis et etiam in sylvaticis, semper haud procul a mare.

SPECIMINA VISA

Graeciae insula Samos. *Forsyth-Major* 888, in monte Kierki, in calcareis regionis superioris supra sacellum Ol. Ilias, 8.8.1887, fl. (E, G) (typus *Ferulaginis insularis* Wolff). **Anatolia.** *Balansa*, partie supérieure du mont Sipyle au-dessus de Magnésie, 14.8.1854, fl. ad fr. (G); *Boissier*, legi floriferam in fissuris rupium regionis montanae Sipyli supra Magnesiam, VII.1842, fl. (G-BOIS); *Davis & Heywood* 18 477, Prov. Kutahya, distr. Geding, Saphane, chalky slopes, 1000 m, 26.8.1950, fl. (K); *Haradjian* 3826, Amanus (= Alma-Dagh), mont Döldül, 1500-2000 m, VII.1911, fl. (G); *Heldreich* 1153, in saxosis montis Boudroum, revers méridional au-dessus du village d'Aglansoun, 6 heures au sud d'Isparta, à $\pm$ 5000', 6.8.1845 (G-BOIS); id., 1183, Mt. Anemas Lycaoniae, çà et là dans les roches, de 4500-6000', 17.8.1845, fl. (G-BOIS); id., s.n., in fissuris rupium montis Anemas Lycaoniae, VIII.1845, fl. ad fr. (G); *Kotschy* 137 (279b), iter cilicicum in Tauri alpes Bulgar-dagh, frequens in rupestribus inferioribus alpinis ad marginem Cedretorum, 6000', 29.7.-30.8.1853, fl. (G, G-BOIS); *Luschan*, Schotterrinne kurz vor dem Plateaurande des Ak-dagh, Pisidien, 17.7.1882, fl. incip. (WU); *Pinard*, Sipyli supra Magnesiam, VIII.1843, fl. ad fr. (G-BOIS); *Siehe* 236, Cilicien, Kornuskoi, Felsen, 2600 m, VIII.1895 (G); *Sinten* 420, mont. Fola in marmoreis prope Kareikos, VII.1883, fl. (G, LE); id., 420, mont. Ida, mont. Szu-Szus-dagh, VII.1883, fl. (G, WU. Specimen et locus a Wolff indicata ut typica ejus *F. brachycarpa* (pro ut *trachycarpa*) var. *trojana*!). **Libanus.** *Aucher-Eloy* 3796, regione alpina Libani, fl. incip. (G-BOIS: typus *F. trachycarpa* var. *libanotica*); *Blanche* 251, Hasroun, été 1866, fl. ad fr. (G-BOIS); id., 3237, environs d'Ehden, VIII.1856 (G-BOIS); *Davis* 10 167, 5500-6000', 15.8.1945, fl. ad fr. (ceterum legi nequit!); *Kotschy* 334, in Libano ad Bscerre (= Bcharré) et circa Cedretum, in rupestribus Danie, 6500', 28.7.1855, fl. (G-BOIS); *Peyron* 1625, Aïn Geddayé (= Aïnghadday in Boiss., Fl. Or. et Aïn Juday in Post, Fl. Syria), 15.8.1889, fr. (G); *Post*, Laklouk, top of Sannin, 2.9.1881, fr. incip. (G); *Post* 48, Cedars, 7.7.1890, fl. (G; typus *F. frigida* Boiss. var. *laxa* Post); *Post* 1120, Jabal Barouk, 10.8.1907, fl. (G); *Mouterde* 1528, Jabal Qamoua, 14.8.1932, fl. (G); id., 1644, bois de 'Amiq, 31.8.1932, fr. (G); id., 2686, ibidem, 24.7.1933, fl. (G); id., 6721, Jabal Kenissé, 18.8.1941, fl. (G); id., 9399, Hermon, 15.9.1948 (G); *Pabot*, Jabal Halimé, 2300 m, Antiliban, 11.7.1952, fl. (G); id., hauts plateaux de l'Anti-Liban, Draj, 2350 m, lapiaz calcaire, 30.7.1952, fl. ad fr. (G); id., versant N. du Jabal Kenissé (Kneissé vel Knissé), 1900 m, 26.7.1953, fl. ad fr. (G, hic notula maximi pretii legitur: "doit être négligé par les troupeaux"); id., hauts plateaux de l'Antiliban, IX.1953, fl. ad fr. (G); id., au-dessus d'Ainata, 2300 m,

22.8.1955, fr. (G); id., Cèdres de Bcharré, 1900 m, 23.8.1955, fr. (G). **Syria.** *Boissier*, Hermon cacumen, 9000' (2814 m), V.-VII.1846, fl. (G); *Bornmüller 661*, Antilibani in excelsis jugi Hermonis, 2600-2800 m, 26.6.1897 (G); *Davis 9779*, Anti-Lebanon, 7500', 12.8.1945, fl. ad fr. (K); *Kotschy 203*, crescit in jugis rupestribus, frequens, alt. 8500', 28.6.1855 (G-BOIS); *Mouterde 1345*, au-dessous de Bloudane, 19.7.1932, fl. (G); *Pabot*, Hermon, pentes S.E., éboulis 2500 m et plus bas, très abondant en zone subalpine, 10.7.1951, fl. (G); id., Hermon, 2750 m, 26.8.1951, fr. (G); id., nord du Ploudane, ± 2100 m, 21.7.1953, fl. (G); id., hauts plateaux de l'Antiliban, 2350 m, zone à *Juniperus excelsa*, IX.1953, fr. incip. (G); *Post 46*, alpine Hermon, 12.7.1890, fl. ad fr. (G).

Species e genere expulsae

Ferulago athoa Janka, Österr. Bot. Z. 23: 202. 1873 = *Peucedanum* sp.?

Notula: ex descriptione, minime *Ferulagine* convenit. Ex regione typica specimina *Ferulaginis* quae cum dicta descriptione plus minusve congruerent, minime inveniebantur. Typo frustra nonnullis herbariis desiderato, quo tamen hanc "speciem" servare obnoxium mihi videtur. Etiam in libello novello: PAULIDES (1976) haec species omnino pratermittitur.

Ferulago aurinitica Post, J. Linn. Soc. Bot. 24: 430. 1888 = *Prangos asperula* Boiss. subsp. *asperula*.

E conspectu typi: absque dubio!

Ferulago autumnalis Thiébaud, Bull. Soc. Bot. France 95: 18. 1948 et Mém. Soc. Bot. France 33: 8. 1952 = *Peucedanum autumnale* (Thiébaud) Bernardi **comb. nova**.

Notula: characterum globo abhorret a *Ferulagine*! Ab auctore sic vittae dicuntur: "elongatae" at pro nihilo numerabantur. PESMEN (1972) maxima cum ratione scribit: "The sections taken from the ovary of the Turkish specimens demonstrate univittatae valliculae and bivittatae commissures on which characters this species falls outside the present concept of *Ferulago*".

Hoc *Peucedanum autumnale* haud procul mihi videtur a *Peucedano spreitzenhoferi* Dingler (= *Peucedanum junceum* (Boiss.) Mouterde).

Ferulago cinerea Boiss., Diagn. Pl. Or. Nov. 1/6: 60. 1845 = *Echinophora cinerea* (Boiss.) Hedge & Lamond, Notes Roy. Bot. Gard. Edinburgh 37: 65. 1978.

Ferulago quercetorum Bornm., Dan. Sci. Invest. Iran Pt. 4: 16. 1945 = *Ridolfia segetum* (L.) Moris.

Conclusions

The genus *Ferulago* Koch is here accepted in the 1872 Boissier' delimitation, including thus *Lophosciadium* DC., and amounting to 39 species. No sub-specific taxa are described or accepted. As a preliminary study, with the purpose of finding also a sounder delimitation for the species of *Ferulago*, and for the separation of this genus from others, the author studied four structural characters in an adequate sample of *Peucedanum* and *Ferula* species compared with all those of the *Ferulago*' ones. Some trends with phytogeographical significances have been postulated for *Peucedanum*. On the other hand, it seems to the present writer that several *Ferula* species belong in reality to *Peucedanum*.

The four characters are: the form of the inflorescence; the final laciniae of the leaves; the involucre and involucels; the sheaths of the leaves.

The fourth character however was not taken into consideration for *Ferulago*, being insignificant in this genus.

In the systematic part of this work, described in Latin, and beginning with the botanical key (p. 61) the aforesaid structural characters play a very important part in the species delimitation. They are diagrammatically standardized in a "visiting card" on the headline of every species discussed. In this "visiting card" the vittae number of the fruit is also given, together with the signs for the type of inflorescence, for the hypsophylls and for the laciniae of the leaves. It is hoped that this graphical method will facilitate identification. During the preparation of this work (which was much delayed and

interrupted for personal and professional reasons), the "visiting card" was found useful and the author considers that it could be employed — with the previous choice of few "sui generis" characters — in more ambitious, comprehensive systematic works.

This method shows the practical use of the afore-mentioned characters. It is now hoped to give an idea of the interaction of them for the explanation of the species in *Ferulago*, possibly in correlation with the geographical distribution. A personal opinion has to be explained here with regard to "characters, viz. form and space": these two factual elements are essential for the revision of any group of plants: they are recorded in the botanical samples and in the collector's notes for the localities. But the third thief of the fable, the time during which those forms are supposed to have appeared, is not susceptible to any serious checking by the revisor in the absence of dated palaeobotanical evidence. For this reason the writer has sceptical mistrust of the over-employed term "evolution"; this word imposes a vectorial, hence irreversible concept of "form in relation to time" with a flavour of finality. For a so small taxon as *Ferulago*, with such a narrow field of ecological, vegetative and floral characters, to speak of "more or less evolved" species, or of evolutionary direction in it, etc., would seem to the author as unconvincing! Here therefore the term "ranking" is used to emphasize its modest and flat bi-dimensional meaning. The most repentant apology are offered in this respect, for some concepts previously discussed in the treatment of the species about the importance of some relative to others: it is ever more difficult to escape from the drift of viewing "Res naturae" as competing for prizes.

Beginning with the character No. 1, we are confronted with 3 types of inflorescence, as is often indicated in the text. The Type I, found in 17 species, is by far the most wide-spread, covering all the area of the genus. The Type III, not radically different from the first one, is present in only 10 species and is scattered through a fairly large portion of the genus area; for instance, just one species (*Ferulago lutea*) occurs across all the south-west shore of the Mediterranean sea, including the Iberian peninsula. The second type, on the other hand (12 species) is densely grouped in Anatolia, with a few species extending also to the east; one, *Ferulago phialocarpa*, very poorly represented, seems localised in Persian Kurdistan.

This apparently narrow geographical localisation of Type II is however countered by two taxa: *Ferulago nodosa* (for its distribution, see in the main text, p. 124) and *Ferulago brachyloba* of Spain. For an account of the odd affinity between *Ferulago armena* and this western species, see the *Ferulago syriaca* treatment (p. 156) what is there postulated.

The second structural character, the form of the involucre and of the involucl seems independent of the first one. The leaf segments which can be viewed only as a more or less easy character for the recognition of the species, are without any correlation with their geographical distribution and are of no help in grouping them in infrageneric taxa.

Re-assessing the number of vittae of the fruit, however, throws considerable light, (in the mind of the writer at least) on these structural characters. The species with relatively few vittae (§ *Anisotaenia* Boiss.) have leaves either very poorly expanded, or the last segments, the lacinias, reduced almost to nothing. This conformation is independant of ecological factors and is thought by the author to be a true ontogenetical link between those two generic characters. The species with few vittae also have the Type I inflorescence; *Ferulago contracta*, the only exception, is too poorly represented in herbaria for asserting unquestionably which type of inflorescence it possesses. In the key, it was placed in inflorescence Type III, but on flimsy evidence.

Involucre form also shows a correlation with vittae number the § *Anisotaenia* being strongly linked to the Type III (triangular involucre); only *Ferulago blanchiana* (also too poorly represented in herbaria) apparently having oblong involucre, and *Ferulago thyrsiflora*, with linear ones, lie apart. This Cretan species is clearly separated from the others of its section on that character, which here seems to the writer to have a sound phytogeographical significance. The § *Anisotaenia* is found in Anatolia and Iran, with *F. thyrsiflora* as an exception (see Fig. 14). On the other hand, the few species of *Ferulago* with linear involucre, falling in the three sections of the genus, do however share an odd geographical "excentricity" (see p. 57 and Fig. 15, 16). It seems almost as if the geography of some "privileged" characters could run through all the taxa independently of them, as a nerve will pass from the centre to the extremity of a body without influencing the surrounding organs.

Starting therefore from the geographically circumscribed § *Anisotaenia*, we can observe that an increase in the number of vittae, coincides with an enlargement of the morphology. Also noticeable is a "Western trend" in the genus with the increase of vittae number, since taking into account both the section *Anisotaenia* and *Eutaenia* (of relatively small vittae number), we encounter an impressive number of "Oriental" species ("oriental" for the purpose of this work, are the species growing to the East of the 25°E. Meridian). For the 25 species forming the aforesaid sections, only two are present on the 25°E. (*F. thyrsiflora*) and also to the west of that meridian (*F. nodosa*). But in the § *Ferulago* (14 species), where the vittae number is greater as well as to six oriental species, six are found on the West, while two (*Ferulago confusa* and *F. sylvatica*) on both sides of that line.

Finally, the author, sincerely knowing the unsatisfactory limits of this work, hopes nevertheless that it could be a first step towards a total revision of the genus *Peucedanum* on a morphological and phytogeographical basis.

References

- AITCHINSON, J. E. T. (1888). The botany of the Afghan Delimitation Commission. *Trans. Linn. Soc. London, Bot.* 2(3): 1-139.
- BAILLON, H. E. (1879). *Histoire des plantes* 7: 98 (= *Peucedanum* p.p.). Paris.
- BATTANDIER, J.-A. (1889). Dicotylédones. In: BATTANDIER, J.-A. & L. TRABUT, *Flore de l'Algérie*, fasc. 2: 387. Alger.
- & L. TRABUT (1905). *Flore analytique et synoptique de l'Algérie et de la Tunisie*: 148. Alger.
- BENTHAM, G. & J. D. HOOKER (1867). *Genera plantarum*... 1: 917. Londini.
- BERNARDI, L. (1975). Janua ad Ferulaginis revisionem cum ambulatiuncula per Umbelliferarum historiam. *Candollea* 30: 71-90.
- (1975). Grandes lignes de différenciation et d'affinités des Araliacées et des Palmiers d'Afrique et des îles de l'Océan Indien. *Boissiera* 24: 355-362.
- BERTOLONI, A. (1837). *Flora italica*... 3: 371. Bononiae.
- BESSER, W. S. J. G. VON (1821). *Enumeratio plantarum per Volhyniam et Podoliam*... Wilna.
- BOISSIER, E. (1838). *Elenchus plantarum novarum*...: 48. Genevae.
- (1840). *Voyage botanique dans le midi de l'Espagne* 2: 251. Paris.
- (1844). *Plantae Aucherianae*... *Ann. Sci. Nat. Bot.*, ser. 3, 1: 318.
- (1845). *Voyage botanique dans le midi de l'Espagne* 2: 733. Paris.
- (1846, "1845"). *Diagnoses plantarum orientalium novarum*, ser. 1, 1(6): 60. Lipsiae.

- BOISSIER, E. (1849). *Diagnoses plantarum orientalium novarum*, ser. 1, 2(10): 36-39. Paris.
- (1856). *Diagnoses plantarum orientalium novarum*, ser. 2, fasc. 2: 91. Lipsiae.
- (1859). *Diagnoses plantarum orientalium novarum*, ser. 2, fasc. 6: 82. Lipsiae & Parisiis.
- (1872). *Flora orientalis...* 2: 996. Genevae & Basileae.
- BORBÁS, V. VON (1878). Floristikai Közleméniek... *Mat. Természettud. Közlem.* 15: 291.
- BORNMÜLLER, J. — *Plantae Straussianae...* *Beih. Bot. Centralbl.* 19(2): 262.
- (1911). *Collectiones Straussianae novae...* *Beih. Bot. Centralbl.* 27(2): 288-347.
- (1917). Zur Flora des nördlichen Mesopotamiens. *Notizbl. Königl. Bot. Gart. Berlin* 7: 151.
- (1938). Iter Persico-turcicum 1892-1893. II. *Beih. Bot. Centralbl.* 58/B: 283-284.
- (1940). Bemerkenswerte floristische Funde im Ala Dağ. *Feddes Repert. Spec. Nov. Regni Veg.* 49: 237-238.
- (1941). Symbolae ad Floram Anatolicam. *Feddes Repert. Spec. Nov. Regni Veg. Beih.* 89(6): 283-284.
- BRIGNOLI DI BRUNNHOF, G. (1847, "1846"). Difesa di Paolo Boccone Botanico Italiano del secolo XVII^o contro alla taccia addossata gli d'usurpature delle scoperte botaniche del P. Jacobo Barrelier. *Giorn. Bot. Ital. Anno II*, fasc. 3-4 (= Tomo I, parte 2): 51-68.
- BRIQUET, J. (1906). Note sur *Ferulago*. In: BURNAT, E., *Flore des Alpes maritimes* 4: 200. Genève & Bâle.
- BURTT, B. L. & P. H. DAVIS (1949). *Glaucosciadium*: a new Mediterranean Genus of Umbelliferae. *Kew Bull.* 1949(2): 225-230.
- CALESTANI, V. (1905). Contributo alla sistematica delle Ombellifere d'Europa. *Webbia* 1: 236.
- CANDOLLE, A.-P. DE (1829). *Collection des mémoires pour servir à l'histoire du règne végétal...* *Mém.* 5: 50. Paris.
- (1830). *Prodromus systematis naturalis regni vegetabilis...* 4: 171. Parisiis.
- CANNON, J. F. M. (1968). 87. *Ferulago* Koch. In: TUTIN, T. G. & al., *Flora europaea* 2: 359-360. Cambridge.
- CESATI, V., G. PASSERINI & E. G. GIBELLI (1880). *Compendio della Flora Italiana*: 605. Milano.
- COLMEIRO Y PENIDO, M. (1886). *Enumeración y revisión de las plantas de la península hispanico-lusitana é islas baleares...* 2: 573. Madrid.
- COSTE, H. (1902). *Flore descriptive et illustrée de la France...* 2: 178. Paris.
- COUTINHO, A. X. PEREIRA (1913). *Flora de Portugal...*: 452. Paris, Lisboa, Rio de Janeiro, Sao Paulo, Belo Horizonte.
- DEGEN, A. VON (1937). *Flora velebitica...* 2: 503. Budapest.
- DON, G. (1834). *A general system of gardening and botany...* 3: 325. London.
- DRUDE, O. (1898). Umbelliferae (Apiaceae, Doldengewächse). In: ENGLER, A. & K. PRANTL, *Die natürlichen Pflanzenfamilien...* III/8: 232. Leipzig.
- EMBERGER, L. & R. MAIRE (1941). *Catalogue des plantes du Maroc. Suppl.*, 4: 1088. Alger.
- ENDLICHER, S. (1839). *Genera plantarum secundum ordines naturales disposita*: 779. Vindobonae.
- FENZL, E. (1843). Umbelliferarum genera nova et species. *Flora* 26: 457-463.
- (1843). *Illustrationes et descriptiones plantarum novarum Syriae et Tauri occidentalis*. Stuttgart.
- FIORI, A. & G. PAOLETTI (1900). *Flora analitica d'Italia...* 2: 175. Padova.

- FOURNIER, P. (1937). *Les quatre flores de France*: 687. Ed. 1. Poinson-les-Grancey.
- FRANCO AMARAL, J. DO (1971). *Nova Flora de Portugal (Continente e Açores)* 1: 535, 544. Lisboa.
- GRECESCU, D. (1898). *Conspectul florei româniei...*: 251. București.
- GUSSONE, G. (1843). *Florae siculae synopsis...* 1: 358. Neapoli.
- HEGI, G. (1926). *Illustrierte Flora von Mittel-Europa* 5(2): 1357. München.
- HESS, H. E. & al. (1970). *Flora der Schweiz* 2: 858. Basel & Stuttgart.
- HIROE, M. & L. CONSTANCE (1958). *Umbelliferae of Japan*. Berkeley.
- HOLMBOE, J. (1914). Studies on the vegetation of Cyprus. *Bergens Mus. Skr.* 2, 1, 2.
- JAHANDIEZ, E. & R. MAIRE (1932). *Catalogue des plantes du Maroc* 2: 545. Alger.
- JANKA, V. VON (1879). *Ferulago monticola*. *Természetrázi Fü.* 3(4) (vidi separatum).
- KOCH, C. (1842). *Catalogus plantarum...* *Linnaea* 16: 347-366.
- KOCH, G. D. E. (1825). *Generum Tribuumque plantarum Umbelliferarum nova dispositio...* *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12(1): 97.
- KOROVIN, E. (1947). *Generis Ferula (Tourn.) L. monographia illustrata*. Taschkent.
- KOSTELETSKY, V. F. (1835). *Allgemeine medizinisch-pharmazeutische Flora* 4: 1158. Prag.
- LEDEBOUR, C. F. (1844). *Flora rossica...* 2: 298. Stuttgartiae.
- MAIRE, R. & M. PETITMANGIN (1908). Etudes des plantes vasculaires récoltées en Grèce (1906). *Bull. Soc. Sci. Nancy* 3(9): 151-266, 360-481.
- MOUTERDE, P. (1970). *Nouvelle Flore du Liban et de la Syrie*: 643. Beyrouth.
- NICOLIN, V. (1973). Araliales — Apiaceae. In: JOSIFOVIĆ, M., *Flore de la République Socialiste de Serbie* 5: 276. Beograd.
- NORMAN, C. & J. BORNMÜLLER (1945). Umbelliferae. In: KÖIE, M., *Beitrag zur Flora Süd-west-Irans. I. Danish Scientific Investigations in Iran* 4: 16. Copenhagen.
- NYMAN, C. F. (1879). *Conspectus florum europaeae* 2: 284. Örebro.
- (1889). *Conspectus florum europaeae, Suppl.*: 136. Örebro.
- PAULIDES, G. (1976). *E hloris kai e blaste tes hersonesou Sithonias Halkidikes (On the flora and vegetation of the Sithonia peninsula, Chalkidiki, Greece)*. Thèse, Thessaloniki.
- PEŞMEN, H. (1972). *Ferulago* W. Koch. In: DAVIS, P. H. (ed.), *Flora of Turkey* 4: 453. Edinburgh.
- POMEL, A. (1874). *Nouveaux matériaux pour la flore atlantique*: 142, 311. Paris & Alger.
- POST, G. E. (1896). *Flora of Syria, Palestine, and Sinai...*: 359. Beirut.
- QUÉZEL, P., J. CONTANDRIOPOULOS & A. PAMUKÇUOĞLU (1970). Contribution à l'étude de la flore des hautes montagnes de l'Anatolie occidentale. *Candollea* 25: 386.
- & S. SANTA (1963). *Nouvelle Flore de l'Algérie...* 2: 668. Paris.
- RECHINGER, K. H. (1940). *Plantae novae iranicae. II. Feddes Repert. Spec. Nov. Regni Veg.* 48: 121-167.
- (1943). *Flora aegaea. Denkschr. Akad. Wiss. Math.-Nat. Wiss. Kl. (Wien)* 105/1.
- (1961). *Die Flora von Euboea. Bot. Jahrb. Syst.* 80: 367.
- *Umbelliferae novae iranicae. II. III. Anz. Österr. Akad. Wiss. Math.-Naturwiss. Kl. Wien* 89: 198, 242.
- *Notizen zur Orientflora. 27. Anz. Österr. Akad. Wiss. Math.-Naturwiss. Kl. Wien* 98: 249.

- REICHENBACH, H. G. L. (1826). *Iconographia Botanica seu Plantae Criticae... Quarta Centuria Tabularum*: 53 et tab. 371. Lipsiae.
- ROUY, G. & E.-G. CAMUS (1901). *Flore de France...* 7: 398. Asnières & Paris.
- SĂVULESCU, T. (1958). *Flora Republicii Populare Romîne* 6: 568. București.
- SCHISCHKIN, B. K. (1947). K sistematike roda *Ferulago* Koch. *Bot. Žurn. SSSR* 31(6): 7.
- (1951). Umbelliferae. In: KOMAROV, V. L., *Flora SSSR* 17: 149. Leningrad.
- SCHLECHTENDAL, D. F. L. (1843). Plantae Kotschyanae nonnullae novae censitae. *Linnaea* 17: 124-128.
- SCHUR, P. J. F. (1866). *Enumeratio plantarum transsilvaniae...*: 263. Vindobonae.
- SILVA, A. R. PINTO DA & L. G. SOBRINHO (1950). Flora vasculara da serra do aerês. *Agron. Lusit.* 12(2): 233-380.
- SIMONKAI, L. (1887). *Enumeratio florum transsilvanicarum vasulosarum critica...*: 263-264. Budapest.
- SPRENGEL, C. (1821). In: SCHULTES, J. A., *Systema Vegetabilium* 6: 591-592.
- STAFLEU, F. & R. S. COWAN (1976). *Taxonomic literature*. Ed. 2, vol. 1, A-G. Utrecht.
- STOJANOV, N., B. STEFANOV & B. KITANOV (1967). *Flora bulgarica* 2: 801. Sophia.
- TCHIHATCHEFF, P. DE (1860). *Asie Mineure... 3^e partie, botanique* 1: 431-432. Paris.
- THEOBALD, W. L. (1971). Comparative anatomical and developmental studies in the Umbelliferae. In: HEYWOOD, V. (éd.), *Biology and chemistry of the Umbelliferae*. *Bot. J. Linn. Soc.* 64, suppl. 1: 179-198.
- THIÉBAUT, J. (1940). *Flore libano-syrienne* 2: 163-165. Le Caire.
- TOWNSEND, C. C. (1966). Notes on the Umbelliferae of Iraq. III. *Kew Bull.* 20: 76-85.
- VELENOVSKÝ, J. (1891). *Flora bulgarica*: 202. Pragae.
- (1904). Nachträge zur Flora von Bulgarien. *Sitzungsber. Königl. Böhm. Ges. Wiss. Prag. Math.-Naturwiss. Cl.* 28: 1-28.
- VISIANI, R. DE (1851). *Flora dalmatica* 3: 48. Lipsiae.
- WILLIS, J. C. (1973). *A dictionary of the flowering plants and ferns*. Ed. 8. Cambridge.
- WILLKOMM, M. & J. LANGE (1880). *Prodromus Florae Hispanicae...* 3: 38. Stuttgartiae.
- ZANGHERI, P. (1976). *Flora Italica* 2: 466. Padova.
- ZOHARY, M. (1972). *Flora palaestina* 2: 439. Jerusalem.

Notula (combinationes novae)

Ferulago armena (DC.) Bernardi, **comb. nova**, pro specie antea *Ferulago pauciradiata* Boiss. & Heldr. nuncupata.

Peucedanum autumnale (Thiébaud) Bernardi, **comb. nova** (= *Ferulago autumnalis* Thiébaud).

Index specierum Ferulaginis cum synonymis

Inveniuntur sic scripta	Epithetum tribuendum Ferulaginis	Inveniuntur sic scripta	Epithetum tribuendum Ferulaginis
<i>Ferula? angulata</i> Schlecht.	angulata	<i>Ferula sulcata</i> Desf. var. <i>biumbellata</i> (Pomel)	
— <i>armena</i> DC.	armena	· Batt.	biumbellata
— <i>barrelieri</i> Ten.	sylvatica	— <i>sulcata</i> Desf. var. <i>campestris</i> (Besser)	
— <i>brachyloba</i> (Boiss. & Reuter) Nyman		DC.	campestris
	brachyloba	— <i>sulcata</i> Desf. var. <i>microcarpa</i> Maire	
— <i>campestris</i> Besser	campestris		lutea
— <i>capillaris</i> Link ex Sprengel	lutea	— <i>sulcata</i> Desf. var. <i>mouretii</i> Maire	
— <i>capillaris</i> Hoffmans. & Link	lutea		biumbellata
— <i>capillifolia</i> Link	lutea	— <i>sulcata</i> Desf. var. <i>parvifolia</i> Jahandiez & Maire	lutea
— <i>communis</i> Petter non L.	sylvatica	— <i>sulcata</i> Desf. var. <i>scabra</i> (Pomel) Batt. ex Maire	scabra
— <i>cretica</i> Boiss. & Heldr.	thyrsiflora	— <i>sylvatica</i> Besser	sylvatica
— <i>ferulago</i> L.	campestris	— <i>thyrsiflora</i> Sibth. & Sm.	thyrsiflora
— <i>ferulago</i> Rochel (non L.) var. <i>commutata</i> Rochel.	sylvatica	— <i>verticillaris</i> Kit. ex Soó	sylvatica
— <i>geniculata</i> Guss.	nodosa	<i>Ferulago abbreviata</i> Townsend	carduchorum
— <i>granatensis</i> (Boiss.) Steudel.	granatensis	— <i>amani</i> Post.	cassia
— <i>granatensis</i> Pitard	biumbellata	— <i>asperula</i> Freyn & Sintenis ..	platycarpa
— <i>lutea</i> (Poiret) Maire	lutea	— <i>athamantifolia</i> Schur	sylvatica
— <i>lutea</i> (Poiret) Maire var. <i>mouretii</i> Maire	biumbellata	— <i>barrelieri</i> (Ten.) Guss.	sylvatica
— <i>monticola</i> (Boiss. & Heldr.) Neilr		— <i>brachycarpa</i> Wolff var. <i>trojana</i> Wolff	
	sylvatica		trachycarpa
— <i>nodiflora</i> Baumg. non L.	sylvatica	— <i>capillaris</i> (Link ex Sprengel) Coutinho	lutea
— <i>nodiflora</i> Bieb. non L.	campestris		lutea
— <i>nodiflora</i> Brotero non L.	lutea	— <i>capillifolia</i> (Link) Franco	lutea
— <i>nodiflora</i> Scop. non L.	campestris	— <i>cappadocica</i> Bornm.	pachyloba
— <i>nodosa</i> (L.) Bentham & Hooker ex Jacks.		— <i>cilicica</i> Bornm.	pachyloba
	nodosa	— <i>commutata</i> Degen.	sylvatica
— <i>pachyloba</i> Fenzl	pachyloba	— <i>confusa</i> Velen. var. <i>rhodopea</i> Velen.	
— <i>rigida</i> Ten.	nodosa		confusa
— <i>setifolia</i> C. Koch	setifolia	— <i>crassicosta</i> Pomel	lutea
— <i>sulcata</i> Desf.	lutea	— <i>cretica</i> Boiss. & Heldr. in sched.	thyrsiflora

Inveniuntur sic scripta	Epithetum tribuendum Ferulaginis	Inveniuntur sic scripta	Epithetum tribuendum Ferulaginis
<i>Ferulago cypria</i> Wolff	syriaca	<i>Ferulago trifida</i> Boiss.	angulata
— <i>dodonaei</i> Kostel.	campestris	— <i>trifida</i> Boiss. subsp. <i>carduchorum</i> (Boiss. & Hausskn.) Bornm. var. <i>kermanensis</i> Bornm.	carduchorum
— <i>frigida</i> Boiss.	trachycarpa	— <i>trifida</i> Boiss. var. <i>linearifolia</i> (Boiss.) Boiss.	angulata
— <i>frigida</i> Boiss. var. <i>laxa</i> Post	trachycarpa	— <i>turcomanica</i> Schischkin	subvelutina
— <i>galbanifera</i> Koch	campestris		
— <i>galbanifera</i> Silva & Sobrinho non Koch	lutea		
— <i>galbanifera</i> Koch var. <i>brachyloba</i> Boiss.	aucheri		
— <i>geniculata</i> (Guss.) Guss.	nodosa	<i>Hammatocaulis cretica</i> Tausch	nodosa
— <i>granatensis</i> Cannon p.p. non Boiss.	brachyloba		
— <i>insularis</i> Wolff	trachycarpa	<i>Laserpitium orientale</i> , <i>Mei folio</i> , <i>flore luteo</i> Buxbaum	confusa
— <i>koelziana</i> Rech. fil.	stellata	<i>Libanotis tenuifolia foeniculi semine</i> Boccone	sylvatica
— <i>latiloba</i> Schischkin	sylvatica	— <i>tenuifolia foeniculi semine ital.</i> , Barrelier	sylvatica
— <i>leptocarpa</i> Pomel.	lutea		
— <i>linearifolia</i> Boiss.	angulata	<i>Ligusticum luteum</i> Poiret	lutea
— <i>longistylis</i> Boiss.	asparagifolia	<i>Lophosciadium barrelieri</i> (Ten.) Gris.	sylvatica
— <i>lophoptera</i> Boiss.	macrocarpa	— <i>barrelieri</i> (Ten.) Gris.	silaifolia
— <i>meoides</i> Boiss.	confusa	— <i>carvifolium</i> Boiss.	silaifolia
— <i>meoides</i> (L.) Calestani in Bornm.	confusa	— <i>lophopterum</i> (Boiss.) Voronin	macrocarpa
— <i>meoides</i> L. (sic!) var. <i>confusa</i> (Velen.) Stojanov & Stefanov	confusa	— <i>meifolium</i> DC.	confusa
— <i>meoides</i> Boiss. var. <i>thirkeana</i> (Boiss.) Aznav.	thirkeana	— <i>meifolium</i> DC. var. <i>microcarpum</i> Velen.	confusa
— <i>monticola</i> Boiss. & Heldr.	sylvatica	— <i>meifolium</i> C. Koch non DC.	thirkeana
— <i>nodiflora</i> Koch	campestris	— <i>meoides</i> (L.) Calestani	confusa
— <i>nodiflora</i> auct. var. <i>brachyloba</i> Thell.	aucheri	— <i>olympicum</i> C. Koch	silaifolia
— <i>oxyptera</i> Boiss.	setifolia	— <i>setifolium</i> (C. Koch) C. Koch	setifolia
— <i>parvifolia</i> Pomel.	lutea	— <i>silaifolium</i> Boiss.	silaifolia
— <i>pauciradiata</i> Boiss. & Heldr.	armena	— <i>thirkeanum</i> Boiss.	thirkeana
— <i>phrygia</i> Bornm.	armena		
— <i>pumila</i> Boiss.	humilis		
— <i>rocheliana</i> Nyman	sylvatica		
— <i>sintenisii</i> Gand.	armena		
— <i>sulcata</i> (Desf.) Boiss.	lutea		
— <i>sulcata</i> (Desf.) Ledeb. p.p.	campestris	<i>Peucedanum creticum</i> DC.	nodosa
— <i>sulcata</i> (Desf.) Ledeb. p.p.	daghestanica	— <i>nodosum</i> L.	nodosa
— <i>sulcata</i> (Desf.) Ledeb. p.p.	aucheri	— <i>officinale</i> Besser non L.	sylvatica
— <i>sylvatica</i> sensu Cannon p.p.	confusa		
— <i>sylvatica</i> (Besser) Reichenb. var. <i>commutata</i> (Rochel) Borbas	sylvatica	<i>Selinum nodosum</i> (L.) Crantz	nodosa
— <i>sylvatica</i> (Besser) Reichenb. var. <i>monticola</i> (Boiss. & Heldr.) Hayek	sylvatica		
— <i>sylvatica</i> (Besser) Reichenb. var. <i>orphnidis</i> Boiss. & Heldr.	sylvatica	<i>Thapsia foeniculacea</i> Sibth. & Sm. in Walpole	syriaca
— <i>sylvatica</i> (Besser) Reichenb. var. <i>stenocarpa</i> Borbas	sylvatica	— <i>foetida</i> Sibth & Sm.	syriaca
— <i>taurica</i> Schischkin.	aucheri		
— <i>trachycarpa</i> Boiss. var. <i>libanotica</i> Boiss.	trachycarpa	<i>Uloptera macrocarpa</i> Fenzl	macrocarpa

Specimina Ferulaginis ex nomine collectorum ordine alphabetico digessa

Notula

Nimis multi Ferulaginis lectores Europae Africaeque praecipue, more antiquo vel incuria recentiore, specimina sine numero distribuerunt. Hoc nefastum ad collectiones pluries distributas nuncupandas omnibus herbariorum conservatoribus vel praepositis quotidie apparet!

Cum specimina majoris pretii sine numero adsint, tunc vel diem collectionis vel notulam quamdam ex schedula ad intelligendum specimen addam.

A

"Acad. Petrop.", Rossia merid. **campestris**
Adamović 43, 419, 420, 483 **nodosa**
Adamović, VII.1896 **sylvatica**
Adamović, VII.1904, VI.1906 **confusa**
Agoz, VII.1856 **campestris**
Akman 50, 123, 3353 **cassia**
Alleexenko 8695 (typus) **daghestanica**
Allard 403bis **lutea**
Archibald 2763 **angulata**
Archibald 2794 **contracta**
Archibald 3020 **carduchorum**
Aucher-Eloy 3660 (typus) **stellata**
Aucher-Eloy 3662 **macrocarpa**
Aucher-Eloy 3667, 3667bis (typus) . **aucheri**
Aucher-Eloy 3669 **confusa**
Aucher-Eloy 3739 **asparagifolia**
Aucher-Eloy 3748 **nodosa**
Aucher-Eloy 3750 **confusa**
Aucher-Eloy 3751 **macrocarpa**
Aucher-Eloy 3796 **trachycarpa**
Aucher-Eloy 4592, 4616 **angulata**
Aznavour 1016, 1016ter **confusa**
Aznavour 1016bis **thirkeana**
Aznavour, 15.6.1902 **confusa**

B

Baenitz 58 **nodosa**
Balansa 40 **asparagifolia**
Balansa 48 **humilis**
Balansa 223 (typus) **macrosciadia**
Balansa 401 **armena**
Balansa 405 (typus) **platycarpa**
Balansa 562 (= 608) **pachyloba**
Balansa 955 **syriaca**
Balansa 1010 **platycarpa**
Balansa 1015 **armena**
Balansa 1238 **macrosciadia**

Balansa (?), 20.5.1848 **hiumbellata**
Balansa, 14.8.1854 **trachycarpa**
Baldacci 17, 67 **nodosa**
Baldacci 121 **thyrsiflora**
Baldacci 175 **nodosa**
Baldacci 258 **thyrsiflora**
Baldacci 317, 355 **nodosa**
Baldacci, 1.7.1889 **nodosa**
Barbey, "Corfou" **nodosa**
Barla, 23.6.1881, 18.7.1882 **campestris**
Barth, ex Transilvaniae locis **sylvatica**
Battandier, ex Edough **lutea**
Battandier, ex Teniet-el-Had **lutea**
Battandier & Trabut 149 **lutea**
Bayern, Rotszhni, Akop **aucheri**
Baytop, 28.6.1973 **confusa**
Beauverd, 22.6.1905, 24.6.1905 ... **sylvatica**
Beck, VI.1855 **sylvatica**
Bélanger, Draguignan, Var **campestris**
Belibuti ? (26), 15.5.1948 **stellata**
Bentham, an. 1840, Trieste **campestris**
Bernardi 17 898 **confusa**
Besser, an. 1820 (typus) **campestris**
Bianca 1046 **nodosa**
Bicknell, 24.5.1891 **nodosa**
Blanche 251 **trachycarpa**
Blanche 721 **syriaca**
Blanche 3237 **trachycarpa**
Blanche 3835 **syriaca**
Blanco 376 **brachyloba**
Blocki, an. 1883, Cygany **sylvatica**
Blocki, an. 1886, Monasterzyska.. **sylvatica**
Bocquet 2299 **humilis**
Bocquet 2748 **aucheri**
Bocquet 2826 **asparagifolia**
Boissier, XI.1837 (typus) **granatensis**
Boissier, V.1842, Budja (typus) **humilis**
Boissier, V.1842, Triandra **humilis**
Boissier, V.1842, Coll. Smyrnes **humilis**
Boissier, V.1842, Hymettus **nodosa**

- Boissier, Jun. 1842, Smyrne (typus) **asparagifolia**
 Boissier, VII.1842, Syple **aucheri**
 Boissier, VII.1842, supra Magnesiam (typus) **trachycarpa**
 Boissier, 1846, ruines de Seleucia .. **syriaca**
 Boissier, 1846, entre Suadie et Antioche **syriaca**
 Boissier, 1846, Antilibano **syriaca**
 Boissier, 1846, Hermon cacumen **trachycarpa**
 Boissier, mai-juil. 1846, Antioche (typus) **syriaca**
 Boissier, V.-VII.1846, Latatheh (typus) **cassia**
 Boissier, VI.1863, Valeyres .. **macrosciadia**
 Boissier, Collines de Córdoba .. **brachyloba**
 Boissier, Coll. Magnesia **humilis**
 Boissier, "Magnesia" **asparagifolia**
 Boissier, supra Broussam (typus) .. **silaifolia**
 Boissier & Reuter, Djebel Santo **scabra**
 Borbas, 29.5.1874, 3.5.1875 **sylvatica**
 Borissova, 1.9.1934 **subvelutina**
 Bornmüller 656 **syriaca**
 Bornmüller 661 **trachycarpa**
 Bornmüller 746 **nodosa**
 Bornmüller 1264, 1265 **macrocarpa**
 Bornmüller 3830, 3831, 3832, 3832bis, 3833 **carduchorum**
 Bornmüller 4568 **armena**
 Bornmüller 4570 **macrosciadia**
 Bornmüller 4573 **silaifolia**
 Bornmüller 14 128 **armena**
 Borza, 17.6.1923 **sylvatica**
 Bourgeau 93, 99 **platycarpa**
 Bourgeau 676 **scabra**
 Bourgeau 1194 **granatensis**
 Bourgeau, Ain-el-Turc, Oran **lutea**
 Bové, VI.1837, Kouba, Alger **lutea**
 Boshniak, Elisabethgrad **campestris**
 Brummitt 6488 **humilis**
 Bubani, 30.6.1834 **campestris**
 Buček, 8.6.1930 **sylvatica**
 Burdet & Charpin 10 270 **sylvatica**
 Burgeff 451 **campestris**
 Burgeff 451b, 1524, 1718 **sylvatica**
 Burnat, 13.6.1879, 5.7.1890 **campestris**
 Burnat, 5.6.1889 **silaifolia**
 Burnat & Cavillier, 30.6.1900, 8.8.1901 **campestris**
 Buttler & al. 8811 **sylvatica**

C

- Callier 610 **aucheri**
 Camus, 26.7.1867 **campestris**
 Candolle, 8.7.1808 **campestris**

- Caruel, VII.1863 **campestris**
 Chabert, 4.6.1887 **lutea**
 Chambeirou, Le Luc, Var **campestris**
 Charoy 299 **lutea**
 Charpin & Casas 10 504 **brachyloba**
 Chaubard, Morée **nodosa**
 Chevallier, 14.4.1893 **lutea**
 Choulette 50 **biumbellata**
 Choulette, 3.7.1855 (typus) **scabra**
 Cimarolli, 6.6.1899 **campestris**
 Citarda, 13.8.1874 **nodosa**
 Colers, 15.7.1928 **campestris**
 Consolat 81 **campestris**
 Contandriopoulos & al., Sandras (typus) **sandrasica**
 Cossou, 5.8.1846 **campestris**
 Cosson, 12.6.1854 **lutea**
 Cosson, 23-27.4.1854 **scabra**
 Cosson, 18.5.1883, Zaouiet-el-Mgaïz .. **lutea**
 Csató, bei Aiud **sylvatica**
 Cuckney 3829 **stellata**
 Cuénod, 25.4.1909 **lutea**
 Czechtz 320 "21.7.1925" **armena**
 Czechtz, Nattais **sylvatica**

D

- Daenen 260 **sylvatica**
 Darrah 663 **cassia**
 Davis 778 **contracta**
 Davis 9779, 10 167 **trachycarpa**
 Davis 13 107, 13 188 **armena**
 Davis 14 277 (typus), 15 358 **isaurica**
 Davis 16 470 **pachyloba**
 Davis 18 477 **trachycarpa**
 Davis 19 145 **armena**
 Davis 19 842 **cassia**
 Davis 20 456 **armena**
 Davis 22 385, 23 244, 23 484, 23 897, 23 938, 24 564 **stellata**
 Davis 27 011 **cassia**
 Davis 30 041 **sylvatica**
 Davis 31 252 **angulata**
 Davis 31 925 **armena**
 Davis 35 451 **muglae**
 Davis 38 752 **armena**
 Davis 38 993 **thirkeana**
 Davis 41 282 **muglae**
 Davis 44 971, 45 759, 46 068 **stellata**
 Davis 46 683 **armena**
 Davis 47 292 **armena**
 Denis, frère, VI.-VII.1911, Chio .. **humilis**
 Desfontaines, F. sulcata, Algeria in collibus incultis **lutea**
 Dimitrich, VII.1893 **sylvatica**
 Dimonie, VII.1908 **sylvatica**
 Dudley 34 713 **silaifolia**

Heldreich 646	nodosa
Heldreich 931	sartorii
Heldreich 955	armena
Heldreich 1153, 1183	trachycarpa
Heldreich 1504	nodosa
Heldreich 1666	thyrsiflora
Heldreich 2456	sylvatica
Heldreich, VIII.1845, Mt. Anemas	

	<i>trachycarpa</i>
Heldreich, VI.1846, Petiada	nodosa
Heldreich, VII.1848, Trikala	nodosa
Heldreich, 22.5.1878	sylvatica
Heldreich, 20-28.6.1885, Dolopia . . .	nodosa
Heldreich, 20-28.6.1885, Dolopia .	sylvatica
Heldreich, 21-24.5.1898, Cea	nodosa
Hennipman & al. 1380	cassia
Herzog 177	sylvatica
Heuffel 55	sylvatica
Heuffel, VII.1838, ad thermas Herculis	sylvatica
Heuffel, VI.-VII.1853	sylvatica
Hohenacker, VII.1839, Volhyniae	sylvatica
Hoffmannsegg, Lusitaniae	campestris
Höpflinger, 29.8.1964	campestris
Hort, Bobrov & al., VIII.1968, Crimea	

		aucheri
Huber-Morath 11 742, 12 023, 13 668, 13 669		cassia
Huber-Morath 14 675, 14 676 (typus)		mughlae
Huber-Morath 15 474		syriaca
Huber-Morath 16 861		mughlae
Huber-Morath 16 862		cassia
Huber-Morath 17 253		armena
Huber-Morath 17 512		cassia
Huber-Morath 17 745		armena
Hübl, 21.7.1831, Omišalj		campestris
Hübl, 11.7.1908, bei Turda		sylvatica
Hübl, Spalato		campestris
Huet du Pavillon, VI.1855, Avola		nodosa
Huet du Pavillon, 8.5.1871		campestris
Huguenin, Monte Pastello		campestris
Huter, Lombardia		campestris
Huter, Porta & Rigo 428		granatensis

I

Ilić, an. 1889, Kamenitza **sylvatica**
Ivanović, VI.1894, Vranja **sylvatica**

J

Jacob 6792	macrocarpa
Jahandiez, 7.7.1911	campestris
Jamin 29	lutea
Janka, VII.1854, Cluj	sylvatica
Janka, 18.7.1862, 2.8.1862	sylvatica

Janka, 6.7.1871	confusa
Janka, 14.7.1871	sylvatica
Janka, 7.7.1872	confusa
Janka, 14.8.1875, 23.8.1879	sylvatica
Joly, Constantine, Sidi Meid	lutea

K

Kannut, VIII.1858, Fréjus	<i>campestris</i>
Koelz 15 988	<i>stellata</i>
Korsinski, 20-25.6.1889, Sebastopol	<i>aucheri</i>
Kotschy 49	<i>cassia</i>
Kotschy 137 (etiam 279b), 203	<i>trachycarpa</i>
Kotschy 214	<i>cassia</i>
Kotschy 227 (typus)	<i>pachyloba</i>
Kotschy 334	<i>trachycarpa</i>
Kotschy 403 (typus)	<i>angulata</i>
Kotschy suppl. 502	<i>asparagifolia</i>
Kotschy suppl. 728	<i>blancheana</i>
Kotschy, Iter orient. 1859	<i>cassia</i>
Kotschy, an. 1862, supra Arsus	<i>syriaca</i>
Kováts 155	<i>sylvatica</i>
Kralík, 13.7.1852	<i>lutea</i>

L

Labillardière, Syria	syriaca
Lagger, Trento	campestris
Lamond 4525	stellata
Leonis 199	campestris
Leonis, an. 1896, Gyaros	nodosa
Leresche, 12.8.1878	lutea
Letourneux, 23.5.1887	lutea
Levier, 12.8.1878	lutea
Lindberg 45	syriaca
Lindberg, 27.5.1905, 24.6.1905	sylvatica
Lindberg, 7.6.1939	syriaca
Lippert 9949, 9967	granatensis
Lipsky, 1.9.1895	daghestanica
Litvinov, 27.6.1897	subvelutina
Lojacono 621	campestris
Lojacono, V.1901, Siracusa	nodosa
Lorenz, mens VIII., Abbazia	campestris
Loret, 29.6.1837	campestris
Lüdtke 587	humilis
Luschan, 17.7.1882	trachycarpa

M

McCubbin 16	nodosa
Maire, 5.7.1912	lutea
Maire, 10.7.1926, 15.7.1926, 19.6.1937, 1.7.1938	lutea
Maly, 20.7.1908, 18.7.1920	sylvatica
Mangornati, Valleggio	campestris
Martelli, 21.5.1893	sylvatica
Martelli, 6.7.1892	campestris

Mattei, Mte Paderno	campestris
Mayer, Hb. LJB 55 984	campestris
Mayer, 9.7.1951	campestris
Meebold 3619	campestris
Merton 3051, 3222	syriaca
Merxmüller 12 975, 12 976, 12 977, 20 410	campestris
Meyer 1099	daghestanica
Meyers B-1082	syriaca
Mitchell & al. 2696	cassia
Moellendorff, VI.1872, Sarajevo ..	sylvatica
Monard 439	lutea
Monard, 29.4.1831	lutea
Moricand, Naples	campestris
Mouret 1566	biumbellata
Mouterde 89	syriaca
Mouterde V-252	blancheana
Mouterde 1256	syriaca
Mouterde 1345, 1528, 1644 ..	trachycarpa
Mouterde 2291	syriaca
Mouterde 2686	trachycarpa
Mouterde 3386	syriaca
Mouterde 3409	aucheri
Mouterde 3418, 3469	syriaca
Mouterde 4326, 6721	cassia
Mouterde 9399	trachycarpa
Mouterde 12 912	cassia
Müllner, 24.7.1898	campestris
Munby, VI.1849, Oran	lutea
Murbeck, 22.5.1903	lutea
Muschler, II.1904	syriaca
Mutel, Bone	lutea

N

Nagy, VI.-VII., Mervség	sylvatica
Noë 183, 185	confusa
Noë 759	campestris
Noë 1161	stellata
Norris, 11.5.1945	cassia

O

Oberwinkler 16 928	sylvatica
Olivier, an. 1821, Mt. du Géant ..	confusa
Orphanides 356	sylvatica
Orphanides 894	lutea
Orphanides 2104, 2511	sylvatica
Orphanides 3192	humilis
Orphanides 3633	sylvatica
	silaifoliam versus
Orphanides 3723	sylvatica
Orphanides, 17.6.1852	nodosa
Orphanides, 26.6.1852, 17.7.1857 ..	sylvatica

P

Pabot 356, 357, 778, 779, 780, 781 ..	macrocarpa
Pabot, 10.7.1951, 26.8.1951 ..	trachycarpa
Pabot, 18.4.1952	cassia
Pabot, 11.7. et 30.7.1952	trachycarpa
Pabot, 25.4.1953	cassia
Pabot, 14.7.1953	syriaca
Pabot, 21. et 26.7.1953	trachycarpa
Pabot, IX.1953, Antiliban, 2350 m ..	trachycarpa
Pabot, 5.5.1954	cassia
Pabot, 5.5.1954, Kessab	syriaca
Pabot, 7.5.1954, Lattaquié	syriaca
Pabot, 26.5.1955, Slenfé	syriaca
Pabot, 26.5.1955, Slenfé, "in Quercus cerris" ..	cassia
Pabot, 21.7.1955, Bassit	syriaca
Pabot, 25.7.1955	cassia
Pabot, 22. et 23.8.1955	trachycarpa
Pabot, 21.7.1955	syriaca
Pabot, 6.4.1956	cassia
Pabot, 3.6.1956, 4.6.1956	syriaca
Pabot, 14.7.1956	cassia
Pančić, VIII., ad Tekija	sylvatica
Pančić, Mt. Greben	sylvatica
Pantocsek, 21.5.1872	sylvatica
Parry 183	blancheana
Paulin 667	campestris
Päum 250	confusa
Pavai, VII.1861, Transs.	sylvatica
Peev 947	confusa
Périer, an. 1882, Brescia	campestris
Perreymond, an. 1839, Fréjus ..	campestris
Peterman, V.1967, Delphi	nodosa
Petter 174, 409	campestris
Petter 408	sylvatica
Petter, an. 1840, Spalato	campestris
Peyron 1372	syriaca
Peyron 1625	trachycarpa
Peyron, 15.7.1879	syriaca
Pfadenhauer, V.1967, Delphi	nodosa
Phitos 3082, 7516	sylvatica
Pichler 28, 76	silaifolia
Pichler 77	macrosciadia
Pichler 307, 1002	mughlae
Pichler, V.1874, Bujukdere	confusa
Pichler, VI.1874, Geg. v. Brussa ..	silaifolia
Pichler, V.1876, pr. Mandra	nodosa
Pinard, VII.1843, supra Magnesiam ..	trachycarpa
Pinatzi, VI.1937, Mt. Parnes ..	serpentinica
Podlech 6555	campestris
Podlech, V.1967, Delphi	nodosa
Podlech, 14.-18.5.1967	sylvatica
Podlech, V.1969, Delphi	sylvatica

Poiret, 2.IX., Numidia (typus) **lutea**
 Pomel, 23.5.1874 **lutea**
 Pomel, Oued el Hachem (typus) **biumbellata**
 Pomel, Beni Zenthis **lutea**
 Porta, VIII.1900, ad Benacum .. **campestris**
 Porta & Rigo 206 **granatensis**
 Porta & Rigo 466, 527 **brachyloba**
 Porta & Rigo, 13.6.1874 **sylvatica**
 Poscharsky, 19.7.1889 **campestris**
 Post, B., 21.5.1937, 25.5.1939, 4.6.1939,
 16.7.1939, 25.6.1940 **confusa**
 Post, G. 46, 48 **trachycarpa**
 Post, G. 96 (typus) **blancheana**
 Post, G. 1120 **trachycarpa**
 Post, G., 2.9.1881 **trachycarpa**
 Post, G., 7.6.1884, 20.9.1884 **cassia**
 Prodan, VII.1921, Cluj **sylvatica**

R

Rawi 12072 **stellata**
 Rawi & al. 29 002 **blancheana**
 Rawi & al. 29 356 **stellata**
 Reboud 403 **biumbellata**
 Reboud, an. 1864, près La Calle **lutea**
 Reboud, an. 1882, Kanneg **lutea**
 Rechinger 1919 (typus) **subvelutina**
 Rechinger 7349 **humilis**
 Rechinger 9613 **macrocarpa**
 Rechinger 12 713, 13 632 **nodosa**
 Rechinger 14 751, 14 758 (typus) **phialocarpa**
 Rechinger 17 026 **serpentinica**
 Rechinger 17 027 **nodosa**
 Rechinger 17 454a **sylvatica**
 Rechinger 19 257 (typus) **serpentinica**
 Rechinger 21 275 **nodosa**
 Rechinger 57 468 **armena**
 Rehmann, an. 1874, Taita bei Lapsi **aucheri**
 Reuter, 22.7.1841 (typus) **brachyloba**
 Reuter, XI.1841, Avila **lutea**
 Reuter, VII.1849, Dylar **thyrsiflora**
 Reuter, VII.1849, Dylar **lutea**
 Reverchon 44 **lutea**
 Reverchon 53 **thyrsiflora**
 Reverchon 1262a, 1262b, 1262c **scabra**
 Reverchon, 18.6.1884 **nodosa**
 Reverchon, 4.7.1888 **brachyloba**
 Richter, 12.5.1892, 28.5.1892, 19.8.1901,
 20.5.1910 **sylvatica**
 Rigo 145, 4331 **nodosa**
 Rigo, VIII.1902, Mte Pastello .. **campestris**
 Rivas, 17.7.1953 **brachyloba**
 Rix 349 **stellata**
 Rochel, 30.7.1815 **sylvatica**
 Rodié 20, 21 **campestris**
 Roessler, 5.7.1968 **sylvatica**

Roivainen, 13.6.1952 **brachyloba**
 Romieux, 27.6.1905 **campestris**
 Romiger, VI.1901, bei Mattuglia **campestris**
 Ronniger, 17.7.1930 **confusa**
 Roussel, V.1836 **lutea**
 Runemark & al. 17 435, 20 521 **nodosa**
 Runemark & al. 38 237, 40 450, 40 568
 **humilis**
 Runemark & al. 40 730 **sartorii**
 Runemark & al. 41 300 **humilis**

S

Sabeti 932 **stellata**
 Saint-Lager, 17.6.1868 **campestris**
 Saint-Lager, 20.7.1898 **sylvatica**
 Saint-Lager, 23.7.1901 **nodosa**
 Saint-Lager, 20.7.1907, 9.7.1909 ... **confusa**
 Sartori 249 **nodosa**
 Sartori 3619 (typus) **sartorii**
 Schiller, 24.7.1903 **sylvatica**
 Schirajewsky, 25.6.1905 **aucheri**
 Schlyter, Trieste **campestris**
 Schmalhausen, 29.6.1884 **sylvatica**
 Schneider 213 **confusa**
 Schneider, Porta Orientalis **sylvatica**
 Schrader, sine loco **campestris**
 Schuller 29 **setifolia**
 Sendtner 605, 979, 1782 **sylvatica**
 Sendtner, an. 1848 **sylvatica**
 Senettner, VIII.1847, Spalato .. **campestris**
 Senettner, Veliki-Kostak **campestris**
 Sibthorp, Cretae (typus) **thyrsiflora**
 Sieber, Mte Sphak, Therisso ... **thyrsiflora**
 Siehe 81, 155 **cassia**
 Siehe 236 **trachycarpa**
 Silva & al. 2304 **lutea**
 Sintenis 101 **macrosciadia**
 Sintenis 420 **trachycarpa**
 Sintenis 1112, 2860, 2860b **platycarpa**
 Sintenis 2936, 3206 **armena**
 Sintenis 4128, 4182 **platycarpa**
 Sintenis 4867, 6130 **armena**
 Sintenis 6221 **platycarpa**
 Sintenis & Bornmüller 612 **confusa**
 Sintenis & Bornmüller 730 **sylvatica**
 **F. silaifoliam versus!**
 Sintenis & Bornmüller 1249 **sylvatica**
 Sintenis & Rigo 610 **syriaca**
 Sommer, Mte Amiata **campestris**
 Snogerup 20 407 **nodosa**
 Sousa & Santo 6 **lutea**
 Sovitz 456 **setifolia**
 Sovitz, 1.7.1829 **setifolia**
 Sovitz, prov. Karabagh **setifolia**
 Spencer, 6.7.1899 **campestris**

Zederbauer, VII.1902, Erciyas Dag **platycarpa**
 Zelenetzin, 22.7.1890 **aucheri**
 Zohary, an. 1931, Beilan **cassia**
 Zohary, an. 1931, Soukluk **cassia**

CODEN: BOISB2 30 1-182 (1979)
ISSN: 0373-2975



ISBN 2-8277-0046-8