

## REMARKS ON FRORIEPIA (UMBELLIFERAE)

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**ABSTRACT.** A new species of the previously monotypic genus *Froriepia* C. Koch is described from SE Turkey: *F. gracillima* Leute. The fruit anatomy and morphology of the inflorescence in the new species and in *F. subpinnata* are treated in some detail.

### INTRODUCTION

When the accounts of the Umbelliferae for Flora of Turkey were being written at Edinburgh, a small annual from SE Anatolia was left without a generic name. Accordingly, because of its proximity to the Flora Iranica region, a specimen was sent to me for identification. Surprisingly, a carpological and morphological study showed that it was a new species of the genus *Froriepia* C. Koch, regarded until now as monotypic. The type species of the genus, *F. subpinnata* (Ledeb.) Baill. is confined to the Caucasus, Transcaucasia, Russian Armenia and NW Persia and mainly inhabits places disturbed by man such as fields, vineyards, roadsides, fruit gardens and meadows (Schischkin, 1950). As little material was available for comparison, I had to confine my studies to a single fruiting specimen, which, however, is in accordance with the original diagnosis in all characters. The inclusion of a second species within *Froriepia* necessitates an emendation of the generic description.

**Froriepia** C. Koch in Linnaea 16: 362 (1842). Descriptio emendata.

*Flores* polygami vel hermaphroditi. *Calycis dentes* inconspicui. *Petala* oblonga, apice inflexo, albida vel albo-viridia. *Fructus* late ovoideus, a latere leviter compressus, glaber, mericarpiis in sectione transversali subteretibus, jugis primariis et secundariis inter se subaequalibus, filiformibus, paulum prominentibus. *Valleculae* latae, evittatae vel univittatae vel vittis minimis cellulis stereomaticis lignosis cinctis instructae. *Vittae* commissurales nullae vel binae, cellulis lignosis vel non lignosis cinctae, intrajugales irregulariter evolutae. *Semen* in sectione transversali ambitu subteres, non sulcatum, facie commissurali planiusculum. *Stylopodium* depressum vel breviter conicum, stylis brevibus divaricatis vel reflexis.

Herbae annuae vel biennes, gracillimae vel elatiores, ramosae, umbellis pauciradiatis, radiis inaequilongis, erectis vel erectopatentibus. Typus generis: *Froriepia subpinnata* (Ledeb.) Baill.

In the key for the Turkish genera of Umbelliferae by Hedge & Lamond (1964) the genus *Froriepia* should be inserted under the formula "AFHJLNPQ" under the annuals, as only the annual species is native in Turkey.

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<i>F. gracillima</i>	<i>F. subpinnata</i>
Plants annual, extremely slender, up to 10 cm high	Plants biennial, stouter, more than 50 cm high
Bracts absent	Bracts present
Bracteoles longer than the pedicels, awned, pungent	Bracteoles much shorter than the pedicels, cuspidate
Secondary ribs of the mericarps without lignified tissue	Secondary ribs of the mericarps with lignified tissue

### 1. *Froriepia gracillima* Leute, spec. nov.

*Annua*, glabra, gracillima. *Caulis* ad 10 cm altus, in parte inferiore purpureostriatus, superne glauco-viridis, a basi ramosus, ramis divaricatis patentibus, umbellam centralem secundae ordinis et ramulos reductos ferentibus, gracillimis. *Folia* basalia ignota, caulina vaginis minimis albo-membranaceis, subauriculatis, medio striatis insidentia, ad lacinias paucas, filiformes, mucronulatas, usque ad 5 mm longas, superiora ad lacinulam unicum vagina insidentem reducta. *Umbellae* 2-4-radiatae, radiis valde inaequilongis, usque ad 1.5 cm longis. *Involucrum* nullum. *Umbellulae* inter se valde inaequales, centralis subsessilis, exterioribus major; flores exteriores minores, pedicellis glabris, longioribus, externi steriles, abortivi. *Involucelli* phylla 1-3, anguste lanceolata, albo-marginata, longe aristata, rigidiuscula, umbellulam superantia vel aequilonga. *Fructus* centralis 2-2.5 mm longus, exteriores 1.5-2 mm longi, saepe cum mericarpio rudimentario. *Merica*ria matura in sectione transversali subteretia, jugis primariis 5-6, secundariis 4-5, omnibus filiformibus. *Vittae* valliculares singulae, commissurales binae, omnes minimae. *Juga* primaria lateralia facie commissurali approximata. Type: Turkey B9 Van; 20 miles S of Başkale, bare slopes, annual, flowers white, 2 viii 1954, *Davis & Polunin*, D. 23791 (holo. E!, iso K! W!).

The new species is included in *Froriepia* for the following reasons: calyx teeth lacking, petals white, fruits ovoid, laterally compressed, with primary and secondary ribs, vallicular vittae 0-1, very small, mericarps nearly orbicular in cross-section. Related genera are distinguished by the following characters: *Pimpinella* by numerous vittae; *Petroselinum* by yellow flowers and only the primary ribs present on the mericarps; *Ptychotis* by distinct calyx teeth; *Carum* by mericarps polygonal in cross-section and furrowed endosperm; *Bupleurum* by entire leaves.

*Carpological remarks.* The mericarps of *F. gracillima* are nearly orbicular in cross-section as in *F. subpinnata* and the filiform primary and secondary ribs are scarcely prominent. On the dorsal surface an accessory primary rib could be seen in several fruits. The very small vittae are situated in wide valliculae and are embedded in non-ligneous tissue contrary to *F. subpinnata*. Intrajugal vittae are irregularly present in both species.

*Inflorescence.* The type of inflorescence in the new species is usually the same as in *F. subpinnata*. The umbels consist of few rays extremely unequal in length. The central umbellule is usually reduced to one single flower, the corresponding ray being very short to indistinct and the likewise usually single bracteole simulates a one-leaved involucre of the umbel. The umbels

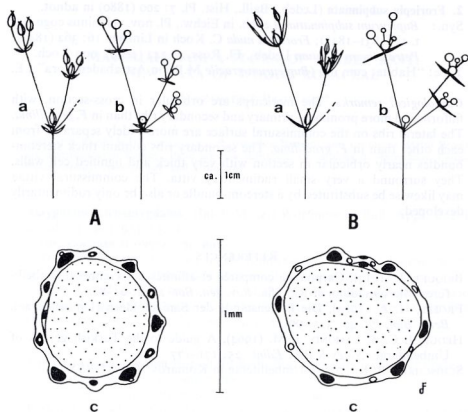


FIG. 1. A, *Froriepia subpinnata* (Ledeb.) Baill. and B, *F. gracillima* Leute: a, inflorescence; b, schematic inflorescence; c, transverse section of a mericarp (lignified tissue in black).

of secondary order often have a reduced basal internode, so that they originate directly from the axil of the corresponding leaf. This leaf normally is reduced to a sheath and may simulate a bract in the same manner as described above. The umbellules show a "Zentralförderung", according to Froebe (1964), i.e. the sessile central flower precedes the others in development, while these are smaller, with longer pedicels and one of the mericarps is often sterile. The outermost flowers are usually sterile and degenerated. The bracteoles usually surpass the flowers.

The convergent structure of the inflorescences in *F. subpinnata* and *Petroselinum segetum* C. Koch is very remarkable. This fact as well as the rather obvious similarity of the fruits may be the reason why Ledebour described *F. subpinnata* under the name *Petroselinum segetum* Ledeb. True *P. segetum* C. Koch differs from *F. subpinnata* in its yellow petals, pentagonal mericarps without secondary ribs and much bigger vittae which are surrounded by cells, reminiscent of the "Meridocytes" of Briquet (1914), and are absent in *Froriepia*. The question arises whether the colour of the flowers and the relatively few characters in the fruit anatomy are sufficient to acknowledge two separate genera. Similar problems are involved in the generic separation of *Pimpinella* and *Reutera*.

2. *Froriepia subpinnata* (Ledeb.) Baill., Hist. Pl. 7: 200 (1880) in adnot.  
Syn.: *Bupleurum subpinnatum* Ledeb. in Eichw., Pl. nov. vel minus cogn. 13,  
t. II (1831-1833); *Froriepia nuda* C. Koch in Linnaea 16: 362 (1842);  
*Petroselinum segetum* Ledeb., Fl. Ross. 2: 242 (1844), non Koch.  
Type: "Habitat cum illo (*Bupleurum gracile* M.B.) in Astrabadensi ora" LE.

*Carpological remarks.* The mericarps are orbicular in cross-section, with filiform and more prominent primary and secondary ribs than in *F. gracillima*. The lateral ribs on the commissural surface are more widely separated from each other than in *F. gracillima*. The secondary ribs contain thick stereom-bundles nearly orbicular in section with very thick and lignified cell walls. They surround a very small rudimentary vitta. The commissural vittae may likewise be substituted by a stereom-bundle or also be only rudimentarily developed.

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