

## A NEW SPECIES OF *FERULA* (UMBELLIFERAE) FROM AFGHANISTAN

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Material from Afghanistan previously referred to *Ferula lehmannii* Boiss. (Umbelliferae) is shown to belong to a closely related endemic species, *F. hedgeana* Pimenov & Kljuykov, *sp. nov.*

*Keywords.* *Ferula hedgeana*, *Ferula lehmannii*, Afghanistan, Middle Asia.

### INTRODUCTION

When the Umbelliferae volume of K. H. Rechinger's *Flora Iranica* was published — the result of the long-term efforts of an international team (Hedge, Lamond, Rechinger et al., 1987) — some interesting taxonomic comparisons arose with regard to the umbels distributed further north in Middle Asia and/or Transcaucasia.

The first of these was the problem of correct generic attribution of some species in *Flora Iranica*; the second was that of identity at specific level of some taxa independently described from Middle Asia and from Iran and Afghanistan under different names; and the third, in contrast, was the referral of several Afghan specimens to northern species already described. An example of the last problem is *Ferula lehmannii*, originally described from the deserts of the Kyzyl Kum.

Similar situations have already been found in some Middle Asiatic *Ferula* species with apparent disjunctions between large northern lowland areas (mainly in Kazakhstan) and limited localities within the southern mountains of the Pamiro-Alaj system. In both *F. dubjanskyi* Korovin and *F. karataviensis* (Regel & Schmalh.) Korovin, for instance, comparison between northern lowland and southern montane populations has shown morphological differences resulting in the publication of the new species *F. seravschanica* M. Pimenov & Baranova and *F. ovczinnikovii* M. Pimenov (Pimenov, 1983).

During the visit of one of us (M.G.P.) to Edinburgh, the examination of Afghan '*Ferula lehmannii*' was one of the priorities. *F. lehmannii* is a desert or semidesert species of lowland plains more or less restricted to Kazakhstan but also occurring in the northern Kyzyl Kum desert and the Ust-Urt plateau in Karakalpakia (Safina & Pimenov, 1984: maps 1, 5). It typically grows on flat watersheds, clay slopes and salt soils and in the hollows of salt lakes, but, more rarely, may be found on sand hills and in slightly saline *Artemisia* steppe and semidesert. From herbarium studies it appears that in Afghanistan *F. lehmannii* grows on schistose mountain slopes at elevations of 2000–3370m. Comparative examination showed that the Afghan speci-

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TABLE 1. The diagnostic differences between *Ferula hedgeana* and *F. lehmannii*.

Character	<i>F. hedgeana</i>	<i>F. lehmannii</i>
Roots	Vertical, lignified; rootstock divided	Cylindrical, soft; rootstock entire
Upper branches	Alternate or verticillate (in groups of 2, rarely 3), thin, longer than umbels	Verticillate (usually groups of 3–5), thick, short, approximately equal umbels
Calyx teeth	Absent	Present
Stylopods	Plain	Shortly conic
Marginal mericarp ribs	Narrow-winged	Wide-winged
Dorsal mericarp ribs	Short-keeled	Filiform

mens, although similar in habit to true *F. lehmannii*, possess some diagnostic characters of leaf, stem and fruit structure (Table 1), leading to the recognition of a closely related but independent endemic species.

***Ferula hedgeana* Pimenov & Kljuykov, sp. nov. Figs 1, 2.**

Affinitas: Species nostra *Ferula lehmannii* Boiss. valde similis, sed ramis synflorescentiae 2–3 elongatis tenuibus (non brevibus, incrassatis, plerumque 3–5), dentibus calycinis nullis vel caducis (non evolutis et persistentibus), stylopodiis planis (non breve conicis), mericarpis jugis marginalibus anguste alatis (non late-alatis), jugis dorsalibus breve carinatis (non filiformibus) differt; a *F. szovitsianae* DC. mericarpis parvis (non ad 20mm longis), jugis marginalibus angustis (non late alatis), umbellis fructiferis pedunculatis, caulibus tenuibus etc. distinguitur. *F. heratensis* Rech.f., qui probabiliter proxima est, differt a specie nostra caule humiliora gracilioraque, foliis superioribus ad squamas membranaceas reductis, umbellis fructiferis pedunculatis, umbellulis involuclatis, stylopodiis conicis.

Typus: Afghanistan, Prov. Bamian: Band-e-Amir, rich limestone steppe vegetation, c.2900m, 'Flower yellow', 29 vi 1962, *I. Hedge & P. Wendelbo* W-4758 (holo. E).

Perennial, very likely polycarpic; root vertical, rootstock divided. *Stems* solitary, erect, 4–5mm diam. at the base, with fibrous petiolar remains of preceding years, solid, in transverse section rounded, glabrous to subglabrous, occasionally violet, branched in the middle or above, with alternate or verticillate (in groups of 2–3), oblique, thin branches, longer than umbels. *Leaves* mainly basal, with short petioles, minutely setose-pubescent, persistent, 8–15 × 3–5cm, 2–3 times pinnate, sheaths papery, oblong to lanceolate, ultimate segments scattered, coarsely lobate, to 5mm long; cauline leaves like the basal leaves, but diminished, upper cauline leaves reduced to lanceolate, minutely pubescent, non-inflated sheaths. *Umbels* terminal and lateral;

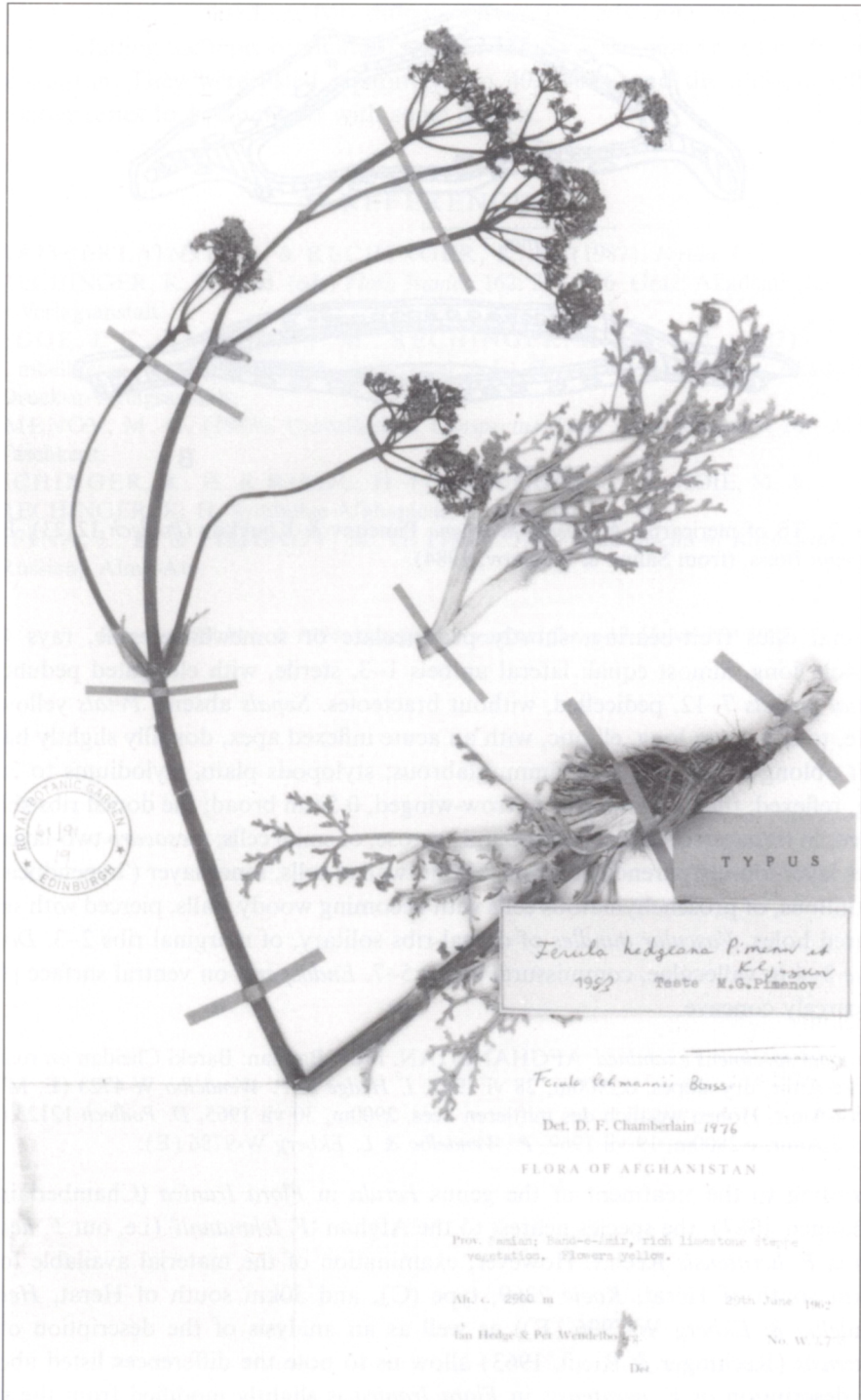


FIG. 1. Type specimen of *F. hedgeana*.

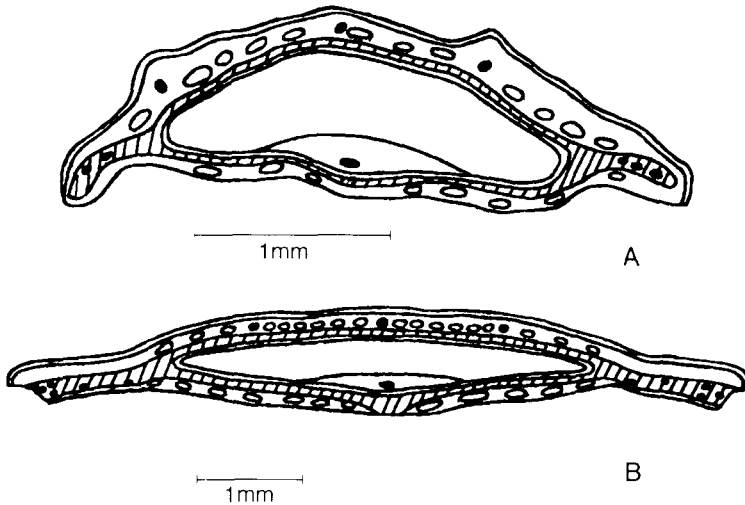


FIG. 2. TS of mericarps. A, *Ferula hedgeana* Pimenov & Kljuykov (Podlech 12123); B, *F. lehmannii* Boiss. (from Safina & Pimenov, 1984).

terminal ones fruit-bearing, shortly pedunculate or somewhat sessile, rays 4–9, 2.5–4cm long, almost equal; lateral umbels 1–3, sterile, with elongated peduncles. *Partial umbels* 7–12, pedicelled, without bracteoles. *Sepals* absent. *Petals* yellowish white, to 0.8–1mm long, elliptic, with an acute inflexed apex, dorsally slightly hairy. *Fruit* oblong-ovoid, 8–10 × 4–5mm, glabrous; stylopods plain, stylodiums to 2mm long, reflexed; the marginal ribs narrow-winged, 0.5mm broad; the dorsal ribs short-keeled; in transverse section *exocarp* unistratose, of small cells; *mesocarp* two-layered, outer layer loosely parenchymatous, of thin-walled cells, inner layer ('hypendocarp') continuous, of prosenchymatous cells with becoming woody walls, pierced with small fissured holes. *Vascular bundles* of dorsal ribs solitary, of marginal ribs 2–3. *Dorsal vittae* 3–4 in valliculae, commissural vittae 5–7. *Endosperm* on ventral surface plain or scarcely concave.

*Additional specimens examined.* AFGHANISTAN. Prov. Bamian: Bareki Cheidan on road to Band-e-Amir, dry slopes, c.2900m, 28 vi 1962, I. Hedge & P. Wendelbo W-4723 (E, MW); Band-i-Amir, Hohen westlich des mittleren Sees, 2900m, 30 vii 1965, D. Podlech 12123 (E); Band-e-Amir, c.2800m, 19 vii 1969, P. Wendelbo & L. Ekberg W-9786 (E).

According to the treatment of the genus *Ferula* in *Flora Iranica* (Chamberlain & Rechinger, 1987), the species nearest to the Afghan '*F. lehmannii*' (i.e. our *F. hedgeana*) is *F. heratensis* Rech.f. However, examination of the material available to us (80km south of Herat, *Koeie* 2269, type (C), and 30km south of Herat, *Hedge, Wendelbo & Ekberg* W-7996 (E)) as well as an analysis of the description of *F. heratensis* (Rechinger & Riedl, 1963) allow us to note the differences listed above. The description of *F. heratensis* in *Flora Iranica* is slightly modified from the type description, with the characters of the species approaching *F. hedgeana*. This descrip-

tion was probably based on two different series of herbarium specimens, one of which, including the type, originates from the Herat region, and the other from east Afghanistan. They were listed separately (pp. 402–403), and the authors referred the latter series to *F. heratensis* with some doubts.

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