



## Are *Ferula tenuissima* and *F. amanicola* distinct species or not

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### Abstract

Examples of *Ferula tenuissima* Hub.-Mor. & Peşmen and *F. amanicola* Hub.-Mor. & Peşmen was collected respectively by Huber-Morath. These samples published as new species by Huber-Morath and H. Peşmen. It is understood that these species are the same as a result of field observations and investigation the type specimens.

**Key words:** *Ferula*, synonym, Amanos mauntain, Turkey

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### *Ferula tenuissima* and *F. amanicola* aynı tür

### Özet

*Ferula tenuissima* Hub.-Mor. & Peşmen (Dağ çakşırı) ve *F. amanicola* Hub.-Mor. & Peşmen türlerine ait örnekler Huber-Morath tarafından peşisıra Osmaniye-Amanos dağlarından toplandı. Bu örnekler Huber-Morath ve Hasan Peşmen tarafından adlandırılarak yayımlandı. Yapılan örnek incelemeleri ve arazi gözlemleri sonucu bu türlerin aynı oldukları anlaşılmıştır.

**Anahtar kelimeler:** *Ferula*, Sinonim, Amanos dağları, Türkiye

### 1. Introduction

The genus *Ferula* L. (Apiaceae) is represented by 180-185 species in the world (Pimenov & Leonov 2004). Its main centre of diversity is central and South West Asia. In Turkey, the first revision of *Ferula* was done by Peşmen (1971, Davis 1972) in Davis's 'Flora of Turkey and the East Aegean Islands' (vol. 4), in which here recognized 18 species (one of them incompletely known). Four new species and one incompletely known species have been added by us (Duman & Sağiroğlu 2005, Sağiroğlu & Duman 2004, 2007, 2010) 12 of them are endemic.

The specimens of *Ferula tenuissima* Hub.-Mor. & Peşmen and *F. amanicola* Hub.-Mor. & Peşmen were collected in 1959 by Huber-Morath during one of his botanical trips through South Anatolia. The locality is C6 Amanos mauntain, Yarpuz region, Osmaniye. After then the species a comprehensive revision or Turkish *Ferula* species have not been undertaken by the authors since 2000. The specimens of *F. tenuissima* were collected with adequate flowering and fruiting materials from Yarpuz region, Osmaniye, but we could not collect *F. amanicola* despite all the investigations between 2000-2008.

A map is provided (Figure 1) showing the distribution of both *F. tenuissima* and *Hippomarathrum microcarpum* (Bieb.) Fedtsch. based on the localities in which specimens were found.

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Figure 1. Distribution map of *Ferula tenuissima* and (▲), *Hippomarathrum microcarpum* (●).

## 2. Materials and methods

Plant specimens were collected from Osmaniye-Yarpuz region between 2000-2008 in different vegetation seasons. By the contributions of Mr Ali Dönmez from Hacettepe University and with the help of responsables of the herbarium of Geneve, we have brought the type sample of *F. amanicola*. These samples were examined and photographed.

## 3. Results

During a botanical trips, Huber-Morath collected two umbelliferae samples from Amanos mountain region and numbered as 15437 and 15436 respectively in 1959. These samples were evaluated as a new species, 15437 as *Ferula tenuissima* and the sample 15436 as *Ferula amanicola* species epithet in 1971 by Huber.-Morath. and Hasan Peşmen.

During the revision of Turkish *Ferula*, flowering and fruiting samples were collected from *F. tenuissima* from Osmaniye-Yarpuz region belong to *F. tenuissima*. *F. tenuissima* growing in this area between 1300-2000 m (Fig. 2). Despite all investigations, we have not detected that *F. amanicola* in same area this region. But this area, we collected *Hippomarathrum microcarpum* which is a monocarpic plants.

## 4. Discussion and conclusion

*F. tenuissima* is a distinct species, with no obvious allies in Turkey, Iran, Suriye and Cyprus, as a result of its filiform ultimate segments, short central umbels and obovate mericarps. *F. tenuissima* superficially similar to *F. elaeochytris* Korovin, with its ovate-lanceolate to oblong sheaths and central umbel short-peduncled. *F. tenuissima* differs from *F. elaeochytris* with its filiform ultimate segments and obovate-oblong mericarps.

In the investigations conducted in Yarpuz district of Osmaniye Province, the species of *Ferula tenuissima* and *Hippomarathrum microcarpum* were seen to spread between 1300-1600 m of altitude, all over the area especially on forest clearances. As *H. microcarpum* is a monocarpic plant, some of its population gives flowering stem under certain conditions.

As a result of the investigation on type specimens of *Ferula amanicola*, it was seen that flowering part and leafy part are completely separate from each other ( Fig. 3). The properties of flowering part are over lopping with the same as the features seen in *F. tenuissima*. It is fully similar to *F. tenuissima* with its broadly inflated, amplexicaul, coriaceous and ovate sheaths, reduced sheaths and glabrous lamina (Fig. 3), paniculate-corymbose inflorescence status, central umbels with short peduncles, 9-16 rays -15 flowers in those with umbels, 5-10 mm fruiting pedicels, 3-4 bracteoles, lanceolate, glabrous, caducous condition, 0.2-0.5 mm of sepal, glabrous 1.5- 2 mm and deflexed petals, obovate-oblong mericarp, 1 dorsal vittae and 2 commissural vittae.

Leafy part in type specimen of *Ferula amanicola* differs from the flowering part. In the investigation of this floor leafed part, it was seen to have the same morphological features with the floor leaf of *H. microcarpum* found in the area (basal leaves 5-6 pinnate, triangular ovate in outline, 30 x 25 cm; ultimate segments filiform, 10-20 x 0.1-0.3 mm, apically mucronate (Figure 4, Figure 3 C).

Therefore, there is no such plant that reflects the properties of *F. amanicola* in the region as defining in Turkish Flora. The flowering part indicated in the type specimen belongs to *F. tenuissima*, while the floor leafed part belongs to *H. microcarpum*.

As *F. tenuissima* and *H. microcarpum* coexist in the area, different parts of these species samples must have been accidentally mixed during collection. In this case, *F. amanicola* is synonymous of *F. tenuissima*. *Hippomarathrum* species became synonym with *Bilacunaria* species with the study carried out by Pimenov (1983).



Figure 2. *Ferula tenuissima* ( Photo M.Sağiroğlu 2400, GAZI).

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Figure 3. A and B: Type specimen of *Ferula amanicola* (Hub.-Mor. 15436, G). C: Ultimate segment of basal leaves D: reduced and glabrous lamina

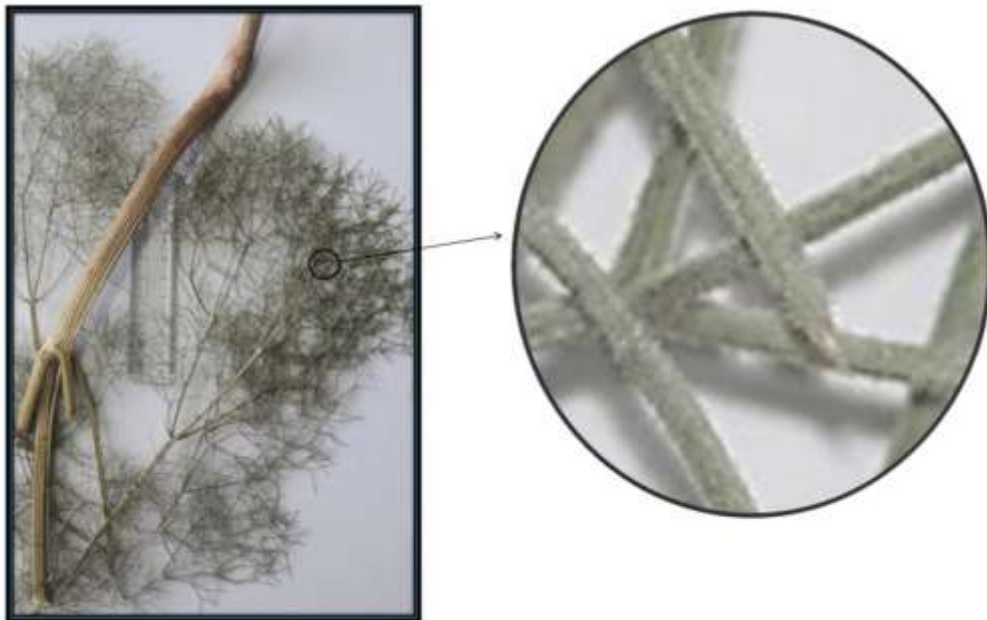


Figure 4. *Hippomarathrum microcarpum* ( M.Sağiroğlu 2578, GAZI).

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