

## **BOTANICAL CHARACTERISTICS OF FERULA L. PLANT SPECIES GROWING IN UZBEKISTAN**

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### **Annotation**

This article presents information about the botanical features, the life cycle and their morphological structure of plant species of the genus *Ferula* L. growing on the territory of Uzbekistan.

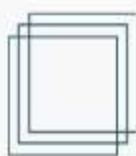
**Keywords:** medicinal plants, useful plants, monocarp and polycarp species, geophytic plants, exocarp, mesocarp, hypendocarp, endocarp, endosperm.

### **Introduction**

Central Asia, including the territory of our republic, is rich in medicinal plants. Among useful plants, a special place is occupied by representatives of the umbrella family (*Apiaceae* L.). Within this family of plant species of the genus *Ferula* L. It is the most numerous (180-200) and has more than 110 species in Central Asia and Kazakhstan and about 50 species in Uzbekistan. Plant species belonging to these genera are considered essential oil, fodder, medicinal, starch-bearing, aromatic, nutritious and technical.

Species of the genus *Ferula* L. are perennial, herbaceous and xerophytic plants. According to the seasonal rhythm of development, they are ephemeroids. That is, the plant grows and develops every year during a short growing season in spring, while the air temperature and soil inhibit the growth of the plant, in summer, autumn and winter it becomes calm during low precipitation.

According to the patency of the plant life cycle, representatives of this genus are divided into 2 groups: monocarp and polycarp species. Monocarp species are a form of life of the original species, which is not so common among herbaceous plants. This includes



some members of the subfamily Nartex, Mervia and Eupherula. All the others are polycarp species.

In monocarp species, the growth of the main stem occurs monopodially: in the first 5-6 years, during a short vegetative period, it forms only petals, and in the year of flowering and fertilization-an aboveground orthotropic stem. This stem belongs to the polycyclic category, while the plant belongs to the semi-shrub group. They are mostly one, and in some cases, when the stem is damaged, they form from 2 to 6 generative stems (Nechaeva and B., 1963; Markova, 1970; Rakhmonkulova, 1999).

In polycarpic species, sympodial branching is observed, followed by the formation of generative branches from new vegetative branches - from buds formed from an underground stem (Nechaeva B., 1963). Therefore, these plants form a complex rhizome.

The aboveground organs of the plant consist of a root and rhizome, which retain nutrients in reserve, and have the form of scaly thickenings (Fedorov and B., 1962; Markova et al., 1968; Rakhmonkulov, 1999).

The height of the stems of the plant varies: giant - from a species whose stem can reach 3 meters (F. gigantea, F. foetida, F. penninervis, F. kuhistnica, F. malocophilla, F. varia, F. sumbul), to low (dwarf) - species reaching only 30 cm in height (F. karataviensis, F. nuda) also occurs. The height of each species also varies depending on the weather, environmental conditions.

The leaves mainly consist of petals that are located in the root neck. Their leaves (leaf plate) are three-lobed, each of the parts is repeatedly pinnately dissected into three segments. The leaves on the stem are attached to the stem through smaller, well-developed leaf plates (sheaths) compared to the leaves.

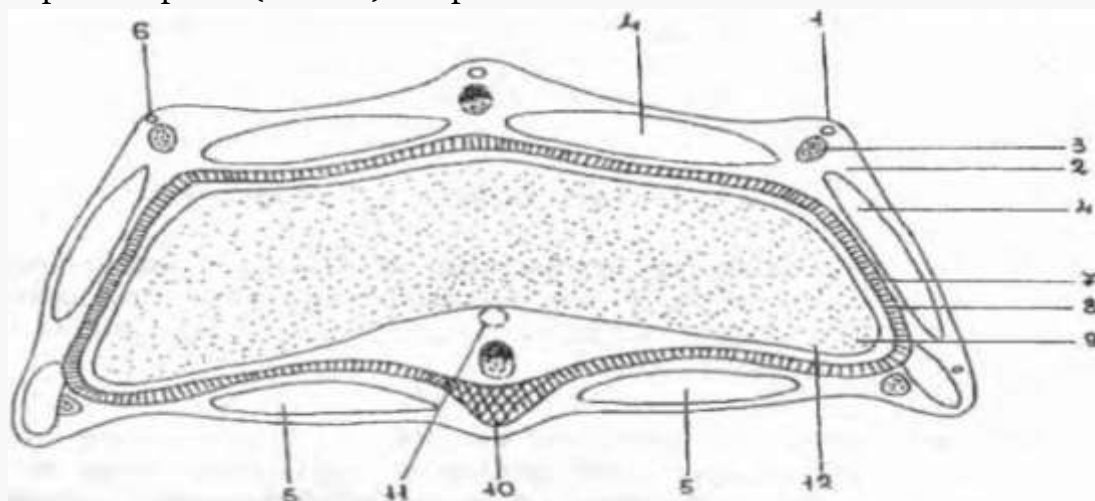
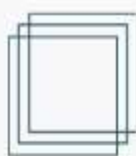


Figure 1. *Ferula helenae* - cross section of the mericarpus of Rakhmankulov and Meliboev:

1-exocarp, 2-mesocarp, 3-conducting rib pathways, 4-iliac secretory channels, 5-commissural secretory channels, 6-rib secretory channels, 7-hypendocarp, 8-



*endocarp, 9-seminal layer, 10-commissural sclera-enchyma, 11-conducting funicular cavity, 12-endosperm.*

The umbrellas are mostly leafless, paniculate, they are of two types according to their location: the central one consists mainly of bisexual flowers, while the flowers located in the lateral umbrellas consist only of pollen flowers (or pollen and bisexual flowers). The side umbrellas will be located at the base of the Central Umbrella.

The flowers are bisexual or are located only on a pollinated simple umbrella. Peduncles are toothless or only in the form of sawdust, which quickly crumble. Petals from 1 to 4 mm long, yellowish or pale yellow, whitish, whole (not cut), with a pointed tip, elliptical, obovate, lanceolate, pointed, mostly not pubescent, sometimes the outer side will be pubescent. Anthers 5, achene 1, consist of two carpels.

Socket 2, in some cases 3 sockets. Anthers 0.5-0.8 mm long, ellipsoid, yellowish, brown and purple. Pollen grains are oblong-ellipsoidal with 3 stamens.

The fruits are compressed from the outside, rounded or slightly curved. The outer shells are filamentous, winged at the edges. Carpophores are free, two-part. The mesocarp is two-layered, the inner layer consists of woody parenchymal cells (hypendocarp).

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