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Growth And Development of Kovrak (*Ferula* L) In Surkhandarya Region

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Annotation: This article analyzes the research and literature of many botanicals, floristic and systematic scientists on the bioecological features, systematics, geographical distribution, growth and development of *Ferula* L.

Keywords: Ferula L, asafetida, essential oils, resin, vegetation, generative period.

At present, one of the most important tasks is the introduction of plants with beneficial properties and their cultivation in the new environment. In order to increase the abundance of the population at the stage of rapid development of our society, it is necessary to address the issues of efficient use of plant raw materials in food, pharmaceuticals, medicine [3, 4, 5].

Among the useful plants, members of the family *Apiaceae* occupy a special place. This family has the largest number of *Ferula* L. species, with 170 species in the range from the Canary Islands to the Western Mediterranean, from the Middle East and Central Asia to Western China, as well as to northern India.

There are 105 species of the genus in Central Asia and Kazakhstan, and 37 species in Tajikistan. Category species occur in mountainous and foothill areas up to 300-3600 m.

There are 104 species of the genus in Central Asia and 56 species in Uzbekistan. These species are essential oils, fodder, medicinal, starchy, aromatic, edible plants.

106 species grown in Central Asia, 71 are essential oils, 72 are resinous, 48 are beekeeping, 38 are forage, 31 are medicinal, 18 are edible, 7 are starchy, 9 are fatty, 1 is poisonous, and 64 are coumarins, 40 are ester-preserving plants and 15 are lactone-preserving plants [2, 6].

It is especially widespread in Samarkand, Kashkadarya, Surkhandarya and Jizzakh regions of the country [1].

Ferula L. is one of the largest and polymorphic families of the Apiaceae family, which includes 180-185 species, of which about 130 species are endemic to Central Asia and 100 species are endemic. According to the general distribution of the species, it is distributed in Central and South-West Asia, North Africa, the Far East, Iran, Afghanistan, Pakistan, China, India and the Mediterranean, and Central Asia is recognized as a region with a high diversity of species. It grows mainly in the plains, hills, foothills and mountainous areas on sandy, stony, gravelly, fine-grained and red-sandy and sandy slopes. These species distributed in Central Asia, including the southern Pamirs, are widespread in the phenotypes of shiblyak and juniper flora. In recent years, more and more research has been carried out to study the chemical composition, molecular biology and phylogeny of species. Endemism, species population, distribution, research on ecology is relatively rare. Recently, the local population in Uzbekistan (Surkhandarya, Kashkadarya, and Jizzakh) is working on the establishment of plantations of this species. *Ferula tadshikorum* Pimenov and *Ferula kuhistanica* Korovin are mainly grown on the plantations. These species are rich in resin, the gum (Juice) of which is used in folk medicine for the treatment of varicose veins, tuberculosis, plague, ulcers, whooping cough, toothache, nervous and other diseases, as well as a stimulant, expectorant and laxative.

Brackets are divided into 2 types: 1st monocarp, 2nd Polycarp. The life cycle of Polycarp buds does not bloom after the first flowering. The monopodial branch is replaced by sympodial branching, from which side branches emerge and new generative branches emerge. There are 200 species of *Ferula* L. in all pastures and hills of Uzbekistan, and 36 species of this plant grow in the desert areas of the region. *Ferula*

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Assafoetida and *Ferula foetida*, the oldest species of carp and endemic to these areas, are found in desert areas.

Vegetation transformation is taking place not only in the Central Asian region, but also in the deserts, steppes and hills of Afghanistan, Iran and Pakistan. However, in recent years, as a result of human cruelty to nature, these unique plantations have been destroyed. At the same time, some rare species of rugs, such as *Ferula shair*, *ferula sumbul*, *Ferula mochata*, disappeared. Only due to the protection of the borders of our country and the efforts of nature protection agencies, these rare plant species are preserved in the country and serve as a source of raw materials for the purchase of medicines and phytoestrogens for livestock.

Effective use of medicinal properties of this plant is an important factor in the development of the pharmaceutical industry of our country. Therefore, the head of our state has set a task to expand these plantations and develop its processing. Our priceless nature allows us to cultivate large-scale plantations by cultivating rugged vegetation. This means that we will achieve success in the field of pharmaceuticals by implementing effective projects in this area.

There are 10 main types of resin-glue used to make resin, including sarsik kovrak, rova, kuhistan kovrak and others, which are very similar in appearance morphologically, but in nature there is a kassrak (*Ferula assafoet*). The resin-glue produced in the republic and delivered to consumers is mainly obtained from this type.

Perennial plants belonging to the family *Apiaceae* L., representatives of the genus *Ferula* L. There are about 200 (140) species of them in the world, which are fodder, essential oil, honey, food, delicious plants. Representatives of this group are found in the ancient Mediterranean, Central Asia, the Caucasus, Western Siberia, Iran, Afghanistan, Pakistan, China and India. More than 110 species of *Ferula* L. turmeric are distributed in Central Asia, more than 50 species in western Tien Shan and 32 species in the mountains and foothills of the western Pamir-Alay range. One of the medicinal plants is *Ferula foetida* (Bunge) Regel, which grows in the steppes, meadows, sandy deserts, mountainous soils, and sometimes in the foothills of Central Asia. In Uzbekistan, in the foothills of Tashkent, Samarkand, Jizzakh, Bukhara, Kashkadarya and Surkhandarya regions, and in some parts of the Republic of Karakalpakstan, thick carpets are formed.

Ferula assafoetida L. is a plant of the genus *Ferula assafoetida* L. The *Ferula* series includes 135 species. Perennial plant, belongs to the ephemeroid group. Korovin EP According to comparative morphological studies, *Ferula* (Tourn) belongs to the group of scorodosma, which occurs in South Asia.

This plant was widespread in North Africa in the 15th century, and later became extinct as a result of resin extraction from its roots. Currently, the plant grows only in Iran, Afghanistan and Uzbekistan.

Ferula assafoetida plant resin was introduced into European medicine by Arab physicians. At present, vegetable raw materials are produced on an industrial scale in Iran, Pakistan, Afghanistan and Uzbekistan. *Ferula L*. has been used in medicine since ancient times under various names, such as resin kinna, asafetida, sapagen, galbanum, and hyacinth, ammoniakum, obtained by cutting the root of the genus *Ferula*. The substances of this name are mainly *Ferula foetida*, *Ferula foetidissima*, *Ferula kopetdagensis*, *Ferula cocanica*, *Ferula persisa*, *Ferula zoongarica*, *Ferula sumbul*, *Ferula badrakema*, *Ferula diversivittata*, *Ferula kaspica*, *Ferula karatavisa*, *Ferula karelini*, *Ferula gummoza*, *Ferula varia*, *Ferula kuhistanica.*

Extraction of resin from *Ferula assafoetida* begins in the summer, when the leaves are dry, and lasts until autumn. To obtain resin, non-flowering plant roots that have matured and formed at least 3-4 large leaves are selected. Its root canal is cleared of last year's leaves. Then the root is removed from the soil around the neck and at a depth of 5-10 cm, and the tip is cut with a sharp knife with a sharp point. Should be careful not to cut the central part (stem) of the plant root. The cut part of the plant is covered with leaves, cardboard or other materials. After 2-3 days, the resin is collected in the cut part, the hardened resin is removed, and the root of the plant is cut into another thin layer (several mm). Cutting is carried out in two ways - in a spiral or in layers. This process is repeated 20-25 times a season, until the sap runs out. *Ferula assafoetida* is a monocarpous plant with a height of 1.0-1.5 m. The leaves on the stem are broken upwards, and the ends are composed only of new leaves. This plant begins its growing season in late February. It flowers in March and April and sows in late May. Like all monocarp species, the leaves die first in 35-40 days, and then the leaves at the base dry out. On days 40-45 of the growing season, the plant enters a period of mass flowering. The generative branch of the *ferula foetida* forms a complex umbrella. Each branch has from 20 to 35 paraclades. Each paraclade has a central umbrella and 2-3 slightly longer (3.0-5.0 cm) side

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umbrellas. Each of the umbrella flowers in the umbrella produces 9-11 flowers. The flowers are similar to those of the family *Apiaceae* L, the petals of 5 petals are yellow, they are arranged in a circle, and ovoid in shape, the tip is slightly turned inwards.

The flower of the plant has 5 pollen grains and one seed, which is a combination of two petals. The nucleus is semi-inferior, 2-celled (sometimes 3-celled). The pollen is 0.5-0.8 mm long, elliptical, yellowish, sometimes brown. In each paraclade there are central and lateral umbrellas, the flowers in the central umbrella are mainly bisexual, i.e. pollinated and seeded, the lateral umbrellas are composed only of pollinated flowers, and sometimes the bisexual flowers are unisexual. The fruits ripen in late May and the first half of June. When the seeds ripen, they are propagated by insects, birds and wind. Seed pericarp rounded, elliptical, 15-26x10-14 mm, winged (up to 3.60 mm). The thickness of the pericarp is 340-230 microns. The exocarp in a large cell (30-55x25-35 microns) has a thin radial and slightly thickened (4-6 microns) outer wall. The mesocarpic parenchyma is 2-4 layers, thin-walled, with large cells, the lower layer of the epidermis is slightly thickened. The bottom layer of the endocarp is composed of 4-5 rows of thin tolasimon cells. It was found that the morphological dimensions of the seeds of Ferula assafoetida, collected in different ecological conditions in the Western Pamirs-Alai region, differ from each other.

According to the data, the absolute weight, average length and width of the seeds collected around the Aidar-Arnasay lake system, as well as the Nurata ridge of Bobotag and Jizzakh regions of Surkhandarya region, are much higher than the seeds collected from other regions. It was found that the seeds collected from different parts of Boysun Mountain were almost twice as small as the ones above. We recommend sowing the seeds of this plant in the arable lands of Jizzakh region in order to make the best use of the stinking plant and to prepare the required amount of resin each year. *Ferula assafoetida* contains essential oils in its surface and underground organs. According to the literature, the resin in the root of sassik kovrak is called "*Assafoetida*" and is widely used in medicine and perfumery in the East. As mentioned above, kovrak glue has long been produced and used in Iran, Afghanistan, Pakistan and India. Neighboring republics, especially Tajikistan, have been preparing for several years.

In Uzbekistan, the production of rugged glue officially began in 2006. Along with the state forestry, there are farms and some private entrepreneurs. It should be noted that in order to obtain resin from the bark, first of all, it is necessary to identify the natural biological and operational resources of the bark, create a large-scale map and allow them to regenerate in the natural environment without harming nature.

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