

Natural Geographic Distribution of Plants Belonging to the Ferula L Family

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Abstract: the article presents the results of research conducted by world scientists on the natural geographical distribution of plants belonging to the Ferula L family, as well as literature data.

Keywords: Ferula L, F. assafoetida, celeriac, umbelliferone, ephemera, umbrella flower.

Introduction

In recent years, extensive scientific research has been carried out on the biology, chemical structure and medicinal value of plants belonging to the Ferula L family at the world level. Studying the negative aspects of F. assafoetida, which is widespread in the Kyzylkum region, mainly, the level of toxicity of the plant to the animal organism, and developing measures to prevent it, is one of the problems awaiting its solution today.

Results of research

In the desert regions of our republic, a stinky kovrak grows a lot, it is 2 million hectares in the Kyzylkum deserts. In desert conditions, mainly more black sheep are raised and bred, in early spring, when the plants sprout, the stinky kovrak turns blue and the sheep start eating it, in the months of May, its seeds are finished, and its seeds are also eaten well by sheep [11].

Central Asia has a very rich flora of plants, and 30% of these plants grow in Uzbekistan. Many species of these plants are widely used in folk medicine and veterinary medicine to treat various diseases [6].

Celery is a perennial herbaceous plant, up to 1.5 m tall, belonging to the Apiaccae (Umbelliferae) family. According to the researcher, after 8-9 years, the stem, which grows upright, is thick and the upper part is branched. Leaves before the root are banded, oblong or lanceolate, divided into three parts, and the leaves on the stem are smaller several times feather-like and arranged in a row. The flowers, located in a compound umbel, are five-lobed and white-yellow in color. [11].

Studying the biology, growth and development of F. assa-foetida, and the dimensions of the above-ground part of the plant will help to determine which species it belongs to [10].

According to the authors, the plant F.assa-foetida grows in Central Asian steppes, sandy deserts, mountainous soils, and sometimes in the foothills. In the sandy-gravel and loess plains of our republic, in the foothills of the Tashkent, Samarkand, Kashkadarya and Surkhandarya regions, in the sandy deserts of Bukhara, Navoi and Karakalpakstan, in the Samgar massif of the Leninabad region of Tajikistan, in the Badkhiz plain in Turkmenistan, in the plain close to Kelif, in the north of Kuchitong, in the vicinity of Kyzylorda, in Kazakhstan, Shymkent and between the station of Arys in the Dzhambul region and the city of Turkestan, there are extremely wide and thickly growing plantations, even in some places forming thick thickets [11, 26, 25].

According to the author, an examination of the terpenoid compounds found in the cruciferous plant showed the following: While *Scorodesma*, one of the oldest species of cowpea, has been found to contain coumarins, all other species contain terpenoid coumarins and sesquiterpene lactones. Complex esters have been reported to be the majority in some *Pencedonoides* [8].

Ephemeral plants are mostly widespread in Hisar-Darvaz and southern Tajikistan, and they cannot be used rationally without studying their biological and morphological structures, because among them it is necessary to distinguish according to their poisonous, medical and food [15,27].

When studying the ontogeny of the species of *F. tadshikorum*, which grows 700-750 meters above sea level in the peaks of South Sarsarok, it was found that it is similar to *Ferula foetidissima* Regel et Schmakh [12].

In recent years, the interest of scientists in the plants belonging to the *Ferula* family has increased, and now their molecular analysis is being carried out on a large scale [6]. P. Under the leadership of Kurzin-Mlaynik, 73 species of *ferula*, including *F. Tadshicorum*, were molecularly analyzed [22].

Currently, in Tajikistan, it is noted that the biological wealth of various fauna and flora is deteriorating in the desert, forest-steppe and other ecosystems. According to the author, some of the rare plants are on the verge of disappearing and diminishing [14].

For the time being, there are 150 species of plants belonging to the *Ferula* family in Central Asia, Eastern Siberia, the Caucasus, the Black Sea, North Africa, Asia Minor, Iran, Afghanistan, China and India, of which 105 species have been identified in Central Asia and Kazakhstan. It is noted that 110 species of this plant are distributed in the territory of the CIS countries, and 37 species are distributed in the territory of Tajikistan. [4].

According to the author's information, the protein content of the kovrak is 14.34%, crude oil is 9.7%, fiber is 16.9%. It should be noted that the amount of oil in cow's alfalfa is more than that of kunjara, the amount of digestible protein is equal to that of peas, the amount of potassium and phosphorus is equal to that of alfalfa, and the amount of iron and sulfur is more than its [4].

The study of the chemical composition of the gum obtained from kovrak began in the 30s of the 20th century. It was possible to extract umbelliferone, ferulic and galbanic acids, coumarin and organic sulfides, farnaziferol A, V, C, essential oils from the gum [24].

The amount of chemical compounds in plants, especially complex ethers, varies depending on the age of the plant and the seasons. Therefore, the collection of raw materials is carried out during the period of the greatest concentration of these substances in their composition, and they are treated with alkaline substances to extract biologically active terpenoids from their composition. The crushed plant part is placed in a soxhlet and extracted with benzene, and the extracted fractions are examined separately [23].

In terpenoid complex ethers, it is important to identify the complex ether group, aromatic and hydroxyl group in IR-spectra [9].

Sesquiterpene alcohol $C_{15}H_{26}O_2$ is obtained by hydrolyzing the root of the sorghum root and ferutanol is produced from it. Fetserol and ferrocinin, and ferrocin are obtained from water-insoluble substances and its hydrolysis [23].

Till the today, about 100 natural carotenes have been isolated from plants belonging to the *Ferula* L family. In plants, carotene is rarely found as a free alcohol, in most cases it occurs in the form of complex ether aliphatic and aromatic acids [2,3,13].

The glue obtained from the liquid that flows from the plant is used in dentistry for tooth and gum diseases, to remove worms from the intestines, to expel gas [18,25].

The authors state that *Ferula assafoetida* is a perennial herb growing up to 2 meters in height, mainly in Kashmir, Iran and Afghanistan [21].

According to the authors, the biologically active substances contained in the *assafoetida* plant are widely used in medicine due to their anti-worm, anti-microbial, anti-viral and other properties. In addition, about 30 types of anti-influenza drugs have been isolated from these plants, and all of these drugs contain different chemicals. Even some of these medicinal substances have been experimentally proven to have bone-strengthening properties.

The destruction of the ecosystem in the Kyzylkum zone, the disappearance of many ephemeral plants characteristic of the desert flora, and the establishment of scientifically based agrotechnological processes in this climatic zone require the creation of plantations of nutritious crops adapted to the growth in the conditions of the desert region.

F. foetida, a plant belonging to the *Ferula* L family, which is widespread in Central Asia, is used in the preparation of many drugs in pharmaceuticals, and medicinal substances are obtained based on the biologically active substances obtained from them, and are widely used in the treatment of people and animals. Especially in the medieval medicine, the authors used the sap extracted from the stem and root of the plant as a means of stopping blood, expelling phlegm, stimulating the organism, increasing general strength, expelling worms and parasites from the human body, and aborting the fetus from *cenna*, *asafoetida*, *sapogen*, *galbanum*, *hyacinth*, and *ammonia* [1, 27].

The chemical composition of the *Ferula assafoetida* plant during the vegetation period in the desert zones of Uzbekistan was studied [16].

When 100 mg/kg of *Ferula assafoetida* plant juice was administered orally to mice, no changes were detected in their clinical indicators, behavior, and mucous membranes [17].

Conclusion

In our republic, research studies on the distribution of plants belonging to the *Ferula* L family were carried out in Kyzylkum region of Bukhara and Navoi region.

As a result of the inspection, the presence of large and extensive plantations of the *Ferula* L - type stinky kovrak in the Kyzylkum region, that is, in the pastures of A. Temur and Qarovulbazar livestock farms of the Bukhara region, around the highways leading to the cities of Gazli and Urganch, and in the pastures of the livestock farms of the Konimekh, Nurota and Tomdi districts of the Navoi region was determined.

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