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Research On Cultivation Of Medicinal Plants

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ABSTRACT

The article describes the results of research on the cultivation of *Ferula assa-foetida* L. plant, one of the valuable medicinal plant species. It was found that the seeds of *Ferula assa-foetida* L. plant have good germination properties in laboratory and field conditions, and it is possible to establish its industrial plantations by sowing the seeds.

KEYWORDS

Pharmaceuticals, medicinal plants, seeds, fertility, sowing dates, sowing depth, stratification, arid regions.

INTRODUCTION

The natural flora of the Republic of Uzbekistan contains many species of medicinal plants, which have long been used in traditional medicine for the treatment of various diseases. However, today more than

70% of the most important medicines needed by the population of the republic are imported from abroad, which makes it necessary to accelerate the development of the local pharmaceutical industry. In recent years, the

President of the Republic of Uzbekistan has attached great importance to the development of the pharmaceutical industry in the country and identified several urgent tasks. One of the priorities that needs to be **addressed is the cultivation of the most important medicinal plant species and the creation of their industrial plantations.** The creation of industrial plantations of wild plant species, in turn, requires the development of science-based agro-technical measures for their cultivation. Therefore, scientists of a number of research institutes and higher education institutions of the country are currently conducting research to develop agro-technical measures for the cultivation of valuable medicinal plant species in the wild. Research Institute "Oriental Medicine" conducts research in the field of cultivation of medicinal plants, obtaining effective drugs from them and conducting clinical trials. *Ferula assa-foetida* L. valuable healing properties of plants, mountain desert and

semi-desert regions of Uzbekistan widespread. As the demand for raw materials of this plant species is growing in the world market, its natural resources are being exploited by entrepreneurs, which puts them at risk of losing their natural resources. It is known that the most effective way to protect any plant species is to cultivate it. Therefore, the establishment of industrial plantations through the cultivation of these plant species is especially important from an ecological, economic and social point of view.

***Ferula assa-foetida* L.** is a plant that has long been known as a medicinal plant. It is thought that in *Ferula assa-foeti*, L. is superior to the ginseng plant in its healing properties. *Ferula assa-foetida* L. plant has been used in traditional medicine in the treatment of malignant tumors (cancer), trauma. Alcoholic tincture of glue-resin obtained from it has been used in asthma, stroke, and nervous diseases.



Figure 1. *Ferula assa-foetida* L

In scientific medicine, L. glue-resin in *Ferula assa-foetida*, powder, emulsion and alcohol tincture under the name “assa-foetida” is used as a painkiller and sedative, and in many countries, it is included in the pharmacopoeia. Abu Ali Ibn Sina described this plant as follows: “In *Ferula assa-foetida*, if you drink 50 grams of L. seed decoction three times, your mother's milk will increase. When the hand is mixed with water and drunk, there is an immediate sound. Adding figs to the juice and eating it corrects jaundice. Adding pepper and vinegar to the glue is useful when applied to poor quality wounds. It is also greatly beneficial for hair loss. *Ferula assa-foetida* L. plant treats brain sclerosis, bronchitis, asthma, jaundice, whooping cough, diabetes, stops bleeding. The root drip treats urination and kidney pain. It is useful to drink 30 grams of decoction three times a day (for 15 days). Root decoction heals all the pain. It relieves suffocation and corrects pain. Such a high assessment of the L. plant by the medical genius *Ferula assa-foetida* is an indication of how valuable a plant it is. *Ferula assa-foetida* L. types of pharmaceuticals, healing the importance of the study and treatment of some diseases of the characteristics of data on the effectiveness of Internet F ALARM and many foreign countries can be observed in the works published by scientific experts (<http://narmedblog.ru/>; Abd El -Razek, 2007; Saleem M., Alam A., Sultana S., 2001; Fatehi M., Farifteh F., Fatehi- Hassanabad Z., 2004; Bagheri SM, Sahekar A., Gohari AR, Saeidnia S., Malmir M., Iranshahi M., 2010).

THE PURPOSE OF THE STUDY

Ferula assa- foetida consists of the development of agro-technical measures for the cultivation of L. plant.

The research tasks were as follows:

- Study the sowing qualities of those seeds and develop methods to increase their fertility.
- Shoot, he plants the orange productivity features.
- It is to determine the optimal depth of burial of seeds in the soil, the norms of seed consumption.
- Study of growth and development characteristics of plants in crop conditions.

As a source of research *Ferula assa- foetida* was served by seeds collected from wild populations of the L. plant. The studies were performed in laboratory and field conditions. In *Ferula assa- foeti*, L. seeds were sown in December-April to a depth of 1, 2, 3, 4, 5 cm, and the optimal timing and depth of sowing were determined depending on the number of sprouted grasses. In the experiments, 100 seeds were sown in 4 repetitions. The TS-80-M-2 thermostat was used to study the germination of seeds in the laboratory. Production temperature is 0-230C during the day and night- home temperature. Commonly accepted methods in seed production were used to determine the mass of 1000 seeds (Gritsenko, Kaloshina, 1973);

- Dospekhov's (1979) methods were used in biostatic processing of research data.

RESEARCH RESULTS

In *Ferula assa- foetida* L. the shape of the seeds is leaf-like (elliptical) up to 18 mm wide

and up to 30 mm long, with a longitudinal ovary in the middle of the seed leaf. The structure of the ovary is also deciduous, in large seeds it is up to 20 mm long and 8 mm wide. In the seeds of the natural population distributed in Carnabchol, 16-27 seeds per 100 seeds were found to be underdeveloped seeds. The absolute mass of 1000 seeds were 46.8 grams.

Seed germination under laboratory conditions. In his experiments to study the germination of seeds under laboratory conditions, generally accepted methods were used in seed production, i.e., seeds were sown in Petri dishes on a thermostat at a constant and variable temperature of 0- 23 0 C.



Figure 2. L. seeds in *Ferula assa- foetida*

Even when the experiments were repeated several times from December to June, no germination of seeds was observed. Optimal germination temperature is important in seed germination. Therefore, special experiments were performed to determine the optimal temperature required for seed germination. Seeds 0 - 5; When extracted at temperatures of 5 - 10 0 C, the maximum fertility was observed in the variant 0 – 5 0 C (fertility -

64%). In the second option, fertility was relatively low, at 39% (Table 1). But the duration of the experiments was almost 90 days. This is a long time and does not allow to evaluate the quality indicators of seeds in the short term.

The results of experiments to study the germination of seeds in field conditions also showed that the seeds have a dormancy period.

Table 1

Seed germination at different temperatures in the laboratory, %

Production temperature, °C	Number of seeds, pcs	Fertility, %	Duration of experiment, days
0 - 5	100	64.6 ± 2.1	85
5 - 10	100	39.4 ± 1.7	87

Optimal depth of seed placement in the soil.

In *Ferula assa-foetida*, L. seed germination was found to be causally related to the depth

In *Ferula assa-foetida* L. seeds germinate at relatively low temperatures. The seeds planted in December sprouted in the second ten days of February, ch IQA begin . It grew out of the study showed that the dynamics of the seeds planted 100 on March 29, 27, 4-martda- on March 44, 18 and 51 pieces of grass flour were not permitted out of .

Optimal timing of sowing seeds. The fact that the seeds have a dormancy period can also be seen from the data obtained from experiments to determine the optimal timing of sowing the seeds. When the seeds were sown in December, their germination rate in the field was 59.6%, while the germination rate of seeds sown in January was 47.3%, and no grass sprouted from the seeds sown in February .

The arrival of the spring of 2020 has created favorable conditions for the germination of seeds. Therefore, the germination of L. seeds in *Ferula assa-foetida* was relatively high in the field. However, the fact that the seeds sown in February did not germinate at all indicates that the seeds need to be stratified for some time.

of seed germination. Seeds were sown at depths of 0, 5, 1.0, 2.0, 3.0, 4.0 cm, and the following data were obtained when studying fertility: the highest germination was observed in variants where seeds were buried to depths of 0.5 - 1.0 cm. The germination rate of seeds buried at these depths was 47%, in the variant buried at a depth of 2 cm the fertility was 33.5%, and when the seeds were buried at a depth of 3 cm the fertility was the lowest, i.e., only 11%. The seeds did not germinate at all from a depth of 4 cm. Therefore, the optimal depth of planting the seeds in the soil can be set at 0.5-1.0 cm.

In the experimental field in Samarkand, in the first year of life of the stink buckwheat ended the growing season in late May, early June. During this period, its upper part consisted of only a pair of elongated leaves in the form of lanceolate, the leaves were 12-15 cm long and 1.0-1.2 cm wide in the widest middle part. The root penetrates to a depth of 8–10 cm into the soil, the lateral roots are almost not formed, the main axis begins to expand at a distance

of 3 cm from the root ball, 3 cm long, bulb-shaped thick root with a width of 0.8 mm in the middle, then sharply thinned formed a root system that continued to penetrate. The thickened onion-shaped part of the root is smooth, while the thinning part, which is

deepening, is divided into joints with three small bulges (Fig.6). Thus, the fracture accumulates reserve nutrients in the root over the years and forms a stem in 8 -9 years, flowering seeds and ends its life.



Figure 2. The root system in the first year of life of the ugly brittle.

CONCLUSION

As a result of research, data were obtained on the germination of *Ferula assa-foeti* L. seeds in laboratory and field conditions, the optimal timing and depth of sowing, the development of terrestrial and subsurface organs of grass in the first year. *Ferula assa- foetida* L. seeds germinate at relatively low temperatures (0 - 50C) and have a dormancy period. Long-term cold stratification should be used to remove seeds from the dormant period. It was found that the optimal time for sowing *Ferula assa-foetida* L. seeds in the field is in December, when the sowing depth is 0-0.5 cm, high germination is achieved. *Ferula assa-foetida*, L. grasses form a relatively strong developing root system in the first year of life in a short

time (March-May) and end the growing season in early June, like ephemeroïd plants.

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