Ferula Tadshikorum Pimenov Growth And Development In Different Soils

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ABSTRACT

This article reveals about medicinal and endemic plant *Ferula tadshikorum* M. Pimen which produces the valuable resin. As a result of non-compliance of resin producers with the rules of obtaining resin from plants, the natural reserves of resin-bearing ferules are declining sharply every year. In this regard, several decisions have been signed in the Republic to ensure the rational use and reproduction of these plants.

In implementing these decisions, several experiments were carried out on the establishment of plantations of resin-bearing ferula species in arable lands.

In order to determine the fertility of the *F.tadshikorum* in soils of different composition, in conditions of natural and moisture retention, we used seeds collected in August 2019 from the Dehkanabad forestry area of Kashkadarya region.

Keywords: Plantation, plant, *Ferula foetida*, *F. tadshikorum*, root, bud, resin, medicinal, soil, natural.

Introduction

Ferula L. is a genus of about 200 species of flowering plants in the family *Apiaceae L* in the world as they are medicinal, nutritious, fodder, honey, essential oil and resinous plants. There are 114 species in Central Asia and about 60 species in Uzbekistan [15] .

In recent years, resin has been produced and exported from the roots of *Ferula foetida* (Bunge) Regel. and *Ferula tadshikorum* M.Pimen. and their natural resources have been declining year by year due to the failure of smola producers to comply with plant resin regulations. [17]

On March 20, 2018, the President of the Republic of Uzbekistan signed Resolution No. PP-3617 "On measures to establish fractional plantations in the country and the processing of their raw materials, increasing their volume and export." The resolution sets a number of tasks for the sustainable use of natural resources of medicinal plants growing in the flora of the Republic of Uzbekistan, including the establishment of plantations of resin-bearing export-oriented products and increasing the volume of processing and export of their raw materials [2].

Scientific researches are being conducted on the biology, distribution and rational use of resin-bearing fractures. In order to preserve the gene pool of the declining fractures and to obtain the necessary products from them, it is necessary to create plantations by sowing the seeds of plants. For this reason, it has been crucial task to study the biology of germination of plant seeds.

Materials and Methods

F. tadshikorum was planted and multiplied in different soils in order to know how much seeds are used and germinated per 1 hectare in the organization of plantations.

Life forms of plants I.A. Ramensky et al. (1956), ecological-morphological features I.T. Serebryakov (1962) and I.T. Serebryakov et al. (1967) methods [4] [6] [7] .

For the identification of species from the materials of the Herbarium Center of the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan (Tashkent) and "Opredelitel rasteniy Sredney Azii" (T. IX.

1968-1993), EP Korovin (1947), A.L. Takhtadjyan (1978),; 1995), M.G. Pimenov, et al. (1983) [5] [8] [11].

Ferula tadshikorum M. Pimen - a perennial monocarp, up to 1.5 - 1.8 meters in height, a stalk with 1 or sometimes 2 branches, a garlic-scented plant. Root shape is cylindrical and ovate and the leaves are large of the plant. The central umbels of the flower set are 25-30 light, 3-6 cm long, purple, the number of flower sets in is 10-15. The petals are yellowish, 2-2.5 mm long, oblong, the tip is turned inwards. Seed (mericarpis) is 1.5-2.0 cm long, 0.8-1.0 cm wide, absolute (thousand grains) weight is 35-40 g. It is an endemic plant found in the south-western Pamir-Alay-Boysun, Bobotag and Kuhistan mountains.

Results and Discussions

In order to determine the fertility of the *F. tadshikorum* in soils of different composition, in conditions of natural and moisture retention, we used seeds collected in August 2019 from the Dehkanabad forestry area of Kashkadarya region

A B

Figure 1: Growth of F.tadshikorum in different soils in the natural environment B- gray soil, -A-potassium-rich soil

The seeds were sown in 2 different variants in December at a depth of 0.5-1.0 cm in 100 sandy soils, rich in gray and potassium-rich soils. In the first control variant - the seeds were grown in external natural conditions (environment). In the second control variant was to study the biology of germination and the growth of morphobiological properties of grass when moistened with water. F

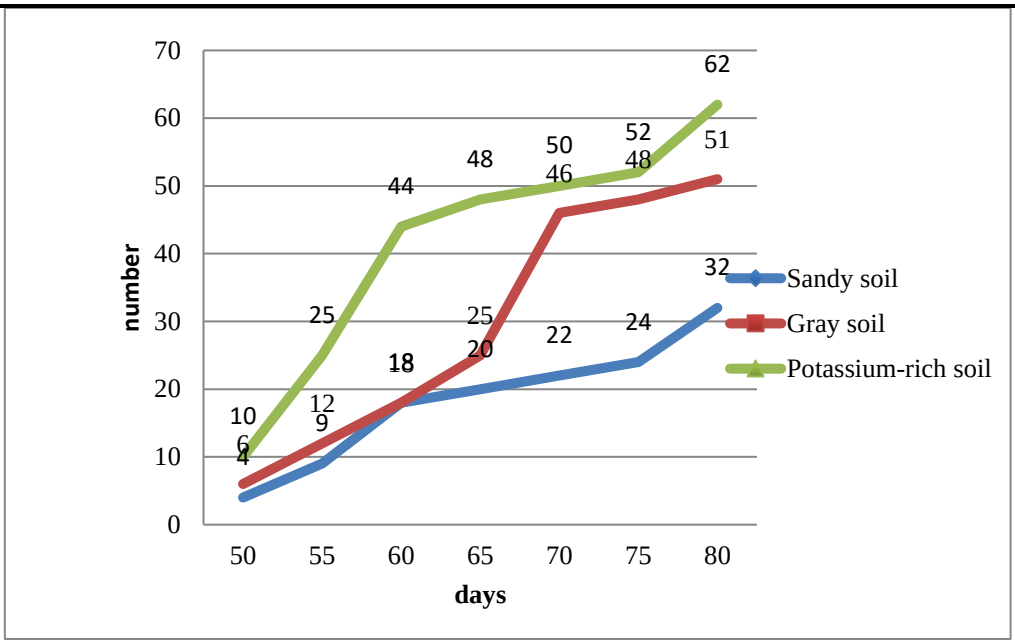

Figure 2: Sprouting of F.tadshikorum in different soils in the natural environment

The figure shows that the seed germination was significantly higher (62%) than in other soils rich in potassium, and the lowest germination (32%) was observed in sandy soils.

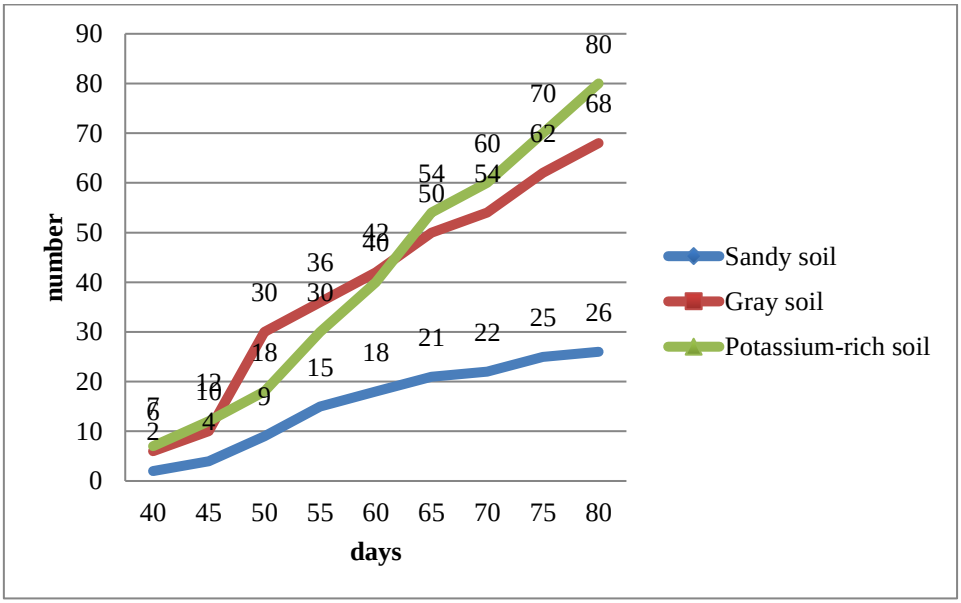

Figure 3: Germination of F.tadshikorum when moistened with water in different soils.

Potassium-rich and seed germination in organic fertilizers was much higher (80%) when harvested in a water-supplied environment, while seeds sown in sandy soil gave the lowest (26%).

Most of the seeds germinated 80 days after planting in a natural and waterlogged environment (.December). The petals are elongated lanceolate, light green in color, began to germinate in 60 days in the control variant,

and dried out in 100 days. In the experimental variant, the seeded leaves were formed in 50 days, while in 120 days they began to dry out.

The shape of the leaf of the *F.tadshikorum* is rhombic leaf plate with an elongated edge finely trimmed, in the control variant the leaves are formed in 80 days and dried in 130 days. But in the soil rich in potassium, the leaves survived up to 150 days. Cultivated, that is, in the experimental variant, the seeds began to dry in 150 days, while the leaves were formed in 70 days.

Table 1
Morphological classification of seeds and true leaves in the natural environment in different soils of the F.tadshikorum crust

№	Soils	Cotyledon leaves		Real leaves		
		Height см	Width мм	Length см	Width см	Petiole of leaf см
1.	Sandy soil	4-5	4-5	7-8	1.5-1.6	2-3
2.	Potassium-rich soil	9-15	6-7	14-18	2-2.3	6-8
4.	Gray soil	7-12	5-6	12-14	1.5-2	4-7

The table shows that the *F.tadshikorum* is rich in potassium and the growth of grasses in gray soils is high, and in sandy soils their development is slower.

Table 2
Morphological classification of seed buds and the leaves in the environment moistened with water in different soils

№	Soils	Cotyledon leaves		Real leaves		
		Height см	Width мм	Length см	Width см	Petiole of leaf см
1.	Sandy soil	3-4	3-3.5	5-6	1-1.5	1.5-3
2.	Potassium-rich soil	5-6	4-6	6-9	1.5-2	3-4
4.	Gray soil	3-4	4-5	5-8	1-2	2-3

The growth rate of potassium-rich and organic fertilized grasses was much higher when harvested in a water-supplied environment, while the growth of grasses in sandy soils was the lowest.

Conclusion

When *F.tadshikorum* was planted in a natural and water-enriched environment, the growth of grasses was high in a water-enabled environment and the vegetation lasted a long time.

It was found that the germination rate and development rate of *F.tadshikorum* seeds were much higher in potassium soi

ls in both variants. We suggest applying potassium fertilizers to the soil when planting plantations from the seeds of *F.tadshikorum*.

References:

1. Paragraph 11 of the Statute "About the procedure for passing of licensing procedures in the field of use of objects of flora", approved by the resolution of the Cabinet of Ministers, on October 20, 2014
2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 23, 2018 No 299.
3. Presidential Decree of April 10, 2020 "On measures to protect, cultivate, process and rationally use available resources of wild medicinal plants"
4. Ramenskiy I.A., Tsatsenkin O.I., Chizhikova N.A., Antipin N.A. Ecological assessment of forage lands by vegetation cover. M .: Publishing house of agricultural. lit. 1956.p. 41-46.
5. Korovin E.P. Sem. *Umbrella* // Flora of the Uzbek SSR. -Tashkent. 1959. T. 4. –p. 459.
6. Serebryakov I.G. Ecological morphology of plants. M .: State. Publishing house. High school. 1962.p. 375
7. Serebryakov I.G., Serebryakova T.I. Ecological morphology of higher plants in the USSR // 1967. T. 52.10.p. 1449-1471.
8. Takhtadzhyan A.L. Origin and distribution of flowering plants. L. Science. 1970.p.148
9. Rakhmankulov U., Melibayev S. Some biological features of Central Asian species of the genus Ferula L. // Biological features and distribution of promising medicinal plants. –Tashkent: Science, 1981. -p 31-61.
10. Rakhmankulov U., Melibaev S., Saidkhodzhaev A.I. Central Asian species of the genus Ferula L. Source of sesquiterpene derivatives // Biological features and distribution of promising medicinal plants. –Tashkent: Fan, 1981. –p. 138-153.
11. Pimenov M.G. Section Glaucoselinumek (Schischk) M. Pimen. of the genus Ferula L. (Umbelliferae). Biological sciences. 1983. Botany. 12 p. 74-78.
12. Saidkhodzhaev A.I. Terpenoid plants of the genus Ferula L. Abstract of the thesis. diss. doctor. chem. sciences. 1984.p.26
13. Safina L.K., Pimenov M.G. Ferulas of Kazakhstan. Alma-Ata. The science. 1984. -p.160
14. Kurmukov A.G., Akhmedkhodzhaeva Kh.S. Estrogenic medicines from plants of the genus Ferul. -Tashkent. 1994-p.63
15. Rahmonkulov U., Avalboev O.N. Ferulas of Uzbekistan (biology, resources and their rational use). –T .: «Science and technology», 2016, p. 244.
16. S. Rakhimov, G.R. Denisova "Some features of the underground organs of *Ferula tadshikorum* M. Pimen." (*Ferula L.*) Bulletin of Altai State Agrarian University No. 8 (154), 2017 87.
17. Halkuzieva M.A, Rahmonkulov U. Bulletin of Khorezm Mamun Academy "Ways to get regin from Ferules". Khiva-2020-4 / 1 №.-B 37-41.
18. Halkuzieva M.A //The Role of Agrotechnological Measures during the Early Development of Ferula tadshikorum Pimenov and Ferula foetida (Bunge) Regel// Annals of the Romanian Society for Cell Biology, -P. 191-3198 https://www.annalsofrscb.ro/index.php/journal/article/view/1787.
19. Halkuzieva M., Raxmonqulov U.// The morphology and growth biology of seeds of Ferula what save resin (Ferula foetida (Bunge) Regel.) and F. Tadshikorum (Pimen)// Scientific Bulletin of Namangan State University 2 (4), -P. 81-85.
20. Rahmonqulov Umarqul, Halkuziyeva Mokhira Asatullayevna. //Smola storage Ferula Foeti (Bunge) Regel plantations storage for years// Journal of critical reviews// JCR.2020; 7(5): 1893-1896 doi:10.31838/jcr.07.05.320 .
21. Halkuzieva Mokhira Asatullaevna, Rahmonkulov Umarkul “Smola storage Ferula tadshikorum M. Pimen plantations storage for years” The

American Journal of Agricultere and biomedical engineering volume 02 Impact factor 5.312 http://usajournalshub.com/index.php/tajabe/issue/view/122.

22. Halkuzieva Mokhira Asatullaevna, Rahmonqulov Umarqul "Biomorphological properties of Ferula tadshikorum M. Pimen. seeds growing in different soil conditions" International Engineering Journal For Research & Development E-ISSN N: (impact factor: 6.549). P.-2349-0721. Doi: https://doi.org/10.17605/OSF.IO/KRU85.