ISSN NO: 2770-0003
June 2025

Dynamics Of Adaptation Of The Plant Amorpha Fruticosa In The Conditions Of Karakalpakstan

Kosbaulieva Bayan Jarilkasinovna
Department of General Biology and Physiology Karakalpak State University

Abstract. The article presents the results of the dynamics of adaptation of the plant Amorpha fruticosa in the conditions of Karakalpakstan. Amorpha is a highly adaptable plant, which grows rapidly in the conditions of Karakalpakstan and is resistant to drought and salinity. In addition, during the cultivation process, we observed that the soil structure was good, and their salinity level decreased.
Keywords: Adaptation, factor, climate, soil, seed, erosion, salinization

According to the World Health Organization, the trend of using many plant substances in regions and countries is increasing. The trend of steady growth in the level of use of wild medicinal plants is currently of great interest to the population in many countries under socio-economic conditions. Economic instability as a result of the disruption of the system of collection and sale of medicinal raw materials, i.e., the lack of real control over purchases, leads to a further increase in operational stress on the natural population of medicinal plants[1].

Due to the increasing influence of various environmental factors on the natural environment, there is a significant reduction in the area occupied by naturally distributed populations of medicinal plants and a threat of their complete disappearance. Therefore, their reproduction by adapting them to the ecological conditions of the region is of urgent importance. According to scientists, when studying the resource and ecological-cenotic characteristics of a species, it is important to protect the genetic and raw material resources of natural plants, the habitat of valuable species, and their rational use[1].

Currently, scientific research encompasses several long-term areas of measures for the conservation and rational use of natural plant resources, among which the development of effective and accurate methods for assessing medicinal plant materials based on modern information technologies is a priority task [1 pp. 246-249].

Currently, in ecological research, the determination of the territorial diversity of medicinal plants is considered important material and helps to solve the main tasks [2]. It is also important for the development of scientific foundations for the use of naturally occurring medicinal plants and new methods for their study[2]. We can monitor medicinal plants using the methods described below.

1) Development and testing of predictive models (express methods) for determining the reserves of medicinal plants [3];

2) creation of a conclusion (database) on the average annual yield of practically valuable species under various growth conditions, primarily for industrialized regions [3];

3) optimization of classical methods for assessing the yield and reserves of plant raw materials [4];

4) development of a resource mapping algorithm based on modern information technologies (remote sensing data and GIS software of graphical information systems [5];

5) determination of stable trends in the variability of quantitative and qualitative indicators of plant raw materials in time and space [5].

Amorpha fruticosa (amorphous shrub) is a shrub-like plant in the family Fabaceae (legumes). It grows mainly along riverbanks and in humid lowlands. The flowers are purple, distinguished by yellow stamens. This plant is resistant to frost and drought and has invasive characteristics in some areas. It is this species that is suitable for the climatic conditions of Karakalpakstan. Amorpha is a shrub reaching 1.5-4 meters in height; it has many branches and branches. Composed of compound, pinnate, small leaves. Violet or bluish-purple, arranged in cylindrical inflorescences. Blooms at the end of spring or beginning of summer. A legume is a fruit containing 1 seed.

In our research work, we studied the biological properties of the *Amorpha* plant from a scientific point of view, and to increase their resistance to the conditions of the territory of the Republic of Karakalpakstan, research work is being carried out on their propagation from seeds.

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Figure 1. Reproduction of the *Amorpha* plant in greenhouse conditions.

Amorpha was sown on the 4th of April, and the air temperature was 23^0, and on April 11, when the temperature reached 29^0, they began to sprout. The preliminary study began on April 18.

Table 1

Growth dynamics of the amorphous plant

Experimental boxes	April 18 Results of the experiment	April 24 Results of the experiment	May 14 Results of the experiment
Pitcher 1	5 cm	7 cm	20 cm
Pitcher 2	7.5 cm	8.5 cm	15 cm
Pitcher 3	5 cm	6,5 cm	17 cm
Pitcher 4	4,5 cm	5,5 cm	16 cm
Pitcher 5	2,5 cm	4 cm	17 cm

As can be seen from the experimental results, *Amorpha* is a very adaptable plant, growing rapidly in the conditions of Karakalpakstan and used in drought-resistant and salt-tolerant landscaping. In addition, it has medicinal properties and can be used in medicine.

Today, the plant *Amorpha* is used for the following purposes. It is planted in parks and along roadsides. It is considered beneficial against erosion due to its strong root system in strengthening the soil. By propagating it, it is possible to develop beekeeping in the area, as there are many sources of nectar. As a legume, it contributes to the enrichment of nitrogen in the soil.

Amorpha fruticosa is an ecologically adaptable plant with the following characteristics:
Despite being native to North America, it was introduced to Europe and Asia.
Habitats: riverbanks, humid lowlands, banks, and hills.
- It is not demanding of soil, but grows well in fertile and moist soils.
- Resistant to cold, salt, and drought.
- It reproduces rapidly and has been recorded as an invasive plant in some regions.
- Negative impact on the ecosystem: displaces native plant species, reduces biodiversity[7,8];

From this, it can be concluded that *Amorpha fruticosa* is one of the plants widely studied in the fields of pharmaceuticals, biology, and ecology. The amorphourutins, flavonoids, and other biologically active compounds contained in it have antioxidant, antidiabetic, and anti-inflammatory properties.

ISSN NO: 2770-0003
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Moreover, due to its environmental adaptability, it successfully grows in various natural conditions, but due to its invasive nature, it negatively affects local ecosystems. It can have an effect. Therefore, the study of this plant on a scientific basis and its correct application in practice is one of the urgent issues

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