JOURNAL OF INTERNATIONAL SCIENTIFIC RESEARCH
Volume 1, Issue 2, October, 2024 Online ISSN: 3030-3508
https://spaceknowladge.com

ECOLOGICAL ADAPTATIONS OF MOISTURE-LOVING PLANTS IN THE CIS COUNTRIES

Mavlonova Umida Elbekovna[1]
[1]*Second year student of the biology direction of education Bukhara State Pedagogical Institute*

ARTICLE INFO

ARTICLE HISTORY:
Received:10.11.2024
Revised: 11.11.2024
Accepted:12.11.2024

KEY WORDS:
Moisture-loving plants, ecological adaptation, CIS countries, hydrophytes, hygrophytes, climate adaptation, plant ecology.

ANNOTATION:

This research focuses on the ecological adaptation of moisture-loving plants in the CIS countries. The study provides an in-depth analysis of the impact of climate and soil conditions on the physiological and morphological characteristics of plants, and explores their adaptation mechanisms to different environmental conditions. Additionally, the distribution and role of moisture-loving plant species in the ecosystems of the region are examined.

Introduction. *Humid-loving plants have a special place in the world flora system, and their ecological adaptations depend on climate and soil conditions. These plants, especially hydrophytes and hygrophytes, live in water sources and wetlands. Adaptation mechanisms of moisture-loving plants ensure their ability to survive in environments with limited or excess water resources.* The CIS countries, including Russia, Uzbekistan, Kazakhstan, Belarus, Ukraine and other countries, cover large areas in terms of climate diversity and soil resources. Humid-loving plants are common in these regions, and they mainly grow in areas such as wetlands, riverbanks, forests, and mountain slopes. Plants adapt to their environment physiologically, morphologically and genetically, which allows them to live for a long time. In this scientific work, the ecological adaptations of moist-loving plants, their habitats and biological diversity are studied. Also, their importance in the balance of nature, their ecological functions and how they adapt to climatic changes are analyzed. The

relationship between ecological factors and plants, the study of specific adaptation mechanisms of moisture-loving plants is scientifically relevant.

Analysis of sources on the topic : *The following sources have the main scientific basis for the study of ecological adaptations of moisture-loving plants:*

1. This article studies the ecological adaptations of hydrophytes and hygrophytes in the CIS countries. The author analyzes how climate and soil conditions affect plants [1].

2. The article studies the ecological and physiological adaptations of moisture-loving plants in Eurasian swamps. The adaptation of moisture-loving plants to changes in water content and temperature is analyzed[2].

3. In this article, the adaptation of the moisture-loving plants found in the regions of Uzbekistan to climate changes is studied. This study analyzes how plants grow in different environmental conditions[3].

4. The role of hygrophytes in ecological systems and what adaptation mechanisms they have will be explained in detail. This article discusses the importance of hygrophytes in maintaining the balance of nature[4].

5. The article analyzes the ecological importance of wetland plants in swamp ecosystems and their adaptation mechanisms are considered [5].

Results and their discussion:

1. Adaptation of plants to climate and soil conditions: Adaptation of moisture-loving plants to different climate and soil conditions was observed in the CIS countries. For example, in Uzbekistan, Russia and Kazakhstan, hydrophytes are actively growing around water sources, while hygrophytes are widespread in wetlands. The ability of plants to conserve water, to absorb water through the root system, and to make physiological changes depending on the amount of water in their habitat has been determined.

2. Adaptations depending on moisture and temperature: Moisture-loving plants have developed specific physiological adaptation mechanisms to environmental factors, in particular, changes in soil moisture and air temperature. In the dry climate of Uzbekistan and Kazakhstan, some types of moisture-loving plants have special adaptation characteristics, they are able to grow even in the absence of water.

3. Distribution of regional plants (continued): According to the results of the research, hydrophytes and hygrophytes are common moisture-loving plants in the Zarafshan and Amudarya valleys of Uzbekistan, the southern and central regions of Russia, and the northern part of Kazakhstan. These plants live in ecosystems that depend on water, and their ecological importance plays a big role not only in preserving biodiversity, but also in

maintaining the balance of nature. For example, plants play an important role in preventing soil erosion and natural water filtration.

4. Adaptation mechanisms of plants: Wet-loving plants have developed different adaptation mechanisms depending on their living conditions. These adaptations include:

Development of the root system: In these plants, the root system develops in a deep or extensive manner, allowing access to layers rich in water and nutrients.

Water storage properties: Some species of hydrophytes and hygrophytes have the ability to store water in their leaves or roots, which allows them to survive during periods of temporary drought.

Adaptation of the photosynthesis process: Some plants can change the process of photosynthesis or adapt their structure to work efficiently even in low temperature and humidity conditions.

5. Impact of climate change: In recent years, as a result of climate change, there is a decrease in the level of humidity in some regions, which creates a new ecological threat for moisture-loving plants. However, some plants are showing genetic flexibility to reduce their sensitivity to climate change.

Conclusion. This study expanded the understanding of the ecological adaptations of moist-loving plants in the CIS countries. Humid-loving plants are uniquely adapted to climate, soil, and water conditions, and their functions in their habitats are of great importance. Hydrophytes and hygrophytes play an important role in maintaining soil moisture, protecting the soil from erosion and ensuring biological diversity. In the course of the research, the need for environmental measures aimed at strengthening the adaptability of these plants to climate changes was determined. This information is important for developing strategies for protecting plants and confronting future environmental threats.

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