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Research Article

BIO-ECOLOGICAL FEATURES OF LAVENDER IN THE CONDITIONS OF KARAKALPAKSTAN

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ABSTRACT

The article presents literature data on the systematics of Lavandula angustifolia Mill., morphological and diagnostic features and ecological features of growth in the culture of this plant species in the territories of Karakalpakstan. In addition, the literature review provides information on the biological and pharmacological activity of Lavandula angustifolia Mill.

KEYWORDS

Lavender, Lavandula angustifolia Mill., biologically active substances, inflorescence, flower, calyx, corolla, peduncle, spike, whorl, essential oil, bush diameter.

INTRODUCTION

One of the priorities of the pharmacological industry is to expand the range of medicines through the introduction of new herbal preparations into medical practice. One of the promising plants of pharmacy is the narrow-leaved lavender (Lavandula angustifolia Mill.) from the labiaceae family. Another name: true

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English, lavender officinalis, spicate, real, angustifolia lavender. Flowers and essential oil of lavender angustifolia have a wide spectrum of biological activity. However, the raw materials (essential oil, flower extract) of this valuable plant have not yet found wide and official use in medical practice in the Republic of Uzbekistan. It has been proven that lavender flowers and lavender oil have the following properties: analgesic, anti-inflammatory, antidepressant, antispasmodic, regenerative, sedative, antiallergic, antioxidant. Lavender oil increases the productivity of blood supply to the heart muscle in atherosclerosis. In hypertensive patients, it also normalizes blood pressure, normalizes the heart rhythm. The spicy tart smell of lavender makes this plant in demand in the perfumery and cosmetics industry.

According to various sources, the genus lavender includes from 20 to 48 species. Some botanists claim that this genus includes about 20 species. Others describe up to 30 types of lavender [1]. Lavender comes in a wide variety of forms and types. Signs of the generic meaning of lavender include the structure of the lavender flower, the spike-like structure of the complex inflorescence, the multi-stem without a standard bush, the general shape and structure of the leaf. Flower characteristics: calyx tubular with 13-15 longitudinal pronounced veins, five-toothed at the top, pubescent. Corolla bilabiate, four stamens not protruding from the corolla, style short, anther with two splayed and merging sockets at the apex. Lavender narrow-leaved evergreen and strongly branched subshrub grows up to 60 - 100 cm in height. The leaves are opposite, sessile, narrow, large, linear, about 2-6 cm long and up to 6 mm wide, oblong, gray-green, the edges are entire wrapped. Lavender angustifolia blooms with fragrant flowers for a month, usually from July to September.

The study of the pharmacological properties of angustifolia lavender is carried out in many countries of the world in order to expand the raw material base used as a pharmaceutical industry.

In the conditions of Karakalpakstan, the study of narrow-leaved lavender has not been carried out so far. At the same time, it is quite obvious that the biological and ecological substantiation of the undoubted medicinal value of lavender introduced in the territory of Karakalpakstan, the possibility of their rational use as medicinal plant materials and the solution of standardization issues are very relevant.

In recent years, work has been carried out to determine the bio-ecological features of promising medicinal plants in the conditions of Karakalpakstan, the lead-in of introduction into practice and the development of agro-technical measures. This study, to a certain extent, serves to fulfill these tasks.

In the Republic of Uzbekistan, a number of scientific studies were carried out on the introduction of new plant species in the regions, predicting their adaptability, explaining and implementing the theory of the introduction of medicinal plants based on scientific research and experiments introduced into the practice of our republic by many scientists. However, medicinal plants have their own bio-ecological features characteristic of each region; in the conditions of Karakalpakstan, they have not been sufficiently studied. Therefore, the study of the introduction of medicinal plants and the study of their bio-ecological properties is of current scientific and practical importance.

The aim of the study is to study the bio-ecological features of angustifolia lavender, one of the promising medicinal plants in the conditions of Karakalpakstan.

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Objectives of the study: to study the bio-ecological features of angustifolia lavender, introduced in the soil and climatic conditions of the Republic of Karakalpakstan; morphological indicators of terrestrial organs of lavender officinalis;

The object of the study was a promising medicinal plant, narrow-leaved lavender (Lavandula angustifolia Mill.)

Research methods. Biological, ecological, botanical and statistical methods were used. Records, observations, biometric measurements, mathematical processing of experimental data were carried out according to the method of Dospekhov B. A. [2].

The objects where the research was carried out were the experimental site of the Aral Sea Innovation Center under the President of Uzbekistan located in the city of Nukus and the forestry site of the Khodjeyly region of the Republic of Karakalpakstan. The study was carried out in 2021-2022, the introduction of Lavandula angustifolia Mill. selected as an object of study has begun.

According to morphological features, the species of narrow-leaved or real lavender (Lavandula angustifolia Mill.) has a large intraspecific diversity. The main morphological features of narrow-leaved lavender include the shape of the bush, the shape of the inflorescence, the color and shape of the leaf, the color and shape of the flower (corolla, calyx), pubescent leaves and calyx [3].

The study of morphological features was carried out on the leaves of the middle tiers of flowering stems, on flowers and whorls of the middle part of the ear. The study was carried out on normally developed plants. According to the literature data, when studying the form of a complex inflorescence (spike), 5 main forms of inflorescence characteristic of the narrow-leaved lavender species were identified in the forms: long-cylindrical, cylindrical, conical, short-conical and spike-shaped. In the forms studied by us, the spike-shaped form of the inflorescence predominates. The leaf shape is linear-lanceolate; the length exceeds the width 8–9 times.

A characteristic intraspecific feature for narrow-leaved lavender is the color of the corolla and calyx of the flower. According to the color of the calyx, the flowers were revealed to be dark purple in color. The color of the corolla is varied, the light blue color of the corolla dominates, and no clear dominance of any color was observed in the corolla. That is, in this nursery, blue, light blue, purple and dark purple colors of the corolla were revealed.

The length of the growing season is 74 days, that is, this form is late ripening. The shape of the bush is compact, pyramidal. The number of inflorescences per plant is on average 450. The type of inflorescence (ear) is long-cylindrical. The number of whorls in an ear varies from 5 to 8. The number of flowers in a whorl is up to 5. The color of the flower is lilac. The color of the cup is lilac. The color of the corolla is light lilac. The shape of the leaf is linear-lanceolate; the color of the leaf is green.

Tall thin peduncles rise above the bush, at the end of which 6-10 flowers are collected in false whorls, and form spike-shaped inflorescences. The plant blooms in the second half of summer. After flowering, lavender seeds are formed - a dense, dry, oval-shaped seed of dark brown color. The number of inflorescences by years varied from 323 inflorescences (2021) to 415 inflorescences (2022), a small number of underdeveloped inflorescences were identified, and the number of developed inflorescences was 91.0% of the inflorescence. And also the second significant quantitative sign of the productivity of the bush is the

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diameter of the plant. The diameter of the plant has a great influence on the shape of the bush, which differs depending on the year of vegetation and the mother form. In the second year of vegetation, the diameter of the bush ranged from 40.4 cm to 56.0 cm.

Studying the growth and cultivation of Lavandula angustifolia Mill. in the conditions of Karakalpakstan, our experimental observation continues, since the technology for the production of medicinal plant materials in Karakalpakstan currently includes the main elements of large-scale agricultural cultivation of medicinal crops.

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