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Non-Tradıtıonal Cultıves Growıng Indigoferatinctoria L. In Kyzylkum Regıon

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Abstract

In the conditions of modern globalization of agriculture, the use of studies of ecological, biological properties and recommend regionalization of the cultivation of promising and useful plants in various environments is the most urgent problem for the national economy. The article studies the bioecological properties of the resistance of indigofer plants to salinization and salinization of the soil. Resistance to regularly manifested adverse environmental factors is a mandatory feature for zoned crops. In the natural conditions for a species to grow or cultivate, plants in the process of their growth and development are often affected by adverse environmental factors, which include temperature fluctuations, drought, excessive moisture, soil salinity, etc. Each plant has the ability to adapt to changing environmental conditions within the limits determined by its genotype. The higher the plant's ability to change metabolism in accordance with the environment, the wider the reaction rate of this plant and its better adaptability. Based on the results of field studies of zoning of indigophera plants under growing conditions in the KyzylKum regions, it is revealed that they are important for their use in the national economy.

Keywords: *globalization, resistant plants, bacteria, soil salinization, adverse factors, vegetation, desertification, degradation, environment, metabolism, leaching, technology*

INTRODUCTION

Since the mid-20th century, desertification in the Central Asian region, including soil degradation, has been a global problem. Soil degradation not only reduced the productivity of agricultural land, but also the socio-economic life of a growing population and environmental problems. The Declaration on Environment and Development, adopted at the United Nations Conference in Rio de Janeiro (1992), emphasizes that soil degradation is a very important issue of our time [1]. This Declaration emphasizes the need to further accelerate efforts to conserve soil and land resources to combat land degradation. In connection with the global financial and economic crisis, in the book of I. A. Karimov "The Global Financial and Economic Crisis, Ways and Measures to Overcome It in Uzbekistan" (2009), the development and implementation of promising technologies for crop yields [2] are presented. An increase in the share of agricultural production in the economy of the republic is one of the main directions for overcoming the economic crisis.

In order to improve the reclamation of degraded lands, a number of recommendations were developed on improving irrigation and drainage systems, targeted leaching, the use of organic fertilizers and the use of legumes. At the same time, one of the ways to improve land reclamation in agriculture, reduce soil degradation, restore soil fertility, stimulate the economy of the sector and provide additional income is the cultivation of non-traditional crops Indigoferatinctoria L. in alluvial soils of the Navoi region, these works are still not studied in these areas.

Therefore, one of the effective ways to achieve the main tasks in the Navoi region is the development of agricultural technology, recommendations for growing Indigofera plants and developing productivity for agricultural and industrial use.

The aim of our research is to study Indigoferatinctoria L. plants on degraded meadow alluvial soils of the

Navoi region as a secondary and sowing crop of wheat and the effect of the use of organic and mineral fertilizers on the growth, development, biomass accumulation and their productivity.

Brief physical and geographical characteristics of the research area

Geographic location

Kyzylkum is located on the Turan plate. The basement of the plate is formed by Paleozoic crystalline rocks (crystalline slate, granite, limestones and other rocks), which are covered by rocks of later periods: sandstones, marls, clays, sands, conglomerates. Before the Paleogene period, Kyzylkum was under the water of the Tethys Sea, but the Paleozoic mountains formed islands. In the Neogene period, the sea receded and the territory of Kyzylkum turned into land [3].

Fig. 1. Photo and location map of Kyzylkum region

Climaticcharacteristic

The climate of the Kyzylkumphysico-geographical region is sharply continental, desert. Its characteristic features are high temperature in summer and a very small amount of annual precipitation, a large amplitude of daily and annual temperatures.

Winter in Kyzylkum is cold. The reason for this is the frequent invasions from the north of dry and cold arctic air masses and the Siberian anticyclone. On such days, the air temperature drops sharply to –31 ° ...– 35 ° C. Western air masses bring rainfall and a slight increase in temperature. The average January temperature in the north of Kyzylkum is –5 ° ...– 10 ° C, in the middle part –2 ° ...– 4 ° C, in the south –1 ° ...– 2 ° C.

The average July temperature in the south and in the central part of the okrug is + 30 °, in the north + 26 ° ... + 28 ° C, on some days the temperature reaches + 48 ° C. At this time, the sands warm up to + 75 ° ... + 80 ° C.

Precipitation is low (up to 75–150 mm per year), and they are distributed unevenly over the seasons. Most of the annual rainfall occurs in the spring (up to 48%) and winter (30%), however, the potential evaporation reaches 1000-1500 mm.

In Kyzylkum, sandy and sandy loamy soils are common on the plain, gray-brown soils are found in the foothills and on the slopes of low mountains, and in the basins there are solonchak, solonchak-bog soils.

In the Kyzylkum district, more than 600 species of plants grow. Among them, ephemera and ephemeroids with a short spring growing season prevail: bluegrass, bulb sedge, Dantonia bonfire, tulips, snowdrops, ixiolirion, small-fruited cousin. With the onset of heat, they dry out. Plants adapted to drought and salt in the soil continue vegetation in the summer.

Juzgun, white saxaul, selin, sand acacia, and kandym grow on the fixed sands. On gray-brown soils

wormwood and weeds are common [3].

Bioecological characteristics of plants "Indigoferatinctoria L."

Description of research material

For the study, a salt tolerant plant in the desert and saline soils of KyzylkumIndigoferatinctoria L. culture was selected.

"Indigoferatinctoria L." It belongs to the legume family, is an annual semi-shrub plant 1-1.5 meters high. The leaves of the indigophera are unpaired, elliptical, with 4-7 pairs of leaflets on the main petiole. They contain a colorless glycoside, which is broken down into glucose and aglyconindoxyl.

Oxidizing in air, aglycon acquires a blue-violet hue. It is the powder from the leaves of indigofer since ancient times that was used to obtain the dye - indigo.

Moth flowers, bisexual, are collected in small axillary brushes. In some varieties, flower stalks reach a length of 30 cm. There are pink and purple colors. They begin to bloom mainly in July, they finish - with the first frosts, losing not only inflorescences, but also foliage.

fig. 2. General view of "Indigoferatinctoria L."

The next location.Compound leaves with 4–7 pairs of leaves on the main petiole, elliptic leaflets, opposite, on short petioles, glabrous above, hairy below.

Inflorescence - axillary brushes. The flowers are pink or purple, a moth type. The cup is bell-shaped, small.

Fruits are white-pubescent linear-cylindrical beans with 4 to 6 seeds. Bred by sowing seeds, as well as green cuttings in June-July.

Another feature of the biological feature of the plant, which is worth paying attention to is that until the period of maturity of beans and seeds, growth in height and formation of leaves occur in an active way. After the start of the bean maturity period, leaf formation is sharply reduced. This property of the plant is very important and is associated with the objectives of the cultivation: whether it is obtaining seeds or obtaining leaf biomass.

The root of the Indigoferra has a direct shape and after the appearance of sprouts from the seed, the root growth is activated, and during the formation of the first leaves, after the appearance of 6-8 leaves, the length of the root part is 3 times the length of the upper plant. During the period of plant development, root growth slows down, it expands, and lateral roots appear. Until the end of the growth period, the root length is on average 15-20 cm.

Plant Growth and Development Conditions

For the first time, Indigophera L. was planted on an area of 500 m^2 on April 29, 2016 at the experimental site of the Navoi Mining Institute. The first germination occurred after 8-10 days. During sowing and germination, the average soil temperature was 16-18 ° C.

Observations were carried out from May to the end of September. This period is 130-140 days, and the entire growing season is 100-110 days (full germination).

Plowing was plowed in March with a depth of 25-35 cm. The height of the beds is 30-40 cm, the distance between the rows is 90 cm.

High temperature speeds up its growth. At the same time, the formation of side branches continues. During this period, the flowers of the plant are pollinated, the formation of beans is activated. After development, the plant slows down, which continues until the end of its growth period. The height of the plant at the end of the period can reach up to 140-150 cm (photo 1).

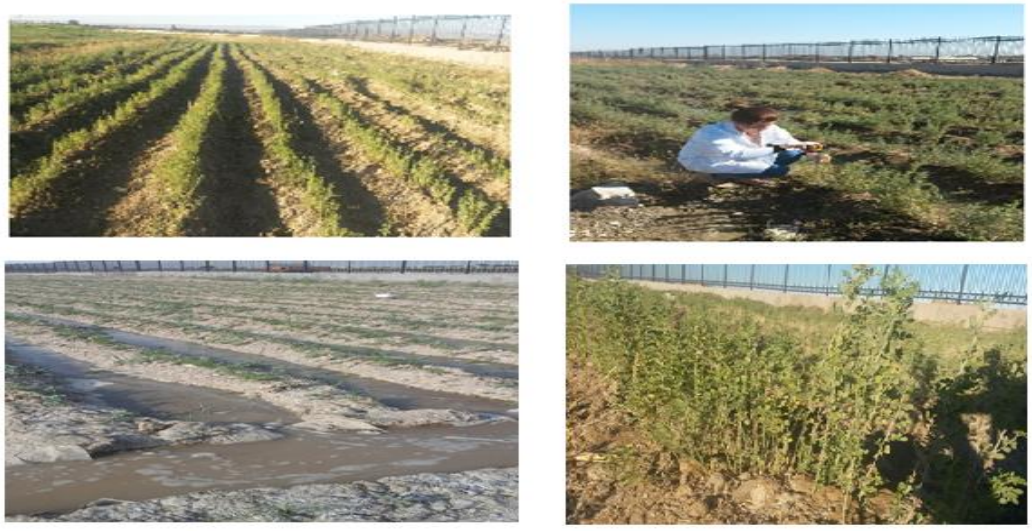

Photo 1. Growth and development of the Indigofer plant in the experimental plot

Due to the fact that Indigofer is a bush-like plant, side branches mainly grow and develop in the lower part of the stem. These branches are formed when the plant grows 20-30 cm and grow up along with the stem. However, the leaves of later lateral branches are smaller and the seed is fully ripened.

Plant height and the number of side branches mainly depends on the density of planting. With a dense planting of seedlings, the number of lateral branches does not exceed 3-4, they are not fully formed, the main stem grows higher. On the contrary, with a rarer planting, the bushes do not grow higher than 90 cm, it is advisable to have an average of 20-25 bushes per weather meter. With such density, one hectare accounts for an average of 220-250 thousand units of bushes. During the 2016 experiment, the first crop mass from crops planted in April was harvested at the end of August, and after that, irrigation, cultivation and fertilizing of crops continued until mid-October.

CONCLUSİON

According to the results of field studies of zoning of indigophera plants under growing conditions in Kyzylkumki regions, bioecological and phenological properties (seasonal growth, development, germination, flowering, seed germination and seed germination) of indigophera were studied.Under different conditions, the phenological periods of the plant also change throughout the season. Cultivation of Indigofer dyeing (Indigoferatinctoria) on the experimental site can be quite successfully cultivated in saline degraded lands. This culture has many useful properties: thanks to nodule bacteria located on the roots, it fixes free nitrogen from the air and enriches the soil with it; grows well on saline degraded lands.

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