

BIO-ECOLOGICAL DIFFERENCES OF CISTANCHE SALSA IN CONDITIONS OF KARAKALPAKSTAN

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Article history:		Abstract:
Received:	August 8 th 2022	In the literature, members of the genus Cistanche salsa
Accepted:	September 8 th 2022	(Chenopodiaceae) of the Chistanche family, in particular, halloxylon, are
Published:	October 14 th 2022	parasitize on the roots of Circassian plants. There are 9 species of this genus
		in Uzbekistan and 4 species in Karakalpakstan, all of which are parasitic
		plants.
		Cistanche's root is considered a healer and it has a variability that
		improve immunity. Cistanche is an expensive herbal product that is widely
		used in medicine in many countries. Its useful properties in the conditions of
		Karakalpakstan have not been studied, especially as an herbal plant.
		When we dug in the Salsola richreti (cirrcassian) root of the Cistanche
		salsa, we found that at a depth of 24 cm above the ground, the horizontal
		root of the Cistanche was connected to the horizontal root by a single thread-
		like root, the diameter of the connected roots being the same. We
		morphologically compared and analyzed two Cistanche salsa plants. The first
		Cistanche salsa plant was 57 cm long, weighed 1,075 grams, and the second
		was 51 cm long and weighed 490 grams, which differed sharply from each
		other. The biossom of the plant is during April-May depending on the
		weather. Its length reaches 5 to 25 cm. The bell-shaped petal of the flower

Keywords: perennial herbaceous plants, unbranched stem covered with scales, flowers are collected in brushes, plants parasitize on the roots of shrubs, do not produce chlorophyll, host plants, inflorescence, covering scales, bracts, calyx, stamens, corolla, anther, capsule, fruiting, nests, column

INTRODUCTION Cistanche salsa is a genus of Orobancheceae (Uzbek-Shumgia, Karakalpak-Kauin gul, Kazakh-Sungila). The genus Orobancheceae is divided into two genera: birch - Orobanche L. zarazixa, and tsistanxelar - Cistanche hoffmgg et Link. - Tsistanxe.

Cistanche salsa is widespread in Central Asia, the Caucasus and the lower Volga region of Russia. It grows in saline, semi-saline and well-drained soils. The Cistanche salsa (Chenopodiaceae) genus of the Chistanche family parasitize on the roots of both haloxylon and Circassian plants.

There are 9 species of this plant in Uzbekistan, all of which are parasitic plants, which have coin shaped leaves instead of leaves. There are 3 species of birch in Karakalpakstan in the Amudarya region: Egyptian birch - O.aegyptiaca Pers; bented kauin gul -O.cernna var.typical G.Beck; sunflower sorts -O.cumana wallr. There are 4 species of Cistanche: suspicious Cistanche - S.ambigua (Bunge) G.Beck; yellow cistanche - S.flava (C.A.Mey) Korsh; cistanche growing in salty places - S.salsa (C.A.Mey) G.Beck;cistanche which bloom to the three sides -S.trivalvis (Trautv.) Korsch. [4,5]. Some species of Cistanche parasitize on the roots of haloxylon and Circassian plants, which grow in the desert areas of agricultural crops (sunflower, tobacco, orchards, fields) [6].

Cistanche salsa is a perennial plant with few trichomas, and drought tolerant. (Fig. 1). Height 37 cm, thick flesh, covered with scales, the thickness of the middle part is 5-20 mmThe length of the thickened part of the pelvis is 15 cm, the width is 6 cm, from which 4 main cysts are developed, which are not equal in height. The straw is dense, 4.5 cm wide, 26 cm long, short cylindrical, strongly shortened.The flowers are sessile, bisexual, the petal is brown, 3.5 cm long, yellowish and reddish-blue, slightly bent towards the front, the average number of flowers in the bunch are 70-80, the length of the analyte in the flower is 4 cm (analytic eye - 1.5 cm, analytical oil - 2.5 cm) is white.The box had two patches and three patches. The box is 1.7 cm long and 1 cm wide. Cistanche



blooms in late April and early May and lasts until May 20, after which the fruiting period begins.

Cistanche salsa (kawin gul) looks more like mushrooms than a plant, and does not contain chlorophyll. The roots become short fibers, and the left fibers attach to the roots of other plants.

Tsistanhe's root is considered a cure and prevents serious lung diseases. It has the property of enhancing immunity against frostbite. Cistanche is a valuable medicinal plant, which is widely used in medicine of other countries. Scientific studies by professors from both Chinese and Chinese medical universities have shown that shumgiyo tsistanhe emlenio has a strong effect on difficult-to-treat diseases and has shown high pharmacotherapeutic results. Scientific studies by professors from Japan and China Medical Universities have shown that shumgiyo tsistanxe vaccine has a strong effect on difficult diseases and has shown high pharmacotherapeutic results. Georgian scientists have also found that the biologically active substances (cystachlorin, cystanine and sterols) in the cistern plant increase the regeneration of liver cells damaged by disease. This plant has been used as a skin rejuvenator.

Eastern nations call this plant "The root of life in the desert." According to Japanese scientists, this plant is five times more useful than ginseng.

On February 16, 2018, the President of the Republic of Uzbekistan Shavkat Mirziyoyev during his visit to Bukhara region to get acquainted with the work carried out in the field and the process of socioeconomic reforms, paid special attention to the cultivation of Cistanche and incense [1].

According to the Resolution of the President of the Republic of Uzbekistan dated April 10, 2020 No. 4670 "On the treatment, cultivation, conservation and sustainable use of resources of leather plants in the wild", the following year, there has been carrying out a series of reforms to protect medical plants, create their plantations and process them [2].

Of the 4.3 thousand species of native plants in the local flora, 750 herbs, of which 112 species are registered for use in scientific medicine, and 70 species are widely used in the pharmaceutical industry. Cistanche salsa (C.A.Mey.) Beck.) is one of them.

In the conditions of the desert soils of Bukhara region, we are conducting research on the multiplying and reproduction of naturally occurring cystine plants by seed, the study of the amount of biologically active substances. Its usefulness in the conditions of Karakalpakstan, more precisely as a medicinal herb, has not been studied, and our scientists would be expedient if they studied in depth the bioecological differences of this plant and widely used it in the national economy.

The study of the bio-ecological features of Cistanche was carried out in 2018-2020-2021 in the conditions of Karakalpakstan "Kyzylkum" as a medicinal herb.

MATERIAL AND METHODS. The geobotanical observations have neen written on special blanks which had done by botanist P.Khalmuratov. General assessment was given by eye measurement through the 7-point-Drude scale, and the projective shell assessed through L.G.Ramenskiy [6].

The research was conducted in together with the herbarium collection. Flowers were taken during the blooming period and studied under a magnifier to learn the structure. The measurement was performed in millimeters.

Our investigation was held between 2018-2020, in Kyzyl-Kum in Karakalpakstan. Cistanche(<u>Cistanche</u> <u>salsa</u> (<u>C.A.MEY.</u>) <u>BECK</u>) was chosen as a study object . Phenological observations were made according to the method of S.Ya. Sokolova [6] which can meet the requirements of plant studies.

The study of seed germination and growth in the laboratory was carried out in the methodical manuals of M.K.Firsova [16], M.G.Nikolaeva [16] and others, and in the methodical manuals on seed introducers. The seeds were grown in Petri dishes at different temperatures. Hypocotyl growth is observed both in length and width of the seed pods, and leaf formation is observed during growth.

Fertility of seeds in field conditions was studied in the experimental sector by sowing seeds at different times and at different depths. The scheme was used which is determined the plants' condition at different ages that is recommended by T.A.Rabotnov [16], I.F.Satsyperova[16] in the study of onthogenesis, and completed other co-authors. The study of cistanches bio-ecological variability and its cultivation as a promising medical plant in Karakalpakstan, was carried out in one experimental plot. The research was conducted mainly in the Kyzylkum region.

RESULTS AND DISCUSSION. When we dug in Kyzylkum (the south side of the roundabout on the east of the city of Nukus) in the Salsola richreti (circassian) of the Cistanche salsa, at a depth of 24 cm above the ground, we found a horizontal root of the church, it is 18 cm long, 0.5 cm wide, and the



(Fig. 2).

diameter of the connected veins is equal to each other



Figure 1. A general view of Cistanche salsa

We morphologically compared two Cistanche salsa plants from the ares of Kyzylum near the city (Catex) of Nukus (Figure 3). The first Cistanche salsa plant weighed 57 cm in length, weighed 1,075 grams, and the second weighed 51 cm in length and weighed 490 grams.

The flowers of the plant bloom in April-May depending on the weather. The ball flower is masculine, cylindrical, gay, with a short stalk, it is 5 to 25 cm long, and the scaly ribs on the edge are thicky

Figure 2. Connection of Cistanche salsa to the plant root

trichome. The petal is bell shaped and consists of sepal leaves. The sepal leaves are elongated, equal to the five-pointed petal leaf. The petal is dark brown, up to 35 mm long, slightly bent forward, reddish-blue, slightly bent and white-yellow reed (Fig. 4). The stalks of the male filaments have trichome, and the flower is attached to the underside of the leaf. Dust particles has trichome, 3-4mm long. The pollen tube is wide, deep and juicy. The fruit is a two- or three-leaf clover. The fruits ripen in May-June



Figure 3. Appearance of Cistanche salsa.

In short, it is necessary to carry out scientific research on the widespread use of the plant in pharmaceuticals, cosmetology and food industry, which has a valuable Figure 4. Flowers of Cistanche salsa.

medicinal property, aesthetic pleasure, and a natural gift.



Advantages of cistanche: It significantly increases the speed of movement in the intestine and prevents the absorption of water in the large intestine, Strengthen the immune function, Regulates the cardiovascular system, Reduces the amount of fat in the blood, prevents atherial lipidosis, thrombosis, peripheral vascular resistance, reduces dilates peripheral blood vessels, protects the liver and eliminates fat in it. It treats menolipsis. Also, it rich in alkaloids, amino acids, microelements, vitamins and other structural elements. Sexual dysfunction, night stools, premature births, menstrual disorders, amenorrhea, infertility and other diseases can be effectively prevented and treated. It can help women get pregnant! Anti-aging features.Improves the memory, helps to slow down the ageing process of the pituitary gland, gonads, thymus and other parts of the human body. Increased libido in men and women. It acts as a stimulant to improve potency, because it effectively promotes the functioning of the central nervous system, increases the secretion of hormones and neurotransmitters, as well as acteoside, salidroside and other substances that increase libido. It is rich in many amino acids, vitamins and minerals, which make a huge contribution to health.

It helps to gather strength. Increases muscle glycogen reserves, reduces the breakdown of muscle proteins after exercise. In addition, RNA in the liver and spleen significantly improves both DNA synthesis. Sexual fatigue, endurance significantly helps asyryo. It normalizes the amount of nucleic acid in the liver and spleen.

Protection issue of cistanche species. The fact that the country has adopted more than 60 normative and legal acts aimed at the protection and rational use of flora and fauna, as well as accession to international conventions, indicates that the issue of environmental protection and ecological balance in Uzbekistan has been raised in the national policy.

On September 19, 2016, the new version of the Law "About protection and use of flora" was adopted, as well as the new Strategic Plan for the Conservation of Biological Diversity for 2016-2025. The complex of ecosystems, in particular, will be an important step in the preservation of their individual structural units.

The country has adopted 9 regulations on biodiversity and more than 20 normative and legal acts. The development of any country, the quality of life and health of its people, most importantly, national environmental security, the stabilization of natural systems, the protection of the environment can be directly linked. This will allow us to preserve and appreciate all the gifts of nature, to understand the content of the adopted laws, to shape our ecological culture, as well as to make a worthy contribution to the consistent implementation of legal documents.

CONCLUSION. In Karakalpakstan, salty cistanche (Cistanche salsa) are highly specialized parasites that have undergone heterotrophic feeding and have lost chlorophylls. It is parasitized on the roots of both circassian plants, particularly haloxylon, in members of the genus Chenopodiaceae. Cistanche has almost no root system and no leaves.

The Cistanche plant, known in Karakalpakstan as the "desert ginseng", "life root in the desert" and "golden root", which is widespread in the Amu Darya delta and the Kyzylkum plateau, is currently attracts the attention of international pharmacists and scientists.

Another characteristic of Cistanche is that while it grows in both desert and semi-desert regions, it is brightened by the bright rays of the sun and becomes a rainbow (rainbow) and rises in the moonlight.

Cistanche is a drought and salt tolerant plant, its useful properties in the conditions of Karakalpakstan, more precisely not studied as a medicinal plant, it would be good if our scientists study the bio-ecological properties of this plant and use it in the national economy.

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