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Glycyrrhiza Glabra L. - Technology of Cultivation of Medicinal Plants

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Abstract: The article focuses on the medicinal properties of the plant, its use for diseases, and the technology of cultivation from seeds and cuttings of the plant. When the plant was planted from seed, the row spacing was 60x10, 60x20, 60x30 sm.

Key words: cultivation technology, cuttings of the plant, seed, Glycyrrhiza glabra, licorice, medicinal plant, pharmacological properties.

Introduction

Many years of research have established that the content of this important biologically active substance in licorice *Glycyrrhiza glabra* L. depends on environmental conditions. The best raw material is the underground part (roots, horizontal and vertical rhizomes) of licorice harvested in the North Caucasus, Azerbaijan, Central Asia and Western Kazakhstan than, for example, from Spain and Italy. Different environmental conditions contribute to the formation of internal mechanisms of adaptive features in plants, which are formed due to the individualization of certain compounds used in the struggle for existence[3].
Decree of the President of the Republic of Uzbekistan "On measures to increase the production and industrial processing of licorice root (licorice) in the Republic of Uzbekistan" No. PP-2970 dated May 16, 2017 pays great attention to the creation of natural growing areas in 14 districts of Karakalpakstan for the period 2017-2021 [1].

One of the most demanded plants in the world pharmaceutical market are species of the genus *Glycyrrhiza* L. Two species of the genus *Glycyrrhiza* grow in Karakalpakstan: *Glycyrrhiza aspera* Pall. and *Glycyrrhiza glabra* L., but only *Glycyrrhiza glabra* is of great economic interest[2].

In scientific and traditional medicine, the root and rhizome are used. The extract of the root and rhizome of the plant have found their application in various industries and are in great demand both in the domestic and global markets.

Glycyrrhiza glabra L. - Licorice (boyan - Karakalpak name). Sem. Fabaceae is a perennial plant. A decoction, powder and extract of the roots in folk medicine is used as a diaphoretic and laxative, for coughs and pains in the chest and throat, for the treatment of the respiratory tract, whooping cough, also for gastrointestinal diseases, dysentery, diseases of the bladder, kidneys, as an expectorant and in other diseases[2,3].

In scientific medicine, preparations of licorice root (dry and thick extracts, syrup, breast powder), as well as roots in the composition of various teas and complex powders, are used as a mild laxative, expectorant, emollient and diuretic, as well as a means of regulating water salt metabolism [3, 4, 5]. The roots and rhizomes of the plant contain glucose, fructose, sucrose, maltose, starch, organic acids, essential oils, glycyrrhizic acid, phenolcarboxylic acids and their derivatives, coumarins, tannins, flavonoids, higher aliphatic hydrocarbons and alcohols [5].

Underground part – carbohydrates, organic acids, essential oils, triterpenoids, steroids, triterpene saponins, nitrogen-containing compounds, vitamins, coumarins, tannins leaves – organic acids, vitamins, tannins, flavonoids flowers – flavonoids fruits – tannins [4].

Glycyrrhiza glabra L.- plant can be planted in different ways: for example: when planting *Glycyrrhiza glabra* L.- seeds, 8-10 kg of seeds are used per hectare. Before sowing, the seed is stratified (the hard shell of the seed is softened to a certain extent). The seed is sown in late February or early March. After the seed is planted, a 1-time irrigation of 1000-1200 m^3 per hectare is carried out. In our several years of experiments, the root and rhizome length of the plant is 15-20 cm, the diameter of 1-2 cm cuttings were planted in the scheme of 50x70 cm, to a depth of 10-20 cm. After twenty days, it started to grow. In two months, its height

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reaches 30-40 cm, during its vegetative development, its root shoots grew slowly. When the plant was planted from seed, the row spacing was 60x10, 60x20, 60x30 cm (Table-2).

It was replanted four times. In this case, the seeds that were thawed in the laboratory germinated in fourteen days, and in fourteen days when they were not thawed. They were planted under field conditions in the experimental plot of the Qutli makan OFY of Karakalpak State University (photo- 1). Irrigation measures are carried out 1 time in May-June and 2 times in July-August. Also, compared to planting from seed, growth is much faster. In other words, when planted from cuttings, the growth rate of the plant accelerates in the first year of growth. The plant will grow rapidly in the following years. Watering 1-2 times during growth ensures plant growth. At the end of the 4th growing year, its raw material is ready(Table-1)

Table-1

***Seed processingGlycyrrhiza glabra* L.**

Processing Methods	**Laboratory Viability %**	**Field Viability %**
1.Unprocessed (control)	42,3± 1,3	18,2± 0,7
1. processed seeds	71,7± 2,1	57,3± 1,9

Table-2

Plant growth and development in the planting method (05.05.2020 year)

Planting methods	planting schemes	Plant height, cm													
		20.05	30.05	10.06	20.06	10.07	20.07	30.07	10.08	20.08	30.08	10.09	20.09	30.09	2.10
Plant roots and cuttings	60x10	3	7	13	22	29	36	47	51	58	67	73	75	78	80
	60x20	2	9	16	20	35	43	48	52	66	68	72	74	76	77
	60x30	2	10	15	18	29	40	47	51	58	62	66	68	69	70

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Photo-1. Propagation of Glycyrrhiza glabra L. from seed and cuttings

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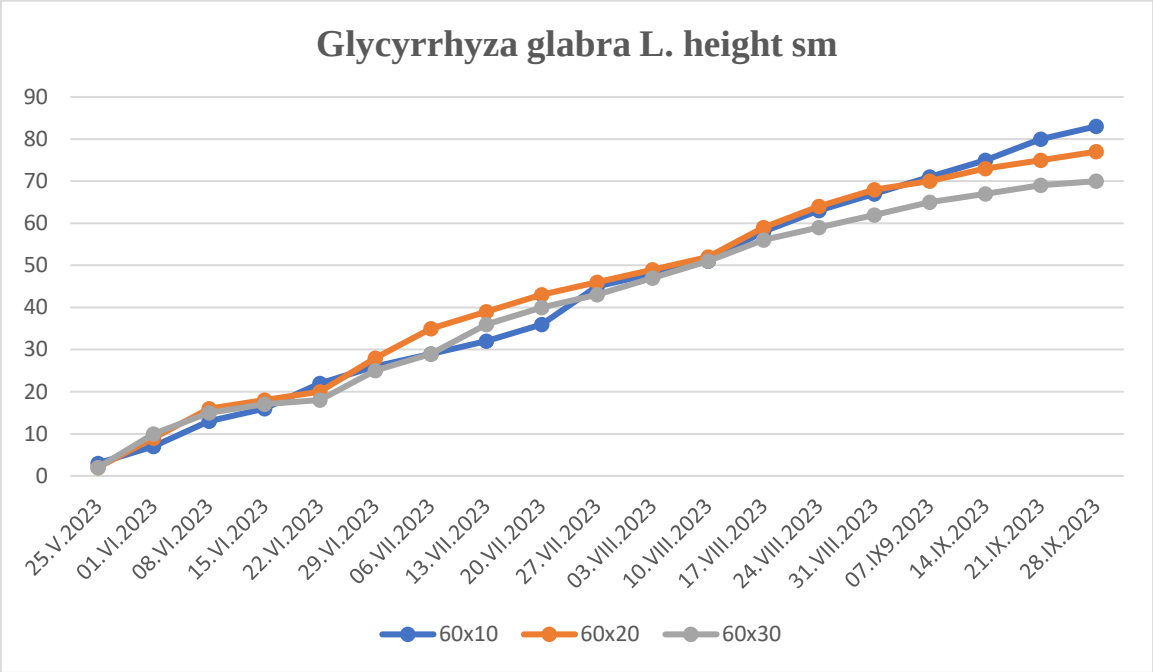

In conclusion, it should be noted that both methods proved to be effective when compared when grown from seeds and cuttings of plants. To meet the demand for such medicinal plants, it is necessary to develop the medicinal properties of these plants, their chemical composition and cultivation technology.

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