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### SECTION 11. Biology. Ecology. Veterinary.

## RESERVES OF LICORICE IN KUR - ARAZ LOWLAND, ITS LOCATION, CONDITIONS AND WAYS OF RATIONAL USE

**Abstract:** *The article investigates the licorice reserves in the Kura-Araz lowlands, its arrangement and description of the ways of its rational use. It is noted that licorice has a very wide variety of applications. Recently, in connection with the discovery there of new active substances its value has risen sharply and has become the most significant.*

*Here are analyzed issues related to the taxonomy, geography, morphology, biology, ecology, biochemistry, formation, pharmacology, technology and the use of drugs, the identification and improvement of the natural reserves of licorice and its use as a food plant in the agricultural industry as well as its entry into composition of crops.*

*This circumstance requires an in-depth and comprehensive study on this issue. The article draws attention to the fact that Azerbaijan is the first study of licorice were devoted mainly utilitarian analysis of questions aimed at the description of the most efficient operation thickets formed by it.*

*In the study of the species composition of licorice and associations formed by licorice, touched on the biology and ecology of licorice bush. Studies have been conducted to study the chemical composition. Also, some of the issues were resolved biochemical nature. In Azerbaijan, licorice is most common in areas of semi-desert zones of Kura-Araz lowland. Here it is in a fairly moist favorable conditions forms large thickets.*

*Special surveys licorice reserves in Azerbaijan were performed three times: in 1934, 1959 and 2013. As a result, stocks of raw materials were found sufficient for industrial use. Licorice is one of the highly productive plant semi-desert areas of Azerbaijan.*

**Key words:** *morphology, biology, ecology, biochemistry, formation, pharmacology, technology, plant communities, association, biomass, scarification, protein.*

**Language:** English

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### Introduction

Licorice has a very wide variety of applications. Its importance in recent years in connection with the discovery there of new active substances has increased dramatically and became great. Despite the extensive literature on licorice, illuminating issues of taxonomy, geography, morphology, biology, ecology, biochemistry, formation, pharmacology, technology and the use of drugs, the problem of identifying and improving the natural reserves and their use as fodder plants in the agricultural industry, as well as the introduction of the culture requires a deep and comprehensive study (10).

The research work phytocentral direction completely untouched or very poorly studied questions of the structure of the structure

phytocenoses identify association areas, biomass dynamics, role sredneobrazuyushey (pertinentsii) phytocenoses licorice laws antropodinamicheskikh depression and demutatsionnyh shifts and many others.

The solution of these issues was necessary for the development of scientific bases of rational exploitation of natural licorice and undergrowth for cultural maturation of plantations, the need for which will undoubtedly arise in the near future (9).

In Azerbaijan, the first study of licorice were devoted mainly utilitarian analysis of questions aimed at the description of the most efficient operation thickets formed by it.

Only, since the 50s of the last century began to be held parallel to the in-depth detailed study of

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pathways licorice reserves. Steel deeply affected by various issues of botanical nature, the results of which could serve as a scientific basis for the rational use of natural resources licorice Kur-Araz lowland.

### Materials and Methods

In the study of the species composition of licorice and associations formed by licorice, touched on the biology and ecology of licorice bush. Studies have been conducted to study the chemical composition, and allowed some questions of biochemical nature.

In recent years, began the study of intraspecific variation of licorice in the Kur-Araz lowland. Are being thorough work on seed and vegetative propagation of licorice and its introduction to the list of crops (5).

However, many questions remain unaffected phytocenological direction. In our research, we have attempted to describe some of the more urgent issues related to the problem under study that will enrich the botanical information and knowledge about phytocenosis semi-desert areas of our country. The results will contribute to the development and justification of the scientific bases of purposeful use of the valuable plants in the Kura-Araks lowland (7).

Of the five species of licorice, found in the flora of Azerbaijan, liquorice, included in the botanical literature under the name of Transcaucasia - *Glycyrrhiza qlabra*-, gained the most widespread. It is of great industrial value.

Established more Linnaeus (1737) view - *Glycyrrhiza qlabra*-, it is a kind, good enough morphologically different from other kinds of licorice on intraspecific diversity throughout the area and in particular the Kura-Araz lowland. It should be noted that this species has not been studied and, therefore, an urgent need is felt further systematic study of the species. It requires in-depth study of its licorice glandular -gl. *Qlanduli: fera*-, which had previously been studied as a separate species.

In Azerbaijan, liquor ice is most common in areas of semi-desert area of the Kura - Araz lowland. Here it is moistened enough favorable conditions forms large thickets.

In addition, it is found in a strip of foothills of the Greater and Lesser Caucasus and on the territory of the coastal sands. It grows on differences chaleno-meadow, forest meadow *nizmenno*-, serozem brown, gray-brown and light chestnut soils and poorly fixed sands (1).

*Glycyrrhiza qlabra*- is Perennial polycarpic with yearly renewable above-ground fruiting stems from the powerful and complex root system consisting of deeply leaving the soil (3-4 m) vertical roots and rhizomes horizontal network in which new aerial stems are formed.

The height above ground stems licorice open areas average reaches 60-80 cm in height. In partial

shade on the edges of forests (*tugai*) and scrublands 180- to 200 cm. The underground part is much higher than the aboveground (4-6 times).

In the context of the beginning of the Kura plain kidney development resumes on the rhizomes of licorice, it is noticeable at the end of January.

New shoots of renewed kidney through the stage of underground development for 2- 2, 5 months. In April sprouts come to the surface of the soil. They begin to develop rapidly, and since the middle of June begins the consistent flowering stems from the lower to the upper brushes the stems.

Pollen licorice rounded, single, 3-pore. The 15% solution of sucrose in a day can be traced mass education pollen tubes. Active life pollen is stored for 2-3 days.

In late June, the fruits begin to ripen: the mass fruiting begins in mid-June and lasts until late autumn. Beans licorice are mainly 1-8 - seed. However, prevailing 2-6 seed.

Seeds of licorice hard or almost stony. Scarification greatly increases germination of seeds (90%). In the experiments we carried out the largest germination and vigor distinguished seeds treated with concentrated acid, H<sub>2</sub> SO<sub>4</sub> and scalded with boiling water. Bean seeds 3, 5 and 7 seed germinate better than the seeds of the beans with a different number of seeds (4).

Shoots licorice almost everywhere have the first three first simple leaf. When the compound leaves formed the characteristic spindle-shaped thickening in the upper part of the root. At licorice, breeding vegetatively, thickening at the root is not formed (3).

The average number of branches of each stalk of licorice 28, and the average number of pods on a stalk to 90. The number of beans in each branch from 2 to 17. The total weight of licorice seeds from an area of 4 m<sup>2</sup> thickets averages 95, 870 grams, and the number of seeds with a given area of 9975 pieces. The absolute weight of seeds licorice 9,1gramm. 100 seeds weigh 1.70 grams.

Since November, there is shrinkage of above-ground stems of licorice. January next years- a month of relative calm, and at the end of January on the rhizomes become clearly noticeable formation of new kidney renewal.

The total floristic composition *Glycyrrhiza* in Kura-Araks lowland quite significant. In total there are 105 species of flowering plants, of which 25% are members of the family of cereals, 12% of the Asteraceae, Chenopodiaceous 10% and 9% - bean. The remaining 44% is comprised of representatives of 23 families. In the floristic spectrum of licorice dominate views of the Mediterranean class areas, and that the group with the Mediterranean, Iranian and Turkish ranges. In second place are the species of the Palearctic its range, the third class of the Persian meste- areas.

Analysis of the composition of life forms shows

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the relative prevalence of herbaceous monocarpic (about 41%).

Compared to other life forms of herbaceous perennials, polycarpic has about 35% of the total number of species. Shrub, there are about 5%, multi polycarpic (biennial) 9% (3).

The study of the occurrence of species (in the sense of Raunkler three associations of Glycyrrhiza, developing habitat conditions shows that the nature of the occurrence of similar curve greatest number of species is confined to the classes IX-X of occurrence, and the first occurrence of the classes are represented by only one species - the main edicatory.

The features of the structure phytocenoses licorice.

The calculated data average number of species in the studied associations are expressed in numbers of 2.23; 2.54; 2.75, and the amplitude of the variation of species in an area of three associations values 1-7; the most frequently recurring number of living species 2.

Odds medley adding three associations vary from 24.4% to 25%. The coefficients of species composition of the community from 33.3 to 40. The coefficients of the identity of 24% to 41%.

### Conclusion

1. In the studied associations biomass value range from 20 to 190 kg / ha in the form of cheese. The 4 associations stock biomass licorice bush is 234, 5 kg / ha. In its raw form, including the above-ground biomass of 896.0 kg / ha of the underground (in the layer up to 50 cm) 1453 0 t / ha.

Special surveys licorice reserves in Azerbaijan were performed three times: v1934,1959 and 2013, which resulted in the stocks of raw materials have been identified (liquor ice), sufficient for industrial use (6).

However, survey data materials were not used and a systematic annual harvesting of raw materials was not made.

2. This circumstance requires an in-depth and comprehensive study on this issue. The article draws attention to the fact that Azerbaijan is the first study of licorice were devoted mainly utilitarian analysis of questions aimed at the description of the most efficient operation thickets formed by it. In the study of the species composition of licorice and associations formed by licorice, touched on the biology and ecology of licorice bush. Studies have

been conducted to study the chemical composition. Also, some of the issues were resolved biochemical nature. In Azerbaijan, licorice is most common in areas of semi-desert zones of Kura-Araz lowland. Here it is in a fairly moist favorable conditions forms large thickets.

In 1967 he began to be carried out activities aimed at the organization of the planned harvesting licorice root in our country. They were selectively examined further 6 districts.

The survey showed that for 8 years, since the last survey (2013), in spreading thicket of licorice have been major changes in connection with the development of new land for crops. In total, reserves licorice reduced. But there are still areas with sufficiently large reserves of raw materials of this valuable plant (4).

3. For the organization of planned pieces of liquor ice in Azerbaijan is necessary:

a) First, to produce new detailed survey of all the low-lying regions of Azerbaijan, which are overgrown with licorice urgent adoption of the registration areas to be operating and securing them for regional organizations.

b) Second, determine the annual plan preparations by region, based on the survey results.

c) Third, to develop terms of turnover operating areas for the restoration of root stocks in time for re-digging the roots. Fourth, to develop measures to ensure the most rapid and efficient recovery of thickets. Fifth, the organization of the planned harvesting licorice root in the country must be a comprehensive solution of issues (compensation pastures with thickets of licorice, grass cultivation and others).

It becomes very relevant comprehensive study of licorice in the fields throughout the territory of the Kura-Araz lowland.

Based on survey data from licorice areas in Azerbaijan in 1959 (15 thousand hectares) and common stocks fit biomass underground (to a depth of 50 cm) and above-ground - up 148.5 tons, including 35.5 tonnes of aboveground, underground - 14 tons.

The average number of stems of licorice on 1m2 -28, the average number of pods on a stalk 1 -87, the average number of seeds per 1 stalk 345. All thickets licorice in Azerbaijan every year to an average of 90% are full. Licorice is one of the highly productive plant semi-desert areas of Azerbaijan.

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