



UDC 581.91

DOI 10.53065/kaznmu.2022.72.75.086

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ALLOCHRUZES OF SOUTH KAZAKHSTAN – PERSPECTIVE SAPONIN PLANTS

Resume. The data on the distribution of the saponin allochruse plant and the stock of its roots, which are of great scientific and practical interest, are presented. The reserves of raw materials of allochruse roots in the Tolebi district of South Kazakhstan region amount to 1,320 tons, the annual volume of harvesting does not exceed 100.0 tons, and methodological recommendations on the harvesting of soap root raw materials are also given.

Allochrusa gypsophiloides Rgl-the first to write complete information about this type of allochrusa in 1877 was E. L. Regel. A certificate was issued on a large amount of saponin and its use for medical purposes.

Allochrusa is a herbaceous plant that differs in life expectancy. The highly branched part forms an open spherical bush with a diameter of 70-90 cm. The small spindle-shaped leaves are arranged opposite. Their length is up to 2 cm. The flowers that appear at the ends are white or pink in color. The leaves on the unsullied flowers remain until the end of summer.

Keywords: plant resources, distribution, useful plants, rational use, allochruse, soap root, saponins, storage, stocks, annual volume of collection, recommendations.

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ОҢТҮСТІК ҚАЗАҚСТАНДАҒЫ АЛЛОХРУЗДЫ САПОННИН ӨСІМДІКТЕРІНІҢ ДАМУ ЕРЕКШЕЛІКТЕРІ

Түйін. Үлкен ғылыми және практикалық қызығушылық тудыратын сапонинді аллохруза өсімдігінің таралуы және оның тамырларының қоры туралы мәліметтер келтірілген.

Аллохруза-өмір сүру ұзақтығымен ерекшеленетін шөпті өсімдік. Жоғары тармақталған бөлігі диаметрі 70-90 см болатын ашық сфералық бұтаны құрайды. Кішкентай шыбық тәрізді жапырақтары қарама-қарсы орналасқан. Олардың ұзындығы 2 см-ге дейін, ұштарында пайда болатын гүлдер ақ немесе қызғылт түсті болады. Тозаңданбаған гүлдердегі жапырақтары жаздың соңына дейін сақталады.

Түйінді сөздер: өсімдік ресурстары, таралуы, пайдалы өсімдіктер, ұтымды пайдалану, аллохруз, сабын тамыры, сапониндер, сақтау, қорлар, жыл сайынғы жинау көлемі, ұсыныстар.

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АЛЛОХРУЗЫ ЮЖНОГО КАЗАХСТАНА – ПЕРСПЕКТИВНЫЕ САПОНИНОВЫЕ РАСТЕНИЯ

Резюме. Приведены данные о распространении растения сапонина аллохруза и запаса его корней, представляющих большой научный и практический интерес. Запасы сырья корней аллохруза в Тoleбийском районе Южно-Казхстанской области составляют 1320 т, ежегодный объем заготовки не превышает 100,0 т, а также даны методические рекомендации по заготовке сырья мыльного корня.

Allochrusa gypsophiloides Regel-первый, кто написал полную информацию об этом типе аллохрузы в 1877 году был Э. Л. Регелем. Выдана справка о большом количестве сапонина и его использовании в медицинских целях.

Аллохруза-травянистое растение, отличающееся продолжительностью жизни. Сильно разветвленная часть образует открытый шаровидный куст диаметром 70-90 см. Маленькие веретеновидные листья расположены супротивно. Их длина до 2 см. Цветки, которые появляются на концах, имеют белый или розовый цвет. Листья на незапыленных цветках сохраняются до конца лета.

Ключевые слова: растительные ресурсы, распространение, полезные растения, рациональное использование, аллохруз, мыльный корень, сапонины, хранение, запасы, ежегодный объем сбора, рекомендации.



Introduction. The most important object of research by botanists, chemists, pharmacologists and doctors is plants containing triterpene saponins. A particularly important composition of saponins is found in two closely related genera of the genus Caryophyllaceae Juss. *Allochrusa* Bunge (4 species) and *Acanthophyllum* C. A. Mey (13 types). Among them, the genus *allochrusa* Bunge is considered the most saponinone: the content of saponins in some of its species reaches 50%. *Allochrusa* and *Acanthophyllum* species contain saponin-gypso-side, which is found in medicine as an anti-sclerotic agent. The aim of study to observe the benefits of *allochruza* usage in food, textiles, paint, cosmetics, and other industries and medicine.

Methods. Tolebi district of South Kazakhstan region. South Kazakhstan region as an administrative – territorial unit is mainly geographically a rising undulating plain with an altitude of 190 to 450 m above sea level, with islands of small mountain formations (height from 500 to 875-1000 m). Therefore, the South Kazakhstan region is a very complex formation with alternating areas of flat, Foothill and mountainous terrain.

South Kazakhstan region belongs to Zone III (semi-desert landscape zone of the temperate zone). In this region, it occupies the territory of the physical and geographical country of Central Asia-the Tien Shan physical and geographical region, where there are two provinces. One of these provinces includes the south-western Tien Shan physical and geographical province and the territory of the South Kazakhstan region. The southwestern Tien Shan physical and geographical province is part of the desert zone of vegetation in the Southern subzone. Ephemeral-sagebrush deserts are characterized by the predominance of ephemerals and ephemerals in the vegetation cover, various types of sagebrush, as well as shrubs.

Results. For collecting and digging *allochruza* roots, it is necessary to have roots that are older than 8-12 years and have a root neck diameter of more than 5 cm. The optimal time for harvesting is early spring (March–April) before the beginning of the growing season and late autumn after the end of the growing season.

In massifs used in order to preserve the natural population of the species, it is recommended to re-prepare raw materials only after a 10-12-year break necessary for the restoration of the underground part of the plant. Thus, in the studied territory of the Tolebi district-Kazakhstan region, the distribution and reserves of *allochruza* with an annual harvesting volume of no more than 100.0 tons were determined, as well as recommendations were made for the preparation of soap Root, taking into account the preservation of the population of the species.

The natural population of this species is protected in the Aksu-Zhabagly nature reserve. To restore the reserves of a valuable plant, scientists recommend organizing reserves in places where it previously grew.

Discussion. The most saponin species of the genus *allochrusa gupsophiloides* Regel and *Allochrusa paniculatum* Regel belong to the *Paniculata* Golenk section. They grow on the dry slopes of the Western Tien Shan and Pamir rivers, on abandoned arable land at an altitude of 400-700 m above sea level. As a soap Root, take roots of two types. These are plants, powerful herbaceous perennials, steppe or wide shrubs growing in Rocky and mountainous areas.

Of all the genera of *allochrusa*, there are two most widely used species – *allochrusa gupsophiloides* Regel. (*A. kachimovidnaya*) and *Allochrusa paniculatum* Regel (*A. paniculata*).

The roots of two species contain triterpene saponins and expectorant, which are used in the national economy: in a confectionery shop - halva, cream, whipped cream and useful raw materials for making effective wine, beer, soft drinks. It is also an endemic Central Asian species of the oligotypic genus.

Underground parts of plants are one of the most important valuable saponins used in food, textiles, paint, cosmetics, and other industries and medicine. Due to the addition of saponins with cholesterol, a very small dose of saponins does not pose a danger to the body. Soap Root is widely used in non-ferrous metallurgy in the production of penobeton, penosilicate, as well as in the electrolysis of zinc, cadmium and nickel. *Allochrusa gupsophiloides* is an endemic Central Asian species of the oligotypic genus.

Of the 35 species of prickly plants growing in our country, the economically valuable saponinone is *Allochrusa gupsophiloides* Regel. It is popularly called Turkestan soap root. The roots of this *allochruza* contain up to 30% saponins.

In Central Asia, the preparation of *allochruza* has been carried out since 1927 under the name "Turkestan soap Root", a significant part of the raw material was exported. In the early 60s of the last century, 700-800 tons of roots were harvested annually in Kazakhstan. For this reason, the thickets of the species have become extinct, and in some places it has completely disappeared. Over the past 20 years, according to some experts, the reserves of *allochruza* in South Kazakhstan region have been recovering. Creating maximum conditions for the growth of this plant, you can get much cheaper raw materials for production.

There is information about the use of saponins from Soap root in medicine by N. V. Pavlov. The pharmacological committee of the Ministry of health of the USSR revised and officially approved thorny saponin as a drug.

On the territory of the Central Asian republics and the Kazakh SSR, industrial production of soap root began in 1927. In 1963-1964, the annual volume of dry root harvesting in Zhambyl and Shymkent regions reached 700-800 tons. As a result of intensive and irregular harvesting of soapwort, its natural thickets are severely depleted, and in a number of areas the species has completely disappeared. Natural renewal of the plant due to low seed yield and poor seed germination, there is currently a risk of extinction of this plant. How to make a decoction: 1 tablespoon of chopped thorn roots should be boiled in 300 ml of water over low heat for 20 minutes and filtered. 1 tablespoon of giant is used 12 times a day as a healing liquid for bronchitis. Thorn Root is used to make halva and effervescent drinks.

Conclusion. this plant needs a lot of production, creating conditions for growing in the southern region. This is due to the fact that since ancient times, *allochruza* has been used not only in food, but also in medical terms. Being a purely natural product, the benefits of this plant for the human body are enormous.

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