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ANALYSIS OF THE CHEMICAL COMPONENTS OF THE PLANT ARUNDO DONAX L.

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ANNOTATION

In this article, Arundo donax L., who belongs to the Reed family. The history of the origin of the plant, the cultivation of the plant in folk medicine and national economy, data on the distribution of this plant in Central Asia, Europe and world-class places of growth are umulized. Also, the biological classification of the Arundo donax L plant, collected from 4 Gods of the Republic of Uzbekistan, lists the chemical components contained in the ham. Issues such as the extraction of alkaloids, the most basic substances in the plant, the study of its structure and its application to medicine are covered.

Keywords: Babbuk, Hawthorn, alkaloids, donaxin, donaxarin, etc.

A. Donagh L. appreciated even before our era. Archaeological research shows that Arundo was widely cultivated in Assyria, Ancient Egypt and Babylon [1]. A. donax is widely distributed in the Mediterranean countries of Europe (Portugal, Spain, England), Transcaucasia and Central Asia. A.Donagh L. it is used industrially in countries such as the United States, Argentina, Romania, France, Yugoslavia. Rivers and reservoirs from Spain in the west to southern China in the east are located on the shores. This powerful plant forms linear or group thickets along the Sumbar (southwestern part of the Kopetdog) and is found in the amudarya and Murgab valleys.

The botanical name for its plant in the family Poaceae is Reed arundo (mountain Reed), and the Native one is fork. It is a perennial rhizomatous plant in the grain family, Poaceae (Gramineae). A. donax is a reed-shaped mountain Reed, up to 5-6 m in height, a perennial plant about 1 m in length of each leaf, the rhizomes are long, large, thin additional roots from directly branched rhizomes spread, penetrating 30-50 (60) cm into the soil-di.In April, new shoots appear. In spring and summer, they grow quickly.In the course of biological research, this plant has been observed to grow up to 7-8 cm per day. At the end of summer, panicles appear. Flowering begins in July-August, fruiting in October, November [2].

A. donax is a heat-resistant and rather drought-resistant plant that tolerates a shortage of summer moisture both in the soil and in the air. The stems are very flexible, the thickets have excellent resistance to winds. Leaf petals are hard, durable and do not crack. It is resistant to dehydration but thrives even better in areas with high humidity. Unlike reeds, arundo does not grow in water or in swampy soils [2].

Arundo donax is of high economic importance. The length of the bamboo-like Arundo stems reaches 8-9 m, while the thickness is up to 3-4 cm.They are so strong that they are used by local residents as a building material for ceilings, in construction. fences, housing for livestock and poultry, weaving baskets, arrows and musical instruments were used for making and as fuel. In addition, the crushed tops of the stems can serve as a very nutritious feed for livestock in fresh or rubable form. The stems of this grain serve as raw materials for the production of cellulose, cardboard, paper, hard pressed boards, feed protein yeasts, industrial alcohol and

glucose, suitable as raw materials for the pulp, paper and textile industries. According to literature, Arundo's annual productivity reaches 100-200 t/ha.

Central Asia, because the 1 hectare plantation of this grain is equal to 25-30 hectares of forest. Forest plantations reach 50-100 years of age, while arundo begins to give a herd mass from 3 years of age, and its plantations are exploited for 20-25 years. In addition, it is very decorative and indispensable as a phytomeliorator. Arundo is particularly valuable for anti-erosion planting, as well as being used as a bionasos capable of lowering groundwater levels to prevent secondary salinity of the soil..

The advantages of this powerful grain, which has no equal among herbaceous plants of the flora of the subtropical and temperate zones of Eurasia, are striking. It is no coincidence that it has long been grown in Romania, Italy and France, as well as in South America and the USA. In Russia, in Azerbaijan and Western Transcaucasia, there is Arundo planting. In Tajikistan, Turkmenistan and Uzbekistan, this cereal is also popular in home gardens. Along the banks of irrigation canals, on the shores of lakes and reservoirs, there are great opportunities for Arundo cultivation.

A. donax is grown in Romania, Yugoslavia, France, Italy, USA and other countries as a raw material plant for the cellulose-paper industry, textile fiber production, raw material for the music industry, as well as an ornamental plant.

In Central Asia, A. donakh is distributed in the mountains of Turkmenistan, amudarya coast and irrigation ditches [3]. It grows wild in Uzbekistan in the regions of Bukhara and Kashkadarya, in the Fergana Valley.

A. donax plant is a rich source of valuable components: cellulose, proteins, fats, lignin [4] and alkaloids. According to the literature, arundo contains carbohydrates and related compounds (polysaccharides, hemicelluloses A and B, arbino-4-O-methylglucuronoxylate, uronic acid, pentozanes, a-b-cellulose), triterpenoids (lupeol, B -).

In Eastern folk medicine, an infusion of arundo leaves is used to treat diseases of the uterus, ureters, as well as women. For Ascites and candidal stomatitis, a decoction of underground organs is used. In Azerbaijan and Turkmenistan-used as a ureter, diaphoretic

Donaxine, Arundo's primary alkaloid, is a novel plant growth stimulant. Its effect on various agricultural crops (cotton, beans, tomatoes, wheat) has been studied. Acorns are also sensitive to donaxin. Thus, soaking the acorns in a 1.10-3% donaxin solution before planting will help increase the length of the germination Root by 29%. In this regard, it is widely used by flower growers for quick rooting of cultural flowers, in particular, clove cuttings.

A. Donagh L.the impetus for the study of the nitrogenous bases of this plant, with its valuable biological properties, has long attracted the attention of chemists. So, in Eastern folk medicine A. infusion of donax leaves is known to be widely used in the treatment of diaphoretic, urinary, as well as women's diseases. In addition, alkaloids are known to be carriers of the beneficial properties of this plant. Among low molecular weight metabolites, alkaloids occupy a special place due to their specific physiological effects on the human and animal organism.

We studied in detail the previously unexplored introduced (Botanical Garden of the Academy of Sciences of the Republic of Uzbekistan, Tashkent) species Arundo donax L.

Specimens of this plant were collected in the Botanical Garden at four stages of development:

1. beginning of development-plant height up to 20 cm;

2. development period-growth of the plant to 1.5 m;
3. fast growth period-plant height up to 3 m;
4. the end of the growing season - the height of the plant is up to 6 m.

All plant organs of each of the four vegetation periods shown were surveyed. A. the composition of the sum of alkaloids contained in the donax was determined in the four periods of the growing season (early period, development period, rapid growth period, end of growing season) and each plant member (leaves, leaves, leaves, leaves, end of plant). stem, root, rhizome, stem bark). Conclusions were drawn about changes in the qualitative and quantitative composition of alkaloids, depending on the growing season and plant organ.

Thus, it has been found that the maximum amount of alkaloids in the plant occurs in the early period of development [5-7]. As the plant grows, the total alkaloid content in the aboveground part gradually decreases.

Expedition of the Institute of plant substance chemistry of the Academy of Sciences of the Republic of Uzbekistan to the Chirochi District of the Kashkadarya Region A.identified the large thickets of the donax.

We studied the alkaloids of the Arundo donax plant, which grows in the Fergana region of the Republic of Uzbekistan, at different periods of the growing season. A. from the aerial parts, flowers and roots of the donax plant in three seasons, alkaloids were transferred with isopropanol, ethanol and chloroform.

A. the main alkaloid in the general aerial part of the donax is donaxine. Its composition is 38% by weight of total alkaloids. Donaxin is almost absent in the roots. Continuing our research, A.we studied the alkaloid composition of donax roots.

So Arundo donax L.the study of the alkaloid composition of wild and cultural species from different areas of growth makes it possible to draw appropriate conclusions. Thus, the plant growing in the Fergana region contains a high percentage of total alkaloids compared to the plant harvested in the Reserve. However, the amount of donaxin is higher in the plant on which the Kashkadarya region grows.

A grown in two botanical gardens. Donagh L. it is sharply distinguished by the content of the sum of the bases. This, apparently, is due to the use of soil fertility and agrochemical measures. Arundo donax l. conclusions have been drawn that are of practical interest about the composition of the main alkaloid of donaxine. Thus, in the Tashkent and Samarkand Botanical Gardens, it was noted that the donaxin contained in the introduced plant is only in the aerial part and is the main alkaloid of the sum of the bases. In the roots, it is only in trace amounts, and sometimes not at all.

As the plant grows, the amount of donaxine also decreases. The new dimeric alkaloid arundanine is practically absent in the general alkaloids of the terrestrial part of the plant during the early growing season, but as the plant grows, its amount increases. Donaxin is absent in the roots. The chromatography of the sum of bases in the columns of aluminum oxide has led to the separation of phenyl-B-naphthylamine, deoxyvacycinone, donin, arundine, donaxanine, donaxaridine, donaxarin, and Donin. The common alkaloids of the subsurface (root, rhizomes) portion lack the alkaloids donaxine, donaxarin, donaxanine, deoxyvacycinone, phenyl-b-naphthylamine, donine, donaxamine. The main alkaloid of this part of the plant is the dimeric alkaloid arundamine. Its composition is 16% of the total weight of alkaloids (texn.).

Arundinin is also a new dimeric alkaloid that appears in the common alkaloids of the root part only at the end of the growing season. The common alkaloids of the roots mainly include dimeric alkaloids [8].

Derived from the Chiracchi District of Kashkadarya province, a. the main alkaloid in the amount of donax is donaxin, as in a plant growing in the Fergana region. The composition of the individual components is also in the same order. Thus, in both quantities, arundin and donaxanine are separated in small quantities. Wild plant A in the region of Kashkadarya and the Fergana Valley. donax is much richer in alkaloids both quantitatively and qualitatively compared to that introduced, and can serve as a source for donaxine extraction, due to its quantity of 0.14% and 0.12. %.

Thus, in the territory of Uzbekistan from four places of growth, which are introduced in natural conditions and grow wild, A. Donagh L. a study of the quantitative and qualitative composition of the total alkaloids of the plant revealed 20 bases. of these, 14 were new. A structure based on physicochemical data and chemical changes has been established for new alkaloids [9-40].

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