



YOSH ILMIY TADQIQOTCHI

MAVZUSIDAGI RESPUBLIKA
ILMIY-AMALIY KONFERENSIYASI

MAQOLALAR TO'PLAMI

2025-yil 12-13-mart

BUXORO DAVLAT UNIVER



O‘ZBEKISTON RESPUBLIKASI
OLIY TA’LIM, FAN VA INNOVATSIYALAR VAZIRLIGI
BUXORO DAVLAT UNIVERSITETI

IQTIDORLI TALABALAR, MAGISTRANTLAR, TAYANCH
DOKTORANTLAR VA DOKTORANTLARNING

“YOSH ILMIY TADQIQOTCHI”

MAVZUSIDAGI RESPUBLIKA ILMIY-AMALIY ANJUMANI

Buxoro shahri, 2025-yil 12-13-mart

BUXARA -2025
“BUKHARA HAMD PRINT” nashriyoti

районлаштириш: муаммо ва ечимлар» мавзусидаги I-халқаро илмий-амалий анжуман материаллари. Мақолалар ва тезислар тўплами. –Т.: 2023. 1068 б.

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PLANTS CONTAINING INULIN

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Abstract: Contains information about plant species containing inulin, their morphophysiological properties, distribution, composition, and plant cultivation technology.

Key words: Jerusalem artichoke, Jerusalem artichoke (*Helianthus tuberosus* L.), Onion (Latin: *Allium cépa*), Watermelon (*Citrullus lanatus*), Banana (especially green banana), Artichoke (*cynara scolymus* l.) Ginger (*Zingiber officinale*).

Introduction. Inulin is a polysaccharide belonging to the group of natural carbohydrates, which is found in many types of plants. Inulin is mainly accumulated in the roots, nodes and rhizomes of plants. This substance is mainly used to improve health for humans and animals. Although inulin mainly serves as an energy source for plants, it is also widely used in medicine and the food industry. Plants containing inulin include Jerusalem artichoke, *Helianthus tuberosus* L. - a perennial plant belonging to the family of complex flowers, a tuber-fruited forage crop, Sarsabil, asparagus (*Asparagus*) - a family of plants belonging to the family of tulips; vegetable and ornamental crop, Garlic (*Allium*

sativum) is a biennial and perennial herbaceous plant belonging to the onion family, Onion (Latin: *Allium cépa*) is a perennial herb, Watermelon (*Citrullus lanatus*) is a flowering plant belonging to the cucurbitaceae family, Banana (especially green banana), Artichoke (*cynara scolymus* l.) Ginger (*Zingiber officinale*) is a perennial herbaceous plant belonging to the annual class, ginger family, with a thick rhizome, Cinnamon, cinnamon (*Cinnamomum Cassia* Blume) is a tree belonging to the laurel family, Licorice is a perennial rhizome weed belonging to the legume family. Cucumber is a perennial milky succulent plant belonging to the complex family.[18]

Results and their analysis: Jerusalem artichoke (Yernok) is a perennial plant belonging to the *Helianthus tuberosus* L. family, known as a tuber-fruited fodder crop, which is well-tolerant to the sun, and grows mainly in North America and Europe. Jerusalem artichoke is also one of the inulin-storing plants, and its roots are considered very useful for patients with diabetes mellitus.

It spread to Europe at the beginning of the 17th century, and in Russia in the 18th century. In Uzbekistan, it is cultivated as a fodder crop.

20-70 pear-shaped (hence the name of the tuber), elongated, scaly and smooth or wrinkled tubers are formed on the underground stems. The root is taproot-like, penetrates the soil by 2-3 m. Its height is 1.2-2.5, sometimes up to 4 m. The leaves are serrated, ovate, the flowers are collected in a raceme. The fruit is a pistachio, 1000 pistachios weigh 7-8 g. The above-ground stem of Jerusalem artichoke can withstand -5 °, and the tubers on the underground stem can withstand -18 °.

It grows on nutrient-demanding, non-saline soils. The growing season is 120-180 days. Jerusalem artichoke is also a technical and food plant. The tubers are also used for food. It contains 2.3% protein, 0.2% oil, 17.9% nitrogen-free substances, 1.3% ash, as well as 16-18% insulin, vitamins B, C, 100 kg of leaves contain 22.5 nutritional units and 1.8 kg of digestible protein. Various medicines are prepared from Jerusalem artichoke in medicine. To grow Jerusalem artichoke, 25-50 g tubers are planted (large ones can only be cut and planted in spring). Planting

scheme: 70×70, 60×60, depth. 10-15 cm. The stem is harvested in mid-summer, the tuber is dug up in the fall. If the greens are not harvested, the tuber yield is high. Yield: 350-500 c / ha in terms of green mass, 200-250 c / ha in terms of tuber. The tuber is well stored underground, so it is dug up as needed. The ease of growing Jerusalem artichoke crops is associated with the unpretentiousness of the plant, high yields as a useful root crop. [19]

The underground root (shoots) can form up to 30 nodes, the roots can be round, pear-shaped or tuberous, and weigh from 10 to 150 grams. The tuber is thin-skinned with various shades of color: white, yellow, yellow-red and even purple. Its aromatic properties and edible properties are similar to turnip or cabbage leaves. Jerusalem artichoke flowers are in the form of baskets, their diameter varies from 2 to 10 cm. Golden yellow inflorescences resemble small sunflowers. From August to October, depending on the conditions, the earthen no flowers. Fruits with seeds ripen in the fall. Jerusalem artichoke seeds or tubers. Harvest the tubers in mid-autumn, then they are completely ready for eating. Due to the content of such a substance in them as inulin (a natural analogue of insulin), the grounding becomes a delicacy for people suffering from diabetes. [20]

After peeling, Jerusalem artichoke is immediately peeled, and over time the part inside the root is converted into fructose. Then the Jerusalem artichoke acquires a characteristic sweet taste. Vegetable culture is also used in the treatment of urolithiasis, anemia, gout, and diseases of the intestines and gastrointestinal tract. The unique healing composition of the roots allows you to reduce blood pressure, helps to remove toxins and cholesterol from the body, increases the work of the immune system in the blood, and stimulates the fight against viral infections. In conclusion, we can say that Jerusalem artichoke is often compared to potatoes. The green mass of Jerusalem artichoke (stems and leaves) is processed and used in animal husbandry. And it is not surprising, because the biochemical composition of the roots is very similar. The nutritional properties of Jerusalem artichoke are sometimes superior to many vegetables. The tuber contains protein,

mineral salts, inulin, fructose, isoelements, and vitamins. The roots of the perennial herb are used in cheese and processed form.[21]

When growing Jerusalem artichoke, it is necessary to pay due attention to the following operations: it is necessary to carefully alternate the crops in the crop rotation system, while taking into account how many years it will grow on the same land, otherwise, Jerusalem artichoke can harm the plants planted after it like a weed. Growing Jerusalem artichoke in one place for 3-4 years gives good results. In our Central Asia, planting alfalfa in the land freed from Jerusalem artichoke has been giving good results. After all, as a result of mowing alfalfa 5-6 times a year, the sprouts that have grown on the land are removed, and the land is cleared of it. Cultivating the land for Jerusalem artichoke cultivation is similar to that for potato cultivation. Before plowing the land, 30-40 tons of organic fertilizer are applied to the land. 25-50 grams of groundnut tubers are planted. Cutting the tuber reduces the yield by 25-30%. If the tuber is very large (70-80 gr), it gives better results if it is cut before it ripens. The cut tuber should not be planted in the fall.

Conclusion. Plants containing inulin are very beneficial for health, as they help improve intestinal microflora, control blood sugar levels, and lower cholesterol levels. The rich composition of Jerusalem artichoke (Jerusalem artichoke) with inulin, vitamins, and minerals provides it with important benefits in managing diabetes. The inulin in the plant helps to control blood glucose levels without increasing them. At the same time, the antioxidant properties of Jerusalem artichoke and its effect on improving intestinal microflora serve as an effective tool in the fight against diabetes. Therefore, it is recommended to include Jerusalem artichoke in the diet of patients with diabetes, helping to improve overall health.

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BIOKATALIZATORLARNI OZIQ-OVQAT SANOATIDA QO'LLASH ISTIQBOLLARI

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Annotatsiya. Ushbu maqolada biokatalizatorlarning oziq-ovqat mahsulotlarini ishlab chiqarishdagi ahamiyati, texnologik jarayonlarni optimallashtirishdagi roli hamda ularning samaradorligini oshirish yo‘nalishlari tahlil qilinadi. Ayniqsa,

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MAVZUSIDAGI RESPUBLIKA ILMIY-AMALIY ANJUMANI

Buxoro shahri, 2025-yil 12-13-mart

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Nashriyot litsenziyasi №040075. 23.09.2022. Original maketidan bosishga ruxsat etildi: 10.03.2025 Bichimi 60x84. Kegli 16 shponli. “Times New Roman” garn. Ofset bosma usulida bosildi. Ofset bosma qog‘ozi. Bosma tobog‘i 7.5. Adadi 100. Buyurtma № 113

O‘zbekiston Respublikasi Prezidenti Administratsiyasi huzuridagi
Axborot va ommaviy kommunikatsiyalar agentligi
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Bahosi kelishilgan narxda.



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