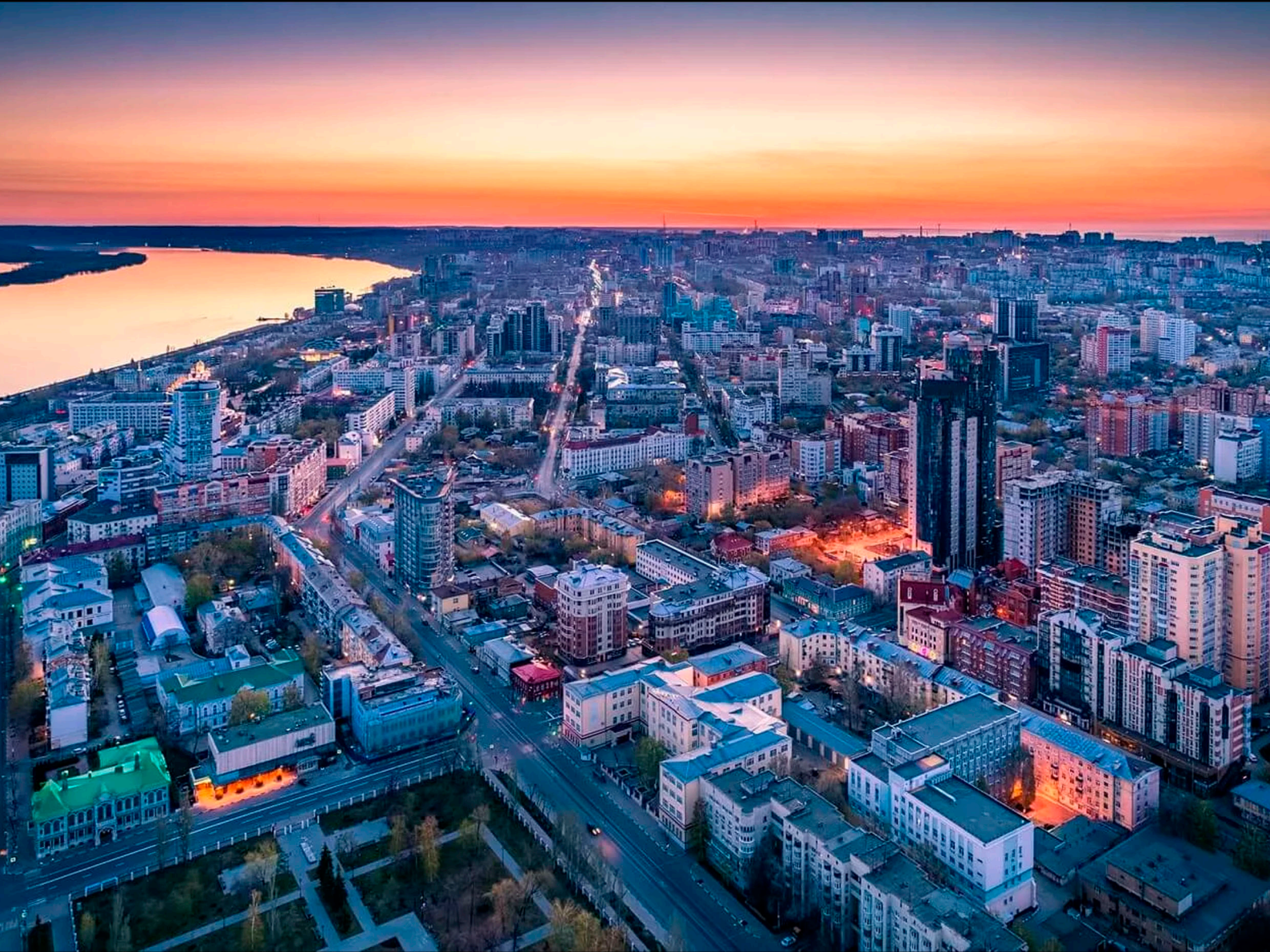


# СТУДЕНЧЕСКАЯ НАУКА В 2023 ГОДУ\*

(сборник трудов научной конференции)



\* Student Science in 2023 | Scientific conference

Место проведения: Самара, Россия  
5 марта 2023

Venue: Samara, Russia  
March 5, 2023

УДК 001.1

ББК 29

UDC 001.1

BBK 29

---

## Студенческая наука в 2023 году (сборник трудов научной конференции)

---

\* Student Science in 2023 | Scientific conference

Место проведения: **Самара, Россия** | Venue: **Samara, Russia**

5 марта 2023 года | March 5, 2023

### **ОФОРМЛЕНИЕ ЦИТАТЫ:**

*Исомов Э.Э. НЕКОТОРЫЕ БИОЛОГИЧЕСКИЕ СВОЙСТВА (CYNARA SCOLYMUS L.) //*  
*Научная конференция «Студенческая наука в 2023 году» (Самара, Россия). С. 14 - 18. 2023 г.*

© 2023 Издательство журнала «ВЕСТНИК НАУКИ» | VESTNIK NAUKI

© 2023 Авторы статей | Authors of the papers

Адрес электронной почты: [zhurnal@vestnik-nauki.com](mailto:zhurnal@vestnik-nauki.com)

Адрес издательства (редакции): **445051, г. Тольятти, Россия**

**СОДЕРЖАНИЕ – ГРАФИК КОНФЕРЕНЦИИ (CONTENT OF CONFERENCE)**

**ПРИРОДА И СЕЛЬСКОХОЗЯЙСТВЕННЫЕ НАУКИ (NATURE & AGRICULTURAL SCIENCES)**

**1. Isomov E.E.**

FLOWERS AND SEED PRODUCTIVITY OF CYNARA SCOLYMUS L.  
IN THE CONDITIONS OF SAMARKAND REGION (UZBEKISTAN) .....4-6

**2. Nasimova Z.H., Tashpulatov Y.Sh., Mukumov I.U.**

METHODS FOR INITIAL PROPAGATION OF SPECIES  
AND VARIETIES OF ORNAMENTAL LILY (LILIUM L.) .....7-13

**3. Исомов Э.Э.**

НЕКОТОРЫЕ БИОЛОГИЧЕСКИЕ СВОЙСТВА (CYNARA SCOLYMUS L.) ..... 14-18

**ПРИРОДА И СЕЛЬСКОХОЗЯЙСТВЕННЫЕ НАУКИ**  
(NATURE & AGRICULTURAL SCIENCES)

УДК 1

**Isomov E.E.**

Samarkand Branch

Tashkent State Agrarian University

(Samarkand, Uzbekistan)

**FLOWERS AND SEED PRODUCTIVITY OF CYNARA SCOLYMUS L.  
IN THE CONDITIONS OF SAMARKAND REGION (UZBEKISTAN)**

***Abstract:** the enrichment of the traditional culture of food, medicinal and forage plants with new species and varieties for the region is the main task of introduction. Among the promising high-yielding, rather drought-resistant and non-traditional plants for the cultivated flora of Uzbekistan, the prickly artichoke (sowing) – *Cynara scolymus L.* from the Asteraceae family should be considered.*

***Keywords:** *Cynara scolymus L.*, flowers, seeds, antecology*

In many countries of Central Asia (India, Iran, Central Asia), the Spanish artichoke was grown. It was this type of artichoke that was bred by the Arabs before our era. This plant spread to Iran and Central Asia from Egypt. According to Ibn Sina's descriptions, the artichoke causes nausea; its root and gum also act, i.e. kangarzad. The artichoke enhances lust, drives urine, softens nature and removes mucus. Often, if drunk with wine, it closes up the stomach. The artichoke dissolves solid tumors. Its juice destroys dandruff, it is useful for hard scabies.

The aim of the study is to study the flowering and seed productivity of *Cynara scolymus L* in connection with its introduction into the Samarkand region.

For the first time, comprehensive studies of *Cynara scolymus L* were carried out under irrigation conditions and without irrigation in the Samarkand region [1-4].

Large inflorescences - baskets are formed on non-specialized generative shoots. The differentiation of tissues and the establishment of flower elements on the expanded cone of shoot growth occur in the third decade of February.

The onset of the budding phase at optimum moisture content on irrigated lands is observed at the end of April, and without irrigation, in the second decade of May. The largest number of baskets is formed in 4-5-year-old plants. The number of flowers in inflorescences depends on the age of the plants and the cultivation conditions.

Flowers are proterandric. The anthers are opened even inside the bud, then the filaments are greatly lengthened and carry them out of the corolla. The stigma is still immature at this time. Then the pistil column grows intensively and the stigma protrudes outward, while it is already sprinkled with pollen from its own anthers. The opening of flowers goes from the periphery to the center of the basket. The flowering process begins at 6 am. Mass flowering (50% of flowers) is observed from 8 to 10 hours at a temperature of  $+ 23 + 25$  ° C. and relative humidity 50-55%. After 18 hours flowering stops.

The indicators of the opening of mass flowers fall on the period between July 5-15, when the air temperature was  $+ 27$  ° C, and the relative humidity was 38-40%. Flowering of one flower lasts 3-4, baskets - 9-12, plants - 20-25 days. According to the type of pollination, *C. scoliomyce* is an entomophilous plant; it is pollinated with the help of bees - *Apis mellifera* L., bees - violet carpenter - *Xylocopa violaceae* L. from the Bee family (Apidae), oslestyanka - *Hedechruidium turanilum* from the Osbleschrysidae family (Hedechrysidae).

The study of seed productivity was carried out on 2-, 4- and 6-year-old plants. The greatest number of formed inflorescences with and without watering was observed in 4-year-old plants. The highest potential seed productivity (PSP) is also observed in plants of the 4th year of vegetation: on irrigation it was  $26000 \pm 24.4$ , without irrigation,  $11610 \pm 46.6$  ovules per plant; the lowest PSP - in plants of the 2nd year of vegetation: on irrigation  $7800 \pm 44.2$ , without watering -  $3600 \pm 2.28$  ovules. The real seed productivity was high for all 2-, 4-, 6-age plants. The productivity coefficient

varied on irrigation from 60% in 2-year-old plants to 75% in 4-year-old plants, without watering - from 55% in 2-year-old plants to 70% in 4-year-old plants.

Conclusions: Thus, plants under conditions of introduction are characterized by high rates of real seed productivity, both on irrigation and on non-irrigated plots. The highest coefficient of seed productivity in both variants of experiments was observed in 4-year-old plants on irrigation.

### **REFERENCES:**

1. Artyushenko Z.T., Fedorov Al.A. Atlas of Descriptive Morphology of Higher Plants: Seed. - L.: Science. 1990.-204 p.
2. Nomozova Z.B. Biological features of *Cynara scolymus* L. in the conditions of the Samarkand region. The development of botanical science in Central Asia and its integration into production // Materials of the international scientific conference. - Tashkent, 2004. –pp. 175-177.
3. Исомов, Э. Э. (2021). Онтогенез генеративных органов *Cynara scolymus* L. в различных условиях орошения. Вестник науки, 5(1 (34)), 191-195.
4. Isomov I.E., & Toshpulatov, Y. (2022). Influence of Soil Salt on Growth, Development and Seed Productivity of Artichoke Varieties. American Journal of Plant Sciences, 13, 557-563.

УДК 1

**Nasimova Z.H.**

PhD student,  
Samarkand State University  
(Samarkand, Uzbekistan)

**Tashpulatov Y.Sh.**

PhD, docent, Samarkand branch of  
Tashkent State Agrarian University  
(Samarkand, Uzbekistan)

**Mukumov I.U.**

docent,  
Samarkand State University  
(Samarkand, Uzbekistan)

## **METHODS FOR INITIAL PROPAGATION OF SPECIES AND VARIETIES OF ORNAMENTAL LILY (LILIUM L.)**

***Abstract.** like other tulip families, the lily bulb serves as an organ for vegetative propagation and storage of nutrients. Lilies are propagated by seeds, bulbs, bulb leaves, and stems. Delicate fragrant lilies stand out with their brightness inside indoor flowers. In the conditions of the Samarkand region, breeding and growing lilies of East Asia gives good results.*

***Keywords:** lily, hybrid, variety, bulb, bulb leaves, greenhouse.*

Introduction. As an ornamental plant, lilies are grown, propagated and cultivated in Europe, Asia and America since ancient times. More than 100 species grow in these regions. To date, the number of varieties obtained from these surpasses 2000 in count. Depending on the origin and bio-ecological characteristics, these

varieties are divided into groups: Asian hybrids, martagon hybrids, candidum hybrids, American hybrids, long-flowered hybrids, tubular hybrids, royal hybrids, and oriental hybrids. Lily is one of the most popular plants amongst researchers, scientists and flower lovers. Therefore, numerous methods for propagating them have been developed.

Object and methods of research. The experiments are taking place in the greenhouse and the open experimental fields of the Faculty of Biology of Samarkand State University.

Replication methods for varieties like Regale, Maksimovich, Parreya, Tiger, Bubonosny, Sortenta and Sernosvetny are being tested in the experiments. It is recommended that lilies be planted into pots in the early spring in the experimental conditions as they usually bear blossom in the garden between June and August. For a single bulb, a pot with 20cm in depth is considered to be convenient. Too large pots will make lilies flowerless. When planting lilies, light fertile soil blended with river sand is used to create a convenient medium for lilies. The time-line and methods of planting lilies are determined based on the climatic conditions land and the variety of the lily flower.

Although it is not chilly in winter in Samarkand region, the summer is relatively hot. Therefore, it is possible to get robust seedlings through planting seeds in the inside the greenhouse or outside in the open field in the autumn.

In order to plant lily seeds, soil should be enriched using rotted manure along with black sand. First, seeds should be moisturised and then planted after that a 1cm layer of rotten manure should be placed on top of it. It is advised not to plant it in the first year.

In case lily seeds are planted densely in the greenhouse, they should be transferred after they start to sprout to special 10-15 cm deep containers into which 3-4 cm thick rich manure from greenhouse has been placed. Afterwards, a layer of 2 cm fertile soil should be placed on top. In addition, seedling singling is done between 1,5-2cm in the soil blended with black sand and stored in cool. In early spring, young bulbs



are planted directly into the ground. It is necessary to keep the soil as moist as possible. Depending on the heat from the sun, it needs to be shaded a little. When planting, rows for lilies should also be made in such a way that allows young bulbs to develop quickly and grow rapidly since light is very important. Therefore, it is not recommended to transfer them to shade. In order for the seeds to germinate well, it is necessary to have the presence of abiotic factors like temperature, humidity, air and light. For seed germination, it is necessary to keep them at a temperature of 20°C. If it is planted when temperature reaches 30°C, it will be difficult for the seeds to germinate. It is advisable to first keep the seeds in the cold for a while, and then plant them in cool places [1].

Obtained results and their discussion. Experiments have shown that germination time becomes shorter for the varieties of Regale and Maksimovich if seeds are sown in November, and kept at cool and cold temperatures. After this procedure, if they are kept at 15-20°C, shorter time to germinate has been recorded, i.e. in comparison with those not kept at a cold temperature but inoculated directly in the greenhouses, it took 5 and 7 days comparatively earlier time lapse to germinate for Maksimovich and Regale respectively. As a result, it was found out that germination period for frozen seeds of Regale variety is 75-95% while 70-95% recorded in the case of Maksimovich variety. Overall, it was identified that germination period for frozen seeds is quite shorter compared to those not exposed to cold temperature, with a later reinforcing proof showing less germination rate for seeds not frozen beforehand. Increasing the temperature to +20°C is only required for germination.

Seedlings should be kept at 1-10°C between 1.5-3 months in order to sprout their first true leaves while 100% germination was recorded when Philippine lilies were kept at 8-10°C. However, in case of not frozen seeds, seeds germination was low in the first year with little buds and flowers on them.

Like most closed flowers, lilies possess an ability like to keep the leaves moist. Watering rate should be moderate because rotting may occur in excessive humid conditions. Frequent watering is needed for local lilies during the flowering period while this should be done less when they are dormant. With a good caring practice

applied, lilies become less prone to disease and pests. Due to insufficient watering and mud, lily leaves acquires different colours, and flowers becomes black due to cold and pale because of excessive sunlight [2].

Propagation method using bulb scales. Initially, bigger bulbs are sorted out from fertile soil, which have been proved to be productive for the past 2-3 years. Then, inner part including the inner and middle scales together with the central bud of the bulb undergo separation from the rest. Remaining outer scales along with basal plate, roots and tunic are planted intact back to the soil.



Figure 1. Bulb propagation method.

Before plantation, the remaining part is placed into specially prepared pots. Pot depth is 15 cm, coarse sand and crushed stone are placed on the bottom. On its upper side, a rotten manure from a greenhouse is placed in 2-3 cm thickness, and pure black sand 2-3 cm thick is laid on top of the rotten manure, and bulb scales with an interval of 1 cm, 2-3 cm between the rows are planted on this sand. Frequent watering is required, and the top is covered using a glass pane. Periodically, glass pane is removed and some watering applied. It does not take much time for each scales of the bulb to give a birth to 2-3 small bulbils. In order to facilitate the growth of bulbils, bulbs are removed. The remaining healthy bulbs are sorted out and planted into another pot; thus

the procedure is repeated and the top is covered using a glass pane again. These bulb scales may have potential to give birth to small bulbils again.

Propagation method through division. Propagation of all lilies is basically similar to bulbs, i.e. new bulbils naturally emerge from bulbs. In this way, several young fertile flowering bulbils emerge from the mother bulb. For example, in case of white lilies this may take a long time, while in most other varieties propagation and division happens very quickly. Development and multiplication of Parreya variety are comparatively quick. When digging bulbs in the autumn, it is necessary to sprinkle coal powder onto the cuts after division in order to prevent rotting [3].

Propagation method of lilies using surface bulbil formation. Most lilies may have small, pea-sized bulbils formed around the neck. Such bulbils may be 1-2 even 3 sometimes under each leaf. Such small bulbils are more common in the varieties like Tigrovy, Bubonosny, Sortenta, Sernosvetny.



Figure 2. Determining the depth of planting bulbs.

If the Tiger variety grows and blossoms in the shade, then bulbil colour will be reddish, green and the bulbs will be quite larger. The bulbils of this variety grown in open, sunny fields are dark and small. Surprisingly, at the beginning of summer these bulbils firmly attaches to the stem. In July and August, it gradually begins to separate. Given these separated bulbils are covered with a thin layer of soil and periodically

watered and weeded following sprouting process, they can turn into a large bulbs by autumn.

In autumn, if bulbils are collected carefully and planted separately in rows, then the next year they will begin to bloom all at once. However, it is better to collect the bulbils separately from each variety before natural separation takes place. Because having blossomed, small bulbils are ready to ripen after 2-3 weeks. Then, they can be immediately picked up and planted in open field or in pots. They can be planted 5-6 cm deep and covered with manure or barley husks or leaves. Thus, with the help of this technique lilies can be propagated.

Propagation method using bulbils. When digging lilies, small bulbils can be visible underneath the bulbs around the roots. Apart from this, numerous surface small bulbils can also be found on the surface around the stem tunic amongst surface roots. If these bulbils are collected in advance and planted separately, then this year they will turn into large bulbs, and next year these bulbs will begin to blossom.

In case these bulbs are subject to propagation, the bulbil count will be greater following 8-12cm deep soil cultivation before blossoming takes place. Especially the following varieties generate far more bulbils.

Varieties such as Golden, Brouna, Genre, Tiger long-flowered, blossom profusely and generate more bulbils. Small bulbils obtained from them should be planted in rows at a depth of 5-6cm in open field in autumn by covering with rotten manure or leaves (to preserve the cold). The next year, all those little bulbs will start blooming and producing more bulbils again. Lily propagation can also be achieved using this method [4].

Bulb propagation method using leaves. Lily propagation using bulb leaves gives very good results in varieties such as Tiger, White Lily, Thunberg, Maksimovich, and Regale. Lily leaves are cut out from their bulbs and planted into special pots. 5-6 cm fertile soil is placed into the bottom of these pots. 3-4cm black sand is placed on top and leaves are planted on this sand. The top is sealed with a glass pane and the pot should always be wet. Underneath of each leaves at the bottom side of leaves 1-2 small

bulbils form. When these bulbils have 2-3 leaves, they are separated and planted separately.

Propagation method using stems. Following the growth, development and blossom of the lilies, upper stems are carefully bend and planted in to the soil. Many small bulbils will form from each node and leaf. These bulbils are dug up in late autumn and planted in a row, or in this case, before digging, the upper part is cut off and covered with rotten manure and leaves, then the next year the bulbs can be dug up after they grow. It should also be mentioned that small bulbils taken from leaves and bulb scales begin to bloom in 2-3 years. Large bulbs may bloom in the coming years, so it is advised to dig the bulbils earlier as possible and plant them separately for 1-2 years. Lily propagation can be achieved using such methods [5].

#### **REFERENCES:**

1. Баранова М.В. Лилии. Л; Изд –Агропромиздат, 1996. С. 92.
2. E. Ne'matov, E. Ashurov, I.Muqumov. “Ochiq maydondagi gulchilik”. Samarqand, 1997 yil, 221 b.
3. Грот В.А. Лилии и их культура. -М.; Изд-во МГУ, 1966. -С 90.
4. Заливский И. Л. О культуре и размножении в климатических условиях Ленинградской области *Lilium candidum*, *L. regale* и *L. philippinense* Сов.ботаника -1937. №3. – С. 69-79 .
5. Матвеева Т.С. Полиплоидные декоративные растения –Л: Наука 1980-283 с.

УДК 1

**Исомов Э.Э.**

ассистент Самаркандского филиала  
Ташкентский государственный аграрный университет  
(г. Самарканд, Республика Узбекистан)

## **НЕКОТОРЫЕ БИОЛОГИЧЕСКИЕ СВОЙСТВА (CYNARA SCOLYMUS L.)**

***Аннотация:** в нашей местной флоре это растение необычайно ценное, лекарственное, кормовое и пищевое. Поверхность *Cynara scolymus* богата белком, жиром, клетчаткой, золой, сахаром, каротином, инулином, а также медью, цинком, железом, марганцем и другими элементами. На орошаемых землях растительное сырье содержит больше органических и минеральных веществ, чем на неорошаемых землях.*

***Ключевые слова:** интродукция, микроэлементы, вегетация, бутонирование, цветение, плодоношение, семена, лекарственное, корм, рост, развитие, урожай.*

Колючий артишок - многолетнее растение семейства сложноцветных. Артишоки родом из стран Средиземноморья и широко использовались как полезное растение в Египте за 600 лет до нашей эры. Его дикие виды, особенно на Канарских островах, встречаются в северной Африке, а культурно - в Европе и на юге.

Артишок - перспективное ценное растение, которое нетрадиционно для Узбекистана и используется в качестве зеленого силоса, сенажа и сухих кормов, а также является важным сырьем для пищевой и фармацевтической промышленности, а также в качестве корма для скота.

Артишоки издавна известны своими лечебными свойствами и используются при лечении заболеваний печени и почек. Н.Г. Василенко (1962) показал, что артишоки можно использовать для лечения диабета. О лечебных свойствах этого растения И.А. Дамиров (1982) Л.И. Применко, Д.З. Шукюров, Р.

Его также можно найти в работах Хаммуда (1991) и других. Кроме того, артишок колючий выращивают как декоративное растение, украшающее парки, аллеи и улицы всех стран Европы.

В последние годы правительство сосредоточило внимание на производстве лекарств в стране, чтобы удовлетворить спрос на лекарства за счет местного сырья. Листья и стебли артишока, который мы изучаем, чрезвычайно лечебны.

Онтогенез колючих артишоков включает виргинальный (травянистый, ювенильный, неполовозрелый и взрослый вегетативные стадии), генеративный (молодой, средний и старый) периоды.

#### **Объект и методы исследования.**

Артишок колючий - многолетнее растение высотой 0,5-2 м. Стебли толстые, прямостоячие, опушенные, серые или плавные, со слегка ребристой поверхностью. Лепестки крупные, снизу покрыты густыми белыми волосками; листья у основания стебля удлиненные или широко опушенные, двояковыпуклые, длиной до 1 м и шириной около 50 см. Листья в средней и верхней части стебля маленькие, сидячие (без полос), а три конца уменьшены до удлиненных или полосчатых, длиной 5-6 см. Корзинки большие, длиной 7-10 см, по одной на конце ветвистых стеблей; крышка яйцевидной или почти шаровидной формы; Листья почти безволосые, гладкие, шершавые, основание относительно мясистое, кончики самых крайних слегка наклонены или загнуты назад, концы среднего и внутреннего слоев прямые, верх плитки наложен, кончики из средних листьев слегка суженные, но без шипов, а на конце самого внутреннего с короткой непроницаемой заостренной опухолью.

С целью изучения онтогенеза наземных органов артишока колючего, интродуцированного в условиях Самаркандской области, были проведены опыты в Ботаническом СамГУ Самаркандского государственного университета. Ботанический сад СамГУ расположен на правом берегу Даргомского канала на юго-западной границе Самарканда. Почва типичная серая. Для опытов были

отобраны пашни, проведенные на площади 0,20 га. Подготовленные семена высевали 10-11 марта 2012 г.

Изучая онтогенез колючих артишоков, Т.А. Работнов (4-5), Л.А. Жукова (6), Е.Л. Использовались методы, рекомендованные Нухимовским (7).

Результаты исследования и их обсуждение. Продолжительность прорастания, роста и развития семян колючего артишока варьируется в зависимости от климатических условий времен года. Независимо от условий выращивания, вегетация продолжается со 2-го года. Холодные температуры ранней весной от -12 до 150С могут вызвать обморожение.

**Виргинийский период. Стадия травы. (V)** Прорастание семян артишока начинается с образования главного корня. Когда корень достигает глубины 5-6 см, семена гипокотилля выводят листья на поверхность. Семенных листа 2 мясистые, удлинено-перевернутые, яйцевидные, темно-зеленые, гладкие. Живут семенные листья 50-52 дня, длиной 5-6 см и шириной 2-2,5 см. Первый лист удлинённый, с гладкими серебристыми волосками по краям. По мере роста растения края следующей листовой пластинки зазубрены. Формирование листа занимает в среднем 5-6 дней, в зависимости от характеристик вида, но также варьируется в зависимости от условий выращивания. У опытных растений каждый ряд листьев формируется за 4-5 дней, при этом 40-50 листьев формируются в период от начала вегетации до начала цветения.

**Ювенильная стадия. (Yu)** На этой стадии происходят морфологические изменения в надземных и подземных органах артишока. В начале этого этапа листья опытного растения имеют длину 26-30 см и ширину 12-16 см.

Ювенильная, неполовозрелая и взрослая вегетативные стадии отличаются друг от друга сложностью сдвига листовой пластинки. В ювенильной стадии растения, выращенные на опытном поле, давали по 10–12 листьев, а края листовой пластинки были срезаны более зубчатыми. На каждом листе нет шипов. Эпикотиль не развивается, ювенильная стадия в виде грозди.



**Незрелая стадия. (Im)** На этой стадии количество листьев у растения 25-30, длина 50-55 см и ширина 18-20 см. Пластинка листа разрезается на 10-12 частей, причем разрез достигает основной жилки листа.

**Взрослая вегетативная стадия. (G1)** На этой стадии количество листьев артишока 45-50, длиной до 80 см и шириной 35-40 см. Листовые пластинки разрезаем на 15-16 частей. Края этих деталей также обрезаны разной степени и формы. Следовательно, листья нарезаются дважды зубчатыми. Листовая пластинка часто покрыта тонкими серебряными волосками. Длина листовой пластинки у основания листовой пластинки 6-10 см, средней части 35-45 см, а третьей части 20-25 см. Латентный период, а также травяная, ювенильная и неполовозрелая фазы приходится на первый год вегетации. Второй год вегетативного роста взрослого вегетативного растения вступает в период генерации.

**Генеративный период. (G2)** Молодой генеративный период. На второй год выращивания артишока генеративные ветви образуются из 5-6 почек в хвостатой части растений опытного поля. Главный генеративный стержень растет в ортотропном положении, образуя пучки, потому что промежуток между первыми суставами очень короткий. Во второй декаде мая верхние членики основной ветви медленно разрастаются, в результате чего на опытном участке длина ветви первого порядка составляет 25-30 см. В пазухах листьев верхнего яруса каждой ветви появляются боковые ветви, каждая из которых заканчивается корзиночкой.

Таким образом, онтогенез колючих артишоков включает латентный, виргинильный и генеративный периоды. Эксперименты показали, что виргинильный период включает травяную, ювенильную, неполовозрелую и взрослую вегетативные стадии, генеративный период включает молодую генеративную и взрослую генеративные стадии.

## СПИСОК ЛИТЕРАТУРЫ:

1. Работнов Т.А. Методы определения возраста и длительности жизни у травянистых растений. М.-Л.: Изд. АН СССР, 1960. -С. 240-262.
2. Жукова Л.А. Некоторые аспекты изучения онтогенеза семенных растений //Вопросы онтогенеза растений. Изд. Йошкар-Ола, 1988. -С.3-14.
3. Isomov I.E., & Toshpulatov, Y. (2022). Influence of Soil Salt on Growth, Development and Seed Productivity of Artichoke Varieties. *American Journal of Plant Sciences*, 13, 557-563.

### **Isomov E.E.**

Assistant of the Samarkand branch  
Tashkent State Agrarian University  
(Samarkand, Republic of Uzbekistan)

## **SOME BIOLOGICAL PROPERTIES (CYNARA SCOLYMUS L.)**

***Abstract:** in our local flora, this plant is extremely valuable, medicinal, fodder and food. The surface of *Cynara scolymus* is rich in protein, fat, fiber, ash, sugar, carotene, inulin, as well as copper, zinc, iron, manganese and other elements. On irrigated lands, vegetable raw materials contain more organic and mineral substances than on non-irrigated lands.*

***Keywords:** introduction, trace elements, vegetation, concreting, flowering, fruiting, seeds, medicinal, feed, growth, development, harvest.*