

# Germination of Seeds of the Genus *Iris* Under Laboratory Conditions

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## Abstract

Bulbous plants are settled in nature quite broadly and represent one of the largest groups plants on earth. Plants of the genus *Iris* L. can be used in gardening, for landscaping, flower bed decoration, including early in spring, it is also used to create floristic compositions and for distillation by certain dates. These are some of the most beautiful bulbous plants that adorn shade compositions that have high decorative qualities, in some regions of the country which is a rare species. The word "*Iris*" in translation from Greek means "rainbow". A plant whose flower embodies the beautiful natural phenomenon-a rainbow. Plants of the genus *Iris* L. can multiply both by seeds and vegetative. The vegetative way is traditional for them. reproduction. Numerous techniques are being developed to accelerate the rate of vegetative reproduction. But, the possibilities of vegetative breeding is still limited. Features of seed reproduction These cultures are poorly studied and require further study. The coefficient of seed reproduction of plants is several times higher than the vegetative one. Also, with seed reproduction, it is possible to combine various signs and in consequence of obtaining hybrids.

**Keywords:** *Iris sibirica*; *Iris setosa*; *Iris pseudoacorus*; Seed reproduction; Productivity

## Introduction

*Iridaceae*-are a fairly large family of about 1800 species belonging to 75-80 genera. Almost all iris are perennial herbs, often ephemeroids with fleshy rhizomes, tubers and bulbs. A plant that forms dense tussocks, up to 1m high. The flowers are large, up to 8cm in diameter, blue with purple veins, collected in 2-3 at the top of a tall peduncle. Leaves are linear, collected at the base of the peduncle. Fruit-oblong-oval light brown box. Blooms in May-June. Not everyone knows that the iris is a plant of many-sided use. Roots and rhizomes, leaves and flowers, fruits and seeds of various types have been and are currently being used in tanning, dyeing and liqueur and vodka production, in perfumery and medicine, in animal husbandry, in vitamins, food and textile industry. But of all the properties of iris, man most of all uses four its decorative features. This plant is ornamental perennial, which has frost resistance, unpretentiousness to cultivation techniques, easy reproduction.

## Discussion

Plants of the genus *Iris* L. can multiply both by seeds and vegetatively. The vegetative way is traditional for them. reproduction. Numerous techniques are being developed to accelerate the rate of vegetative reproduction. But, the possibilities of vegetative breeding is still limited. Features of seed reproduction These cultures are poorly studied and require further study. The coefficient of seed reproduction of plants is several times higher than the vegetative one. Also, with seed reproduction, it is possible to combine various signs and in consequence of obtaining hybrids. All studies were carried out with plants that are grown in the laboratories of the Samarkand branch of the Tashkent State Agrarian University. Seeds for laboratory experiments were kindly provided by the staff of the Tashkent Botanical Garden. In the

course of laboratory experiments, the germination of plant seeds was determined. The method for determining the germination of many flower and ornamental crops is described in GOST 24933.2-81 [1] "Seeds of flower crops. Methods for determining germination and germination energy". Laboratory germination is determined for most crops after germinating seeds for 7-10 days in special Petri dishes at a certain temperature. When studying the laboratory germination of seeds, the effect of such factors as light, temperature, and the duration of storage of seeds was studied. The

fruit of the irises is a polyspermous loculicidal capsule. Seeds with a straight embryo, 1/2-3/4 of the length of the seed, surrounded by hard endosperm. The seed coat is thick and contains a palisade layer (Figure 1) [2]. The germination capacity of seeds with the usual soaking of seeds that had undergone preliminary dry cold stratification at a temperature of +5 °C turned out to be very low. Germination temperature +23 °C. Seeds of the studied species: *Iris sibirica*, *Iris setosa*, *Iris halophila* and *Iris pseudoacorus*, had a very low germination rate - 6.7-10.0% (Table 1) [3,4].



**Figure 1:** Seeds a. *Iris sibirica*, b. *Iris chrysographes*, c. *Iris setosa*, d. *Iris halophila*.

**Table 1:** Seed germination of plants of the genus *Iris* under different germination conditions (M±m, n=5).

Species	Natural +20 °C	Natural Fluctuations Temperatures	Darkness t=+20 °C	Darkness t=+3 °C
<i>Iris pseudoacorus</i> L.	71±4	44±3	71±7	70±4
<i>Iris sibirica</i> L.	71±4	53±3	64±4	88±5
<i>Iris halophila</i> Pall.	69±4	50±3	76±4	79±4
<i>Iris setosa</i>	60±3	50±3	65±4	84±4

Freezing the seeds did not bring the expected result. The seeds of the studied crops did not germinate after that. Germination was carried out in Petri dishes, on filter paper (NB). Each contained 20 seeds. The most suitable temperature for seed germination is +3 °C. Under such conditions, the percentage of germinated seeds was maximum [5,6]. Lighting had no effect on seed germination in the studied plant species of the genus *Iris*. Numerous studies have established that storage periods also have a significant effect

on seed germination and the rate of growth and development of plants. When studying the literature, we did not find data on the effect of the storage time of seeds on the plant species we selected for research, then an experience was laid to study their effect on these crops. In the experiment, the germination of seeds of Siberian *Iris* (*Iris sibirica* L.) of the harvest of 2019 and 2020 was studied (Table 2) [7,8].

**Table 2:** Seed germination of *Iris sibirica* L. (M±m, n=5).

Harvest Year	Weeks								
	1	2	3	4	5	6	7	8	9
2019	-	-	-	13±1	16±1	32±2	38±2	47±2	57±3
2020	-	-	-	24±2	32±2	41±2	50±3	61±3	70±4

## Conclusion

Seed germination was observed from the fourth week. The seed germination rates of the 2019 and 2020 harvests were different. The highest percentage of germination was observed in seeds of the harvest of 2020 and averaged 70%. The seed germination rate of the 2019 crop averaged 57%. There is a significant difference in germination of new seeds and old seeds. Hence, we can conclude that the germination of seeds in the studied plant species depends on the terms of their storage: the less seeds are stored, the higher their germination.

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