Indian Journal of Plant Sciences ISSN: 2319–3824
Online, International Journal, Available at http://www.cibtech.org/jps.htm
2023 Vol.12, pp.134-146/Mamadaliyeva and Rakhimova
Research Article (Open Access)

INTRODUCTION OF *MONARDA DIDYMA* L. IN CONDITIONS OF TASHKENT CLIMATE (UZBEKISTAN)

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ABSTRACT
In the article, the seed germination, seed germination energy of some varieties of the "*Monarda didyma* L" species (Bergama, Jar-ptitsa, Cambrige scarlett) from the "Monarda L" genus, belonging to the "Lamiaceae" family, under the conditions of introduction, growing in greenhouse conditions, and bringing seedlings to field conditions in the spring months the effect of air temperature and relative humidity on development, growth and development was studied. Also, the dynamics of diurnal and split flowering and seed productivity of the studied varieties were observed. As a result of the conducted experiments, it was shown that the species of the Monarda genus can be introduced in the climatic conditions of Uzbekistan, and they are recommended for beautification of city streets and recreation areas.

Keywords: *Lamiaceae, Monarda didyma L., Bergama, Jar-ptitsa, Cambrige Scarlet, Seed, Germination, Diurnal Flowering, Seasonal Flowering, Seed Productivity, Air Temperature, Relative Humidity*

INTRODUCTION
It is known that approximately 60% of drugs produced in pharmaceutical enterprises worldwide are prepared from raw materials of medicinal plants. In particular, 77% of medicinal preparations used for the treatment and prevention of cardiovascular diseases, 74% of medicinal preparations used for the prevention and treatment of liver and gastrointestinal diseases, 73% of expectorant drugs, and 60% of hemostatic drugs are produced on the basis of raw materials of medicinal plants. is being released (Mikhaylov, 2003).
Nowadays, according to the information of the International Food and Agriculture Organization (FAO), more than 50,000 medicinal plants are used for medical purposes in the whole world. The use of representatives of local flora for treatment purposes is high in Southeast Asian countries, this figure is 20% in India and 19% in China. In the pharmaceuticals of Japan, Germany and other European countries, preparations made on the basis of raw materials of medicinal plants occupy a wide place (FAO, 2022).
About 4,380 species of tall plants are naturally distributed on the territory of Uzbekistan, and about 1,200 of them have medicinal properties. Currently, more than 100 genuss of medicinal plants are allowed to be used in official medicine in our Republic, and 80% of them are naturally growing plants (Khozhimatov, 2021).
Among the plants with medicinal properties, species containing aromatic essential oil containing terpenoids, aromatic compounds, monoterpene phenols, including thymol and carvacrol are of particular importance.
Due to the limited supply of natural plants found in our flora, one of the urgent problems is to protect them, study their bioecological properties, develop scientifically based methods of proper use and reproduction. In addition, it is also important to acclimatize medicinal and essential oil plants belonging to foreign flora that are not found in our country.
Taking into account the above problems, we selected some representatives of the "Monarda L" genus belonging to the "Lamiaceae" family as objects. Since representatives of this group are not found in our natural flora, it is necessary to introduce them to our country.

Family Lamiacea: this family consists of dicotyledons, mainly annual and perennial herbs, subshrubs, rarely shrubs and trees that grow in tropical countries. The flowers are curved, the petals are connate, often double-lipped. This family includes 232 genera and about 3500 species. There are 466 species belonging to 53 families in Central Asia. 210 species belonging to 42 families grow in Uzbekistan (Khozhimatov,2021).
Because it is rich in essential oils, it is used in medicine, cosmetology, perfume industry and as food. Lamiacea is one of the widespread families in Uzbekistan, and it is distinguished from other families by its wealth of useful species. Especially representatives of such genus as peppermint, marmarak, deer grass, bozubang, mountain basil, lemon grass, and lion's ear have been used in medicine, food, confectionery and perfume industry for a long time. Representatives of the Monarda genus are considered to have essential oil and medicinal properties. There are about 20 species of the genus worldwide. About 50 varieties have been created based on these genuss. It is distinguished from other species belonging to the Lameaceae family by its beautiful flowers (Myadelets, 2014; Tsibina, 2019).
Monarda plant is native to North America, widespread in Mexico and southern Canada, and found in moist meadows, mountain slopes, and forests at an altitude of 1,500 m above sea level. 12 species of monarda are widespread in America (Anishchenko, 2009; Nikitina, 2016).
Monarda is valued as a plant rich in valuable biologically active substances (BFM)-flavonoids (flavones, flavonones, flavonols), ascorbic acid, vitamins B1, B2, bitter taste and stimulants. Monarda flowers and leaves contain high levels (more than 3%) of essential oils. Essential oils are also widely used in cosmetology and aromatherapy (Krasyuk, 2020; Nikolaevsky, 2018; Tsibina, 2020).
It is considered one of the important raw materials in the preparation of medicines because it has antiseptic properties and contains substances such as thymol, carvacol and essential oil. These plants contain substances that have bactericidal, fungicidal, anti-cold and anti-helminthic activity, and have the property of increasing immunity. Flowers and leaves have medicinal properties and are used in the preparation of natural medicinal preparations. Monarda cleanses the blood and improves liver and spleen activity. In medicine, it is used in the treatment of anemia, hypoxia, cystitis, psoriasis, mycoplasma pneumonia, tuberculosis, chronic bronchitis, and in the treatment of respiratory diseases (Mashchenko,2004; Nikitina, 2018; Serebryakov, 1972).
According to the results of research conducted by foreign scientists, the essential oils obtained from monarda have anti-cancer properties and have shown good results in the fight against the human papilloma virus, including the form that causes cervical cancer. In patients who received radiation and chemotherapy, the body recovered its strength. Today, it is added to the composition of special ointments to remove papillomas (warts) from the body (Bedulenko, 2013; Libus, 2004;).
Its flowers and leaves contain fragrant essential oils, they contain antiseptic substances, they have the ability to kill microbes in the air, and they are also used in beautifying various gardens, resorts and hospitals for their beautiful, decorative flowers.
After the discovery of America by X. Columbus, the plant was brought to Spain for the first time, and from there it spread throughout Europe and Russia. The European people received information about Monarda in the books of the Spanish doctor Nicholas Monardes "Good News from the New World" (1589), "Medical History of the West Indies" (1580). Two centuries later, Carl Linnaeus included the classification of this genus in the book "Plant Species" and named it "Monarda" in honor of Nicholas Monardes (Gladysheva, 2016; Fedotov, 2015).
By the 19th century, in Europe and Asia, including France, England, and Portugal, it was acclimatized under the name "Wild Bergamot" and used as a plant that gives the taste of mint and citrus (Anishchenko, 2009; Ovcharenko, 2016).
Several species of the genus Monarda acclimatized a long time ago in some regions of the CIS, in the warm climate regions of Russia: in the Crimea and the Caucasus, on the banks of the Volga and in black soilless lands. To date, it has been cultured in the Stravropol region, the Republic of Bashkortostan, Siberia, as well as in the Samara region (Krasyuk, 2016; Tsibina, 2020).

There are annual and perennial species of this genus, among annual species: Monarda citriodora L., M. punctata L. hybrid species, and from perennial species: Monarda didyma L. and Monarda fistulosa L. species are common (Tsibina, 2019).

Level of education: To date, a lot of scientific and research work has been carried out on the study of several species of the genus Monarda. The bioecological characteristics of Monarda species in Russia under the conditions of introduction are covered in the works of Korshachkina (2009), Gladisheva (2016), Krasyuk (2020) and Tsybina (2020) studied the chemical composition of monarda and described its pharmacological properties. Mashchenko (2004), S.V. Fedotov (2015) and N.S. Ovcharenko (2016), carried out scientific research. Nikitina and Feskov (2018) studied the morphological and anatomic characteristics of M. fistulosa, M. didyma, M. citriodora in Nikitina Botanical Garden.

The purpose of the study: The introduction of some varieties belonging to the genus "Monarda didyma L" in the conditions of Tashkent city is considered.

Research object: Lamiaceae family, Monarda L. genus, Monarda didyma L. species are perennial varieties of Bergama, Jar-ptitsa and Cambrige scarlet (Fig. 1-a, b, s).

a) b) s)

Figure 1. a) Bergama, b) Cambridge scarlet, s) Jar-ptitsa

Monarda didyma L. - Red bergamot or Oswego tea. The fruit is brown. Height 60-120 cm sometimes grows up to 150 cm. Perennial plant with dense, round, bright red flowers 3-4 cm long on the stem. Stems up to 90 cm, covered with large, oval, dark green leaves, 7-18 cm long, ovate-ovate-lanceolate, toothed edges. The stem is a hollow rectangle with opposite leaves. When the leaves are crushed, they give off an aromatic peppermint smell. Plants belonging to this species grow densely along riverbanks, wetlands, thickets, and ditches in North Carolina, Mississippi, Massachusetts, and Ontario. Depending on the climate of the growing area, it blooms from late spring to summer, and sometimes to early autumn. The representatives of the category are distinguished by their beautiful flowers and unique smell. Cultivated in gardens as ornamental and medicinal plants. Plants belonging to this family have red flowers that attract hummingbirds, butterflies and bees. Contains a lot of essential oils. It was named Oswego tea because the tea leaves were used by the Oswegos. Nomadic peoples also used the plant as tea when ordinary tea was scarce (Kriklivaya, Cheryomushkina, Shorin, 2016;).

Cambridge scarlet. A perennial herb with a stem length of 90-120 cm. The rhizome is long horizontal. The stem is erect, four-sided, finely hairy. The number of lateral branches is 9-16. The leaves are 7-15x4-7 cm long, light green, oval, toothed at the tip, sparsely hairy, opposite on the stem, located in

a short band. The flowers of this variety have a bright red color and are located in a dense inflorescence. The diameter of the flowers is up to 6-8 cm, and the petals bloom from the top of the flower down.

Bergama is a perennial herb with a height of 80-110 cm, a long, horizontal rhizome. The stem is two-leaved, erect, four-sided, with small hairs. The number of side branches is 8-15. The leaves are light green in color, the veins are red, opposite, 6-15 cm long, 3-8 cm wide. The shape of the leaves is oval, the tip is thinly pointed, coarsely toothed. Flowers are located in inflorescences, 5-6 cm long, bloom in lilac, purple colors.

Jar-ptitsa is a multi-stemmed, 60-100 cm tall, perennial, winter-hardy plant. The number of lateral branches is 6-20. The leaves are oval, red, pale red, the veins are almost invisible, the length is 6-12x3-6 cm. The diameter of the flowers is 4-6 cm, they bloom from delicate pink to bright red. Flowers attract bees and insects due to their high nectar content.

MATERIALS AND METHODS

Seed germination and germination energy were studied using the method of Granitova (1955). Growth and development of plants during the season (Borisova, 1972), phenological observations I.N. Beideman (1974), formation of annual branches (Serebryakov, 1972), potential and actual seed productivity Ashurmetov, It was studied using the method of Karshiboev (2008). Statistical analyzes were determined using the method of Zaitsev (1991).

RESULTS AND DISCUSSION

The seeds of Monarda didyma L. species were brought from Russian agro-firms "Garvish" and "Sedek". The seeds of the plants studied in our research are almost identical, very small, light brown or black. The weight of 1000 seeds is 0.2-0.3 g.

Determination of germination energy and germination of seeds was carried out according to GOST 12038-84 (2011).Sample seeds belonging to each species were isolated from 100 pieces and studied in 4 replicates (n =400) at temperatures of 18-20℃ and 22-25℃ in a thermostat (Table 1).

Table 1

Species name	Variety name	18-20℃		22- 25℃	
		Germination %	Growth energy%	Germination %	Growth energy %
Monarda didyma L.	Bergama	61± 1,5	21± 1,7	75±1,04	45± 3,6
	Jar-ptitsa	52± 0,6	28± 1,1	83±2,3	49±1,2
	C. Scarlet	48± 0,9	20,3 ± 1,6	69±1,03	36±0,9

The optimal temperature for seed germination in laboratory conditions was 22-25℃, at which temperature the germination of the Bergama variety was 75%, the germination of the Jar-ptitsa variety was 83%, and the Cambridge scarlet variety was 69%.

In the conditions of the city of Tashkent, the seeds did not germinate in field conditions due to the unfavorable arrival of the spring months of 2022 and high rainfall. In the first year of the experiment, seeds imported from Russia were planted in the greenhouse. The temperature in the greenhouse was 18-25 ℃ from the time the seeds were planted until they grew. The seeds sown at the end of February fully germinated and began to grow on March 10-15. Germination of seeds of all varieties of Monarda was high in greenhouse conditions. In two to three weeks, the lawns have real leaves. Monarda seedlings were planted in the open field at the end of April, when the air temperature was +20+29℃, relative humidity was 16-40%. Taking into account the fact that this species is perennial and the side branches are well developed, in the following years they will also grow from the rhizomes, so plant varieties were planted with a row spacing of 60 cm (Fig. 2 a, b, s).

a) b) s)

Figure 2. a) Plants grown in greenhouse conditions. b) Seedlings prepared for planting in the field. s) Plants planted from seedlings.

Rapid growth of plants was observed in May, reaching 20-25 cm in height. All the seedlings planted in the open field grew well, and 40-50% of the plants went into the generative period this year. The Sambrige scarlet variety started budding in early July, and this phase lasted 6-10 days, and the first flower opened in the middle of this month on July 14, when the air temperature was +39°C, and the relative humidity of the air was 13%. The budding phase of Bergama and Jar-ptitsa varieties coincided with the end of July and the beginning of August. At the beginning of August, the first flower of Bergama opened, the average air temperature was +36°C, and the relative humidity was equal to 15%. The first flowering of the Jar-ptitsa variety occurred on August 13, when the average air temperature was +38°C, and the relative humidity was 14%. In the first vegetation year, sambrige scarlet variety bloomed 50%, and Bergama and Jar-ptitsa varieties bloomed up to 40% (Fig. 3 a, b, s).

a) b) s)

Figure 3. a) Seedlings in May, b) Beginning of budding in July, s) Plants that bloom in August.

Seed production was observed from mid-September to mid-October, with full ripening by the end of this month, but all cultivars maintained green above-ground conditions until late November after seed collection. At this time, the air temperature was +9+14℃, relative humidity was 35-80%.

Since the Bergama, Jar-ptitsa and Sambridge scarlet varieties of the species "*Monarda didyma* L" studied in our experiments are perennial plants, our observations were continued even in the second year of its vegetation. At the end of February 2023 (20.02.2023), the germination of plants from the rhizomes preserved underground was observed, at this time the average air temperature was +14℃, and the relative humidity of the air was 31%. Several new lateral roots appeared from each bush, and the new shoots formed from them grew rapidly due to heavy rains in March and reached 15-20 cm in mid-April (Fig. 4-a, b, s).

a) b) s)

Figure 4-a,b,s. Seedlings grown from rhizomes

By the end of May, unlike in the first growing year, the budding phase of Bergama, Jar-ptitsa and Cambridge scarlet varieties began. The beginning of flowering in Jar-ptitsa variety of monarda didyma L. was on May 29. At this time, the average air temperature was +33℃, and the relative air humidity was 13%. In the Cambridge scarlet variety, the flowering process began on May 30, when the air temperature was +35℃, and the relative air humidity was 17%. At the beginning of June, when the average air temperature was +36℃, and the relative air humidity was 17%, the flowering of the Bergama variety began. Gross flowering in all varieties coincided with the middle of this month. Daily and seasonal flowering dynamics of all varieties were studied in the second year of their vegetation (2023).

Monarda didyma L: The daily flowering dynamics of the Cambridge scarlet variety was carried out in the experimental area of the botanical garden of the National University of Uzbekistan (10 inflorescences) in the plants of the second year of vegetation (Fig. 5-a, b, s).

The beginning of flowering coincided with May 30, at 8 am in the morning the air temperature was +24.6 ℃, the relative humidity of the air was 26%, two flowers were opened, at 10 am the air temperature was +29℃, the relative humidity of the air was 19%, and four flowers opened. Two flowers were opened from 12 to 16 pm, when the air temperature was +35.3+38.4℃, and the relative humidity was 10-15%. In the evening, at 1800 hours, when the air temperature was +34℃, the relative humidity of the air was 13%, the flowers opened one by one. In total, 13 flowers were opened in one flower in one day (Fig. 6a).

When observing the total flowering period of daily flowering dynamics (11.06.23), at 8 am in the morning the air temperature is +32℃, the relative humidity is 29%, four pieces, at 10am the temperature is +35.5℃, and the relative humidity is 19%. and at 12 clock, 6 flowers opened, at this time the air temperature was +41.6℃, and the relative air humidity was 14%. At 14^{00} in the afternoon, three flowers opened and the air

temperature was +43°C, and the relative humidity of the air was 12%. By 16-18 pm, one flower opened. By this time, the air temperature was +41°C, and the relative humidity was 11%. The peak flowering time was at 10^{00} hours. During the general flowering period, an average of 24 flowers were opened in one flower in one day (Fig. 6b).

a) b) s)

Figure 5-a, b, s. Flowering process of Monarda didyma L. species

Monarda didyma L.-The final flowering of Cambridge scarlet coincided with the beginning of July (07.08.2023). At 8 am in the morning, two flowers opened, at this time the air temperature was +30°C, and the relative humidity of the air was 26%. By 10 am hours, three flowers opened when the temperature was +32.5°C and the relative humidity was 21%. At 12-14 clock of the day, one flower opened, the temperature of the air was +38+39°C, the relative humidity of the air was 13-15%. The flowers did not open between 16:00 and 18:00. During the final flowering period, a total of 6 flowers opened (Fig. 6s).

When the seasonal flowering pattern was studied, biennial plants developed from rhizomes began to open on May 30, and the number of flowers began to increase by early June. During the full flowering period, up to 19-23 flowers opened in one inflorescence by mid-July. Before the end of the flowering season, the seeds of the previously opened flowers began to form. That is, two phases are observed at the same time, and it was found that both flowering and seed formation. At the beginning of August, seasonal flowering ended, and a total of 300-340 flowers were opened in one flower. The total flowering period lasted 40-45 days (Fig. 6-d).

Monarda didyma L.-The day-long flowering ceremony of bergamot was held at the experimental field of the National University of Uzbekistan (10 flowers).The beginning of flowering was observed on the third of June. At 8 am in the morning, when the air temperature was +26.8°C, the relative humidity of the air was 22%, two flowers opened. Three flowers opened at 10:00-12:00, when the temperature was +31+37°C, relative humidity was 14-19%. Moving to the second part of the day, at 14:00-16:00, the air temperature was +39+40°C, the relative air humidity was equal to 10-12%, and two flowers opened. At 18°C in the evening, the air temperature was +38°C, the relative humidity was 10%, and one flower opened. At the beginning of flowering in the Bergama variety, a total of 13 flowers opened during the day (Fig. 7a).

The total flowering period of the Bergama variety accelerated 9-10 days after the beginning of flowering, and the largest number of flowers was observed on June 13. Three flowers opened at 8 am in the morning, at this time the air temperature was +31.7°C, and the relative air humidity was 24%. By 10 am, when the air temperature was +35.5°C, relative humidity was 19%, 8 flowers opened. When the time of the day came

to +12 clock, 5 flowers opened, at this time the air temperature was +41.6℃, and the relative humidity of the air was 14%. In the afternoon, when the time reached 14-16 pm, the air temperature was +41+43℃, the relative air humidity was 11-12%, and two flowers opened. One flower opened at 18 pm in the evening, the temperature was +41℃, and the relative humidity was 11%. So, the peak flowering time was at 10 am. During general flowering, on average, 21 flowers were opened in one flower in one day (Fig. 7b).

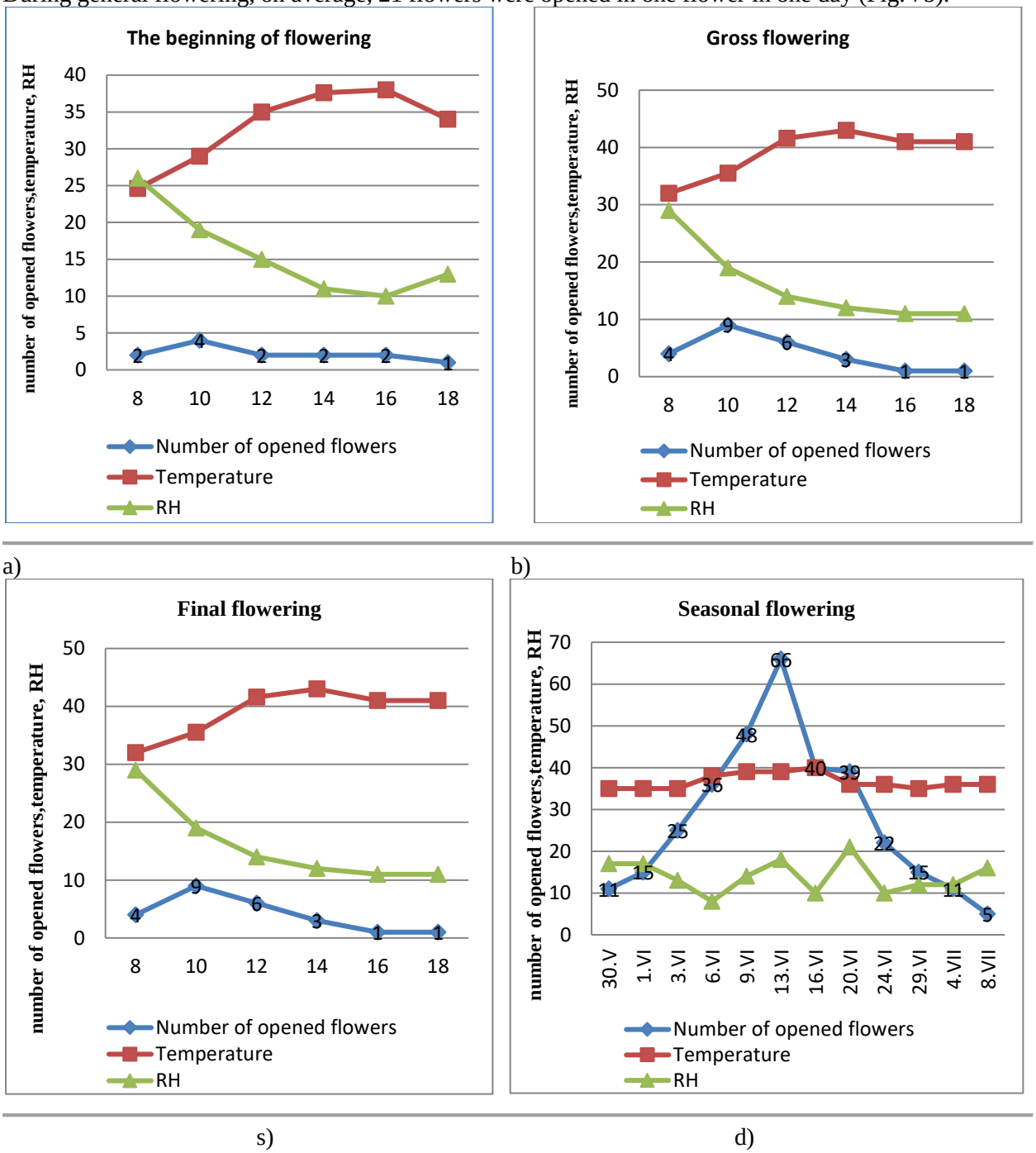

Figure 6. a) Beginning of flowering in C.scarlet variety b) Gross flowering of C.scarlet, s) Final flowering of C. scarlet d) Seasonal flowering

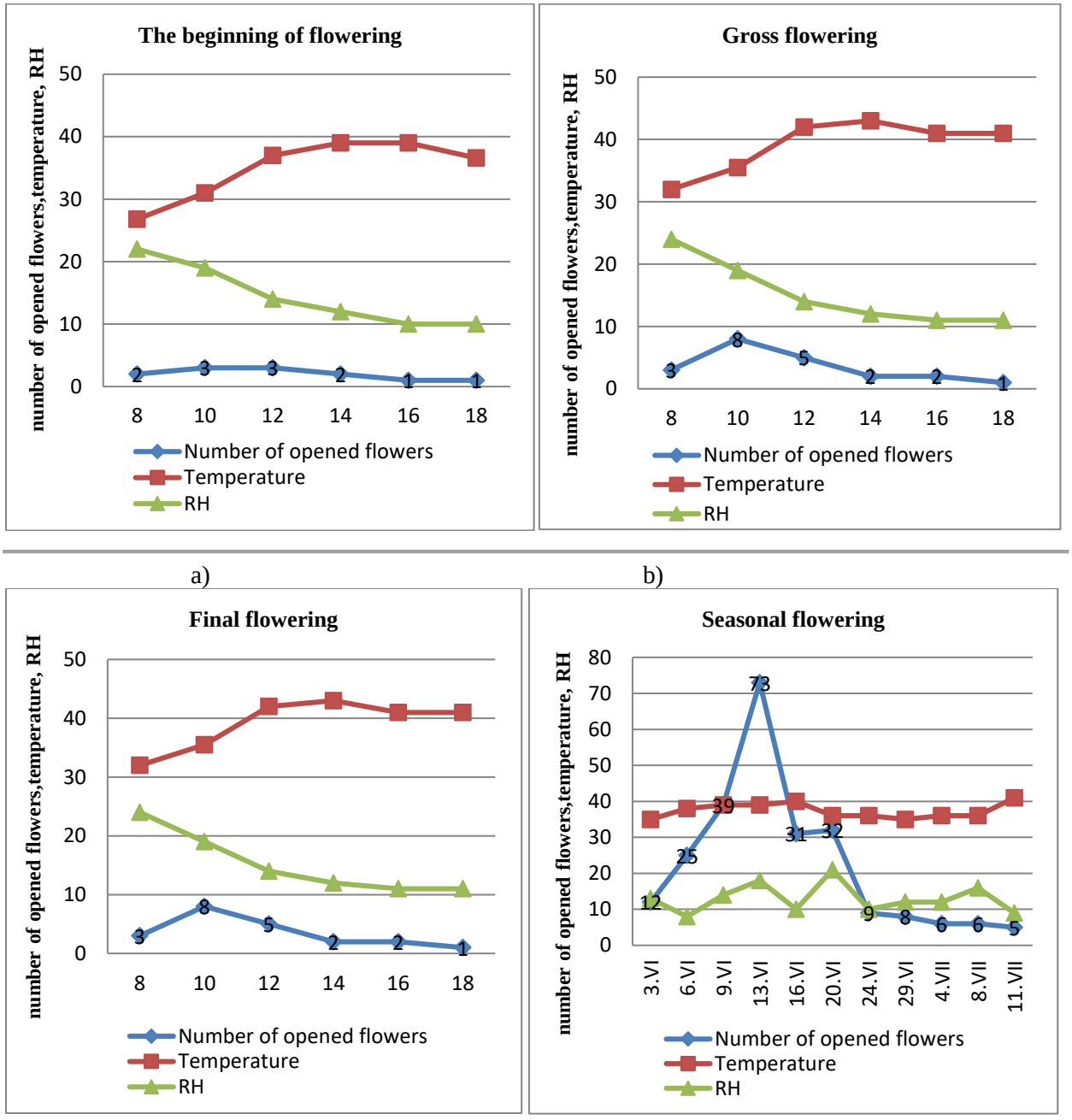

Figure 7. a) The beginning of flowering in the Bergama variety, b). Gross flowering of the Bergama variety, s) The final flowering of the bergama, d) Seasonal flowering of bergama

Monarda didyma L. - The final flowering of Bergama was observed at the beginning of July (11.07.2023). The plant's flowers bloomed in very small numbers by the end of the season. At 8 o'clock in the morning, one flower was observed to open, and the temperature of the air was +32.6℃, and the relative humidity of the air was 13%. The opening of two flowers was observed at 10 am. At this time, the air temperature was +37℃, and the relative air humidity was equal to 10%. At 12-14 clock, when the air temperature was

+43+45℃, relative air humidity was 7-9%, one flower opened. At 16-18 clock the plants did not bloom. At the end of flowering, a total of 5 flowers opened in one flower (Fig. 7s).

When the seasonal flowering ceremony was observed, the beginning of the flowering of plants in the second year of vegetation began in the first days of June (06.03.2023), and the number of opened flowers increased day by day. After a week, rapid flowering began, and on June 11-13, 70-77 flowers opened in one flower. Full flowering lasted until the 20th of June, and the number of flowers decreased at the end of the month. The end of flowering was observed by the beginning of July. By this time, the first flowers that have opened have gradually started to form seeds. That is, the process of seed formation was observed simultaneously with flowering. Monarda didyma L.- Bergama has 200-250 flowers in one inflorescence, and seasonal flowering lasted 35-40 days (Fig. 7d).

***Monarda didyma* L. -** Experiments for the introduction of the Jar-ptitsa variety in the conditions of the city of Tashkent were conducted in the botanical garden of the National University of Uzbekistan. When the diurnal flowering ritual was studied, flowering began in late May. The first flowers of Jar-ptitsa opened on May 29. One flower opened at 8 am in the morning when the air temperature was +24.8℃ and the relative humidity was 22%. At 10:00-12:00, three flowers opened in each flower, and at this time the temperature was +28+35℃, the relative air humidity was 18-19%. In the second part of the day, two flowers opened at 14 pm when the temperature was +36℃ and the relative humidity was 13%. At 16-18 pm, the air temperature reached +34+37℃, relative air humidity reached 11-13%, and one flower opened. At the beginning of flowering in this variety, a total of 11 flowers opened during the day (Fig. 8a).

The total flowering period of the Jar-ptitsa variety accelerated by June 6, and a large number of flowers were observed to open on June 11. At 8 am in the morning, four flowers opened, at this time the air temperature was +28℃, and the relative humidity of the air was 36%. At 10 am, 10 flowers opened when the air temperature was +32℃ and the relative humidity was 30%. When the time of the day came to 12 clock, 6 flowers opened, and at this time the air temperature was +38.5℃, and the relative humidity of the air was 23%. In the afternoon at 14pm hours, the temperature of the air was +41℃, the relative humidity of the air was 19%, and three flowers opened. At 16 pm, the air temperature was +42℃, the relative humidity was 16%, and two flowers opened. At 18 pm in the evening, one flower opened, and at this time the temperature was +41℃, and the relative humidity of the air was equal to 14%. The peak flowering time was at 10 am, and an average of 25 flowers opened per inflorescence during the day during gross flowering (Fig. 8b).

Jar-ptitsa flowering ended at the beginning of July (5.07.2023). By this time, the plants bloomed in very small numbers. Two flowers opened at 8 am in the morning, at this time the air temperature was +29℃, and the relative air humidity was 22%. The opening of three flowers was observed at 10 am, the temperature of the air was +32℃, and the relative humidity was 18%. At 12:00-18:00, the air temperature was +37+39℃, and the relative humidity was 14-15%. At the end of flowering, a total of 8 flowers opened in one flower (Fig. 8s).

When the seasonal flowering period was determined, the flowering of the plants of the second year vegetation began in the last days of May, and the number of opened flowers increased by June, from June 6 to June 13, 50-90 flowers opened every 3-4 days. Full flowering lasted until June 16, and the number of opened flowers decreased from the following days. The end of flowering was observed by the beginning of July. At the end of flowering, the first opened flowers began to produce seeds, and simultaneously with flowering, seed production was observed. There were 350-400 flowers in one inflorescence of Monarda didyma L.-Jar-ptitsa, and seasonal flowering lasted 5-6 weeks (Fig. 8d).

The seed productivity of acclimatized plants in the conditions of the city of Tashkent indicates that the species is being successfully introduced. For the biological characterization of any plant, it is necessary to know the seed productivity. According to T.A. Rabotnov (1972), seed productivity is the number of seeds in a generative stem, which depends on external and internal factors. In our experiments, the budding of the studied plants was observed at the end of May and beginning of June. The amount of seeds in the produced inflorescences was counted and the seed productivity was determined. The number of flowers in one

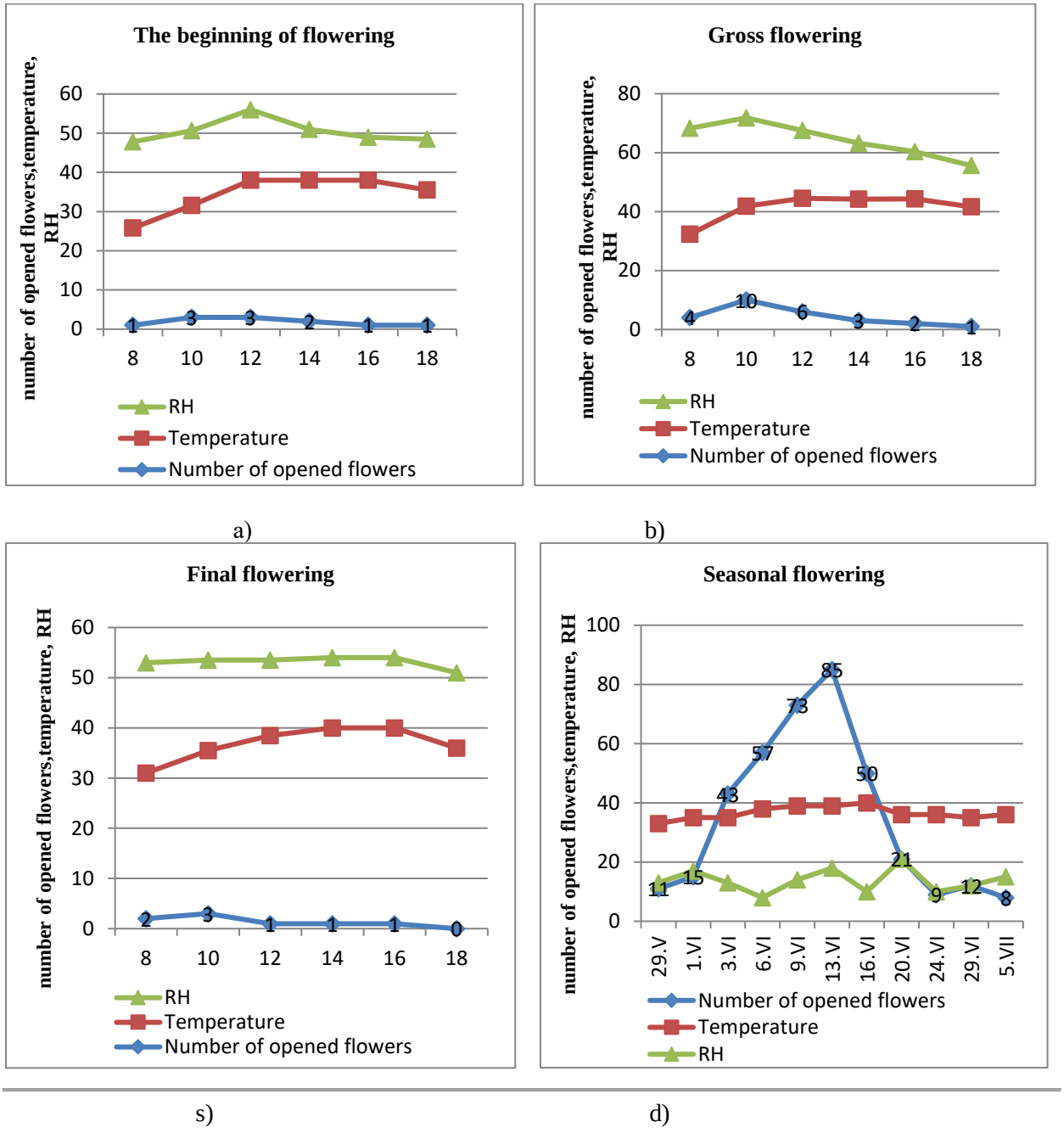

Figure 8. a) The beginning of flowering in Jar-ptitsa variety, b) Gross flowering of Jar-ptitsa, s) The final flowering of the Jar-ptitsa, d) Jar-ptitsa seasonal flowering.

inflorescence (10) of the variety Monarda didyma L.- Cambridge scarlet was 325, the number of seeds was 267, the number of seeds was 99, the ripeness was 168, the productivity coefficient (PC) was 63%. In the variety Monarda didyma L.- Bergama, the number of flowers in one inflorescence was 248, the number of seeds was 198, the number of seeds was 38, the ripeness was 160, and the PC was equal to 81%. In one inflorescence of Monarda didyma L.-Jar-ptitsa, the number of flowers was 384, the number of seeds was 289, the number of seeds was 41, the ripe one was equal to 248, and the PC recorded 86% (Table 2).

Table 2

The location of the experiment	Species name (variety name)	The number of flowers in one inflorescence	The number of seed buds in an inflorescence	The number of ripe seeds	Seed yield PC,%
Botanical garden of the National University of Uzbekistan	C. Scarlet	325	267	168	63±2,5
	Bergama	248	198	160	81±1,7
	Jar-ptitsa	384	223	193	86±1,5

CONCLUSION

As a result of the conducted research, it was found that the seeds germinated 40% after 4-5 days and 75% after 7-10 days at a temperature of 22-25^{0}C in laboratory conditions. 100% of seedlings transferred to field conditions survived, grew and developed, and 40-50% flowered and set seed in the first year of vegetation. In the second year of vegetation, 100% flowered and set seeds, and the coefficient of productivity was 63% in the Sambrige scarlet variety, 81% in the Bergama variety, and 86% in the Jar-ptitsa variety. The good growth and development of varieties belonging to the *Monarda didyma* L. species in the conditions of the city of Tashkent, the rapid progress of the flowering process and the setting of seeds indicate that these plants are well adapted to the climatic conditions. This indicates that medicinal, essential oil plants belonging to the genus can be introduced. So, when the seeds are sown in greenhouse conditions, it is recommended to take them out to the field in the first year, adapt them, and in the second year, when they have 100% flowering, they are recommended to be planted in order to beautify the city streets and recreation areas.

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