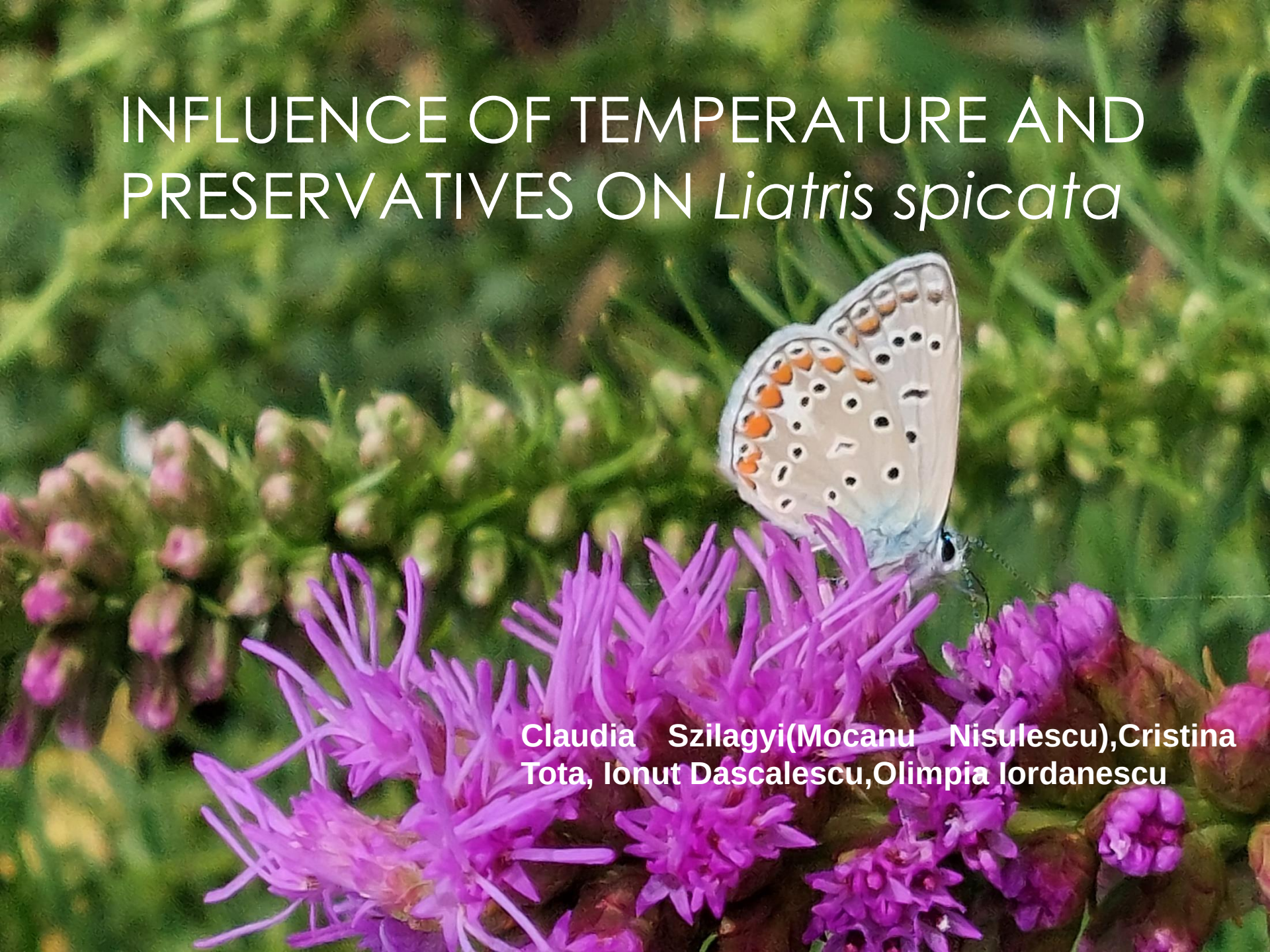
INFLUENCE OF TEMPERATURE AND PRESERVATIVES ON *Liatris spicata*



Claudia Szilagyi(Mocanu Nisulescu),Cristina Tota, Ionut Dascalescu,Olimpia Iordanescu

- The interest in ornamental plants has developed a particularly important field from an economic point of view. The ornamental plant industry is a fast-growing sector in world agriculture. For example, ornamental plants are the sixth largest agricultural commodity group in the US, the European Union (EU) is one of the most important regions for ornamental plant production. The production of ornamental plants has also expanded rapidly in Latin America, especially in Colombia, Ecuador and Brazil, and in Africa, such as Ethiopia and Kenya (Chen, J., 2021).
- When we talk about cut flowers, all roads lead to Aalsmeer, where there is the largest flower exchange in the world, where flowers from all over the world are traded daily.
- Romania is an important market for cut flowers, this growth can also come with an opportunity for Romanian producers.

- *Liatris spicata* (L.) Wild., known as the “Blazing Star", “Gayfeather " is a perennial species of the family Asteraceae, native to North America.
- The genus *Liatris* includes about 37 species (Nesom, G.L., 2005) distributed in almost all American states, east of the Rocky Mountains to southern Canada and northern Mexico.
- It is an atypical species for its family, the flowers in the inflorescence blooming from top to bottom.
- *Liatris* has been cultivated as a garden perennial for more than 70 years. Since the early 1970s, *Liatris spicata* has gained importance as a cut flower due to its long-lasting flowering and its special downward flowering sequence. This species is usually grown in layers both outdoors and in greenhouses (Giampaolo Zanin, Paolo Sambo, 2006).
- *Liatris* is most commonly propagated from seeds or divisions, but quality flowers are produced on 1-year-old corms after cold treatment. Seeds require stratification for 63 days at 4C, dry storage results in uneven germination. Leaf cuttings have been used to propagate *Liatris* – they tend to produce short flower stems. Corm division seems to be the most appropriate method of propagation, but the growth rate is slow (Dennis P. Stimart1 and James F. Harbage2,1989).

PLANTING

Corm *Liatris spicata* 12/14(left),8/10(right)

- Location: Buzias, on private land.
- Duration of the study: 4.5 months, starting with the planting of corms (01.April-6 April 2024) until the depreciation of the last cut and preserved flower stems (14.08.2024).
- Planted material: 796 cormi pcs of 2 sizes, 8/10 (400 pcs) respectively 12/14 (396 pcs-missing from the package), purchased directly from the Netherlands from authorized manufacturers.

- Planting: blocks of 1sqm, 25 pcs/block, 1 control and 3 rehearsals.
- Fertilization variants used: Vermicompost (V)-1l/sqm;
- Sheep's wool pellets (P) - 100g/sqm;
- Osmocote Bloom 13-07-18+ME- 20g/sqm;
- CROPMAX (C)-dilution 20ml/1l;

PERCENTAGE RELEASE/FLOWERING CORM

Fertilization	SHEEP'S WOOL PELLETS				OSMOCOTE BLOOM				VERMICOMPOST				CROPMAX			
Dimension	12/14		8/10		12/14		8/10		12/14		8/10		12/14		8/10	
corm	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R	F
M	88	100	84	86	88	100	64	100	80	85	92	91	95	80	100	80
R1	88	85	92	83	84	95	88	91	80	100	96	96	96	96	80	100
R2	80	85	72	83	60	73	80	85	84	100	88	91	76	100	72	89
R3	80	95	80	80	36	56	60	87	68	100	72	94	84	100	84	90
AVERAGE	83	88	81	82	60	75	76	88	77	100	85	94	85	99	79	93

NO PCS CORMS DESTROYED/WITHOUT FLOWER STEM

Fertilization	SHEEP'S WOOL PELLETS				OSMOCOTE BLOOM				VERMICOMPOST				CROPMAX			
Dimension	12/14		8/10		12/14		8/10		12/14		8/10		12/14		8/10	
corm	D	WFS	D	WFS	D	WFS	D	WFS	D	WFS	D	WFS	D	WFS	D	WFS
M	3	0	4	3	3	0	2	2	5	3	2	2	1	4	0	5
R1	3	5	2	4	4	1	2	1	5	0	2	1	1	1	5	0
R2	5	3	7	3	10	4	3	2	4	0	3	2	6	0	7	2
R3	5	1	5	4	16	4	7	1	3	0	7	1	4	0	4	2
AVERAGE	4	3	5	4	10	3	4	1	4	0	4	1	4	0	5	1

Damaged corms 12/14 -78 pcs

Damaged corms 8/10 -62 pcs

Damaged corms 140 pcs -18%

Corms without flower stem 12/14 -26 pcs

Corms without flower stem 8/10 -35 pcs

Corms without flower stem 61-9%

HARVESTING

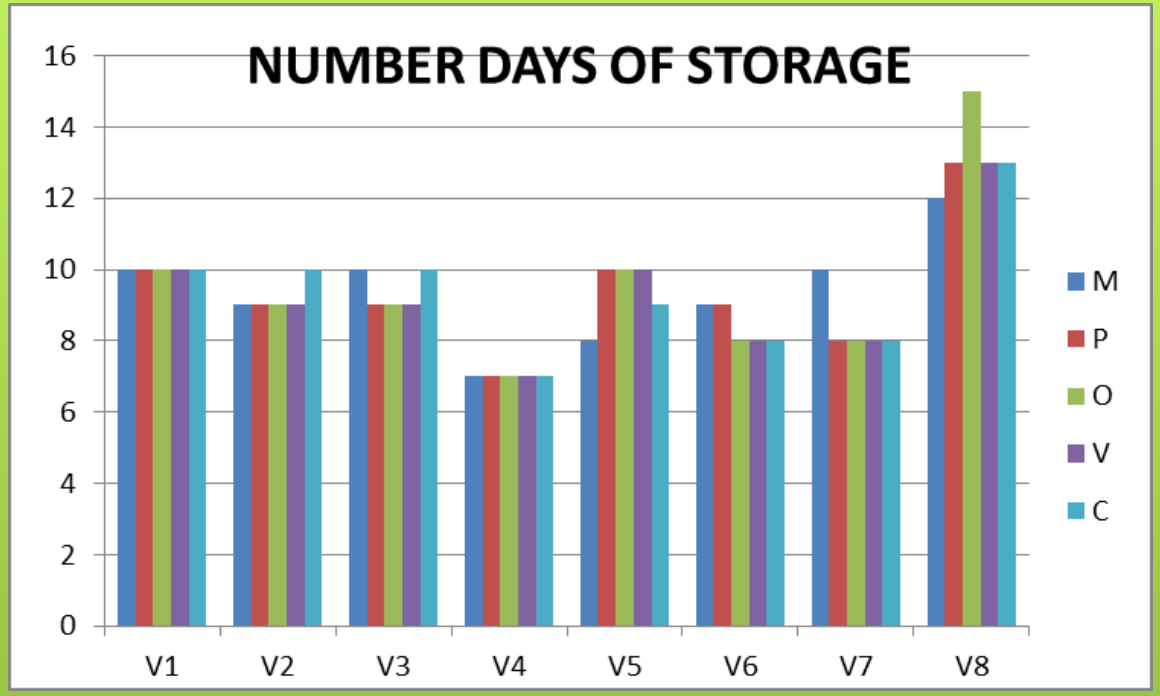
-the first flowers start to open 23.06.2024
-the first harvest 28.06.2024
-the harvest starts when the inflorescences are open 2.5 - 4 cm
-harvest time 5.30-6.00 AM
- 589 flowers(338-12/14, 168-8/10

MATERIALS USED

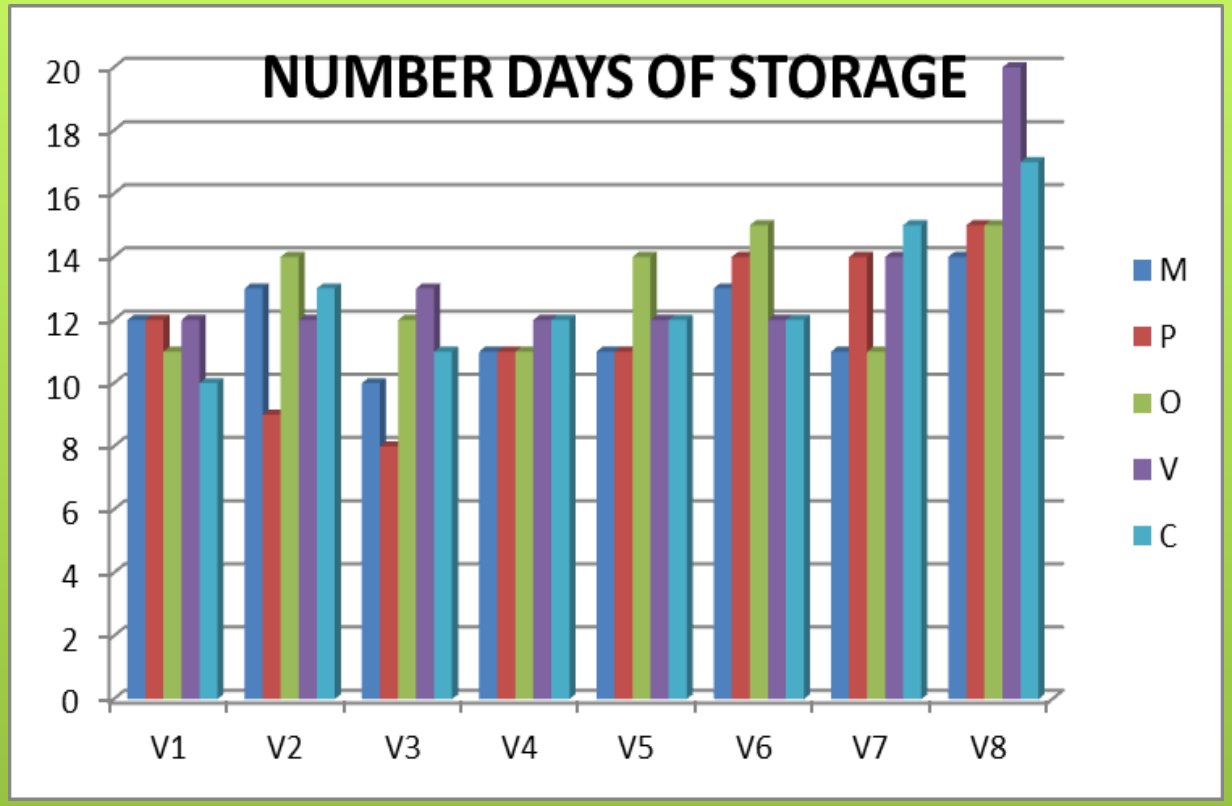
-3 l glass jars
-10 l plastic buckets
-professional detergent - FloraLife Cleaner
-test tubes, pipettes
-labels
-weather station for monitoring indoor and outdoor temperature and humidity
-tape measure

PRESERVATION SOLUTIONS PER 1 L OF WATER

V1 - Tap water
V2 - Distilled water
V3 - Boiled and cooled water
V4 - Water + aspirin
V5 – Water + 5 g sugar
V6 – Water + FloraLife Quick Dip
V7 – Water + 2m Cl + 5g sugar
V8 – Hot water +FloraLife Quick Dip + FloraLife 300 Clear-10g/liter



Temperatures above 25ºC
V1/V5 - Tap water/Water + 5 g sugar 10 days
V2/V3 - Distilled water /Boiled and cooled water 9 day
V4 - Water + aspirin 7 days -blackening of the leaves and stems occurs
V6/V7 - Water + FloraLife Quick Dip /Water + 2m Cl + 5g sugar 8 day
V8 - Hot water +FloraLife Quick Dip + FloraLife 300 Clear 13 days
Fertilization did not influence the preservation of cut flowers Inflorescences open about 30% of the



Temperature below 25ºC
V1/V4 -Tap water / Water + aspirin 11 day
V2/V5 - Distilled water / Water + 5 g sugar 12 day
V3 - Boiled and cooled water 10 days
V6 - Water + FloraLife Quick Dip 13 days
V7 - Water + 2m Cl + 5g sugar 13 days
V8 – Hot water +FloraLife Quick Dip + FloraLife 300 Clear 16 days
High humidity – mold on flowers
Opening all flowers

The high temperatures this year affected the entire vegetation period, starting with the sunrise (after 40 days), the harvest was interrupted because the palation of the flowers at the top of the stem depreciated their.


VA MULTUMESC