

THE BEHAVIOUR IN CROP CONDITIONS OF SOME ORNAMENTAL SPONTANEOUS SPECIES

COMPORTAREA ÎN CONDIȚII DE CULTURĂ A UNOR SPECII ORNAMENTALE SPONTANE

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Abstract. This case of study presents results of research on culture resilience and decorative value of four identified taxa from the spontaneous flora of the NE Romania (*Asarum europaeum*, *Lathyrus vernus*, *Lithospermum purpureocoeruleum*, *Telekia speciosa*). Experimental fields were organized in teaching collection of Floriculture discipline from USAMV Iasi. Results showed a good adaptability of the species under "ex situ" conditions and the maintaining of the ornamental character identified in the natural habitat.

Key words: „ex situ” adaptability, *Asarum*, *Lathyrus*, *Lithospermum*, *Telekia*.

Rezumat. În lucrare sunt prezentate rezultatele cercetărilor privind capacitatea de adaptare în cultură și valoarea decorativă a patru taxoni identificați în flora spontană din zona de NE a României (*Asarum europaeum*, *Lathyrus vernus*, *Lithospermum purpureocoeruleum*, *Telekia speciosa*). Câmpurile experimentale au fost organizate în colecția didactică a disciplinei de Floricultură de la USAMV Iași. Rezultatele au evidențiat o bună adaptabilitate a speciilor în condiții „ex situ” și menținerea caracterelor ornamentale identificate în habitatul natural.

Cuvinte cheie: adaptabilitate „ex situ”, *Asarum*, *Lathyrus*, *Lithospermum*, *Telekia*.

INTRODUCTION

One way to enrich the range of cultivated plants, including ornamental culture, is the introduction of spontaneous flora that corresponds with growers' objectives in the culture. The adaptation of these species to other environmental conditions, different from those of the natural habitats of origin, sometimes raises a number of issues related to survival and breeding ability, or maintaining optimal character parameters for which they were selected.

The purpose of this paper is to assess the culture behavior of four taxa with ornamental value (*Asarum europaeum*, *Lathyrus vernus*, *Lithospermum purpureocoeruleum*, *Telekia speciosa*) from the Romanian spontaneous flora, by determining their adaptability under "ex situ" conditions.

Studies based on morphological, environmental and technological characteristics of these taxa have been made by other authors (Chelariu Elena Liliana et al., 2010; Diez M. J. et al., 1986; Draghia Lucia et al., 2010, 2009; Kováts D., 1983; Kohut Ildiko et al., 2010).

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MATERIAL AND METHOD

The experiences were conducted in the experimental field of the Floriculture discipline from USAMV Iasi, where "ex situ" cultures were established with biological material collected from natural habitats where the studied taxa were identified.

There were studied four taxa identified in the NE areas of Romania: *Asarum europaeum* L., *Lathyrus vernus* (L.) Bernh., *Lithospermum purpureocoeruleum* L. (*Buglossoides purpureocaerulea* (L.) Johnston), *Telekia speciosa* (Schreber) Baumg.

In order to assess the adaptability and decorative value of plants in culture conditions, the results of biometric measurements and observations made in different plants phenophase in experimental cultures were compared with those recorded in the biological material from the natural habitat of origin. There were analyzed and compared the following characters: plant height and diameter, number of stems or branches of the stalk, number of leaves and flowers (inflorescences). It was also determined the decoration period, with special reference to the flowering period.

RESULTS AND DISCUSSIONS

In fig 1 and fig. 2 there are plotted the results on plant height and bush diameter from the four taxa: *Asarum europaeum* (Ae), *Lathyrus vernus* (Lv), *Lithospermum purpureocoeruleum* (Lp), *Telekia speciosa* (Ts). Data is supplemented with other measurements performed in *Lathyrus vernus*, *Lithospermum purpureocoeruleum* and *Telekia speciosa* (table 1).

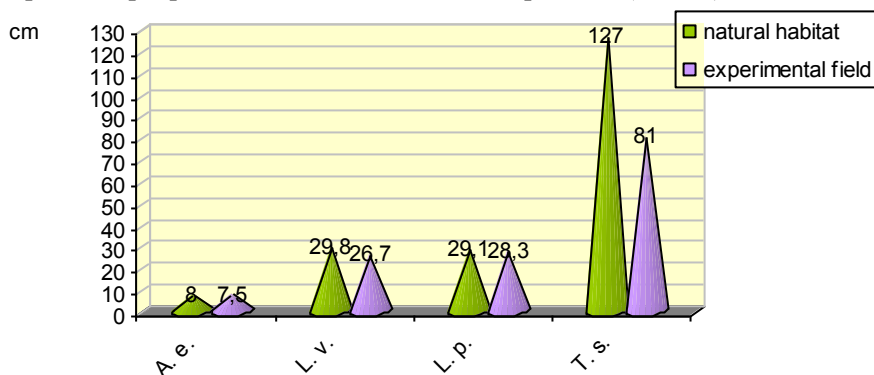


Fig. 1. - Height of plants

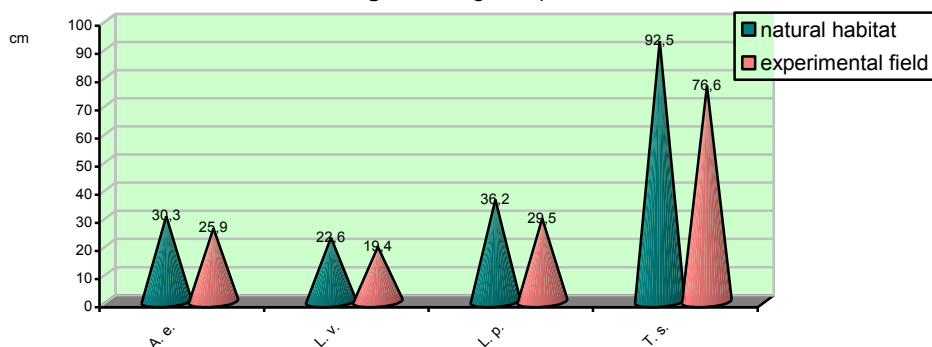


Fig. 2. - Diameter of the bush

Table 1

Morphometric characteristic of plants (in natural habitat and in experimental field)

Species	Locul	No.stem./ pl.	No. leaves / pl.	No.shoot /pl.	No. leaves/ shoot	No.ramif./ stem	No. infl/ pl.	No. flowers infl./stem	No. flowers /infl.
<i>Lathyrus vernus</i>	Natural habitat (Dorohoi)	1,3	6,1	-	-	-	-	2,6	5,5
	Experimental field	1,0	5,7	-	-	-	-	2,4	5,3
<i>Lithospermum purpureo coeruleum</i>	Natural habitat (forest Berheci, Vaslui)	-	-	32,0	20,0	-	-	7,2	-
	Experimental field	-	-	25,3	18,2	-	-	6,5	-
<i>Telekia speciosa</i>	Natural habitat (Durău, Neamț)	-	14,2	-	-	6,2	6,0	-	-
	Experimental field	-	12,4	-	-	5,4	5,1	-	-

1. *Asarum europaeum* L., Aristolochiaceae family

The asarum plant behavior in culture was very good, indicating that the registration data was made to the plants placed under the shade, similar to those from natural habitat (figures 1 and 2).

2. *Lathyrus vernus* (L.) Bernh., Fabaceae family

It performed well in culture and presented special ornamental features by elegant port and lively colors of flowers (fig. 3). It had a slight reduction in height and diameter of the bush (figures 1 and 2), but the average number of flowers / plant was about the same, regardless of culture place (table 1).

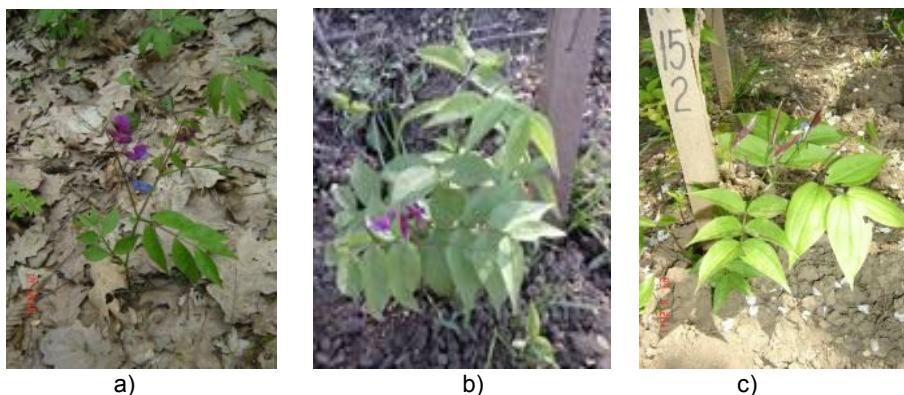


Fig. 3. *Lathyrus vernus* in natural habitat (a) and in the experimental field (b - flowering plants, c - plant with fruits)

3. *Lithospermum purpureocoeruleum* L. (*Buglossoides purpureocaerulea* (L.) Johnston), Boraginaceae family

Species with modest claims to environmental conditions, performed well in the experimental field in Iasi. There were larger differences in the number of shoots per plant and bush diameter (table), justified by the difference in plant age.

From the second year of culture, plants were vegetative propagated through sterile shoots (fig. 4).

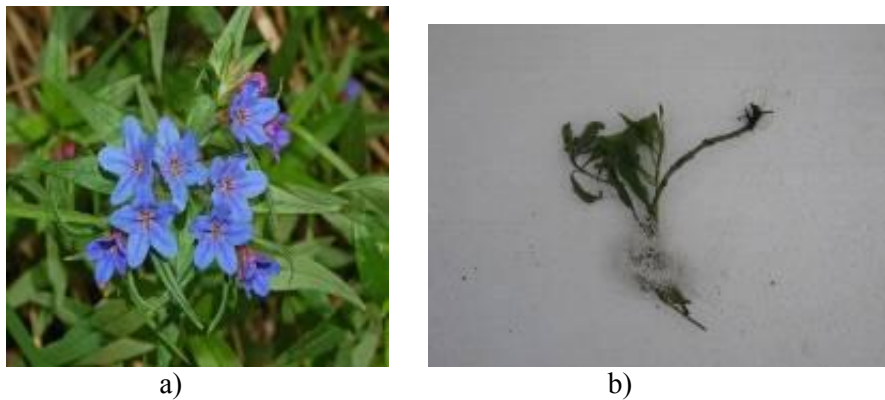


Fig. 4 - *Lithospermum purpureocoeruleum*: a) flowering plants, b) rooted shoots

4. *Telekia speciosa* (Schreber) Baumg., Asteraceae family

In the experimental field there was a significant reduction in waist plants, 46 cm from the natural range, but this has not diminished ornamental value (figures 1 and 2). The leaves are large, ovate, in smaller number than in the natural habitat with an average of 1.8 (table 2). The flowers are yellow and they are grouped in solitary capitulum, with 7.5 cm diameter in the experimental field, compared to 8.1 cm in the natural area (table 2). The number of inflorescences and branches is about the same in both locations (table 2). Species recovered well in shaded and wet lands, unsuitable for other species, though morphological parameters are in lower value in terms of culture, species didn't diminish their ornamental characters (fig. 5).

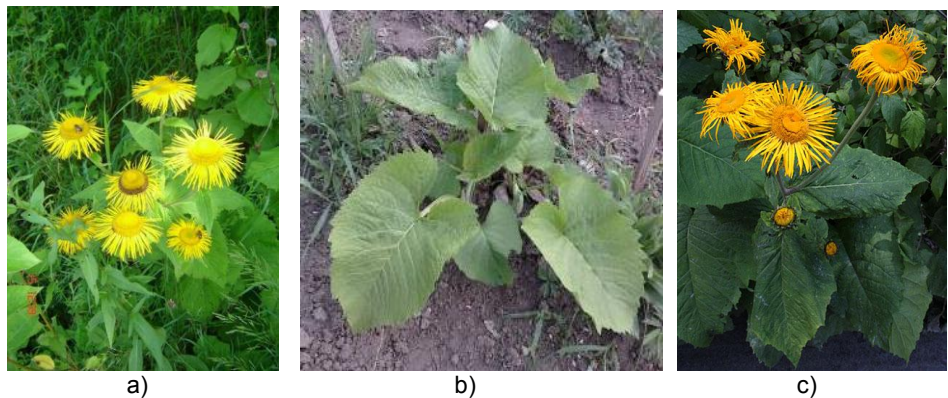


Fig. 5 - *Telekia speciosa* in natural habitat (a) and in the experimental field (b - flowering plants, c - flowering plants)

Table 2

Diagram period decor of plants

Species	Month Days	I			II			III			IV			V			VI			VII			VIII			IX			X			XI			XII		
		1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3			1 2 3		
	Growth conditions																																				
<i>Asarum europaeum</i>	Natural habitat																																				
	Crop conditions																																				
<i>Lathyrus vernus</i>	Natural habitat																																				
	Crop conditions																																				
<i>Lithospermum purpureocaeruleum</i>	Natural habitat																																				
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	Crop conditions																																				

Legenda

	Flowers decor
	Leaves decor
	Fruits and leaves decor

During this study it has been found that select taxa can provide landscape decorations setting in different periods, the decor is represented by the flowers, leaves, port, fruits (table 2). Time setting ranges from 30-50 days to permanent setting, throughout the year:

- 30-50 days: *Lathyrus vernus*;
- 5-6 months: *Lithospermum purpureocoeruleum*;
- 6-7 months: *Telekia speciosa*;
- 10-12 months: *Asarum europaeum*.

From the table 2 it is observed that at some species the period provided by flowers is extended by leaves and port, and even by fruits (*Lathyrus vernus*, *Lithospermum purpureocoeruleum*). *Asarum europaeum*, with the evergreen foliage, decorates throughout the year.

CONCLUSIONS

1. Evaluation of "ex situ" culture conditions of the four taxa showed a good adaptability and the maintaining of the ornamental character identified in the natural habitat.

2. The value decrease of certain characteristics of plants in experimental conditions (height, diameter of the plant, the number of flowers and branches), did not affect their ornamental potential.

3. The taxa studied provide decor in different times of the year, time setting ranges from 30-50 days (*Lathyrus vernus*) to permanent setting (*Asarum europaeum*), throughout the year.

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