

***Asimina triloba* (L.) Dunal in the Context of Integrating the Species into the Baia Mare Urban Space**

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Abstract. The North American species *Asimina triloba* (L.) Dunal, which originates in the United States, has a strong landscaping and commercial potential, due to the tree's ornamental value, the look of the leaves and flowers, the shape of the crown and the quality of the fruit. With a view toward introducing *Asimina triloba* (L.) Dunal into the Baia Mare landscape, its behavior in the Baia Mare Depression is tested. Currently, in Romania, *Asimina triloba* (L.) Dunal has been analyzed neither from the point of view of ornamental value nor of its behavior in Romania's climate. Following observations, recommendations are made for using *Asimina triloba* (L.) Dunal in green spaces in Baia Mare, both as an individual plant and in association with other species.

Keyword: *Asimina*, landscape, urban environment, sit

INTRODUCTION

At present, green spaces in Baia Mare, similar to those in other Romanian cities, bears the imprint of the Communist regime. Ornamental plants are missing, and so improvements bringing in new species, with unusual forms, colors and structures are necessary. It is for this purpose that *Asimina triloba* (L.) Dunal, an ornamental species from the exotic *Annonaceae* family, but one originating in temperate zones, was tested with a view toward introducing it into the green spaces of Baia Mare.



Fig. 1. Detail of the width of a mature *Asimina triloba* leaf



Fig. 2. Detail of *Asimina triloba* root and stem



Fig. 3. Detail of the length of a mature *Asimina triloba* leaf

MATERIALS AND METHODS

With a view toward introducing *Asimina triloba* (L.) Dunal into the green spaces of Baia Mare, phenophase observations were undertaken. The differences occurring while *Asimina triloba* (L.) Dunal plants aged, respectively, one year and two years, grew and developed were observed (Tab.1).

Tab. 1

Physiological characteristics of plants aged 1 and 2

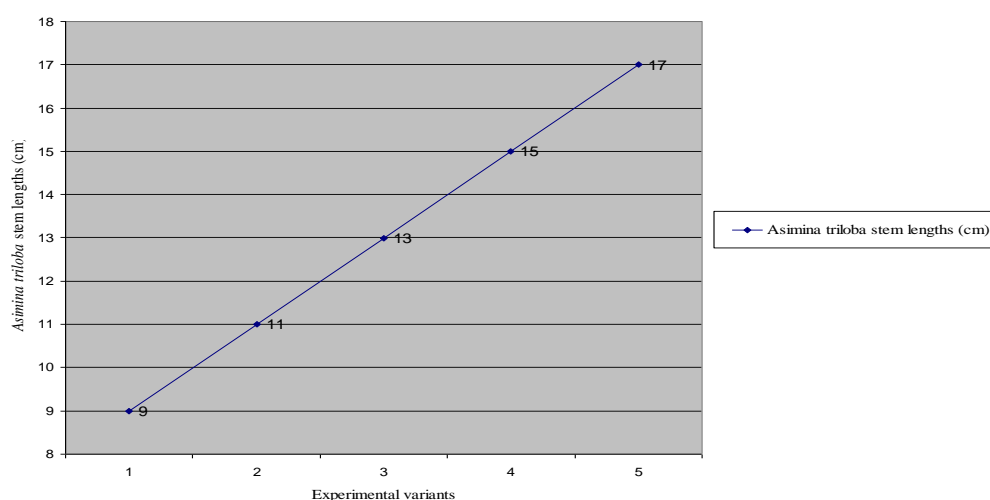
Experimental variants	Trunk length (cm)	Number of nodes per plant	Leaf surface (cm ²)		Leaf dimensions- (cm)				Average deviation of the leaf dimensions expressed in %
			Plants/year		Plants 1 st year		Plants 2 nd year		
			1 st year	2 nd year	Legth	Width	Legth	Width	
V1	8-10	4-6	8,00	10,50	5,94	2,68	6,69	3,20	31,2
V2	10-12	6-8	9,50	16,00	5,82	2,68	7,81	3,45	68,4
V3	12-14	8-10	14,14	17,00	7,54	3,35	8,53	3,64	20,2
V4	14-16	10-12	16,75	35,00	7,99	3,53	13,26	5,24	108,9
V5	16-18	12-14	19,35	37,10	8,91	4,03	13,96	4,84	91,7

The selection criteria for the *Asimina triloba* (L.) Dunal plants divided into five experimental variants are determined by the size of the plants, the trunk width and the number of nodes per plant (Fig.1-3), in proportion to the dimensions of the ornamental species used to create plant displays, in order to obtain a landscaping arrangement: V1- *Asimina triloba* + *Cotoneaster dammeri* + *Euonymus fortunei* + *Berberis thunbergii*, V2 - *Asimina triloba* + *Mahonia aquifolium* + *Euonymus fortunei* + *Hibiscus syriacus*, V3 - *Asimina triloba* + *Symphoricarpos albus* + *Forsythia x intermedica*, V4 - *Asimina triloba* + *Rhus th.* + *Viburnum opulus* + *Eleagnus angustifolia* + *Paulownia tomentosa* + *Salix matsudana*, V5 - *Asimina triloba* + *Castanea sativa* + *Quercus robur*.

The five experimental variants are composed of *Asimina triloba* (L.) Dunal alongside ornamental species currently extant in Baia Mare green spaces. Five displays with different species were created, grouped into five experimental variants, in order to determine which variant best suits existing conditions in the Baia Mare depression.

For the duration of the experiment, the variants were exposed to existing conditions in Baia Mare. Thus, the behavior of *Asimina triloba* (L.) Dunal was tested in the Baia Mare microclimate in association with other ornamental species.

Asimina triloba stem lengths (cm) for years first and second respectively

Fig. 4. *Asimina triloba* stem lengths in different experimental variants

Asimina triloba (L.) Dunal plants aged one and two, respectively, have straight stems with an erect growth, and are suitable for the conditions in Baia Mare. The graph shows the arithmetic mean of each variant, so that the values range between 9 and 17 cm (Fig.4).

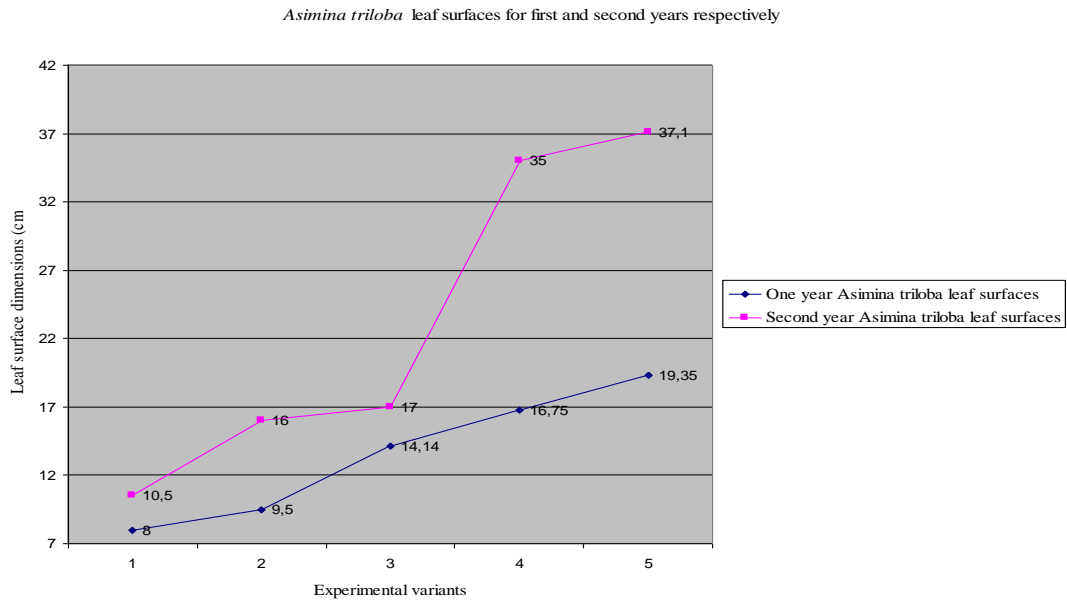


Fig.5. *Asimina triloba* leaf surface in the different experimental variants

Comparing the two graphs, note that the one year plants have leaf surfaces of between 8 and 19.35 cm, while the values for the two year ones range between 10.50 and 37.10 cm (Fig.5).

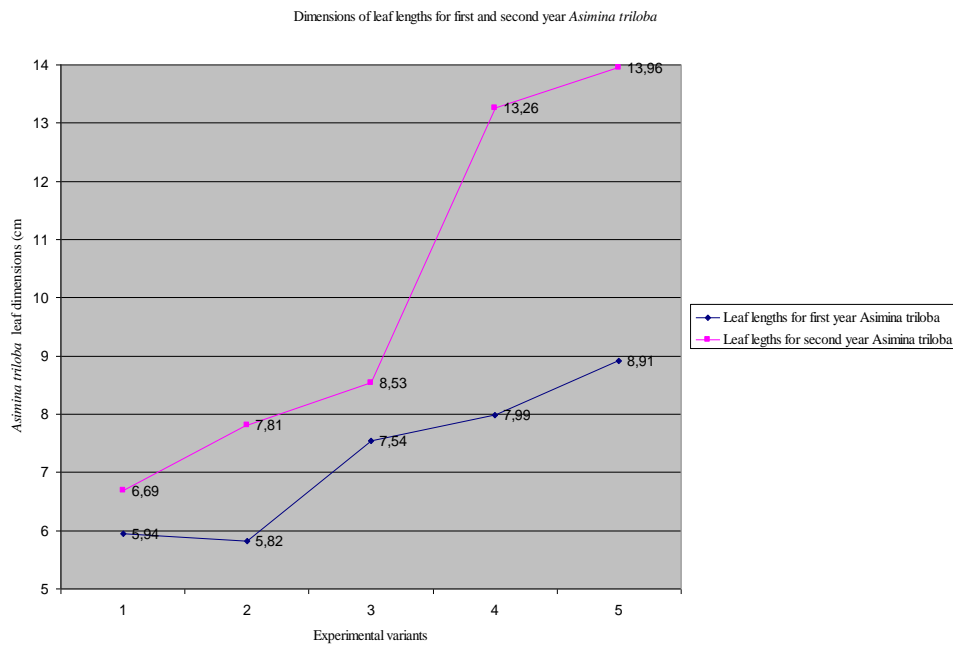


Fig. 6. Variations in the leaf morpho-meters in two consecutives years

Analyzing Fig. 6, with measurements of the leaf dimensions of one and two year *Asimina triloba* (L.) Dunal plants, taken at Baia Mare, values of between 5.82 and 13.96 cm are observed for length, and between 2.68 and 4.84 cm for width. These values confirm the suitability of *Asimina triloba* (L.) Dunal to the Baia Mare microclimate, compared with the measurements recorded in its area of origin (North America) by the research center in Kentucky, where *Asimina triloba* (L.) Dunal plants of 1 and 2 years, respectively, have values of between 7 and 15 cm in length and between 5 and 8 cm in width (Pomper *et al*, 2003, 2005).

RESULTS AND DISCUSSION

The *Asimina triloba* (L.) Dunal samples divided into five experimental variants are, respectively, one and two year plants had trunks of between 8 and 18 cm, while the number of nodes per plant was between 4 and 14 cm.

With a view to determining the differences in growing between plants of one and two years, the leaf systems of *Asimina triloba* plants were measured. For each experimental variant, the arithmetic means of the width of the *Asimina triloba* (L.) Dunal samples were measured.

Expressed in percentages, the growth differences between one year and two year plants, respectively, have values of between 31.2% (V1) with the smallest difference, and 108.9% (V4) with the largest difference (Tab. 1).

CONCLUSIONS

Following the results recorded for the five experimental variants can note that the plant display created in V4, with *Asimina triloba* (L.) Dunal as the centerpiece, is most suitable. The variant V4 is composed of the following plants: *Rhus th.*, *Viburnum opulus*, *Elaeagnus angustifolia*, *Paulownia tomentosa*, *Salix matsudana*, *Asimina triloba*.

The adaptability of *Asimina triloba* (L.) Dunal to conditions existing in Baia Mare fulfills the goals of the project. The landscaping of green spaces in Baia Mare would be improved by introducing *Asimina triloba* (L.) Dunal as an ornamental species beside the ornamental plants grouped in V4.

Second-year *Asimina triloba* (L.) Dunal plants present a straight growth, with a candelabra-shaped crown starting to form have better-developed leaf systems. Thus, the species has decorative characteristics from this point, and can be recommended for use in green spaces in Baia Mare.

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