PHISIOLOGICAL STRUSTURAL FEATURES OF SOME PLANT SPECIES

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Abstract: *in the article are presented data on the structure and location of stomatal complexes on the leaf blade in different types of introducents. The role of stomatal devices in the transpiration process is shown. Such indicators as the total area of leaves, the total area of stomatal complexes and the percentage of stomata area to leaf area are determined. In the course of the work, the prospects of imported species and their viability were assessed. The results of the assessment of the level of adaptation of the studied species to the conditions of growth in Nalchik are presented.*
Keywords: *arboreal-shrubby plants, leaf blade, guard cells, transpiration.*

ФИЗИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ СТРОЕНИЯ НЕКОТОРЫХ ВИДОВ РАСТЕНИЙ

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Аннотация: *в статье представлены данные о строении и расположении устьичных комплексов на листовой пластинке различных видов интродуцентов. Показана роль устьичных аппаратов в процессе транспирации. Определены такие показатели, как общая площадь листьев, общая площадь устьичных комплексов и соотношение площади устьиц к площади листьев. В ходе работы проведена оценка перспективности завезенных видов и их жизнеспособности. Приведены результаты оценки уровня адаптации изученных видов к условиям произрастания в городе Нальчике.*
Ключевые слова: *древесно-кустарниковые интродуценты, листовая пластинка, устьичные комплексы, транспирация.*

The aim of the work was to study the physiological characteristics of tree introducents.

Material and methods of research.

In the period 2015-2018, the accepted methods of route surveys and

observations were selected, identified and studied these species of trees of exotic species growing on the streets, and in Atazhukinsky garden *Acer globosum, Aesculus hippostanum, Platanus acerfolia, Catalpa begonioides, Gleditsia triachantos* during the selected period of time monitored the status of these plants on various grounds. A number of studies were carried out on the selected samples to describe the structure and functional activity of the stomatal apparatus: determination of the leaf area, determination of the parameters and state of stomata, study of the degree of tissue differentiation [1, 5].

To conduct research was needed the following materials: fresh leaves, MBS-9, dissecting needle, razor blade, forceps, scissors, slides and cover glass, eyepiece-micrometer (linear), torsion scale, a solution of collodion, and brush.

To study the structure, state of stomata, determine their area, we used the method of prints by Pollachi [2, 4].

The area of the leaves was determined by the method of prints, for this the plant leaf was applied to a homogeneous paper and the contour was outlined with a sharpened pencil. After receiving the imprint of the sheet, cut it along the contour and weighed on torsion scales. At the same time, a square of 100 cm^2 (10x10) was cut from the same paper and its mass was also determined. The area of the test sheet was found by the formula:

S=a*c/b

where a - the mass of the sheet contour, mg; b - the mass of a square of paper, mg; c - the area of a square of paper, cm^2.

Research result.

Work on the study of wood introducents growing in the city of Nalchik is conducted by us since 2015 [3].

In the course of the work, collodium films with prints of epidermal cells and stomatal complexes were prepared, and the structure of the stomatal apparatus, the structure of stomatal cells and the state of stomata of all selected types of introducents were studied on these preparations. The results of calculations are given in table 1.

Table 1. The results of calculations of the area of the stomata and the leaf blades of exotic species

Characteristics	**The name of the species**				
	Acer globosum	*Aesculus hippostanum*	*Platanus acerfolia*	*Catalpa begonioides*	*Gleditsia triachanthos*

S_{stomas}	1	2	3	4	5
S_1	14,13	31,4	31,4	172,7	100,48
S_2	6,28	39,25	21,98	100,48	100,48
S_3	9,42	14,13	35,3	56,52	56,52
S_4	25,12	47,1	37,68	56,52	56,52
S_5	14,13	31,4	76,9	172,7	100,48
S_6	6,28	14,13	18,84	14,13	65,94
S_7	9,42	25,12	9,42	56,52	65,94
S_8	9,42	9,42	12,56	25,12	56,52
S_9	18,84	7,5	31,4	14,13	100,48
S_{10}	14,13	39,25	14,13	25,12	127,17
S_{11}	9,42	25,12	39,25	14,13	56,52
S_{12}	9,42	43,17	14,13	25,12	100,48
S_{13}	9,42	31,4	31,4	14,13	56,52
S_{14}	6,28	31,4	31,4	25,12	56,52
S_{15}	9,42	39,25	56,52	31,4	65,94
S_{16}	21,98	1,98	21,98	14,13	100,48
S_{17}	6,28	25,12	39,25	25,12	65,94
S_{18}	14,13	31,4	25,12	25,12	56,52
S_{19}	14,13	14,13	14,13	14,13	56,52
S_{20}	6,28	25,12	25,12	25,12	56,52
$S_{average}$	11,9	27,34	29,39	45,37	75,12
S_{sheet}	970	2630	1370	1950	2383
$S_{stom.slit}/S_{sheet}$ (%)	1,2	1,03	2,1	2,3	3,1

Summary

1. Studied the structure of the stomatal apparatus of exotic species. It is revealed that ulichnye complexes of *Acer globosum*, *Platanus acerfolia*, *Gleditsia triachantos* anamazing type; *Aesculus hippostanum* laterite type and *Catalpa begonioides* - pericytoma type. Guard cells from different species also differ in structure: the lentiform cells characteristic of *Acer globosum*, navicular cells *Aesculus hippostanum* and *Gleditsia triachantos*. Cells *Platanus acerfolia* are sferical type. Catalpa begonioides inherent cap stomatal cells.

2. Found that stomatal complexes are mainly located on abaxially side of the lamina, the exception was *Platanus acerfolia* whose stomata are on abaxially and adaxially surfaces of the lamina, however, the number of stomata still prevails on abaxially surface, approximate the proportion of stomata on both surfaces is 1/20.

3. The calculated numerical characteristics: the area of stomata, leaf area and the ratio Ust./List. It is shown that the area of the stomata in each varies as follows: acer globosum 6,28 – to 25.12 μm^2, aesculus hippostanum 7,5 – 47,1

μm^2 , platanus acerfolia 9,42 – 76,9 μm^2, catalpa begonioides 14,13 – 100,48 μm^2, gleditchia triacantos 56,52 – 100,48 μm^2,

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