BIOLOGICAL AND ECOLOGICAL PECULIARITIES OF PAVLOVNIUM IN INDUSTRIAL ZONES OF UZBEKISTAN

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Abstract
The article describes the biological features of the fast growing Pavlovnias tree, the ecological aspects of growing and the national economic importance of Pavlovnias products.

Introduction
One of the urgent problems of the modern fast-growing world is the use of natural woody, environmentally friendly materials. Now many countries in the world are looking for a way to improve environmental conditions and find new sources of energy. One solution to this global problem is the cultivation of a unique tree, which is already known throughout the world as Pavlovnia in many countries around the world. As China, Japan, Bulgaria and so on for landscaping urban areas and the territory of industrial enterprises have become widely used seedlings of fast-growing trees Pavlovnia, which is a new innovation trend, allowing you to get a tall deciduous tree (6 m trees maximum 3 years), providing improved environmental conditions in towns and industrial enterprises.

And in Uzbekistan a special role is given to Pavlovnia. In the republic Pavlovnia is planted around factories, industrial plants, squares, boulevards, along highways, etc. On the initiative of President of the Republic of Uzbekistan Sh. Mirziyoyev the state project "Yashil makon" was launched where up to 2030 yearly 200 million tree saplings will be planted on the territory of the republic. And this project is elevated to the rank of state policy.

Biological features of Pavlovnia. Pavlovnia (Paulownia) is a tree with beautiful large leaves (about 70 cm in diameter), flowers (up to 6 cm in diameter) and a beautiful crown. The diameter of the trunk reaches 1 meter. Life expectancy up to 100 years. Depending on the growing environment, trees can reach different heights, up to a maximum of 25 meters. It is known that Pavlovnia plants are used in pharmacology, cosmetology, animal husbandry, and the wood is used to obtain cellulose. Chemical processing of wood makes it possible to obtain environmentally friendly bioethanol by hydrolysis. Due to its high density to weight ratio Pavlovnia wood is one of the best materials for construction. It is easy to process in any way. Many craftsmen choose it for its durability, smoothness and absence of defects. Today, Pavlovnia timber for construction purposes is very popular worldwide as a source material for a wide range of products - construction and finishing materials, furniture, interior items, etc.

Properties and advantages of Pavlovnia wood are summarized in Table 1.

Table 1 Properties of Pavlovnia wood

Strength (compression strength along the fibers, kg/cm^2)	Pavlovnia - 281, pine - 439, oak - 520, larch - 471. Not used as a load-bearing structure, e.g. slab
Hardness	according to the Jahnke method is 400-410 kg/cm2, which allows us to classify the timber as Class 3 or Class 4
Density, kg/cm3 (at 12% humidity)	Pavlovnia - 28-310, pine - 482, oak - 850, larch - 520, spruce - 360, fir - 320.
Fire resistance	The timber of Pavlovnia, compared with other wood materials has the highest burning temperature 420 ° C
Lightness	A cubic meter of Pavlovnia wood panels weighs 300 kg, coniferous plywood weighs 550 kg and birch plywood weighs 665 kg. This allows you to reduce the load on the floor, ceiling, walls and foundations
Ease of installation	Well combined with other materials, and the large size of the boards allows you to cover large areas of surface with a small number of fasteners
Beautiful appearance	Allows to solve a variety of design and artistic tasks, create an original and stylish interior
Low thermal conductivity and moisture resistance	Allows to keep and stabilize fluctuations of humidity and temperature in the premises

Deformation and warping. The shrinkage factor of Pavlovnia wood is 0.1-0.31%. This is much less than any softwood or hardwood. In an experiment conducted by W.S. Romeka in the United States, Pavlovnia, poplar and oak boards were simultaneously placed in a drying chamber at a temperature of 68°C. After 12 hours, the moisture content of Pavlovnia wood had dropped to 24% without any deformation (Table 2). Significant elevations and cracks were noticed in the other woods.

Table 2 Comparison of shrinkage data for different wood species

Property	Pine	Birch	Larch	Fir	Pavlovnia
Radial wood shrinkage factor, %	0,17	0,26	0,19	0,11	0,10
Tangential wood shrinkage factor, %	0,28	0,31	0,35	0,39	0,20
Volumetric wood shrinkage coefficient, % 0,44	0,44	0,54	0,53	0,39	0,32

Growth rate Pavlovnia has a very high growth rate By the age of three years, the tree grows to a height of 10-15 meters. A mature tree, reaches a maximum height of 30 meters. Very actively grows the first years of life, after 5 years, growth slows down noticeably. The trunk in diameter is a maximum of 80 cm. In the fifth year of life, about 40 cm in diameter. A comparison of growth rate indicators of Pavlovnia and other tree species is shown in Table 3. Paulownia wood growth, is incomparable to any other tree species.

Table 3 Comparison of growth rates

Species	Annual growth, m	Height of three-year-old tree, m	Maximum height of mature tree, m
Paulownia	3,0-5,0	10,5-15,5	15,0-28,0
Hybrid willow	1,5-4	7,5-12,0	15,0-25,0
Weeping willow	1,5-2,5	4,5-9,0	15,0-25,0
Black poplar	2,5-3,5	9,0-12,0	20,0-25,0
Poplar deltoid	2,5-3,5	9,0-12,0	20,0-30,0
Texas oak	2,0-2,5	7,5-9,0	15,0-20,0
Eucalyptus red	2,0-2,5	6,0-9,0	10,0-15,0

Phytoremediation is a modern method of cleaning the environment: Purifying contaminated soil, ground and surface water, and air using the unique properties of fast-growing plants. This method presents the possibility of using plants and their associated microorganisms to clean the soil. Phytoremediation is very actively used at many industrial sites included in the program - Yashil iktisod. The phytoremediation method is often used to slow down the movement of contaminated water. Trees lift groundwater up through the root system and keep it from moving. This method is called "hydraulic control."

The role of trees in mitigating urban environmental factors: - CO2 absorption; gas protection; wind protection; effect on radiation; noise reduction; - oxygen release; effect on thermal conditions; clearance of pathogenic bacteria; - dust reduction. Using seedlings of fast-growing Pavlovnia trees for landscaping is a new innovative direction, which allows to get the result in a shorter time and provides significant financial savings. The benefits of using Pavlovnia for landscaping include the following: 1.The accelerated metabolism that accompanies rapid growth and large leaves make Pavlovnia a veritable oxygen factory. In its ability to purify the air, Pavlovnia is a champion compared to any other tree. 2.Paulownia has a branched tap root that reaches up to 9 meters. This makes it much more resistant to winds. 3.Wind resistance is

actively used to create windbreaks, anti-erosion plantings, restoration of burned forests.Extraordinary qualities of Pavlovnia, such as fast growth, large size of leaves, beautiful crown, abundant flowering and unpretentiousness, make it extremely suitable for creating parks and squares.

Conclusions. The advantages of the Paulownia tree, are the speed of growth, respectively getting the material in a shorter time and at a lower price. Quality Pavlovnia has long been appreciated in Europe, Asia, USA and Russia. Pavlovnia products and materials are very popular. The tree is grown at special plantations, modern technology of plantation growing of fast-growing trees for the production of industrial wood can for 4-5 years period from the area of 1 hectare get 500 m3 of quality industrial wood. The unique properties of fast-growing Pavlovnia trees allow to use them for making new, modern and exclusive products, providing effective solution of urgent tasks of resource-saving and reforestation.

Used Literature

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