

The importance of the soap tree plant (*Kelreiteria Paniculata*) in environmental protection and landscaping in the climatic conditions of the Namangan region

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Abstract. Soapwood grows in countries with a warm climate, but northern India is the main area of its location. *Sapindus* is a tree with 5-10 pairs of leaves, somewhat reminiscent of our mountain flower. The tree can grow up to 25 meters in height and has beautiful green-white flowers. After that, beautiful fruits appear, similar to nuts in the shell. Then they are used instead of soap and shampoo, because they contain 40 percent of saponin. It is this substance that actively removes dirt from any fabric and surface.

1 Introduction

There are several species of soap tree in the world.

Sapindus delavayi is a kind of soap tree, cultivated in China and India

- *Sapindus drumdadi* species of Southwest America, Mexico
- *Sapindus emarnoratus* is distributed in South Asian countries
- *Sapindus marjoratus* Range United States
- *Sapindus mukorossi* gaerern is a Chinese or Indian soap tree. It is native to Northern India, Northern Pakistan, China, and the Himalayas.
- *Sapindus ohuensis* Xilebbe i.e., Hawaiian soap tree. Widely grown in South Asia.
- *Sapindus Karpak* is also cultivated in South Asia.
- *Sapindus saponia* species Southeast USA, Caribbean Sea, Hawaii
- *Sapindus Tomentsus* is bred in the Chinese region.
- *Sapindus Trifoliatus* species is distributed in South India, Ceylon, South Pakistan.
- *Sapindus Vitiensis* is grown in China

Soap tree species *Mukorossi* (*Sapindus Mukorossi*) and soap tree *trifoliatus* (*Sapindus Trifoliatus*) are mainly used as cleaning and washing agents. Use of soap tree saponins:

1. Due to the ability of saponins to form dense foam, they are also used in fire extinguishing.

2. The medical industry uses saponins in the production of tablets, suspensions and emulsions.

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3. Soap tree saponins are currently widely used in the cosmetics industry for the production of detergents, detergents and toothpastes.

Natural cleanser Soap nuts are round, 1.5-2.5 cm in diameter, yellow-brown and grow in dry tropics and subtropics. In fact, these fruits are dried fruits

Saponins are plant surfactants that have the ability to foam in aqueous solutions such as soap. Saponins have long been used as detergents, and local people use their fruits to wash body and hair, wash clothes, wash dishes, and clean jewelry.

Soap nuts are suitable for washing all types of fabrics: cotton, linen, wool, silk, synthetic, colored and mixed fabrics. Especially recommended for children and people with allergies. Soap nuts also act as an antistatic agent [1-3].

The tree is also considered as the main tree in the construction of various scenic gardens and parks, avenues, recreation parks. It is also appropriate to plant along the highways. It does not interfere with any power lines. It is a stranger in local bushes. An exotic herbaceous plant such as *Ligustrum sinense* and *Ligustrum lucidu* has been proposed as a replacement.

2 Materials and methods

In good climatic conditions, this tree can bloom twice. Flowering is a process that occurs before the formation of seeds.

Fruits in the shape of a seed box ripen in autumn. In the wild, the seeds fall on the ground under the influence of the wind and the process of natural reproduction occurs. The fruits of this tree are similar to Chinese lanterns. It is also very useful in beekeeping. When there is high humidity and air temperature above 26 ° C, the plant starts to produce antibacterial biological components. They spread through the air and have an antiviral effect. if it is necessary to green a certain area with the help of ornamental soap tree, first of all, the relief, natural climate and soil conditions of this area are studied. hen the following works are carried out: the area is cleaned of construction debris, dead tree branches and trunks are removed, the area is levelled [4-6]. If there are trees in the area to be planted, they are put in order, that is, diseased trees and bushes are cut. When cutting down diseased trees, their root system is also dug up. You can't bury stumps and garbage in this area, because later the place may become deep. In the process of leveling the planted area, heavy clay soil and fine construction waste can be used in leveling. In this case, they are mixed with natural soil in a ratio of 50/50. It is impossible to use toxic waste from factories and factories, which are harmful to trees, in leveling pits. If necessary, it is necessary to fill the pits with light, medium and heavy loamy soils. Because such soils are considered to be highly cultured, they retain the necessary nutrients and maintain the water and air regime well. After all the planned work is completed, the soil is compacted. Trees and shrubs form a strong skeletal root network in the initial period of growth and they grow somewhat deeper.

In the later period of development, they form their lateral roots. As the age increases, the roots spread into the soil layers and become larger. When the soil is deeply cultivated, good conditions are created for the roots to grow into deep layers. Therefore, before planting seedlings, it is recommended to cultivate the soil to a depth of 60 cm. If the soil is strongly compacted, the bottom and sides of the pits should be softened by 15-20 cm. In the practice of planting trees, the size of the pits for planting a standard seedling is as follows: a) for 8-10-year-old trees, the diameter is 1 m, the depth is 0.8 m; b) diameter 0.7 m, depth 0.7 m for 3-5-year-old single bushes; c) When planting in groups, the total pit depth is 0.8 m for trees and 0.7 m for shrubs. In the fall, pits for planting are prepared 15 days before planting, and then buried with a previously prepared fertile soil mixture [7-9]. When planting in spring, pits are usually prepared in autumn and left open until spring.

3 Results and discussions

Also, to decorate cities, settlements, residences, neighborhoods and rural settlements, to give them a beautiful and cozy look, bushes blooming in bright colors: spirea, jímolost, jasmine, nastarin (siren), daisia, kizilnik, tamarisk, forsythia, biryuchina, Yellow acacia, golden currant, etc. are incomparable. The invaluable quality of this and many bushes is that they are not only fast-growing and adaptable to the specific environmental conditions of the country, but also very decorative. It is important to use the rich dendrological fund of the existing plant environment in solving the tasks before the field of greening, first of all, in increasing plant species and improving the quality of products (plants, seedlings) grown in nurseries. A modern city or other residential area is a complex complex of various buildings, a large number of engineering structures, roads, squares, open spaces, water bodies and green fields. According to urban planning standards, not less than 50% of residential areas should be allocated to greening facilities. Trees, bushes and flowers planted on the streets protect the residents from the heat of the sun, winds, dust and noise. Street plantations have scenic and planning importance, and are also intended for short-term recreation. The size of the fields depends on the width and direction of the streets, the direction of pedestrian and transport traffic, the width of the reserve area between the sidewalk and the traffic part of the road, and the distance from the sidewalk to the houses will change. The main type of street landscaping is row plantings, which are planted between the sidewalk and the traffic section of the road. They are placed in one, two, three or more rows on both sides of the corridor. The edge of these plantations can be filled with green hedges or groups of trees and shrubs, mainly composed of deciduous trees, in front of the traffic section of the road. Also, trees can be planted in rows forming an alley between the sidewalk and the houses, and alleys can be built in the direction of the streets. As an additional category of plantations on the streets: plantations in front of houses; green islands controlling movement; vertical greening of building walls and loggias is used. The lane that divides the traffic section of the road will be landscaped according to its width. When the width of the corridor is 2-3 meters, lawn and flowering bushes and flowers are planted. Group or row crops of small conifers and shrubs are recommended at the level of lawns in 4-meter corridors. In 6-meter corridors, trees of the second and third categories can be planted mixed with bushes 19.

It is advisable to use spherical, branched trees. Extensive experience in urban planning shows that one of the main tasks is to achieve a certain balance and harmonious harmony between the natural and artificial environment, the interdependence of all landscaping objects and a single whole. is considered to be integrated into the system. An important aspect of the art of creating garden avenues is to combine and harmonize natural areas of green trees and examples of artistic creativity in their organization. Green construction is a creative process that takes a long time, is complex in terms of creation technology, and is associated with solving and implementing a number of production issues. Green building practice: creating a garden and a lawn; beautification of one or another residential area; selection of plants suitable for different soil-climate conditions; placement and grouping of plants in accordance with architecture-building structures, water bodies, roads, grounds, sculptures; includes planting and caring for plants. In order to competently solve the issues of greening, experts are familiar with biology, ecology, the scenic qualities of green plants, the main methods of creating compositions in green construction, the system of greening residential areas, the design of green plantations, and the scope of the main work to maintain them in good condition. they should have deep knowledge on Two phenomena are observed in street greening: 1) new, ungreened streets are beautified according to the project; 2) there are crops on the streets, but they are worn out, old, diseased or less scenic and prone to reconstruction. During reconstruction, trees can be completely and partially changed. There are three options for total replacement: a) all street trees are cut down and new trees are planted; b) 2-3 trees

are planted in place of new ones; c) every 50-100 meters the fields are cut and replaced with new ones. In partial replacement, only young plants or a few old trees are left for decoration. This textbook allows students to study the types of plants used in landscaping, the scenic, biological and ecological characteristics of tree-shrub crops, in green construction. Getting to know the main methods of creating compositions, the system of greening of residential areas, its design, and the scope of the main works to be carried out in the areas that need to be greened in the specific conditions of Uzbekistan will help to learn. Landscape plants for use in landscaping facilities should be selected based on their ecology and biology. For example, the soap tree is damaged by frost in the years of severe winter. Because it can withstand at least -27°C . Some of them can grow buds from the tips. But seedlings can completely lose their decorative feature. Because all the leaves and branches, except for the new leaves that come out from the tip, fall off, and eventually lose their appearance. New leaves cannot support its life activity. In addition, you can plant saplings of trees such as cypress, oak, chestnut, birch, virgin fir, ash. These trees keep the air moderate. According to experts, some trees give person strength, while some trees regulate blood pressure and have a good effect on the functioning of the heart and nervous system. Trees improve the sanitary and hygienic condition of the surroundings. Repels strong winds, produces phytoncides that kill harmful microbes. In addition, the importance of conifers is that they are covered with green in winter. As a result, it absorbs dust and cleans the air twelve months a year. In our opinion, soap tree (*Kelreiteria paniculata*), oak, linden, chestnut, birch, magnolia, as well as coniferous trees such as pine and juniper are the most effective in improving the health of the environment in the local climate and in opening up the view of cities and villages' slave varieties are considered. In terms of air purification, there is no doubt that the soap tree is among the trees. Each soap tree can be called a special greenhouse, which converts carbon dioxide into oxygen and recycles it. All its species are long-lived. Due to its appearance and resistance to adverse conditions, it is widely used in urban landscaping.

4 Conclusions

For the purpose of greening, many other species of soap tree are planted, but it is not very important in the green image of Namangan. This tree has a beautiful appearance, thick leaves, gives good shade, when it blooms, it emits a pleasant smell, and it gives very useful nectar. It is especially beautiful when it is in bloom. It becomes a big tree in 20-25 years. True, the young are more resistant to summer heat and environmental influences during germination. However, this feature is also of special importance in nature protection as a mirror of air purity. In many countries, soapwood is one of the leading tree species in both forestry and landscaping. When organizing greening, we should pay attention to protection from scorching heat by shading areas, buildings and structures in the summer season, as well as protection from the harmful effects of strong winds. Shading in the cities of Uzbekistan is carried out by planting 350-400 trees per 1 ha (in cities with a temperate climate, 170-200 trees per 1 ha). Soapwood takes carbon dioxide from the air and enriches the air with oxygen. Soap trees planted on 1 hectare area absorb 8 kg of carbon dioxide from the air in one hour. The same volume of carbon dioxide gas is released by 200 human lungs during breathing. However, most of the carbon dioxide in the atmosphere is dispersed and only a small part is absorbed by green fields. The role of tree and shrub species in gas exchange is not the same. If we consider the air cleaning efficiency of a common fir tree to be 100%, then it is 164% for pine, 254% for large-leaved linden, 320% for soapwood, 450% for oak, and 691% for berlin poplar.

The soap tree is a deciduous tree, the green massifs made of them protect the atmosphere well from transport and industrial emissions and dust. The dust collected on the surface of the leaves of this tree contains particles of the following heavy metals and trace elements:

lead, iron, titanium, copper, zinc, nickel, cobalt, manganese, etc. 37.9% of iron, 15.3% of aluminum, 2.7% of copper, 0.9% of titanium, 0.8% of manganese and 0.2% of lead are included in the dust scattered around large enterprises there is. As a result of contamination of the atmosphere and soil with residues of heavy metals, their accumulation in trees is observed, because the leaves, stems and roots of trees have the ability to accumulate these substances. Especially trees growing on sandy soils absorb and accumulate metal residues at an extremely high level through the root system. The amount of ash in the leaves of plants in such lands increases by one and a half to two times and makes 13-17%. For this reason, it is recommended to plant soap trees around and near large industrial plants and highways.

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