

## THE ROLE OF PLANTS IN AIR DUST CAPTURE

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**Annotation:** This article provides scientific information on the role of the plant world in nature, as well as its positive impact on atmospheric air and human health, carbon dioxide absorption and oxygen production indicators

**Keywords:** plant organs, stomata, oxygen, air, water, bioecological properties

**Аннотация:** В статье представлены научные сведения о роли растительного мира в природе, а также о его положительном влиянии на атмосферный воздух и здоровье человека, показатели поглощения углекислого газа и продукции кислорода.

**Ключевые слова:** органы растений, устьица, кислород, воздух, вода, биоэкологические свойства.

Observations and experiments have shown that the plant world has the property of retaining dust. This is due to the bioecological characteristics of plants, in particular, to the hairiness or hairlessness of their leaves, stems, and branches. The following is the amount of dust that plant organs can retain per 1 m<sup>2</sup> of area.

Dust particles retained per 1 m<sup>2</sup> of leaf surface.

№	Get up	Factory garden			Factory garden		
		May	july	September	May	july	September
1.	Acacia	523	352	4450	740	750	72
2.	Dub	300	250	9,418	220	268	50
3.	Chestnut	576	1213	13,950	470	330	513
4.	Lipa	390	336	5400	116	312	520
5.	Klen	325	296	4518	200	52	301

This data shows that plants around the factory park retain a large amount of dust. Chestnut and oak trees retain a lot of dust. Different plants retain different amounts of dust. This difference is due to the fact that plants release different amounts of dust particles into the atmosphere during the growing season. It is also necessary to take into account the influence of the wind. According to G.M. Ilkun and S.A. Anikina (1971), the average age of black poplar leaves, which cover 50 m<sup>2</sup>, retains 44 kg of dust during the growing season. White poplar - 53, white willow - 34, and maple - 30 kg. Dust retention by plants around metallurgical plants was 18 t. per 1 ha. According to G.M. Ilkunni (1975), the average green plant yield during the growing season is 40-60 tons. It is possible to retain dust. As can be seen from the data presented, the growth of plants plays an important role in purifying atmospheric air. It is impossible to fully imagine the health-improving function of trees and shrubs without taking into account their phytoncide properties. Plants secrete organic compounds that destroy harmful microorganisms



and have a positive effect on the environment and the human body. Urban air contains a greater number of disease-causing microbes than in the open field. In parks and parks, the number of bacteria is lower than on the streets. The effect of volatile phytoncide fractions on microorganisms is closely related to the species composition of plants. For example, in pine forests, the number of bacteria in 1 m<sup>3</sup> of air is 170, in birch forests - 1806, and in mixed forests (deciduous and deciduous) - 1400. The amount of phytoncides released by plants can be extremely high. 1 ha of coniferous forest releases 4 kg of organic substances with phytoncide properties into the atmosphere per day, while 1 ha of deciduous forest releases 2 kg of substances. Under the influence of plants, the number of microbes in the air decreases by more than two times per day.

For example, it has been found that camellia and biota trees reduce the number of microbes by 67%. Especially high phytoncide properties are possessed by Atlas cedar, juniper, lemon and tangerine trees, oak, maple, common maple. The above plants are able to destroy ordinary microorganisms in 3-5 minutes; downy oak, berry-bearing hyssop, European hornbeam, Caucasian fir, evergreen cypress, pyramidal maple - kill microbes in 6-15 minutes; It has been found that plants that are less effective in this regard - common quince, laurel, cedar, walnut, Tatar maple, birch, silver poplar, Lankaran acacia - kill harmful microorganisms in 15-30 minutes. When planning landscaping work, special attention should be paid to the phytocidal properties of trees and plants. Large plantations, established based on the requirements of the environmental conditions of plants and in compliance with the relevant agrotechnical rules, can fully demonstrate their sanitary and hygienic properties. It is advisable to place tree species taking into account their ecological and biological characteristics: light, soil, moisture requirements, the degree of mutual proportionality in time and space. The distance between plants and structures should be selected taking into account the growth of tree branches. Excessive thickening of crops is undesirable, since in this case the trees will have a negative effect on each other, and the main function of plants - enriching the air with oxygen and improving the health of the environment - will be weakened.

Greening of highways. Greening of highways: includes protective and ornamental plantings on both sides of the road, greening of the road's median strip (on category 1 roads), greening of intersections, bus stops, and areas intended for extended rest for passengers and drivers. Greening is mainly roadside plantings, which protect the road from erosion, create favorable climatic and hygienic conditions that ensure traffic safety. These plantings are established in flat areas of the relief by planting in rows, the number of rows is determined by the width of the roadside. Multi-row plantings created within the boundaries of agricultural crops simultaneously serve as plantings that protect the field. Trees and shrubs are mainly placed on hilly sections of the road. Row plantings are of particular importance on the roads of the southern regions of Uzbekistan. However, uniform rows of plantings tire the driver. In order to ensure traffic safety, it is possible to establish groups of ornamental trees, groups of shrubs and mixed plantings between row crops. Rows of shrubs, groups of shrubs, low trees, and flowers are planted on the dividing line of the road. Curbs, green fences, or concrete walls are erected to delimit it. Trees in the dividing line are planted on lawns (on grass). Rows of plantings are created behind bus stops; separate or grouped plantings of trees and shrubs are created on both sides of the stop. Where possible, flower beds are placed in front of the stop. In places where there is an open area, small groves of one or more species are planted. These places are adapted for recreation. Greening of railways: creation of multi-lane forest plantations (to protect the roads from sand and snowdrifts); greening of settlements along the railway includes greening of nearby water bodies and lakes; greening of railway stations. Greening of suburban areas: This category of greening is organized in order to protect the city from winds, sand and snowdrifts, to



create better climatic conditions, as well as to use it as a recreation area for the outskirts of the city. Planning of green areas for conservation purposes can be in the following cases: in the form of multi-lane forest roads, small forests, forest parks, gardens and vineyards. In unfavorable climatic and sanitary-hygienic conditions, multi-row green fields are created, and when used for recreation, park fields and small forests are created. Vineyards serve as a protective and useful habitat for the population. The protected area is organized both on the basis of natural forests and by creating artificial plantations. It is a green area around the city of Tashkent, and serves as a dendropark, a landscaped garden, orchards and vineyards, and plantations of the Tashkent Forestry. Greening of highways: includes protective and landscaped plantations planted on both sides of the road, greening of the median strip (on category 1 roads), greening of intersections, bus stops, and places intended for long-term rest of passengers and drivers. Greening is mainly roadside plantings, which protect the road from erosion, create favorable climatic and hygienic conditions that ensure traffic safety. These fields are established in flat areas of the relief, by planting in rows, the number of rows is determined by the width of the roadside. Multi-row fields created within the boundaries of agricultural crops simultaneously serve as hedges protecting the field. On hilly sections of the road, mainly trees and shrubs are placed. Rows of trees are of particular importance on the roads of the southern regions of Uzbekistan. However, rows of uniform crops tire the driver. In order to ensure traffic safety, groups of ornamental trees, groups of shrubs and their mixed crops can be established between row crops. Rows of shrubs, groups of shrubs, low trees, and flowers are planted on the dividing part of the road. Curbs, green fences or concrete walls are erected to delimit it. Trees in the dividing part are planted on lawns (on grass). 1 hectare of green plantation absorbs 8 kg of carbon dioxide from the air in one hour. The same amount of carbon dioxide gas is released by 200 human lungs during respiration. In other words, 50 m<sup>2</sup> of green plantations provide the moderate air composition necessary for 1 person to breathe in a city. However, most of the carbon dioxide in the atmosphere is dispersed, and only a small part is absorbed by green plantations.

The role of tree and shrub species in gas-air exchange is not the same. In the literature, it was concluded that if the air purification efficiency of an ordinary spruce tree is taken as 100%, then pine is 164%, large-leaved linden is 254%, oak is 450%, and Berlin poplar is 691%. The consumption of large amounts of energy resources and the development of industry lead to a deterioration in the composition of atmospheric air, and in some cases to a change in the radiation background. The development and concentration of industry, the increase in the number of cars, lead to an increase in the concentration of harmful fumes and gases in the air.

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