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SANITARY ROLE OF GREEN PLANTATIONS IN URBAN ENVIRONMENT

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Abstract: This article indicates that the automotive industry is the main source of pollution. To reduce the impact of toxic elements on the environment, scientists have investigated many perennial plants. These plants contribute to the release of phytoncydic substances, which help to purify the atmospheric air. You can see these trees on the streets and in parks on the territory of big cities. In the city 1 hectare of green plantations absorbs 8 kg of carbon dioxide in 1 hour, which during this time exhales 200 people. At the same time, a hectare of hardwood releases 2 kg in one day, coniferous forest 5 kg of volatile bactericidal substances, and juniper over 30 kg.

Keywords: environment, pollution, microclimate, oxygen, carbon dioxide, decorative plants, habitat, atmosphere, dust, phytoncides, microflora, biogeocenoses, **carbon disulphide, nitrogen oxides, chlorine, fluorine, ammonia**

21 century was the century of urbanization. The ecological crisis in cities is a crisis of human thinking, so it is necessary to intensify the activities of the media in order to develop a healthy ecological way of thinking of the person of the new century. Large cities pose severe environmental problems for their population. The number of sources polluting the environment increases every year and their capacity grows.

In cities, automobile transport is the main strong driver of the environment. The number of cars in city streets is getting bigger and bigger. It has been established that residential areas and tree plantations in the strip of 50 m from the city streets are subject to pollution, the most severe at a distance of 7-25 m. The harmful impact of the environment on the person, his performance and health is manifested in the excessive content of various chemical compounds in the air.

In order to solve the problems of improving the air basins of cities and improving the human habitat, "sanitation of the planet" wood and shrub ornamental plants should provide great assistance. Green plantations cause the microclimate of the city, determine not only the mobility of the air, but also regulate the heat regime, humidity regime, reduce the intensity of solar radiation and thus have a health effect on the person.

It is known in science that 1 hectare of forest accumulates 220-280 kg of carbon dioxide per day, releasing 200 kg of oxygen. In the city 1 hectare of green plantations absorbs 8 kg of carbon dioxide in 1 hour, which during this time exhales 200 people. At the same time, a hectare of hardwood releases 2 kg in one day, coniferous forest 5 kg of volatile bactericidal substances, and juniper over 30 kg. Development in the field of medium-forming phytotechnologies in the 21 century is devoted to the complex use of useful, particularly sanitary and hygienic properties of decorative plants [2].

One of the main elements of urban greening is green plantations, which also perform sanitary and hygienic function due to the release of oxygen and phytorganic substances by wood plants, dust collection, noise absorption, optimization of air temperature and humidity, etc. These properties of green plantations are a powerful factor in improving the environment and promoting human health.

The species composition of the wood-shrub vegetation of the green zone of the city of Tashkent is quite dynamic, a significant share in it belongs to the introduced species of Pallas pine, eldar, black, juniper Virgin, long-voluminous, Kazak, biota eastern, spruce and Shrenka, kiparis stheelnocopian, coniflot, coniferous, bal, Many flowering and evergreen shrubs appeared: samshit evergreen, Indian siren (lagmstermia), budlea, forzia, hibiscus, weigela, henomeles and others.

In the future, for successful introduction and enrichment of dendroflora green plantations of the city it is necessary to have modern scientific information about ecological-physiological peculiarities, ecological plasticity and adaptive potential of decorative wood species. High summer temperatures, dry air and soil, late spring and early autumn freezes, gas and dust air are among the most adverse habitat factors of ornamental plants in Tashkent.

Green plantations in urban environments are of particular interest as elements that improve the environment from bacterial pollution. Phytoncides released by trees and shrubs change biochemical environment conditions and regulate air microflora.

Phytoncides (from buckwheat "plant" and lat. caedo "kill") are volatile biologically active substances formed by plants that kill or suppress the growth and development of bacteria, microscopic fungi, protozoa organisms. The term was proposed by Professor B.P.Tokin in 1928. Phytoncides are all volatile substances released by plants, including those that are almost impossible to collect in visible amounts.

In total, the Earth 's plant annually releases about 490 million tons of phytoncides to the atmosphere. 1 hectare deciduous forest releases about 2 kg of volatile phytoncides daily in summer, pine forest 5 kg, juniper - about

30 kg. These phytoncides are also referred to as "native plant antimicrobial substances" [2].

The chemical nature of phytoncides is essential to their function, but the term "phytoncides" does not explicitly indicate. It may be a complex of compounds, for example terpenoids, or other chemical compounds. Characteristic representatives of phytoncides are essential oils extracted from vegetable raw materials by industrial methods.

The ability of tree species to release phytoncides is of interest to hygienists, resorts and greening professionals. By reducing the amount of air microflora, phytoncides largely determine the sanitary hygiene state of the area.

Phytoncides play an important role in plant immunity and in the relationships of organisms in biogeocenoses. The release of a number of phytoncides increased when plants damaged. Volatile phytoncides are able to exert their effects at a distance of, for example, phytoncides of oak leaves, eucalyptus leaves, pine trees, and many others. The strength and spectrum of antimicrobial action of phytoncides are very diverse.

Phytoncides - one of factors of natural immunity of plants (plants will sterilize themselves products of the activity). Thus, fir phytoncides kill the pertussis stick (pertussis agent); Pine phytoncides are destructive to Koch's stick (a tuberculosis agent) and to intestinal stick; Berse and topole affect the microbe of golden staphylococcus.

The protective role of phytoncides is manifested not only in the destruction of microorganisms, but also in the suppression of their reproduction, in the negative chemotaxis of mobile forms of microorganisms, in the stimulation of the vital activity of microorganisms, which are antagonists of pathogenic forms for a given plant, in the repelling of insects.

A hectare of pine plantations releases about 5 kilograms of volatile phytoncides per day into the atmosphere, juniper forest - about 30 kg/day, reducing the amount of microflora in the air. Therefore, in coniferous forests the air is practically sterile (contains only about 200 - 300 bacterial cells in 1 m³), which is of interest for hygienists, greening specialists, etc. [3]

Initially, the word phytoncide used only as a characteristic of the sum (fraction) of volatile substances of plants that suppress the development of other organisms. However, in the following, the scope of the term has been extended to all types of products obtained during processing of plant biomass, having antimicrobial properties, as well as to phytoalexins (alexins) and colins, regulating the development of plant communities, all antibiotics of microbial origin, etc.

Thus, phytoncides are plant antibiotics, biologically active substances formed and released by plants. Their function is to suppress the growth and

development of microorganisms, and this protective reaction is characteristic of the whole plant world. Phytoncides play an essential role in plant immunity, in their relationship with each other and with the environment.

The chemical composition of phytoncides is different. As a rule, it is a complex of compounds - glycosides, terpenoids, tanning and other substances not belonging to the three main classes of natural compounds - proteins, carbohydrates and fats. Non-excretive (non-volatile) phytoncides (dissolved in plant tissue fluids) and their volatile fractions released into the atmosphere, soil and water (in aquatic plants) are distinguished. Volatile phytoncides are capable of acting at a distance. Non-volatile phytoncides form a second line of plant defense and have a protective effect when plant tissues damaged.

Antimicrobial properties of phytoncides used in human service - in medicine, veterinary medicine, plant protection, in storage of fruits and vegetables, as well as in the food industry. Interestingly, human and animal phytoncides act much more strongly than plant disease agents that have already adapted to their direct effects.

However, the protective role of phytoncides manifested not only in the destruction and suppression of the reproduction of pathogenic microorganisms, but also in the stimulation of the vital activity of microorganisms that are antagonists of pathogenic forms for a given plant. The amount of phytoncides released, as well as the power and spectrum of their antimicrobial action are different in different species of flora. Also in each plant, they did not distributed uniformly, and their number varies depending on the season, physiological condition of the plant, soil and weather.

Juniper, perhaps, leads in this list. It releases phytoncides about 6 times more than the rest of the conifers, and 15 times more than the deciduous ones. About dozens of juniper species used in greening. In the mountains, there are four species of juniper of Zeravshan, hemispheric, Turkistan and Kazakh. Therefore, the mountain air is not only clean, but also healing.

Juniper is very sensitive to air pollution by industrial emissions. The only species of North American juniper flora Virgin is the most common gas-resistant species widely used in greening. Moreover, it grows slowly, and in most species due to high dryness of summer air, there is no formation of physiologically complete seeds.

In addition, one of the most popular phytoncid plants is the species of pine Pallas, elder, common and black (Austrian). Therefore, many sanatoriums and medical institutions built in pine forests. In coniferous forests, regardless of geographical latitude and proximity of settlements, the air is practically sterile and contains only about 200-300 bacterial cells per

one m³. Phytoncides of this tree generally increase the protective forces of the body, as well as destructive effects on tuberculosis agents. Soil or air samples taken in pine forest contain 10 times less pathogenic microorganisms than samples from birch forest [1].

Hardwood has a significant role to play in the greening of cities. Birch faithfully carries out the duties of environmental sanitation and ruthlessly deals with microorganisms. There are only about 450 microbes in one one m³ of air in plantations where birch grows.

An excellent sanitation of the forest is also oak species. Oak species introduced in the last century to Central Asia, and they perfectly passed the period of adaptation and found a second homeland. In the cities of Tashkent, Samarkand, Fergana and Andijan, growing age-old trees stand a mighty barrier in the way of various bacteria. By the way, walking through oak plantations is a very useful medicine for hypertension. Moreover, phytoncides biota help the fledgling body fight pertussis, diphtheria, and other infections.

Thus, the creation of green plantations from ornamental wood and shrub plants in urban environments will not only have aesthetic and phytoncideo-therapeutic effects on the human body. By improving the microclimate green plantations of the city contribute to reducing the dust content of the air not only in the plantations, but also in the adjacent territory, reduce the concentration of harmful emissions into the atmosphere, create immunity, or, as they say, natural immunity of plants to various types of diseases.

In the fight against dust pollution of air, the protective function of green plantations is mainly manifested in the lower layers of the active dust atmosphere equal to 40 m. The absorption of dust in green plantations contributes to the movement of air. Dust particles settle on trunks, branches, but mostly delayed on the surface of the leaves. Studies have proved that 1.5-10.0 g of dust retained on one square meter of the foliage surface, and the true filtration surface of trees is 375 times larger. The most effective influence of green plantations air quality is evident in spring and summer, when among plantations there is a decrease of dust in the air, compared to the open place, by 53%.

Every year, one hectare of pine plantations holds 35 tons of dust, 54 tons of oak, 44-53 tons of topolar. The leaf surface of wood plants is a good dust accumulator, the dust-retaining efficiency of them largely depends on the development of the crown, i.e. the higher the degree of plating, the more effective their dust-retaining properties [1].

In addition to organic substances, contaminated air contains a variety of impurities that not only adversely affect the sanitary conditions of the population, but also cause material damage to the national economy. These

are, first, the exhaust gases of road transport, among which carbon monoxide is the most important in terms of quantity and poisonous. The exhaust gas also contains carcinogenic hydrocarbons. Industrial enterprises release carbon disulphide, nitrogen oxides, chlorine, fluorine, ammonia into the air of the city, which wear oxygen balance.

The practice of greening the city of Tashkent shows that gas-resistant wood species include white silkwood, western frame, Japanese sophora, orange maclura, Canadian bunduk, gledichius, elm, topole More, elk and all coniferous species, medium-gas-resistant yasenelist, white lacacia robinia, aylant and high-level yurista. When compiling an assortment of gas-resistant wood species for green plantations of cities, these species should first be recommended for planting in green plantations.

Thus, the studies carried out suggest that the above coniferous and deciduous wood species. Well adapted to high summer temperatures, solar and air pollution typical of the city of Tashkent and are simultaneously gas-resistant and highly dust-resistant.

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