RATIONAL USE OF NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION

ANALYSIS OF THE DENDROFLORA OF THE PECHERSKY FOREST PARK OF THE CITY OF MOGILEV

Angelica Baran
VSU named after P.M. Masherov, Vitebsk, Belarus

Keywords: dendroflora, forest park, frost resistance, gas-resistant, mesotrophs, heliophytes, mesophytes.

Park vegetation performs various functions of the ecological sphere, at the same time being an irreplaceable natural resource. The influence of local vegetation on the natural environment is extremely diverse. It manifests itself, in particular, in the fact that it is the main supplier of oxygen, it directly affects the water regime; softens the climate, absorbs part of the atmospheric chemical pollution; protects the soil from water and wind erosion; creates normal sanitary and hygienic conditions.

Vegetation has a great impact on the environment, on human health and emotions. Therefore, it is very important to create such conditions in settlements so that the plants around us feel good and people can get maximum benefit from them. The study of dendroflora using the example of the Pechersky forest park is relevant, because it has been one of the main recreation areas of the city of Mogilev since 1916.

Purpose of the work: to analyze the features of the dendroflora of the Pechersky forest park in the city of Mogilev.

Material and methods. The object of the research is the representatives of the dendroflora of the Pechersky forest park in the city of Mogilev.

The work was carried out in 2020–2021. The research was carried out by the route method on the territory of the Pechersky forest park. To determine the species composition, the following were used: “Key to higher plants of Belarus” by V.I. Parfenov [1] and “Decorative dendrology” by A.I. Kolesnikov [2].

Visually, using BPC binoculars (prismatic binoculars with central focusing) 7×50, the crown density (as a percentage of normal density), the presence of dead branches on the trunk (as a percentage of the total number of branches on the trunk) and the degree of leaf damage (area of necrosis, chlorosis, spotting and overeating as a percentage of the total area of the assimilation apparatus).

The relative health of the plantings was determined according to the following scale: healthy planting, weakened, strongly weakened and completely destroyed.

Findings and their discussion. On the territory of the forest park, dendroflora is represented by 4 species of coniferous trees and 18 species of deciduous trees. (hardwoods make up 82%, conifers – 18%).

Most of the woody plants of the forest park belong to the 3rd – 4th zone of frost resistance, and only Japanese sophora belongs to the 5th zone.

Mainly, the dendroflora is saturated with a group of tall trees, whose height exceeds 18 m, this group includes 11 species (Common spruce, Heart-shaped linden, Black poplar, etc.), medium-sized (10–18 m) include 6 species (Robinia pseudoacacia, Tatar maple, Black mulberry, etc.), low trees include 5 species (Common juniper, Western thuja, Spreading plum, etc.). Tall breeds account for 50%, medium-height 27%, low breeds 23%.

The main share in the forest park is made up of fast-growing trees – 9 species (American ash, Plane tree maple, etc.) and moderately growing – 8 species (Heart-shaped linden, Common horse chestnut, etc.), while slow-growing trees – 5 species (Common spruce, Common juniper and etc.). Fast-growing species account for 41%, moderate-growing trees – 36%, slow-growing trees – 23%.

In relation to light, the objects of the dendroflora of the forest park are divided into: heliophytes – 9 species (Common pine, Common juniper, etc.), facultative heliophytes – 12 species (Common spruce, Japanese sophora, etc.), sciophytes – 1 species (Common mountain ash). Heliophytes make up 41%, facultative heliophytes – 54%, sciophytes – 5%.

In relation to moisture, woody plants of the forest park are divided into four groups: mesophytes – 13 species (Spreading plum, Black mulberry, etc.), mesoxerophytes – 1 species (Common pine), xeromesophytes – 2 species (Common juniper, Robinia pseudoacacia), hygromesophytes – 6 species (Black poplar, Drooping birch, etc.). Mesophytes make up 59%, hygromesophytes – 27%, xeromesophytes – 9%, mesoxerophytes – 5%.

In relation to soil fertility, woody plants of the forest park are divided into the following groups: mesotrophs – 11 species (Western thuja, Ash-leaved maple, etc.), oligotrophs – 6 species (Georgian maple, Common mountain ash, etc.), megatrophs – 5 species (Eastern plane tree , Tatar maple, etc.). Mesotrophs account for 50%, oligotrophs – 27%, megatrophs – 23%.

Regarding the stability criterion in the urban ecosystem, the overwhelming majority of the park's dendroflora objects belong to the group of gas-resistant – 18 species (Black poplar, Common horse chestnut, etc.), while the minimum number of poorly gas-resistant is 4 species (Japanese sophora, Common mountain ash, Common pine, Spruce ordinary). Gas-resistant rocks make up 82%, poorly gas-resistant – 18%.

On the territory of the park zone, species grow, the initial ranges of which are both the North American regions (Catalpa bignonium, American ash, etc.) and the regions of the Eurasian continent (Spreading plum, Japanese sophora, Common spruce, Black poplar, etc.).

In addition, there are representatives of the flora of the Caucasus (Georgian maple, Heart-shaped linden, etc.). There are no views of the South American, Australian and African continents. The average lifespan of the overwhelming majority of woody vegetation species exceeds a hundred-year mark.

Conclusion. Thus, the woody flora of the Pechersky forest park is represented by a different composition and in relation to environmental factors in different groups: deciduous species make up 82%, conifers – 18%; high breeds account for 50%, medium-height breeds – 27%, low breeds – 23%; fast-growing species account for 41%, moderate-growing trees – 36%, slow-growing trees – 23%; heliophytes make up 41%, facultative heliophytes – 54%, sciophytes – 5%; mesophytes make up 59%, hygromesophytes – 27%, xeromesophytes – 9%, mesoxerophytes – 5%; mesotrophs account for 50%, oligotrophs – 27%, megatrophs – 23%; gas-resistant rocks make up 82%, weakly gas-resistant – 18%.

1. Keys to higher plants of Belarus / Ed. V.I. Parfenov. – Minsk: Design PRO, 1999. – 472 p.
2. Kolesnikov, A.I. Decorative dendrology / A.I. Kolesnikov. – M.: Publishing house “Forest Industry”, 1974. – 704 p.

CONTENT OF VITAMINS C AND PP IN LEAVES *TARAXACUM OFFICINALE*

Jelaleddin Japarov
VSU named after P.M. Masherov, Vitebsk, Belarus

Keywords: biologically active substances, vitamins, *Taraxacum officinale*, extract, cosmetics, pharmaceutical substances.

Currently, the demand for herbal preparations has increased significantly. Wild plants are sources for the production of drugs containing biologically active substances (BAS), such as alkaloids, flavonoids, essential oils and others. Common dandelion (*Taraxacum officinale*) is such a widespread plant.

The milky sap of the plant contains taraxacin and taraxacerol, 2–3% of rubber substances, and dandelion inflorescences and leaves – taraxanthin, flavoxanthin, vitamins C, A, B2, E, PP, choline, saponins, resins, salts of manganese, iron, calcium, phosphorus, up to 5% protein, which makes their nutritious foods. Dandelion roots contain triterpene compounds: taraxasterol, taraxerol, pseudotaraxasterol, β-amirin; sterols: β-sitosterol, stigmasterol, taraxol; carbohydrates: up to 40% inulin; fatty oil, which contains glycerides of palmitic, lemon balm, linoleic, oleic, cerotinic acids; rubber, proteins, mucus, resins, etc. In flower baskets and leaves found taraxanthin, flavoxanthin, lutein, triterpene alcohols, arnidiol, faradiol [1$ 2].