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PRESERVATION OF THE NATURAL MONUMENT "SIBERIAN LARCH" IN THE CITY OF VORONEZ

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Abstract

In recent decades, man-made pollution of the natural environment has covered large areas located near the industrial centers of Russian cities. In industrial cities, with the continuous increase in the scale of pollution, technogenic transformation of green spaces has become widespread.

It is known that coniferous trees are most susceptible to toxicants, and, first of all, representatives of the Pinaceae family, which shrinkage and death occurs especially strongly in industrially developed regions. This critical situation explains the considerable interest shown in studying the impact of industrial emissions on representatives of various types of coniferous trees, in particular Siberian larch.

Keywords: wood, environment, man, industry, nature.

I. INTRODUCTION

Siberian larch *Larix sibirica* is an ornamental species that is widely used in the landscaping of Siberian cities and in green garden and Park construction. However, the prospect of larch cultivation in urban conditions, where the anthropogenic load on tree organisms is very strong, remains unknown (Grigoriev et al., 1997). In the literature, an opinion has been expressed about the resistance of larch to air pollutants (Fedorova, Shestopalova, 1996; Mikhalova, 1998; Zubareva, 1998; Tretyakova, et al., 1999). The vast majority of research in this area was conducted in the natural habitat of larch, and in no case was there a comprehensive approach to the study of larch plantations growing in the green spaces of an industrial city.

Taking into account the insufficient study of the effect of technogenic factors on the course of biological processes in representatives of the genus *Larix* in the urban environment, it is important to obtain comprehensive information about the state of larch plantations in the urban system, based on the use of modern methods of biology, which will allow us to see the prospects for further use of this species for landscaping.



II. DISCUSSION

In the 20s of the 20th century, the study of the taxonomy of larch reached a new stage of development: the famous Russian scientist V.N. Sukachev outlined six genetic series of larch, based on geographic and morphological research methods known in plant taxonomy. He gave their morphological characteristics and suggested the main stages in the history of the development of the genus *Larix*. In his work, Siberian and Far Eastern species belonged to two separate series - *Eurasiaticae* and *Paucisquamatae*. He attributed Siberian larch to the first, and Daurian and other Far Eastern species to the second.

B.N.Sukachev believed that Daurian larch is a relatively young progressive species. It emerged in northeastern Asia during the Pleistocene and Holocene "not only in the process of migration, but, very likely, on the spot by way of constant modification." In 1932, V.N.Sukachev identified two new species of larch in the Far East - Lyubarsky and Primorsky larch.

In 1931 in the USSR "V.L. Komarov described the genus *Larix* as consisting of 25 species in the world, and in the USSR identified only 4 species - Daurian larch (*Larix dahurica* Turcz), Siberian larch (*L. sibirica* Ldb.), Kamchatka (Kuril) larch (*L. Kamtschtica* (Rupr.) Carr.) And Olginskaya larch (*L. Olgensis* A. Henry).

In 1946 B.P. Kolesnikov expressed an opinion that differed from the above with regard to the taxonomy of larch trees. He not only recognized all the taxa identified before him, but also named three new species: Middendorf, Komarov and Okhotsk larch.

As research on the genus *Larix* increased, different questions about the systematic position of larch trees were raised by different researchers. The most detailed questions of the taxonomy of larch in the USSR were developed and mastered by N.V. Dylis [47]. In 1961, Dylis reported that five species of larch grow in Eastern Siberia and the Far East - *L. dahurica* Mill, *L. sibirica* Ldb., *L. kurilensis* Mayr., *L. olgensis* Henry and *L. magitima* Suk.

For Daurian larch, he identified two geographical races: the western subspecies (*L. dahurica* subsp. *Dahurica*) and the eastern subspecies (*L. dahurica* subsp. *cajanderi*: (Mary.) Pyl).

In 1981, Dylis published the monograph "Larch" in which he reported that "seven species of larch naturally grow in the USSR: Sukachev, Siberian, European, Daurian, Kuril, Olginskaya, Primorskaya", and four hybrids: Amur, Chekanovsky, Lyubarsky, Okhotsk, as well as cultivated species, for example, Japanese larch.

He pointed out that the south of the Far East is distinguished by the greatest variety of species and forms of larch. The ecological characteristics and habitat of different species also differ significantly. Many researchers, including Sukachev, Poplavskaya, Dylis, Koropachinsky, Milyutin, and others, pointed out ecological differences in the growth of Siberian and Daurian larch. So, for example, A.K. Skvortsova says: "if populations are potentially completely genetically compatible, but in fact are completely isolated and each have their own history, which led to the development of their own characters and to their occupation of different places in nature, such populations, no doubt, should be classified as different species." Taking into account the definition of the species given by Zavadsky, M.V. Crooklis and L.I. Milyutin considered Siberian and Daurian larch as different species. L.I. Milyutin wrote that "the species independence of these larches is not obscured by the weakly expressed biological isolation. Thus, these authors believed that Siberian and Daurian larch are species.



III. RESULTS



Foto Siberian Larch, Pereulok Mechnikova, 22

In 1938, 4 seedlings of Siberian larch were planted on a plot of land in the city of Voronezh at the address: Mechnikov lane, house No. 22. In 1941, the Great Patriotic war began. German troops captured the city of Voronezh. In 1943, the city of Voronezh was liberated from the German-fascist invaders. The front line passed near the house on Mechnikov lane, 22. German tanks, passing through this land, destroyed three larch trees. The only tree (pictured above) has survived to this day and is a valuable unique natural object, as well as a silent witness to the fierce battles for the city of Voronezh.

Siberian larch has been the national tree of Russia since 1960. Represents Russia in the peoples' Friendship Park (Seattle, USA). Larch is a symbol of longevity and rebirth.

In 2015, the tree was examined by the specialists of the Botanical garden named after Professor B. M. Kozo-Polyansky, Voronezh state University (Director of the Botanical garden of Voronezh state University, candidate of agricultural Sciences, associate Professor of the Department of ecology A. A. Voronin, the scientific employee of the Botanical garden of Voronezh state University, candidate of geographical Sciences L. A. Lepeshkina, researcher at the Botanical garden of Voronezh state University, candidate of geographical Sciences, associate Professor M. A. Klevtsova). Certification materials in 2015 (currently 82-year-old tree) were sent by specialists to the national register of stands of the all-Russian program "Trees-monuments of nature". According to the results of the certification Commission, unique trees are assigned the status of a state-protected natural object.



In both traditional and folk medicine, larch is the main raw material for the production of medicines. The beneficial properties of larch bark and needles are well known to professional pharmacists and traditional healers, and the tree itself is a source of many useful substances.

The bark of trees, which is essentially a waste from logging, contains many tannins that are used in leather processing and in medicine. They are used to stop bleeding, as antidiarrheals, astringents and antidotes for heavy metal and metal intoxication. The healing properties of larch bark are largely due to the high - up to 18 percent - content of these compounds, so the powder and infusions from it have been used since ancient times by the inhabitants of Siberia to treat hemorrhoids, trophic ulcers, abscesses and intestinal infections. It has proven itself well as a source of pectin for the food industry and pharmacology. Larch bark also exhibits healing properties in patients with prostate adenoma, heart failure, oral diseases and even some types of cancer.

The peoples of the Far East are very respected for the healing properties of larch needles. Since ancient times, it has been used in almost all sectors of the economy: as animal feed, in medicine, as fertilizer, and even in food. The high content of vitamin C, especially in summer harvests, made the needles of this tree the most important remedy for scurvy and colds. The beneficial properties of larch were well known to travelers who were exploring Siberia and the Far East, and to hunters. The conifer broth was used to strengthen the immune system and as an invigorating drink that helped on long hikes. Larch needles show medicinal properties when fresh. Chewing on a small handful is enough to stop bleeding from the gums. In addition, it has a pleasant taste and can be used as an ingredient in salads.

IV. CONCLUSION

The unique properties of larch are time-tested. Larch was widely used in shipbuilding and Piling. It is no accident that Venice stands on larch stilts. After a few centuries, the piles were examined and found to be actually fossilized. Larch was widely used in the construction of St. Isaac's Cathedral, the Winter Palace, and the Ostankino Palace of the Sheremetevs. All the building elements of that time, created from larch, are still preserved.

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СОХРАНЕНИЕ ПАМЯТНИКА ПРИРОДЫ «СИБИРСКАЯ ЛИСТВЕННИЦА» В ГОРОДЕ ВОРОНЕЖЕ

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Аннотация

В последние десятилетия техногенное загрязнение природной среды охватило значительные территории, расположенные вблизи промышленных центров российских городов. В промышленных городах, с постоянным увеличением масштабов загрязнения, техногенная трансформация зеленых насаждений получила широкое распространение.

Известно, что наиболее восприимчивы к загрязнению хвойные деревья, и, прежде всего, представители семейства сосновых, усыхание и гибель которых особенно сильно происходит в промышленно развитых регионах. Эта критическая ситуация объясняет значительный интерес, проявляемый к изучению влияния промышленных выбросов на представителей различных видов хвойных пород деревьев, в частности сибирской лиственницы.

Ключевые слова: дерево, окружающая среда, человек, промышленность, природа.