Original article

EDN CMFRTQ
DOI 10.24419/LHI.2304-3083.2024.2.01

Morphophysiological Features of *Pinus sylvestris* L. Needles Growing on the Dumps of the Anatol-Shilov Asbestos Deposit

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Abstract. *The results of complex studies of the structural and functional parameters of needles of Pinus sylvestris L. in natural plantings on the dumps of the Anatol'sko-Shilovsky asbestos deposit are presented. Under unfavorable environmental conditions in P. sylvestris needles a decrease of length, assimilating surface area, a decrease of the mesoderm area and the central cylinder was found. It was revealed that a significant low content of total nitrogen and phosphorus, as well as the photosynthetic pigments: chlorophyll a, chlorophyll b and carotenoids in the needles of P. sylvestris on the dumps compared to the control habitat was observed. In response to stress the increase of synthesis of low molecular weight antioxidants, such as ascorbic acid, phenols, including flavonoids in the pine needles. It is noted that the main limiting factors of dumps for trees are the granulometric and agrochemical composition of the substrate, namely, weak water-holding capacity, low organic carbon and nitrogen content, and alkaline reaction of the environment.*

Key words: *Scots pine, needles, morphological and anatomical structure, adaptive reactions, photosynthetic pigments, antioxidants.*

For citation: *Chukina N., Lukina N., Filimonova E., Glazyrina M., Uchaev A., Klimova V. Morphophysiological Features of Pinus sylvestris L. Needles Growing on the Dumps of the Anatol-Shilov Asbestos Deposit. – Text : electronic // Forestry Information. 2024. № 2. P. 5–18. DOI 10.24419/LHI.2304-3083.2024.2.01. https://elibrary.ru/cmfrtq*

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