

MONITORING OF THE TERRITORY OF BELARUSIAN NPP UNDER CONSTRUCTION WITH THE USE OF FLUCTUATING ASYMMETRY OF LEAF BLADE OF *BETULA PENDULA*

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The research gives the assessment of the ecological state of the Belarusian nuclear power station locations as a result of using the method of fluctuating asymmetry of leaf blade of *Betula pendula*. During the research, the morphometric features of leaf blade of *Betula pendula* were revealed with the help of the coefficient of fluctuating asymmetry, as well as the data evaluation of the study of the fluctuating asymmetry of the leaf blade of *Betula pendula* was conducted. The theoretical bases of bioindication, the phenomenon of fluctuating asymmetry and the pollution factors of the territories under study are taken into consideration.

Keywords: *Betula pendula*, fluctuating asymmetry, leaf blade, bioindication.

One of the perspective approaches to the integral quality characteristic of the environment is the assessment of the state of living organisms based on the stability of development, which is characterized by the level of fluctuating asymmetry of morphological structures. Leaf blades of *Betula pendula* Roth were chosen as the research object for determining the degree of disruption in the stability of development. Studies have shown that the level of fluctuating asymmetry is sensitive and increases with increasing anthropogenic pressure. Increasing the degree of impact leads to an increase in the variability of indicators and a decrease in the stability of development [1].

The material was collected in the summer of 2015 and July 2016. To obtain reliable data, trees growing at a small distance from the NPP under construction were selected. To analyze the morphological features of the asymmetry of the leaves of *Betula pendula*, the material was scanned with the help of computer software "Pendula", with each sheet taken in five main measurements on the left and right side. According to the five-point scale developed by Zakharov (2000), the state of the birch population was assessed at different places [2].

The analysis of the elemental composition of soils shows that the area under investigation at the time of the construction is rather favourable regarding the content of microelements. Collection points are characterized by a normal distribution of various chemical elements. For most points, a deviation from the normal content is only by 2–3 elements.

According to the data of the study of the level of fluctuating asymmetry, morphometric features of a leaf blade of *Betula pendula*, which grows on the territory near the construction of Belarusian NPP, is revealed. The increase in the coefficient of fluctuating asymmetry for the current period is shown. If in 2015 the level of the integral indicator was 0,048, which corresponds to the average level of deviation from the norm, in 2016 it increased to 0,63, which corresponds to severe pollution. The obtained data testify the instability of development (there are statistically significant differences at $p > 0,05$). As it can be seen from the obtained data, there are visible changes in the state of the environment on the territory of the construction of Ostrovets NPP.

Thus, the study shows the significance of anthropogenic influence on the formation of morphological structures of birch leaves. As a result of transporting of a great number of different cargos, the load on the roads has increased, which enhanced the pollution of the roads themselves [3].

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