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Influence of Toxicants Roadside Zone of the Highway «Tyumen – Petropavlovsk» on Plants

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The article "Effect of toxicants on plants in the roadside zone of the Tyumen-Petropavlovsk highway" presents studies of morphometric, biochemical characteristics of herbaceous and woody plants, as well as dendrochronological multiparametric studies of trees growing in the zone of influence of highway pollutants. Two species of herbaceous and woody plants were selected for the study in multivariate analyses with control samples.

The main part of the article analyzes the morphometric and biochemical characteristics of plants in comparison with the control results. The authors characterize the results obtained in the interpretation of the influence of pollutants on the appearance of plants and adaptation of plants to the toxicants of highways. The results show the difference between the influence of pollution on the growth of deciduous and coniferous woody plants. It was found that the toxicants have the least effect on the growth and development of birch, which according to the authors can be argued about the main hardwoods. It is noted that in the manifestation of morphometric characteristics in woody plants, a positive effect of ultra-low doses of the toxicant is manifested. However, in the dendrochronological analysis of samples found that woody plants have a pronounced inhibition of growth, while reflecting an increase in the number of defects that will inevitably lead to a sanitary weakening of roadside forest plantations.

At the end of the article the authors come to the conclusion that the morphometric and biochemical characteristics of woody plants are not sufficient to assess the condition of plants. At the same time, the identity of the influence of the roadside toxicants on the herbaceous-woody plant groups was established, which makes it possible to analyze the true state of woody plants by morphometric and biochemical characteristics of herbaceous plants. Further research on the identification of species of identical groups of plants will greatly simplify the sanitary control over the state of roadside forest plantations, increasing its reliability without the use of complex analyses and the selection of a large number of samples.