test. During the experiment, the species / taxonomic affiliation of all the wood samples examined was correctly identified, despite the fact that the wood species under study are characterized by similar spectrometric profiles.

In the short term, basing on the results obtained, it would be possible to create an express method for unknown timber species identification, including microelement research of modified and technologically processed wood.

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SEASONAL VARIATION OF PINE MICROELEMENT COMPOSITION

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The article is devoted to practical aspects of investigation of chemical composition of wood as a source of evidentiary information.

Keywords: wood, Scots pine, microelements, X-ray fluorescence analysis, vegetation period.

The seasonal variation is one of the forms of temporal variability for perennials and its study has scientific and applied significance [1].

There are a lot of information on the chemical property of plants, depending on the seasonal state that provides the imagine of the processes general nature. Information on the seasonal variability of pine wood on all the microelements we studied could not be found.

The objects of our research were old-growth forest stands on the territory of the "Berezinsky Biosphere Reserve" State Nature Protection Institution. In total, 3 temporary sample plots (TSP) were laid in different types of forest, according to the methods adopted in the field of forest science and dendrometry.

The quantitative content of microelements was determined using an energy-dispersive X-ray fluorescent spectrometer ElvaX. The degree of seasonal variation in the pine wood chemistry was estimated by three parameters: the average data of the quantitative content of microelements in pine wood, selected in summer (June) and autumn (September), and the coefficient of variation.

Taking into account the average data on the elements concentration change in the wood, as the growing season progressed (from summer to autumn), the following trend has been noted (table 1).

Table 1

Concentration of elements in pine wood at the end of the growing season

Changing of elements concentration	Forest type		
	Moss-grown pine forest	Long-live pine forest	Sphagnous pine forest
Increasing	Ag, B, Ni, Ti	Mn, Ti	Mn, Cu
Dilution	Cr, Fe	Cr, Fe, Ni, Mo	Cr, Fe, Ni, Pb, Ti, Ag
Approximately one level preservation	Al, Cu, Cl, Mn, Pb, Zn, Mo	Al, B, Cl, Cu, Pb, Zn	Al, B, Mo Zn

A common feature for all 3 types of forest by the end of vegetation is a chromium dilution in wood concentration in about 3 times.

The sphagnous pine forest (marsh) is characterized by the largest number of elements that decreases its concentration in autumn.

For a long-live pine forest (half-moistened growth conditions) a significant increase of Ti is observed by the end of vegetation. The Ti concentration in this period remains at the highest level in comparison with the moss-grown and sphagnous pine forests.

In moss-grown pine forest (dry growth conditions), by the end of the vegetation period, tendencies toward increasing in elements concentration in the wood for most elements are characterized.

The reliability of differences in the chemistry of pine wood was determined by means of variance analysis for the probability of seasonal amount of 0.95 and the fulfillment of the condition F act.> F tab.

Significant differences of B, Cr and Ni were obtained on TSP№1; Cr and Mo - on TSP№2; Fe, Pb, Cr, Ni and Ti - on TSP№3. It should be emphasized that the largest number of elements, the concentration of which in the pine wood varies depending on the season, is recorded in the marshy area.

Under study, the reliability of seasonal changes of chromium and iron elements is confirmed in all areas. Consequently, they can be defining elements in pine wood that, under studying in practice, give an indication of the seasonal differences in the wood samples for all forest areas with growing conditions close to the studied forest types.

As additional elements, according to which the seasonal variability is exceeded over the individual variability only by the coefficient of variation, for each of the trial plots under study are: TSP№1 – Pb, Mo, Ti; TSP №1 – Ti; TSP №3 – Ag, Zn.

In general, the obtained data on the characteristics of the pine wood microelement composition, depending on seasonal variability, can be used as reference or indicative information in studies aimed at solving problems to explore opportunities for narrowing the group affiliation while clarifying the temporal parameters of the objects and their attitude to a particular area.

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MONITORING OF THE VEHICLE POLLUTION IN THE CLIMATE CHANGES CONTEXT

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The danger of the unbalanced fossil fuel consumption and the necessity of the reduction of greenhouse gases emissions have been discussed in the climate changes context. It was proposed to use the method of the physical and chemical modification of the fuel characteristics to solve environmental issues in the motor transport complex. The unique additive of complex action to diesel fuel was developed. It was determined that such fossil fuel modification makes it possible to reduce the emissions of diesel vehicles and also to reduce the fuel consumption. The method of the forecasting of pollution of roadside urban territories was improved and can be used for the monitoring purposes.

Keywords: road transport, vehicle, harmful substances, air pollution, monitoring, pollutants, climate change, fossil fuel, greenhouse gases.

In the modern world, potential environmental threats to humanity, as well as the risk of the global climate change on the planet, are increasing due to the growing greenhouse gas emissions (GHG). This causes the urgent need to transfer fuel & energy and motor transport complexes around the world to alternative energy sources, as well as to create conditions for reducing harmful substances emissions with vehicle exhaust gases. Environmental problems of the urban ecosystems associated with the development and functioning of the motor transport complex were investigated by many scientists, in particular, S. V. Boychenko, Yu. F. Gutarevich, V. M. Isaenko, O. I. Zaporozhets, P. M. Kanilo, V. V. Trofimovich, G. M. Franchuk and others.

Currently, Ukrainian transport complex consumes too much fossil fuel which leads to the significant emissions of GHGs. According to the State Statistics Service of Ukraine, only in 2015 CO_2 emissions into the atmosphere from the mobile sources reached almost 23140 thous. t, while emissions of all other pollutants and GHGs from the mobile sources reached almost 1664 thous. t. Moreover, CO_2 emissions to the atmosphere from the stationary pollution sources were also significant – in 2016 its value was nearly 150581 thous. t. So, urbanization and transport complex development cause considerable pressure on the anthropogenic and natural ecosystems. Vehicles amplify air pollution, as well as water and soil degradation caused by emissions of GHGs and other harmful substances.