

**THE COMPARATIVE ANALYSIS OF ELEMENT COMPOSITION  
OF *PICEA OBOVATA* (PINACEAE) NEEDLES OF DIFFERENT AGE  
OF UNDER THE AEROTECHNOGENIC POLLUTION  
BY PULP AND PAPER WORKS**

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SUMMARY

The research paper offers the analysis of aero-technogenic pollution effect by pulp and paper works «Mondi Syktyvkar timber processing complex» public corporation on the element composition in *Picea obovata* Ledeb. needles in whortleberry (*Vaccinium myrtillus*) spruce forest growing in the different distance of the source of pollution.

The gross contents of carbon, nitrogen, potassium, calcium, magnesium, phosphorus, manganese, ferrum, sodium, aluminium and sulfur were determined. The mineral content in the needles of different age was compared in 2001 to 2012. The common trends in the age dynamics of the most studied mineral nutrient content in background area and in the zone of emission impact were revealed. The increase of *P. obovata* needle mineralization caused by potassium, calcium and magnesium in the polluted zone in comparison to the background zone was noted. No significant accumulation of nitrogen or sulfur oxides and carbon compounds was noted under the technogenic impact both in 2001 and 2012.

**Key words:** *Picea obovata*, chemical monitoring, pulp and paper works, aerotechnogenic pollution, element composition, spruce needles.