

# Assessment of Air Pollution in the Vicinity of Industrial Enterprises Using Moss Bags Technique

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Moss bags biomonitoring technique using the species *Sphagnum girgensohnii* was used to examine atmospheric deposition of heavy metals and trace element around the industrial enterprises: oil refinery plant “Slavneft” in Yaroslavl and metallurgical plant “Electrostal” and machine-building plant “Elemash” in Electrostal. Moss for bags was collected in pristine area in Tver region, Russia. In Yaroslavl moss-bags were exposed for 2-month period (June – August 2022) at eight representative sites, while in Electrostal exposition period was June – August 2023 and bags were exposed at eleven sites. The concentrations of 16 elements: Al, Cu, Cd, Co, Pb, Zn, Ba, Cr, Mn, Fe, Sr, V, Ni, S, P and Hg were determined using ICP-OES and direct mercury analyzer. At some exposure sites significant accumulation of elements compared to the control was observed. In Yaroslavl content of V and Ni increased up to 5 times, depending on wind direction. In Electrostal industrial zone level of certain metals increased up to 70 times. Moss bags biomonitoring proved to be a cheap and efficient tool to assess heavy metal pollution in industrial zones.

**Keywords:** biomonitoring, moss bags, oil refinery plant, metallurgical plant