

**Секция «География»**

**The investigation of air quality in Stavanger area (Norway) basing on the  
bioindication method**

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Nowadays the increasing of population, urbanization and the growth of cities, industry and transport has lead to the increased air pollution due to various sources.

This thesis was prepared basing on the investigation of pine bark, collected in Stavanger area, Rogaland, south-west Norway.

The investigation of this type has never been made in this area before which provides the scientific novelty of the work. The actuality is substantiated by the rapid growth of the town and, as a result, the increase in number of pollution sources and importance of air quality control.

The bioindication based on vegetation characteristics is widely used for air quality control. Examination of pine bark (*Pinus sylvestris* L.) chemical composition provides adequate data on the heavy metals long-term air pollution.

12 sampling points were determined in zones which are supposed to be polluted and in zones which are supposed to have a background level of heavy metals content.

Measuring of heavy metals content (Ni, Cr, Pb, Cd) was done in laboratory in University of Stavanger by the method of atomic absorption spectrometry on atomic absorption spectrometer Perkin Elmer AA600 with electrothermal atomization and Zeeman background correction.

The results have shown clear influence of traffic on air quality, which is seen from the increased concentration of all studied metals near the big roads. However, deviations from this rule were observed which can be related to the local geochemical background as well as to the influence of past and actual industrial activities.

The studied area was roughly separated into 3 zones in dependence of level of air pollution:

1. "Polluted zone" – the areas along the roads, near big crossroads, on Engoy island also.
2. "Slightly polluted zone" – the settled areas with small traffic, far from industrial objects, distant from big roads places
3. "Non polluted or Background zone" – quite remote territories with low population density, far from big roads and industrial objects.

As it is the first research on investigation of air quality basing on vegetation bioindication method, it can be necessary to continue the studies, finding more relevant sampling points which can provide better spatial distribution of the results – a very important case in the complicate weather conditions with changeable winds. Moreover, as *Pinus sylvestris* is quite a rare plant specie in the area, the local analog for this indicator can be found.

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