

## ALUMINIUM AND SELENIUM CONTENT IN SOILS OF INDUSTRIAL AREA IN OPOLE (SOUTHERN POLAND)

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**Abstract:** Aluminium is one of the main soil components. Usually it is a part of non-toxic aluminosilicates but in low pH values its mobility is higher and – especially in monomeric form is toxic for plants. Selenium is an essential element necessary for animals and humans. Its compounds have anticancer and anti mutagenic character. However, its high uptake from environment, e.g. with food or water could lead to various diseases including embryonic deformity, decreased hatchling survival and death to aquatic organisms. Soil contamination with aluminium leads to disturbances in plant growth as a result of low calcium and magnesium uptake. High concentrations of selenium lead to its accumulation in plant tissues what is the beginning of selenium fate in food chain. In this work a cultivated layer of soils located near five industry plants in the town of Opole (southern Poland) were investigated. Aluminium and selenium content in soils is an effect of two factors: its natural occurrence in rocks (natural content) and human activity – especially chemicals from agriculture, industrial and transport pollutants. Aluminium was determined in the range of 3440 to 14804 mg/kg d.w. Obtained results of selenium concentration covered the range from 27.1 to 958.1 µg/kg d.w. These results are slightly higher than concentrations noted in natural or non-polluted soils, but still low. These amounts of selenium could have more positive than negative effects. Aluminium and selenium concentrations were discussed concurrently with base soils parameters, such as pH, EC and granulometric fractions composition.