Evaluation of the soil quality from areas with varying degrees of pollution

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ABSTRACT

Petrochemical substances released into the environment contain, among others, some harmful trace elements, such as thallium that are harmful to human and animal health. Organisms that are poisoned with thallium are prone to some mental changes and are also susceptible to possible damage of the cardiovascular system. A characteristic symptom of thallium poisoning is alopecia. There is lack of limit values for this element in the legislation or recommendations for agriculture. Lack of limits, especially for elements such as thallium, poses a risk of uncontrolled accumulation in feed and food products. The aim of the study was to determine the mobility of thallium in an environment with varying degrees of pollution. The content of thallium in the extracted fractions detected in soil samples was below 1.0 μg g⁻¹, i.e. the level of quantification for atomic emission spectrometry with inductively coupled plasma. The results described in the literature referring to the content of this element in soils indicate that the content 1.0 μg g⁻¹ is specific to uncontaminated soils. At the same time, researchers suggest the presence of thallium in the upper layers of these soils at the level of 0.1–2.0 μg g⁻¹. Due to the high toxicity of even small amounts of thallium for humans and animals, we believe that it is necessary to intensify the pressure on the creation of legislation taking into account the limit values for thallium in soils, water, plants, foods, and animal feeds.

Keywords: Thallium; Anthropopressure; Environment

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