

Abstract:

This bachelor thesis is focused on heavy metals pollution in the Králíky town and its vicinity, located in the Pardubice region. This region was selected because there had been a Tesla factory producing fluorescent lamps. Moreover, there is also a waste disposal of the fluorescent lamps wasters and other dangerous waste located about two kilometers far from the former factory. Soil samples from the waste disposal area as well as river sediment, samples taken in the Tichá Orlice river and the Králický brook have been analyzed. Mercury, cadmium, lead, chromium, nickel, copper and arsenic levels in the samples were measured by inductively coupled plasma – mass spectrometry. The total mercury content has also been measured with single-purpose atomic absorption spectrometer AMA-254. An optimization of leaching conditions of the elements was performed prior the analysis of the samples employing certified reference material. High levels of mercury, cadmium, lead, chromium, nickel and copper have been found in the waste disposal area. Regarding the sediment samples the highest levels of pollution have been detected near outfall of the sewage water from the industrial area in the Králíky town (former Tesla factory and recent metal plating industry). The concentration of heavy metals in other sediment samples decreased along the Tichá Orlice river stream.