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ASSESSMENT OF THE PHYTOEXTRACTION EXPERIMENTS OF INDUSTRIAL SLUDGES - SOIL MIXTURES AND WHEAT (TRITICUM AESTIVUM)

It is well known that many industrial processes produce different kinds of sludges as by-product. These sludges can contain heavy metals or other valuable or reusable elements (as rare-earth metals). Our main aim was to determine the accumulation rate of these elements within the main parts (roots, shoots, leaves) of the test plants, wheat (*Triticum aestivum*). At the beginning of our laboratory experiments, seedling grown tests were accomplished with white mustard (*Sinapis alba*) seeds and mixtures of red mud and converter sludge and different kinds of soils. According to these tests we determined that among the mixtures the most capable ones were the red mud and saline soil. In the case of converter sludge, the mixtures with loess soil showed the best results for germination. Therefore, during the phytoextraction experiments these mixtures of sludges and soils were applied for growing wheat. The results revealed that the plant could accumulate cadmium and lead hardly. Metals could accumulate mainly in the roots. Only manganese, zinc and iron could translocate to the upper parts (leaves) of wheat. At the end of the experiments, the metal concentration of the sludges-soils mixtures decreased, 44% for Mn, 66% for Cu, and 55% for Zn. The research was made with the support of EFOP-3.6.2-16-2017-00018 „Produce together with the nature – agroforestry as a new outbreaking possibility” project.