

THE EFFECT OF FERTILIZATION ON YIELDING AND HEAVY METALS UPTAKE  
BY MAIZE AND VIRGINIA FANPETALS (*SIDA HERMAPHRODITA*)

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**Abstract:** *The purpose of the investigation was to assess the suitability of sewage sludge, brown coal and a mix of sewage sludge and brown coal to be used for fertilizing a light soil with an increased content of lead ( $P^0$ ) and slightly contaminated with cadmium ( $II^0$ ). The subject of tests were soil and plant samples taken from a pot experiment conducted during the years 2007–2009. The tests determined the effect of the type of fertilization on the pH and sorption properties of the soil, the contents of heavy metals in the soil and in the plants, and the volume of crops. The fertilization types applied had an effect of slightly increasing the soil pH. The application of sewage sludge, brown coal and the mix of sewage sludge with brown coal to the soil resulted in an improvement of the sorption properties of the soil. In the soil treated with sewage sludge and the mix of sewage sludge with brown coal, an increase in the contents of Cd, Zn and Pb was found. This increase was, however, small and did not change the degree of soil contamination with heavy metals. In the above-ground parts of plants fertilized with brown coal the concentration of heavy metals was lower than in biomass from plants cultivated on the control combination. The application of sewage sludge and the mix of sewage sludge with brown coal generally resulted also in a reduction of metal contents in the above-ground parts of the plants. This was the effect of enriching the soil with an organic substance that improves the sorption properties. From among the fertilization combinations tested, the application of either sewage sludge or the mix of sewage sludge with*

*brown coal had the most favourable effect on the crop volume. It resulted in a twofold increase in the yield compared to the control combination.*