

Effects of Using Tannery Sludge On Soil Properties And Heavy Metals Concentration In Some Vegetables Grown On Amended Soils

Mahadi Garba Doka

Department of Chemistry, Federal College of Education (Tech), Bichi

Abstract

Tannery sludge waste is currently being used by many farmers for the cultivation of vegetables on large scale for human consumption. The study investigated the effect of tannery sludge on some soil properties and levels of heavy metals in *Amaranthus hybridus* and *Corchorus olitorius* grown on the tannery amended soil. Pot experiment was conducted and the metals were analyzed using Atomic Absorption Spectrophotometer. The result showed the soil pH, organic matter content and conductivity of the amended soils increase compared to the controls. The sludge amendment led to significant increase in the metals concentrations of soil. It also led to higher concentration of Nickel ($15.73 \pm 1.17\text{mg/kg}$) in the leave, Lead ($60.41 \pm 9.97\text{mg/kg}$) and Cadmium ($1.99 \pm 0.85\text{mg/kg}$) in the root of *Corchorus olitorius*. While higher concentration of Chromium ($348.99 \pm 50.31\text{mg/kg}$) was observed in the root of *Amaranthus hybridus*. The concentrations, except of Nickel in *Amaranthus hybridus* tissues were above the WHO recommended safe limits. Though, the translocation factor of all the tested metals in the vegetables tissues were found low, the concentrations in the vegetables are not safe for dietary consumption. Hence, stringent guidelines set for tannery sludge applications on agricultural land should be totally enforced

Biography

Mahadi Garba Doka has B.Sc., M. Sc. Analytical Chemistry and completed his PhD at the age of 52 years from Bayero University Kano. He has a Postgraduate Diploma in Education (PGDE) from Ahmadu Bello University, Zaria. He was Dean, School of Science education, Federal College of education (Technical), Bichi. He has presented many workshop, seminar and Conference papers and published more than 16 papers in different journals. He is a registered member of Science Teachers' Association of Nigeria and Chemical Society of Nigeria.

22nd World Congress on Analytical and Bioanalytical Chemistry; Webinar- August 17-18, 2020.