

عنوان مقاله:

Evaluation of the potential use of biosolids in corn crop in the municipality of Puebla, Mexico

محل انتشار:

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خلاصه مقاله:

Purpose Due to the urgent need for sustainable agro-industrial waste management, a field experiment was conducted to evaluate the application of biosolids as organic fertilizer in a corn cultivation crop. In addition, to achieve food security, the study aimed to assess metals concentrations in soil and maize plants and enrichment factors (EF) for soils and plants. **Method** Four sites with a biosolids application were studied and compared against a control. Physicochemical properties of soils and heavy metal contents were evaluated after one year of application of biosolids. Metal concentrations, average kernel yield and biomass were measured in corn plants. **Results** The results demonstrated that the biosolids increased the content of organic matter, nitrogen, phosphorus, and exchangeable bases in the soil. In addition, the concentration of heavy metals in soils with biosolids was higher than in soils without treatment, and the concentration of heavy metals in the corn kernels did not exceed the maximum recommended limits. However, EF values showed a considerable contamination grade due to the accumulation of metals. **Conclusion** Some of the physical and chemical characteristics of soil were improved by incorporating biosolids, but the metal content in the soil increased. Also, the application of biosolids increased the plant height and corn yield. Therefore, biosolids can be used as organic fertilizer sources; however, it is necessary to carry out periodic evaluations to ensure low levels of enrichment in crops and soil, thus guaranteeing the safety of biosolids as soil fertilizers.

کلمات کلیدی:

Soil Amendment, Biosolids, Organic Fertilizer, Heavy metals, Enrichment factor, corn yield

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