Title: Reclamation of zinc-contaminated soil using a dissolved organic carbon solution prepared using liquid fertilizer from food-waste composting

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Abstract

A liquid fertilizer obtained through food-waste composting can be used for the preparation of a dissolved organic carbon (DOC) solution. In this study, we used the DOC solutions for the remediation of a Zn-contaminated soil (with Zn concentrations up to 992 and 757 mg kg^{-1} in topsoil and subsoil, respectively). We then determined the factors that affect Zn removal, such as pH, initial concentration of DOC solution, and washing frequency. Measurements using a Fourier Transform infrared spectrometer (FT-IR) revealed that carboxyl and amide were the major functional groups in the DOC solution obtained from the liquid fertilizer. Two soil washes using 1,500 mg L^{-1} DOC solution with a of pH 2.0 at 25 °C removed about 43% and 21%