

Removal of heavy metals and Salmonella pathogens from sewage sludge using a novel chelating agent derived from succino-hydrazide and its reuse as a fertilizer

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The direct use of sewage as fertilizers in agriculture without proper treatment has led to substantial economic, environmental, and health ramifications. Proper treatment as well as adequate environmental management of sewage sludge is a necessity in order to eliminate the negative sequences of its utilization in the agriculture field. In this paper, a novel organic Schiff base chelator derived from

hydroxybenzylidene succinohydrazide (HBSH) has been successfully synthesized and characterized by elemental analysis, ¹H-NMR as well as infrared spectroscopy. The effect of sewage treated with varying concentration of the Schiff base chelator (0.8, 1.6 and 2.4 g/L) as well as the untreated sewage on the sludge solid reduction, removal of heavy metals and salmonella pathogens has been investigated. The implementation of raw as well as treated sludge on the growth as well as the heavy metal content of radish plant have been also investigated. It was observed that, the treated sample showed a reduction in the total content of Zn, Ni, Cr and Cu and enhancements in the yield, stem length, leaves number and flourishing.

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