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### **Impact of tannery effluent irrigation on heavy metal build up in soil and ground water in Kanpur**

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With the growing competition for water and the declining freshwater resources across the globe, utilization of marginal quality water for agriculture has posed a new challenge for environmental management. The continuous application of tannery effluent for crop production, build a significant amount of heavy metals specially chromium and alter the physico-chemical properties of soil. In recent years, contamination of the environment by chromium has become a major concern. It is unique amongst the heavy metals found in tannery and industrial waste water and sewage and sludge. Keeping in the above view, Geo referred effluent, soil and ground water samples were collected from the Kanpur region. Physico-chemical properties (pH, EC, organic carbon) and toxic metals viz. Zn, Cu, Pb, Ni, Cr, As and Cd in soil and tannery effluent were analyzed. Soil pH was slightly in the alkaline range at source point and field. Among the total heavy metals Cr concentration was 0.77 to 2.16 and 252.4 to 971.7 ppm in effluent and soil, respectively. In few locations, toxic metals concentration was found higher than the permissible limit of irrigation and drinking water. Higher amount of organic matter in the effluent did buildup significant amount of organic carbon (0.72-1.52%) in soil. Continuous use of tannery effluent for irrigation purpose, also affected heavy metal concentration, pH and EC of ground water.

#### **Biography**

M. L. Dotaniya is presently Scientist at Indian Institute of Soil Science, Bhopal, India, under the ministry of agriculture, New Delhi. He had obtained M.Sc. in Soil Science from GBPUA&T, Pantnagar on Crop Residue Management in rice-wheat cropping system, and Ph.D. degree in Soil Science & Agricultural Chemistry from IARI, New Delhi on Phosphorus Dynamics in relation to Organic Acids. Presently he is working on heavy metal interaction and, soil & water pollution. He has published more than 15 research papers/reviews in national and international journal/ symposium/ conference of repute.

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