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ASSESSMENT OF LEACHATES CONTAMINATION FROM LANDFILLED EASILY DEGRADABLE WASTE FOR USE AS MULCH

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Abstract

Landfill mining aims to recover landfilled waste for energy, agricultural, material, and environmental purposes. This research evaluates the concentrations of metals and anions from wastes landfilled for 8 and 24 years at Delta A Municipal Sanitary Landfill, located in Campinas city, Southeastern Brazil, using leaching tests to assess its application as mulch in natural form. Landfilled Municipal Solid Wastes were excavated and the recovered cardboard, paper, wood, organic matter, and pruning were classified as landfilled easily degradable (LED) waste. After preparing a representative and homogenized sample of this group, two kinds of leaching tests were conducted to obtain their water and acid extracts. Water extract presented an alkaline pH 8.7, whereas the acid extraction solution had a slight pH increase from 4.9 to 5.6 after contact with LED groups. High Cl^- and SO_4^{-2} concentrations for LED in the water extract indicate potential contamination of the surrounding surface water and groundwater, consequently increasing subsoil salinity. Mn, Mo, and Hg concentrations in the water and acid extracts surpassed the quality standard value for irrigation purposes. Thus, LED wastes were considered a source of environmental contaminants.

Key words: aged MSW, landfill mining, leaching test, metal concentration, water contamination

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