**The use of landfill leachate treated by sugar lime sludge for watering green spaces**

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**Abstract**

Morocco is among the countries, in Africa, exposed to the lack of water. In order to optimize water resources, it is advisable to both consider an appropriate water management strategy and find new sources of water. In this context, the leachate from landfills may constitute a relevant source of water. Our study aims to treat leachate with sugar lime sludge and phosphates washing sludges to make it usable for the irrigation of green spaces.

Barrels were filled with 30 l of leachate and sugar lime sludge (or phosphate washing sludge) was added at two concentration levels (35 % and 50 %) before homogenization. After 24 hours, the solutions were filtered and the supernatants recovered were analyzed from a bacteriological and physicochemical point of view before being tested in watering rosemary plants. The decantats were mixed with green waste and composted.

After 24 hours of contact, bacteriological analysis showed total elimination (100 %) of fecal streptococci after adding 35% of sugar lime sludge. Physico-chemical analysis has proved the elimination of organic matter from the leachate by adsorption on the calcium carbonates shown by an increase in organic matter in the decantate from each treatment. The pH and the electrical conductivity values of supernatant were within the norms for unconventional water discharges. The phytotoxicity test confirmed the non-toxicity of this supernatant. Measurement of stomatal conductance and chlorophyll fluorescence after watering rosemary showed that plants grew in normal conditions. As far as compost is concerned, analysis of certain physico-chemical showed clearly a good evolution and degradation of organic matters.

The results will allow landfill managers to obtain an economic impact aiming at lower-cost treatment, a social impact consisting of eliminating the environmental and health hazards of leachate, and a recycling of water in the leachate for irrigation of green spaces.

Key words: Leachate; sugar lime sludge; phosphates washing sludges; Compost; green waste