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A combined treatment of municipal solid waste landfill leachate using cactus as coagulant and titaniferous sand as filter material

Nisrine Nouj

IBN ZOHR University, Morocco

Editorial

In Morocco, the increasing production of municipal solid waste (MSW) and its by-products, in particular leachate, is a major concern. MSW leachate is a very complex effluent, loaded with organic and inorganic pollutants; it poses a serious threat to human health and the environment. In Agadir city, the leachate generated is stored in seven tanks in the Tamellast land-fill. The daily flow of this effluent accelerates the saturation of the storage tanks. Overflowing leachate presents a potential environmental hazard, and proper treatment of the leachate has inevitably become a requirement. Therefore, this study aims to find a simple, inexpensive and efficient leachate treatment system. Two techniques using local natural materials have been combined to achieve significant results: coagulation and infiltration-percolation. Cactus powder and cactus mucilage have been selected to treat leachate by coagulation and titaniferous sand as a filter material for the infiltration-percolation process. Laboratory scale experiments show very interesting results. Due to its effectiveness at a dose of 20 mg / l at pH 11, the effluent treated with cactus mucilage was chosen to undergo secondary treatment (86.54% for turbidity and 14.60% for electrical conductivity). The elimination of turbidity and electrical conductivity achieved after infiltration-percolation is, respectively, 97% and 39%.

Biography

NOUJ Nisrine and the lab team used their expertise to solve a big problem in the region of Agadir, Morocco. Treat environmentally harmful leachate using a simple and inexpensive method. A combination of an abundant biocoagulant and infiltration-percolation on sand shows promising results in terms of reducing pollutants. This approach could easily be used and save the environment.