Landfill leachate composition and toxic potency in semi-arid areas: an integrated approach with the use of physicochemical and toxicological data

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1. INTRODUCTION

Leachate from solid waste disposal is a highly complex mixture of organics and inorganics. The leachate is a product of the hydrolysis, biodegradation, and mineralization of components of solid waste. This leachate can be considered as a potential source of toxicants such as heavy metals, pharmaceuticals, and emerging pollutants. Thus, the characterization of leachate composition has become a crucial issue in the field of environmental science.

2. EXPERIMENTAL PROCEDURE

2.1 Collection and handling of leachate

Leachate samples were collected regularly every two months from 10 sampling depths per site, from February 2010 to December 2011, from a single randomly sampled point of the landfill during the first five days of each month. Leachate flow was measured before the test, and after the sampling period (2 to 5 days respectively), which means 6 measurements in each site. The leachate was collected at three points: in the pluvio-sol, in the pluvio-sol and beside grass border identified by (100%, 50%, 20% w.e.), and maintained with freshwater to prevent material oxidization.

3. RESULTS

3.1 Physico-chemical parameters and metal content in leachate samples

pH and BOD measured in each sample showed a significant difference throughout the year, with the exception of the sites BOD, COD, Mn, Cr, Cu, Cd, Pb, and Cd measured in each sample showed a significant difference throughout the year, with the highest levels measured in each sample throughout the year.

4. DISCUSSION

According to the results of the present study, leachate flow has different effects on all species tested. In general, the leachate flow has a significant effect on the toxicity of the leachate. The leachate flow has a significant effect on the toxicity of the leachate.

5. REFERENCES

