ISGC 2019
May 13rd - 17th

N°426 / PC
TOPIC(s) : Waste valorization / Chemical engineering

Treatment of Landfill Leachate from Fez City Using a combination of Fenton and Adsorption Processes

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PURPOSE OF THE ABSTRACT

ABSTRACT:

Landfill leachate is considered a potential contamination source of water resources and causing serious environmental damage if they are discharged without any treatment [1].

In order to reduce its effects on the environment and to reach the liquid discharge standards many treatments have been carried out, separated or combined, mainly : Coagulation-flocculation, adsorption, Fenton, and Fenton-like [2, 3, 4].

In this work, leachate sample from Fez city landfill was collected and characterized. Thereafter, the application of the combined processes of Fenton and adsorption using Bentonite clay as adsorbent to remove the COD in stabilized leachate treatment was investigated.

During treatment by adsorption, the influence of main parameters (adsorbent mass, contact time, pH, and temperature) on COD removal was studied.

The use of Fenton process lead to a COD removal of 73%, which was not enough to satisfy the Moroccan legislation. However, combining Fenton with adsorption process, enhanced the leachate treatment with a cumulative elimination of 83%, using 3g of Bentonite/L.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

Landfill leachate | Fenton process | Adsorption | Bentonite

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