Third National Congress of Recycling and Reuse of Renewable Organic Resources in Agriculture
Islamic Azad University, Khorasgan Branch (Isfahan)
Agricultural Faculty, Waste and Wastewater Research Center
13-15 May 2008

Reduce assessment of total dissolved solid and suspension solid in land treatment process of leachate of compost factory

M. Zamaniyan[1] , J. Mirzaei[2] , H. Tabatabaei[3] and P. Najafi[4]
1. M.Sc. Student of M.sc of Shahrekord
2. M.Sc. Student of M.Sc of Isfahan
3. Assistant Prof. of Shahrekord University
4. Assistant Prof. of Khorasgan University

Development of industries and cities, especially in developing country has caused the accumulation of huge volume of municipal solid wastes. Therefore, in recent years solid waste recycling and application of produced compost in agriculture have been concerned in order to reduce environmental problems. But municipal solid wastes have high moisture percentage that during the process of composting produces considerable amount of leachate. It should be evacuated and collected by suitable methods. Present research was on leachate of compost factory of Isfahan. For the purpose of different condition of land treatment effects on leachate quality, this experimental research was conducted using a factorial design with three zeolite area (0, 5, 10 percentage of weight) and two soil type of light (sand loam) and heavy (clay loam) with three replications in the form of a completely randomized design (3 x 2 x 3). Total dissolved solid and total suspension solid were measured in twelve irrigation times by leachate on soils in input and output leachate of column based on standard method. The results of this research showed that soil texture had significant effect on reduction of parameters TDS and TSS ($p<0.01$). But zeolite didn't have any significant effects on parameters ($p>0.05$). Also reciprocal effect of soil in zeolite in all parameters had significant effect ($p<0.01$). In addition the results indicated that TSS in the heavy texture soil decreased until 1481 mg/l while this value reached about 12563 mg/l through light texture soil. TDS had the same condition, So in heavy texture soil the TDS of output leachate was about 13448 mg/l while the treated leachate had 78877 mg/I TDS through light texture soil columns . It is concluded that heavy soil is effective for reducting TDS and TSS of leachate as a land treatment process.

Keywords: leachate, land treatment, soil texture, zeolite, Total Dissolved Solid, Total

---

[1] Corresponding author Email: orkyde@gmail.com