

Abstract

Disposal of untreated Municipal Solid Waste has been a great environment issue which leads to generation of leachate and odorous gasses. Organic solid waste accumulation rate is higher as organic waste collect from household level to industrial level. Identification of efficient protocol to digestion of solid waste efficiently would be a good solution highly concerning on organic wastes. Comprehensive study on each waste type and characterization of each waste type would be a good method to identify proper efficient treating method. Leaching column method is a good technique to study on waste characteristics.

Preliminary study on leaching columns was done for mixed waste at two Liquid to Solid (L/S) ratios of 20:1 and 5:1. Total Dissolved Solids (TDS), conductivity, salinity, pH, Total Soluble Solids (TSS), Volatile Suspended Solids (VSS), Total Solids (TS) and Volatile Solids (VS) were taken as waste characteristic parameter. L/S ratio of 20:1 was identified better to application of leaching column comparatively to 5:1. It was selected for further application.

Leaching column was developed using PVC pipes and hand pump was used for recirculation. Cost effective better leaching column could be designed.

Fresh waste samples of each waste type had high organic content and highest organic content was possessed by the garden wastes. Leachate analysis of each waste type in leaching columns could observed that the all the waste types' degradation was occurred rapidly. Degradation rate of fish and meat was higher comparatively to other four types. Volatile Solids (VS) variation of all types was increased in logarithmic pattern. Logarithmic pattern was followed by five types of wastes during waste degradation. Rapid reduction of organic content can be achieved through leaching column application.