World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:9, No:05, 2015

Biogas Production Improve From Waste Activated Sludge Using Fenton Oxidation

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Abstract : In this study, the effect of Fenton technology pretreatment on the anaerobic digestion of excess waste activated sludge (WAS) was investigated. The variation of physicochemical characteristics (TOC, DS, VSS, VS) and biogas volume (as form of value added products) were also evaluated. The preselected operator conditions of Fenton pretreatment were 0.01ml H2O2/g SS, 150 [H2O2]/[Fe2+], 25g/l TS, at 25 °C and 30, 60 and120 min as treatment duration. The main results show a Maximum solubilization and biodegradability (70%) obtained at 120 min of Fenton pretreatment duration. An increasing of TOC in soluble phase related obviously by releasing organic substances of sludge flocs was contested. Improving in biogas volume was also, increased. Fenton oxidation pretreatment may be a promising chemical pre-treatment for a benefic digestion, stabilization and volume reduction.

Keywords : waste activated sludge, fenton pre-treatment, biodegradability, biogas
Conference Title : ICWEEM 2015 : International Conference on Water, Energy and Environmental Management
Conference Location : Paris, France
Conference Dates : May 18-19, 2015