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Pretreatment of lignocellulosic biomass using fenton, ozone and peroxone process: Impact on enhancement of reducing sugar concentration and biogas production

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The efficacies of various advanced oxidation processes like fenton, ozone and peroxone on a lignocellulosic biomass like Yard waste was studied based on the enhancement effect of pretreatments on the TRS (Total Reducing Sugar) concentration. The best pretreatment on the basis of TRS concentration was ozone pretreatment. The enhanced TRS concentration was 2251 mg/l for ozone pretreated biomass whereas for pure yard waste without any pretreatment was 552.8 mg/l. The optimized conditions obtained for the ozone pretreatment were 1.9 g/ hr of ozone dosage at pH 3 for a duration of 15 minutes. Fenton and peroxone pretreatments also have indicated a positive effect on TRS concentration enhancement. BMP tests had also shown a positive effect for pretreated lignocellulosic biomass with highest methane content of 60% for ozone pretreatment as compared to 535, 42% and 45% for peroxone, fenton and control.

Biography

Sameena N Malik is pursuing PhD in Energy Science & Engineering Department at Indian Institute of Technology Bombay, India. She has completed her bachelor degree in Chemical engineering from Nagpur University, India. She has published 8 International papers in SCI journals. She is working in the wastewater treatment along with biofuel production.

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