

# Biogas Production Modelling of Integrated Anaerobic-Aerobic Sequencing Batch Reactor Treating Poultry Slaughterhouse Wastewater

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## Abstract

Biogas production from ASBR compartment of IAASBR has been monitored in terms of OLR, TCODremoved, anaerobic F/M ratio, VSS loading rate, and the concentration of MLVSS inside the ASBR. These parameters are used as predictors for building up the model using SPSS software, whereas the corresponding biogas generated was considered as a dependent variable. The data were collected during the system's performance investigation at OLR tolerance and HRTan changing period. The aim of this work is to establish a prediction formula that might aid to estimate the quantity of biogas production from this system (IAASBR) which was operated under ambient temperature (26 – 28 °C) and best operation mode. In conclusion, the prediction model has a high coefficient of determination ( $R^2 = 0.928$ ) and it is highly correlated with the applied OLR value and the numbers of cycles per day considered. Furthermore, the value of OLR should not exceed 4.5 kg(TCOD)/m<sup>3</sup>.d for good biogas production.