Effects of combined growth of biogenic and xenobiotic substrates on degradation of xenobiotic by activated sludge

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ABSTRACT

The purpose of this study was to research about supplementation of different concentrations of the substrate on the degradation rate of xenobiotic and to determine the optimal concentrations of the auxiliary substrates that are most beneficial of xenobiotic degradation rate. 2,4-dichlorophenol acid (2,4-D) was used representative xenobiotic organic compounds, while peptone and sugar used for auxiliary substrates. The activated sludge was completely break down 100 mg/l of 2,4-D for three consecutive times. The different concentrations between biogenic substrates of sucrose and peptone were fed separately or combined into the medium containing 200 mg/l of 2,4-D and 140 mg SS/l of activated sludge. The results showed that sugar and peptone could be affected 2,4-D degradation rate to several different degree at different concentrations. In separate supplementation, 2,4-D degradation completed within 25 hours, 40 mg/l sugar and 150 mg/l peptone concentrations were found to be the optimal concentrations. In combined case, 2,4-D was consumed totally within 20 hours and the optimal concentration of the combined sugar and peptone concentrations were 40 and 150 mg/l, respectively.

Keywords: biogenic and xenobiotic substrates, activated sludge

REFERENCES

11. E.M. H...