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Removal of Zinc (Zn) from wastewater through metabolic dynamic batch experiments

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Abstract.

Water pollution by heavy metals is a noteworthy ecological issue. Fast industrial advancement has expanded the arrival of heavy metals in water bodies. In this study, we investigate biological treatment technique to remove heavy metals from wastewater by using metabolic dynamic batch experiments. Two Serum bottles, one having sulfur particle and other having sulfur powder as a carrier were used and anaerobic conditions were applied, the sludge used in bottles was derive from Wencheng wastewater treatment plant having 36.8g/L total Suspended solids (TSS) and 23.5g/L volatile suspended solids (VSS). The concentrations of sulfide in 8.48g/L of sulfur powder and sulfur particles were 350mg/L and 400mg/L respectively. In second stage for acetate concentration, for sulfur powder the concentration was 600mg/L and 550mg/L for sulfur particles. Removal of zinc was 100% at the inlet of 3.125mmol/L and 9.375mmol/L of Zinc but slight reduction of 10% on 18.750mmol/L was detected.

Keywords: sulfide, zinc ion removal, degradation kinetics, heavy metals, water pollution.