Kridsana Jirasansawat 2010: Effect of Photosynthetic Bacteria on Sulfide Removal in Anaerobic Floating Filter Media System. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Wilai Chiemchisri, D.Tech.Sc. 117 pages.

The objective of this study was to investigate potential in hydrogen sulfide removal by photosynthetic bacteria, green bacteria, in anaerobic floating filter media. The synthetic wastewater with average sulfate concentration in ranges of 151 – 431 mg/L or with COD/SO_4^{2-} ratio of 7:1 to 0.4:1 were fed into the systems. The results show that the concentrations of hydrogen sulfide in effluent had increased as increase in influent sulfate concentrations. However, those in the system with light were lower than those in the system without light (control) at every COD/SO_4^{2-} ratio. It was found that concentrations of hydrogen sulfide were in ranges of 0.3 – 2.67 % and 0.7 – 3.51% in the system with and without light, respectively. The differences of hydrogen sulfide concentrations of both were 1,000 – 10,000 ppmv. Ratio of influent sCOD:SO_4^{2-} (4:1) was recommended, for COD removal higher than 90% in both system with efficiency of sulfate removals of 59% and 43% in with and without light system respectively. In conclusion increased sulfate concentrations in influent did not affect to COD removal efficiency, however decreased in sulfate removal efficiency in both systems.

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