OPC18) Assessment of Experimental Parameters Selected for Maximal Phosphorus Removal Efficiencies by *Bacillus lichenifomis* Isolated from Domestic Sewage

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1. 서론

Wastewater containing a lot of nutrients such as nitrogen (N) and phosphorus (P) causes aquatic organisms to proliferate and in turn, leads to eutrophication. PAOs can remove phosphorus as they store large amounts of phosphorus in the form of polyphosphates in cells. Biological phosphorus removal depends on water temperature, pH, nutrients, organic matters and etc. This study aimed to evaluate the P removal efficiency by *Bacillus lichenifomis* depending on initial P concentration, temperature, pH and carbon source.

2. 재료 및 방법

Bacillus lichenifomis was isolated from domestic sewage. The bacterial growth and P concentration were measured with UV spectrophotometer, respectively. The P concentrations in experimental cultures were initially set at 10, 20, 30 mg/L, respectively. The temperatures were set at 20, 30, 40℃ and pH was set at 5, 7, 9, respectively. In case of carbon sources, glucose, acetate, glucose+acetate were added in each medium.

3. 결과 및 고찰

The more *Bacillus lichenifomis* grows, the higher P removal efficiency was shown in correlation analysis. The optimal condition for P removal by *Bacillus lichenifomis* was in 10 mg/L of initial P concentration, at pH 7, when added glucose for the carbon source in 30℃. To apply this result to the site, further experiments considering other facotrs including DO, NOx, cation, design factors need to be carried out.

4. 참고문헌

Levin, G. V., Shapiro, J., 1965, Metabolic uptake of phosphorus by wastewater organisms. Journal (Water Pollution Control Federation), 37(6), 800-821.

Sedlak, R. I., 1991, Phosphorus and Nitrogen Removal from Municipal Wastewater, 2nd Ed., The Soap and Detergent Association, Lewis Pubilishers, New York.