

Optimization of high cell density culture condition using *Methylomonas* sp. DH-1 by chemostat김성일<sup>1</sup>, 한준희<sup>1</sup>, 김현수<sup>1</sup>, 조속형<sup>2</sup>, 나정걸<sup>1</sup>, 이진원<sup>1,2,†</sup><sup>1</sup>서강대학교; <sup>2</sup>C1가스 리파이너리 사업단(jinwonlee@sogang.ac.kr<sup>†</sup>)

*Methylomonas* sp. DH-1 is a type I methanotroph that uses methane as a carbon source. This bacterium is one of the brightest and most promising strains near future in that it can use methane gas, one of the harmful green-house gases that cause global warming. In this study, *Methylomonas* sp. DH-1 was cultured in continuous fermenter for high cell density culture by optimizing culture medium and physical condition. Prior to chemostat culture, DH-1 cells were pre-cultured until proper cell optical density value that means cell density. Then we started chemostat culture using peristaltic pump by dilution rate 0.05/hour. Through chemostat, we changed culture medium, agitation rate, and gas flow rate and judged that equilibrium reached when cell optical density remained constant for a certain time. Brief summary of the experimental results is as follows. Cell activity was higher in AMS medium than in NMS medium, and the higher gas flow rate, the higher optical density value was measured. Similarly, the higher agitation rate, the higher optical density was measured. Agitation rate has more impact on cell growth compared with gas flow rate.