

Application of Response Surface Methodology for the Enhancement of Hexanoic Acid Production of *Megasphaera elsdenii*

김현진<sup>1</sup>, 전병승<sup>1</sup>, 김병천<sup>2</sup>, 상병인<sup>1,3,\*</sup>

<sup>1</sup>한양대학교 화학공학과;

<sup>2</sup>한양대학교 BK21 에너지 소재 공정 사업단;

<sup>3</sup>한양대학교 수소연료전지공학과

(biosang@hanyang.ac.kr\*)

Hexanoic acid has an advantage to be converted to hexanol, used as fuel, by simple catalytic process. *Megasphaera elsdenii* produces hexanoic acid during the anaerobic fermentation from sucrose, which is a suitable carbon source for industrial production. The objective of this study was to find the factors that influence the production of hexanoic acid of *Megasphaera elsdenii*. In a medium containing acetate and butyrate, increase of hexanoic acid production was shown. When 10 g/L of sodium acetate and sodium butyrate was individually added, hexanoic acid production increased up to 6.8 g/L and 6.7 g/L, respectively. In a medium including 5 g/L of sodium acetate and 5 g/L of sodium butyrate together, hexanoic acid production increase up to 7.3 g/L. The effect of pH was investigated as well. When the initial pH was 6.5, the growth rate increased but less hexanoic acid, 5.7 g/L, was produced. Otherwise when the initial pH was 7.0, the production of hexanoic acid was 6.3 g/L. As results, the medium composition for the production of hexanoic acid was optimized by response surface methodology.