

## Effect of surfactant on production of oxygenated unsaturated fatty acids from oleic acid by *Flavobacterium* sp. Strain DS5

허신행, 김범수\*  
충북대학교 화학공학과  
(bskim@chungbuk.ac.kr\*)

Soybean oil is a relatively cheap raw material and an attractive candidate for bioindustries. The contents of unsaturated fatty acids such as oleic and linoleic acids are 22% and 55% for soybean oil and 26% and 60% for corn oil, respectively. Keto and hydroxy fatty acids are useful industrial chemicals used in plasticizer, surfactant, lubricant and detergent formulations because of their special chemical attributes, such as higher viscosity and reactivity compared with other fatty acids. In this study, a microbial isolate, *Flavobacterium* sp. Strain DS5 (NRRL B-14859), was used to convert oleic acid to 10-ketostearic acid (10-KSA). A small amount of 10-hydroxystearic acid (10-HSA) was also produced during the bioconversion. When oleic acid was added to the fermentor in batch and fed-batch culture, samples taken from the culture broth could not represent the whole culture due to the non-uniformity. Therefore, surfactant (Tween 80) was added to prevent the lumping of fatty acids and to improve the product yield. In flask culture, product concentrations were improved from 1700 mg 10-KSA/L and 120 mg 10-HSA/L to 3250 mg 10-KSA/L and 125 mg 10-HSA/L by adding Tween 80.