

### Effect of light wavelength on cell growth and lipid accumulation in microalgae

김보람, 이증현\*  
조선대학교 생명화학공학과  
(leejh@chosun.ac.kr\*)

Recently, there is a growing interest in microalgae and the use of microalgae focused on the production of various high valued metabolites used for food, pharmaceuticals, and cosmetic. Because microalgae are a diverse group of organisms and can produce many biochemical compounds, such as lipids, pigments and polysaccharide. Many microalgae could produce substantial amounts (20–50% of dry cell weight) of fatty acids as a storage lipid under photo-oxidative stress or other adverse culture conditions. In this research, the effects of light wavelength on algal mass culture for biodiesel production have been studied to increase biomass productivity and lipid accumulation. With the changes of nutrient compositions and temperature, the cell growth rate and lipid accumulation rate are examined. LED based culture system is established to control light wavelength, light intensity, and photoperiods. Temperature is controlled from 20°C to 35°C and nitrogen concentration is controlled to induce stress condition. Lipid contents in algae are analyzed by gas chromatography.