

**Microalgae cultivation in brewery wastewater for simultaneous production of microalgal biodiesel and wastewater treatment**

Farooq Wasif, 양지 원\*

KAIST

(jiwonyang@kaist.ac.kr\*)

Microalgal biofuel is an attractive alternative to fossil fuels. However, production of microalgal biofuel on commercial scale is not still economically viable due to high cost of nutrients and downstream processes. Utilization of nutrients in wastewater for microalgal growth is an attractive and feasible option for economical production of biodiesel on large scale. We cultivated *Chlorella vulgaris* and microalgae isolated from wastewater in brewery wastewater at 25°C under light intensity of 1200 lux. Total nitrogen (TN) and total phosphorous (TP) concentration in brewery wastewater are 75.0 mg/L and 20.0 mg/L, respectively. Biomass yield of 1250 mg/L and 2000 mg/L was obtained after ten days of cultivation from *Chlorella vulgaris* and isolated microalgae, respectively. Biodiesel productivity of harvested biomass is 225.0 mg FAME/g of biomass. Major components of fatty acids were C16:0, C16:1, C18:0 and C18:1. Residual concentration of TN and total TP are 7.0 mg/L and 3.0 mg/L, respectively. These results highlighted the feasibility of integrating wastewater treatment with microalgal cultivation for biodiesel application.