Raman based estimation framework of glucose concentration in Algae production system

오세규, 유성진, 박태균, 이종민*
서울대학교
(jongmin@snu.ac.kr*)

Microalgal cultivation process has recently attracted much attention due to biotechnological and chemical potential. In this process, two parameters, glucose concentrations and light intensities, very important for optimal control. Therefore, two parameters should be measured in real-time in order to control optimally and ensure that process proceeds as expected. In case of light intensity, photometer can be used to measure light intensity in real-time. In case of glucose concentration, high-performance liquid chromatography (HPLC) is required to know the concentration. The measurement process using HPLC can take from 1.5 hours to 2.5 hours and much effort is required. In this work, we will present an integrated framework to estimate glucose concentration in real-time using Raman spectroscopy without any knowledge of spectroscopic analysis and proper pre-processing and post-processing techniques will be proposed for improving prediction performance.