Acid-Thermal Extraction of Sugars from *Chlorella vulgaris*

이자현, 박찬호, 유하영, 양효광, 김동섭, 이주훈, 박철환[1],
김승욱*
고려대학교; [1]광운대학교
(kimsw@korea.ac.kr*)

Microalgae are photosynthetic microorganisms that are highly productive in the presence of basic renewable natural sources. In this study, *Chlorella vulgaris* was selected and utilized for microalgal biomass as feedstock of fermentable sugar production. For sugar extraction from microalgae-based carbohydrates, acid-thermal treatment was applied and the effective reagent was screened for the extraction. As a result, dilute sulfuric acid was significantly efficient among three reagents (H_2O, NaOH and H_2SO_4). The most effective reagent was investigated among five reagents (hydrochloric acid, nitric acid, phosphoric acid, peracetic acid and sulfuric acid). The hydrochloric acid showed the highest sugar recovery and selected as a suitable reagent in current study. The two factors (acid concentration, solid/liquid ratio) were considered and optimized. The factors for optimal condition were as follows: solid/liquid ratio of 100 g/L and acid concentration of 2%. Under these conditions, the sugar recovery showed about 90% from *C. vulgaris*.