

Effect of thermo-chemical pretreatment of VFA production from alginate in anaerobic fermentation

JIN HUIQING, 선지윤, 이성찬, 송민경, 우희철†  
부경대학교  
(woohc@pknu.ac.kr†)

Brown algae has recently received considerable attention as a feedstock for biofuel production due to fast growth rate and high carbon fixation ability. Alginate is the major polysaccharide and has low biodegradability due to its chemical structure. Application of various pretreatments (i.e. physical, chemical, biological) for marine macroalgae can make more simple type carbohydrates and enhance the biofuel productivity. Therefore, the objectives of this study are to evaluate the effect of catalyst concentration on enhancement of VFA production from alginate using anaerobic fermentation, taking into consideration two types of pretreatment (diluted sulfuric acid and Amberlyst-15). In GPC results, alginate was effectively depolymerized as increasing of catalyst concentration (0.1%– 10% for diluted sulfuric acid and 1%–10% for Amberlyst-15). The VFA production remained stable at  $2.1 \pm 0.5$  g/L in each condition, however, was more significantly affected on VFA production rate.