Process Modeling and Simulation opf Pyrolysis of Brown Algae: Modeling of Bio-oil

유 준[†], Boris Brigljevic[1]
부경대학교; [1]부경대학교 화학공학과
(jayliu@pknu.ac.kr[†])

This study aims to simulate and evaluate the pyrolysis conversion pathway of macroalgae in an industrial scale, using bench scale experimental data in Aspen Plus V8.6. Primarily, representative liquid product mixture was determined in order to simulate the conversion accurately and efficiently. The original liquid product mixture, containing around 200 compounds (detected by GC/MS analysis) in liquid and non-soluble organic phases, is reduced to 21 representative compounds based on chemical structure and boiling point range similarities. Simulation of brown seaweed pyrolytic conversion and primary liquid solid separation was made. Future work in pyrolysis process simulation will include appropriate pretreatment methods for ash removal i.e. acid washing as well as product upgrading steps and solid products combustion. Ultimately, the process will be techno economically assessed and strategic points of integration with bioconversion platform will be determined.