

Thermal Decomposition Characteristics of Seaweed, *Ulva* sp., and Its Bio-oil Production

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A thermochemical platform including a pyrolysis reaction is an attractive promising biomass conversion process since utilization of biomass is not limited comparing with other biochemical processes. The quantitative and qualitative efficiency of the pyrolysis process under anaerobic conditions depends on biomass types as well as process parameters such as heating rates, reactor types and mass loading. Therefore, an investigation into thermal characteristics of diverse biomass under different conditions is the first step to study feasibility for application of pyrolysis systems and their products. In this study, we investigated the pyrolytic characteristics of the green seaweed, *Ulva* sp., and acquired pyrolysis oils from the seaweed biomass using a fixed-bed pyrolysis reactor. The thermal degradation characteristics of the seaweed were explored through thermogravimetric analysis (TGA) with differential thermal analysis (DTA). The yields of pyrolysis products in three phases: oil, char and gas obtained under various process conditions were calculated and their chemical properties were analyzed using GC/MS and FT-IR.