

Biorefinery approach to utilization of various biomass for value-added products

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The emission of greenhouse gases due to excessive utilization of fossil fuels has caused the increase in global temperatures. One of the alternatives to solving these problems is the biorefinery approach. There are lignocellulosic biorefinery, vegetable oils biorefinery, waste biorefinery and integrated biorefinery technology etc. The sustainability of biorefinery is dependent on the efficient and proper feedstock utilization. There may be a wide variety of research results, but here I will briefly introduce the research results related to the five categories conducted at the laboratory scale. The five categories are as follows: (1) Biochemical production from lignocellulosic biomass, (2) Biodiesel and glycerol carbonate production from waste glycerol and vegetable oil, (3) Biomaterial production from waste glycerol and lignocellulosic biomass, (4) Formate ester production of from C1 gas, (5) Techno-economic evaluation of biorefinery process.