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Lignocellulosic biomass is made up three main component, i.e. cellulose, hemicelluloses, lignin, and expected as an alternativ resource of fossil resource. It is used to produce biofuels and biomaterials, and its increased use would lower environmental impact such as the emission of greenhouse gases and fossil fuel depletion. In East Asia, disposable wooden chopsticks are used in restaura school cafeterias, and homes. e average annual amount of wooden chopsticks disposed of in Japan is about 90,000 t. erefore, disposable wooden chopsticks can be considered as a promising candidate for raw materials of useful fuel and chemicals productio In this study the total biore nary process of lignocellulosic biomass was developed using high temperature and pressure steaming an milling treatment (SM treatment). Biore nery is a process that produce fuels, power, heat, and value-added chemicals from biomass using various pretreatment, extraction, separation, and conversion methods. e biore nery concept is analogous to today's petroleum re nery, which produce multiple fuels and products from petroleum. We evaluated the e cient separation and utilization of woody structural components from waste BODE chopsticks by using SM treatment followed by water and acetone extractions. e water soluble material was converted into methane or functional food ingredients. Acetone soluble material (Low molecular weight lignin, Mn 1300, Mw 4300) was used as not only a raw material for the synthesis of lignin epoxy resin but also curing agent for curing reactio of epoxy resin. Residue a er water and acetone extractions (Mainly cellulose component) was converted into methane or cellulose nano ber. Furthermore, the mechanical and thermal properties of cured lignin epoxy resin and cellulose nano ber were evaluated. As a result, we could show the mass balance of extracted and separated components from SM treated waste BODE chopsticks (Figure

Recent Publications

1. Asada C, Sasaki C, Takamatsu Y, Nakamura Y (2015) Conversion of steam-exploded cedar into ethanol using simultaneous sacchari cation, fermentation and detoxi cation process. Bioresource Technology 176: 203-209.
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Biography

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