

Bio-phenolic resin from oil palm empty fruit bunches

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ABSTRACT

Utilization of oil palm empty fruit bunches (EFB) in the production of bio-phenolic resin is an alternative way to reduce the dependency of petroleum-based phenol. In this study, resol type bio-phenolic resin (BPR) was synthesized from EFB fibers using sulfuric acid as the catalyst to produce liquefied empty fruit bunches (LEFB) followed by resinification reaction with formaldehyde in alkaline condition. The SEM image of LEFB residue showed separation of fiber bundles into individual fibers. This indicate that lignin was destroyed during the liquefaction process. The increased of formaldehyde/LEFB molar ratio has resulted an increase of viscosity, solid content and pH of the resin. The obtained FTIR spectra confirmed that functional groups of BPR resins was almost similar with commercial resin.

KEYWORDS:

Bio-phenolic resin; Oil palm; Fruit bunches