Investigation of Lignin Content Removal in the Steam Exploded Empty Fruit Bunch Fibers

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ABSTRACT

Empty fruit bunch (EFB) is a potential chemical feedstock particularly cellulose and lignin. However, the complete extraction of lignocellulosic structure in EFB is complex and difficult to achieve. Steam explosion is a pre-treatment process which has the ability to loosen the polymeric bond between the EFB structures. In this paper, the effect of steam explosion process towards the lignin removal was investigated. The raw EFB and exploded EFB were further extracted through the alkaline-hydrolysis process to obtain the yield of the insoluble lignin. In addition, the samples were also characterized using FTIR and TGA analysis. The yield obtained showed that the amount of lignin was reducing after the steam explosion process. Similar data were also recorded from the FTIR and TGA analyses. This work concludes that other than reducing the polymeric strength of the EFB's lignocellulosic structure, the steam explosion also helps the delignification process.

KEYWORDS: Biomass, Empty Fruit Bunches, Lignin Removal, Steam Explosion

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