

ABSTRACT

THE PREPARATION OF CELLULOSE ACETATE FROM -CELLULOSE OIL PALM EMPTY FRUIT BUNCH (OPEFB)

By

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The preparation of cellulose acetate from α -cellulose which was isolated from oil palm empty fruit bunches (OPEFB) using delignification and bleaching. OPEFB which has been delignified, to be varied repetition bleaching, bleaching one (Sample A) and two step of bleaching (Sample B), the method delignification, pulping and bleaching (Sample C) and commercial cotton (Sample D). Sample A obtained α -cellulose content is 71,778%, sample B is 72,78%, sample C is 97,04% and sample D is 98,57%. After obtained α -cellulose, the fourth sample was then reacted by using the activation process, acetylation, hydrolysis and precipitation to obtain cellulose acetate. Sample A obtained acetyl content is 13,56%, degree of substitution is 1,86 and melting point is 180°C, sample B obtained acetyl content is 17,866%, degree of substitution is 1,96 and melting point is 181°C, sample C obtained acetyl content is 38,745%, degree of substitution is 2,6 and melting point is 170°C, sample D obtained content is 41,113%, degree of substitution is 2,7 and melting point is 185°C. The FTIR spectral peaks from the sample B, C, and D shows the C = O group in the area 1760-1720cm⁻¹ (cellulose acetate) and the CO group (acetyl group) in the area 1220-1200cm⁻¹. Morphology of cellulose acetate using SEM showed that the sample C has a density that resembles the sample D. Based on analysis of thermal degradation by TGA / DTA showed degradation of cellulose acetate sample B at a temperature of 325°C, sample C is 350°C and sample D is 355°C.

Key Word: Oil Palm Empty Fruit Bunches (OPEFB), α -Cellulose, Cellulose Acetate