

OBTAINING CELLULOSE ACETATE FROM DENDE PIE (*Elaeis guineenses*)

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Abstract. The main objective of this study was the use of palm oil cake (*Elaeis guineenses*) to obtain cellulose acetate. The oil palm pulp (TD) obtained after treatment with 6% (w/v) NaOH solution at 120 °C and a pressure of approximately 1.6 atm for 30 min was used in the homogeneous acetylation reaction for obtaining the cellulose acetate under two temperature conditions (40 and 50 °C). Acetic acid as solvent, acetic anhydride as acetylating agent and sulfuric acid were used as the catalyst, the conversion rate of the reaction product was monitored by aliquot removal every 3 hours. For the characterization of cellulose and cellulose acetate, infrared spectroscopy (FTIR), X-ray diffraction (XRD), thermogravimetric analysis (TG/DTG/DSC), scanning electron microscopy (SEM) and for confirmation of the acetylation was determined the degree of substitution (GS) by saponification reaction. The reaction time for obtaining di-acetates and tri-acetates at both temperatures was 24 hours. The cellulose acetate, produced from TD, presented a degree of substitution (GS) between 2.35 (T = 40 °C) and 2.48 (T = 50 °C), for cellulose di and triacetate, GS obtained were 2.36 and 2.57, indicating good conversion rate of TD cellulose, according to literature data.

Keywords: Acetylation, Biomass, Delignification, Agroindustry.