

**ISOLATION AND CHARACTERIZATION OF NANOCELLULOSE
ISOLATED FROM OIL PALM MESOCARP (OPM) BY ACID AND
ALKALINE TREATMENT**

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ABSTRACT

ISOLATION CHARACTERIZATION OF NANOCELLULOSE ISOLATED FROM OIL PALM MESOCARP (OPM) BY ACID AND ALKALINE TREATMENT

In this study, the cellulose nanocrystal (CNC) and cellulose nanofibrils (CNF) were successfully isolated from the oil palm mesocarp (OPM). Both CNC and CNF were treated by using formic acid hydrolysis and potassium hydroxide treatment. The final product was characterized by ATR-FTIR, UV-Vis, SEM and Chroma meter to identify the structural and morphological properties. Based on infrared spectra, peaks for hemicellulose was at 1730 cm^{-1} and lignin at 1530 cm^{-1} and 1210 cm^{-1} . The peak at 890 cm^{-1} also proved the existence of β 1-4 glycosidic linkages in the cellulose does not degrade during the treatments. Pre-determination of CNC and CNF size was done by using UV-Vis and Chroma meter. It was observed that CNC possess smaller size of nanocellulose as it has highest transmittance indicating highest light penetrate through the suspension. Morphology of CNC and CNF can be observed using SEM analysis shows that CNC has smoother surface while CNF has rougher surface.