

The Effect of Ultrasonication Temperature on Yield Nanocellulose Powder from Empty Palm Oil Bunches

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Abstract

In recent years, research has been conducted to synthesize nanocellulose from many bio-mass that is abundant as agro-industrial wastes such as epob. This research is purposed to investigated the effect of temperature. Experiments were performed for the ultrasonication temperature of 40, 50, 60, and 70 °C for 30 minutes. The pretreatment was conducted by acid treatment using chloric acid 32% followed by ultrasonication with varied temperature, and hydrothermal process for 1 hour at 120 °C. The experimental results that the higher temperature the yield is increased. The temperature of 70°C is considered the best ratio due to its highest yield of NC 36.9 %. In accordance with the yield, the effect of temperature gave the smaller size. With the smallest size was gain for temperature 70 °C of 174.85 – 460.84 nm.

Keywords: Acid treatment; Nanocellulose; Ultrasonication temperature; Yield.