

## **Microcrystalline Cellulose (MCC) from Oil Palm Empty Fruit Bunch (EFB) Fiber via Simultaneous Ultrasonic and Alkali Treatment**

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**Abstract :** In this study, microcrystalline cellulose (MCC) was extracted from oil palm empty fruit bunch (EFB) cellulose which was earlier isolated from oil palm EFB fibre. In order to isolate the cellulose, the chlorination method was carried out. Then, the MCC was prepared by simultaneous ultrasonic and alkali treatment from the isolated  $\alpha$ -cellulose. Based on mass balance calculation, the yields for MCC obtained from EFB was 44%. For fiber characterization, it is observed that the chemical composition of the hemicellulose and lignin for all samples decreased while composition for cellulose increased. The structural property of the MCC was studied by X-ray diffraction (XRD) method and the result shows that the MCC produced is a cellulose-I polymorph, with 73% crystallinity.

**Keywords :** oil palm empty fruit bunch, microcrystalline cellulose, ultrasonic, alkali treatment, x-ray diffraction

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