

**PHYSICOCHEMICAL CHARACTERISTICS OF XYLOSE CRYSTAL
HYDROLYSATE FROM COFFEE HUSK WASTE RESULTING FROM MILK
OF LIME BLEACHING**

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ABSTRACT

Coffee husk waste is an abundant lignocellulosic biomass that has not been optimally utilized. The hemicellulose content in coffee husks has the potential to be converted into xylose sugar through a hydrolysis process. However, the resulting hydrolysate tends to be dark in color due to the presence of pigments and impurity compounds such as tannins and residual lignin, thereby reducing its aesthetic value. This study aims to analyze the effect of the bleaching process using milk of lime ($\text{Ca}(\text{OH})_2$) on the physicochemical characteristics of xylose sugar crystals produced from coffee husk waste hydrolysate. The research method included pretreatment of the coffee husk waste, enzymatic hydrolysis, and a bleaching process with varying concentrations of milk of lime (18%-26%), assisted by the addition of 400 ppm of STPP (Sodium Tripolyphosphate), followed by crystallization. The parameters tested included xylose and glucose content, yield, solubility, caloric value, and color analysis (Lab). The results showed that the bleaching treatment significantly improved the quality of the sugar crystals. A 19% concentration of milk of lime yielded the optimal result with the highest xylose content. The bleaching process successfully increased the brightness level (L^*) of the sugar significantly to 52.88, raised the caloric value to 3.622 kcal/g as an indication of higher purity, and produced a more orderly crystal structure, which was indicated by a longer solubility time. It was concluded that the addition of milk of lime is an effective method for purifying and enhancing the physicochemical quality of xylose sugar crystals derived from coffee husk waste*

Keywords : Coffee Husk Waste, Bleaching, Milk of Lime