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The Effect of Variation on Solvent Type and Starch Extraction Time on the Increased Level of Reducing Sugar from Jackfruit Straw Waste

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Abstract : Jackfruit straw is a part of jackfruit that does not experience pollination in the form of yellow fibers. Jackfruit straw has a composition consisting of 13.45% starch, 65.05% water. The potential content of jackfruit straw starch can be used as an alternative fuel, it was, bioethanol. This material can be converted to bioethanol through hydrolysis and fermentation processes. This study aimed to determine the effect of variations in the type of solvent and extraction time, used the type of solvent H₂O, NaOH and NaHCO₃ for starch which was then hydrolyzed and produced glucose as a raw material for making bioethanol. The initial content of jackfruit straw was carbohydrate of 11.5%, fat of 16.22% and protein of 8.38%. The first step was drying so that the jackfruit straw became powder with a moisture content <14%. Then extraction with a solvent to dissolve compounds that can interfere with the hydrolysis process such as fats and proteins. This research was conducted by extracting jackfruit straw powder into starch. Variation of the extraction process was the type of solvent (H₂O, NaOH of 0.2%, and NaHCO₃ of 0.2%) and the extraction time (5, 10, 15, 20, and 25 minutes) at room temperature. The results showed that the highest reducing sugar concentration of 2.16% was in the type of NaOH solvent for 25 minutes.

Key words : Jackfruit straw, starch extraction, reducing sugar.

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