

Utilization of Used white Paper for Bioethanol Production With the Addition of Variations of Urea as Nutrients for *Saccharomyces cerevisiae* Yuli Hananto, S.T.P., M.Si. (as chief counselor)

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ABSTRACT

White paper waste is only considered as one of the solid wastes that is not useful. One sheet of waste paper contains cellulose and hemicellulose which can still be used as raw materials for making bioethanol, which can replace the use of fossil fuels. The second generation of bioethanol is produced from lignocellulosic raw materials, one of which is used white paper. The process of making lignocellulosic bioethanol begins with a chemical delignification pretreatment, where the raw material is immersed in a 10% NaOH solution for 28 hours. After that, the lignocellulose content was analyzed using the Chesson method. The delignification method with 10% NaOH can reduce lignin by 2.15%, as well as hemicellulose by 1.95% and increase cellulose content by 37.30%. The next process is hydrolysis using H₂SO₄ with various concentrations of 4%, 8%, and 12%, the best brix results are 18% at a concentration variation of 12%. After that, the fermentation process using a baker's yeast starter as much as 2,5% and variations in urea nutrition (0%, 0.25%, 0,50%, and 0,75%) were carried out for 4 days with a substrate volume of 200 ml for each variation, and repeat 1 time so that the total number is 8 samples, and continued with distillation. The best used HVS paper bioethanol content of (7,18%) with a volume of 13 ml was obtained in the 0% urea treatment. The yield produced in this treatment was 10.4%.

Kata kunci : bioethanol, white paper waste, H₂SO₄, urea