

Production of Bioethanol Made from Molasses With Variations in Brix Value and Degree of Acidity (pH)

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ABSTRACT

Nowadays, bioethanol is widely used as a fuel. Bioethanol is produced from the fermentation process of materials containing sugar or starch. One of the materials that can be made from bioethanol is molasses which is a by-product of processing sugar cane into sugar. The process of making bioethanol from molasses was carried out in three steps. The first step was knowing the molasses content, the standardization of brix value and standardization of pH. The second step was the main research consisting of the preparation of materials standard, dilution, variation of brix (15%, 20% and 25%), pH variation (4, 4.5 and 5), fermentation using 0.8% concentration of yeast for 3 days. The third step was distillation, calculation of yield and observation of ethanol content. The bioethanol content produced from molasses fermentation was in the range of 26.5% - 48% v/v, the difference of brix value had a very significant effect on the ethanol content produced that was by the highest results were obtained in the Brix 25% treatment with an ethanol content of 48% v/v, Variation of pH 4 to 5 on molasses substrate did not really affect the process of bioethanol fermentation, the total yield of bioethanol distillation ranged from 8.65-10.17%. This research was able to be developed by looking for higher variations in brix values so that the maximum yield of ethanol was obtained. The temperature used in the distillation process was 93° C, that's because at a temperature of 78° C, the distillation process was not successful. The distillation temperature must remain stable so that the distillation results are optimal.

Keywords: Molasses, Brix, pH, Fermentation, Distillation.