THE VARIED CONCENTRATION OF *Saccharomyces cerevisiae* AND FERMENTATION PERIOD FOR ETHANOL PRODUCTION OF SKIN PINEAPPLE (*Ananas comosus* L. Merr)

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ABSTRACT

The production of ethanol was done at various concentrations of *Saccharomyces cerevisiae* innoculant (0 %, 10 %, 15 %, and 20 % (v/v)). The medium of fermentation was a liquid waste skin pineapple which is added to the water (the comparison 1 : 1 (v/v) (filtrate pineapple : water)). The process of fermentation was done for 5 days, and the parameter was observed such as ethanol, the amount of cells *S. cerevisiae*, and the pH of fermentation medium.

The research design was used the Random Full design with two factors and replicated 2 times. The first factor was a concentration innoculant 0 %, 10 %, 15 % and 20 % (v/v); the second factor was fermentation period 0, 1, 2, 3, 4 and 5 day. Data was analyzed using ANOVA test. The treatment of different real test information used Tukey test with $\alpha = 0.05$. Determining the concentration of reduction sugar was done with Luff method, ethanol content with destilasi method, the amount of cells *S. cerevisiae* with *Pour plate* method, and the pH of fermentation medium with the pH meter.

The results of the research showed that the concentration *S. cerevisiae* innoculant had significantly effect to the ethanol content. At the beginning of the reduction sugar concentration
10.8% (v/v) with initial inoculant 15 % (v/v) strain collection culture Laboratorium Mikrobiologi Program Studi FMIPA ITS and 4 days fermentation period produces ethanol, reached 10 % without step next distillation.

**Keywords**: Skin pineapple, ethanol, *Saccharomyces cerevisiae*