ABSTRACT

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“OPTIMIZATION OF GROWTH AND FERMENTATION CONDITION OF *Saccharomyces cerevisiae* WITH IRON, SELENIUM, AND MAGNESIUM SUPPLEMENTATION”

(xvi + 60 pages; 1 table; 20 pictures; 30 appendixes)

Microelements is a chemical element required in small amounts to sustain the life of microorganisms. Microelements needed by microorganism in the metabolism as a cofactor of various enzymes that exist. Effect of growth conditions and fermentation of *Saccharomyces cerevisiae* which has been supplemented with iron, selenium, and magnesium were studied. Growth of *S. cerevisiae* was carried out at three different temperatures (27°C, 30°C, dan 37°C) and pH (4, 5, dan 6) at growth media barley juice and brown rice juice. Fermentation of *S. cerevisiae* was performed on two different conditions, anaerobic and semiaerobic. The results showed that the optimum growth conditions is at temperature of 27°C and pH 5 with semiaerobic fermentation conditions. Optimal fermentation conditions were determined using multiple test parameters, namely TPC, the amount of biomass, and the amount of ethanol produced.

Key words: *Saccharomyces cerevisiae*, supplementation, iron, selenium, magnesium.

References: 49 (1989-2011)