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PHANIDA SOMBUTYANUCHIT : PREPARATION OF 5′-GMP-RICH YEAST EXTRACTS FROM SPENT BREWER'S YEAST. THESIS ADVISORS : MANOP SUPHANTHARIKA, Ph.D., SAIYAVIT VARAVINIT, Dr.Ing., PAIROJ LUANGPITUKSA, D.Arg.Sc, CHOCKCHAI THEERAKULKAIT, Ph.D., 117 P. ISBN 974-664-992-2

Spent brewer's yeast was autolysed and used as a raw material for the preparation of 5′-GMP-rich yeast extracts. Fresh malt rootlet extract, dried malt rootlets extract and rice rootlets extract were analyzed for specific activity of 5′-phosphodiesterase for use as a source of enzyme. The highest specific activity was obtained from fresh malt rootlet extract followed by dried malt rootlets and rice rootlets, respectively. Dried malt rootlets were used as a source of 5′-phosphodiesterase due to their lowest cost. Before the dried malt rootlet extract was used, it was concentrated by ammonium sulfate precipitation at 40-80 % saturation and then was pre-treated to inactivate 5′-nucleotidase. The optimum pretreatment conditions were heating at 65°C for 30 min or 70°C for 7 min. The effects of autolysis time (at 15% w/v solids, pH 5, 50°C), phosphodiesterase concentration and incubation period on 5′-GMP content were examined. The suitable autolysis time was 8-12 hrs. The preferable enzyme treatment period was in the range of 8-14 hrs. Longer autolysis and enzyme incubation periods caused a decrease in the 5′-GMP content from 0.7-0.9%(w/w) to 0.2-0.4 %(w/w). The 5′-GMP content in extracts from debittered yeast using 2 % sodium carbonate was not different form non-debittered yeast. The highest 5′-GMP content in yeast extract was 0.93 %(w/w), obtained with a phosphodiesterase concentration of 160 units/100 ml of yeast extract (5% w/v).