

SCP PRODUCTION USING KEFIR YEAST FROM WHEY LIQUID EFFLUENT OF DAIRY INDUSTRY.

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ABSTRACT

The very polluted liquid waste of dairy industry called whey is used in the present study as raw material for SCP production employing kefir yeast. Aerobic fermentation was carried out using inocula of kefir yeast in shaking tubes contained glucose synthetic media and in shaking flasks lactose synthetic broth. The effect of temperature, pH, initial sugar concentration (ISC) and initial cell concentration (ICC) were examined for glucose and lactose cell growth. After the optimization of the results the optimum conditions were run in 1.5L aerobic bioreactor system for lactose fermentation. A final wet weight biomass concentration of 33g/L was obtained. The scale up of the process for whey treatment in a 5L tubular aerobic bioreactor resulted to a biomass concentration of 75g/L while the residual lactose concentration was 0.03g/L. An important observation for the formation of kefir granules were made which could lead to avoidance of centrifugal separator in the industrial scale up process with 100L, 1000L and 11,000L bioreactors .