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SASITORN CHOTISASITORN : XANTHAN GUM PRODUCTION BY AIR BUBBLE BIOREACTOR FROM SELECTED STRAIN OF *Xanthomonas campestris*. THESIS ADVISOR : ASSO. PROF. SANHA PANICHAJAKUL, Ph.D., PROF. SOMSAK DUMRONGLED, Ph.D. 133 pp. ISBN 974-583-151-4

Stock cultures of *Xanthomonas campestris* NRRL B-1459 were selected and propagated to assure consistent production and good yield of extracellular heteropolysaccharides. Under continuous subculture conditions (20 times within 14-day intervals), propagative maintenance on agar plate, variant typical colonied develop are smaller than the original parent strains. The colonial size characteristics were found correlated to the growth and gum production. Cultivation of selected isolated of *X. campestris* were carried out in a shake flask for further optimization to develop Xanthan gum production medium. Glucose supplemented as carbon source was high advantage over sucrose in the defined medium which ammonium nitrate was supplied as nitrogen sourse. The attainment of optimal temperature for the polysaccharide synthesis was established at 30 °C with slightly drop in medium initial pH. On the basis of 3% D-glucose, 0.4% dipotassium hydrogen phosphate, 0.01% magnesium sulfate at the shaking frequency of 250 rpm in psychrotherm incubater, the normal large colony type gives crude culture medium after 96 hrs of 150 centipoise (Cps.) medium viscosity with 38 gram per litre of Xanthan gum. The process of Xanthan gum production by selected *X. campestris* was investigated in the 2.5 litres air-bubble bio-reacter maintained with 1.6 V.V.M. air rate. In this condition 11 gram per litre of Xanthan gum 300 centipoise medium viscosity which contained 10 milligram per liter of pyruvic acid were obtained. The process for clarifying and precipitating the polysaccharide culture medium was also achieved by 5% KCl and 2:1 ethanol-medium ratio which 6.5 gram per litre yields.