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CHANCHANA TUNSAKUL : SCREENING AND PRODUCTION OF EXOPOLYSACCHARIDES FROM LACTIC ACID BACTERIA. THESIS ADVISOR: ASST.PROF.SUWIMON KEERATIPIBUL, Ph.D., TITAPA KHIEOKHACHEE, Ph.D., 125 PP. ISBN 974-636-855-9

One hundred and fours strains of lactic acid bacteria (LAB) isolated from fermented foods and twenty strains from sugarcane juice in Thailand were screened for exopolysaccharides (EPS) production on MRS agar and MRS broth with different sugars, such as sucrose, lactose glucose and fructose . AP-1 and AP-3 were found to produce a large amont of EPS from sucrose. The strain production of EPS was associated with growth when cultivated in broth. This on the basis of morphological, physiological and Biochemical tests, AP-1 and AP-3 were idenified as *Pediococcus pentosaceus*. Conditions that allowed high EPS production in broth of AP-1 and AP-3 were as follows sucrose 4 % and 10 %, nitrogen ; yeast extract 0.5 and 0.5 g/l , peptone 1.0 and 1.5 g/l, beef extract 1.0 and 1.5 g/l , $MgSO_4$ 0.2 and 0.4 g/l, $MnSO_4$ 0.025 and 0 g/l , respectively, at 30°C and no aeration. Under this optimum condition, The AP-1 and AP-3 could produce 16.32 g/l and 18.56 g/l, respectively.

Polysaccharides from AP-1 and AP-3 showed pseudoplastic (shear thinning) properties. However, The viscosity of both polysaccharides were not stable to high temperature or low pH and it inceased in the presence of NaCl or KCl using at concentration more than 1 % but it became insoluble in water when the concentration of KCl was increased to 8 % and 10 % . The partially purified EPS produced by AP-1 and AP-3 strains were shown to be neutral polysaccharides consisting predominately of glucose. Both polysaccharides contained 90.25 % and 85.20 % in total sugar, 0.01 and 0.04 g/l in total nitrogen and had estimated molecular weight about 16747 Da and $6x10^6$ - $4x10^7$ Da, respectively.

ภาควิชา เทคโนโลยีทางอาหาร ลายมือชื่อนิสิต [illegible]

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