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Improved production of Heteropolysaccharide-7 with substitution of medium by *Beijerinckia indica* HS-2001

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Heteropolysaccharide-7 (PS-7) is the exopolysaccharide produced by *Beijerinckia indica* under aerobic submerge culture. Effect of inoculum size on production of PS-7 by *B. indica* HS-2001 in a 7L fermentor was investigated. Inoculum size ranged from 10 to 2%. Higher inoculum size resulted in improved production of PS-7 and the decreased time to reach the maximal production of PS-7. Batch fermentation of *B. indica* HS-2001 for the production of PS-7 was performed in 7L bioreactor. Amount of the substitute for the medium and method for substitution during culture was investigated to enhance the production of PS-7. The substitute for the medium was 2% (w/v) glucose. Productivity of PS-7 by *B. indica* HS-2001 for 72 hr with substitution of 25% and 50% of total medium after 48 hr were 0.56g/l/h and 0.54g/l/h, respectively. Productivity of PS-7 for 96 hr with 2 times of substitution of 25% of total medium after 48 and 72 hr was 0.47g/l/h whereas productivity of PS-7 with one substitution of 50% of total medium after 48 hr was 0.50g/l/h. Production of PS-7 with higher inoculum size for 96 hr by *B. indica* HS-2001 with various concentrations of substitute was compared. The concentration of glucose in the substitute was 6, 4 and 2% (w/v). And time for substitution was 40 hr after culture. The highest productivity of Ps-7 was 0.63g/l/h when concentration of glucose in the substitute was 2%. In this study, the optimal volume and concentration of the substitute for production of PS-7 by *B. indica* HS-2001 in a 7L fermentor was established.