**Application of different feeding strategies in fed batch culture for pullulanase production using sago starch**


## ABSTRACT

The production of pullulanase by Bacillus flavothermus KWF-1 in batch and fed batch culture were compared using 2 L bioreactor. In batch culture, 0.0803 U/mL of pullulanase activity with specific activity of 0.0213 U/mg was produced by controlling the agitation speed and temperature at 200 rpm and 50 °C, respectively. Fed batch production was studied by feeding the culture with different sago starch concentrations in various feeding modes for enhanced pullulanase production. Exponential feeding mode at dilution rate of 0.01/h was the preeminent strategy for enhanced pullulanase production of 0.1710 U/mL with specific activity of 0.066 U/mg. It had shown an increment of pullulanase production and specific activity by 2.1 and 3.1-fold, respectively when compared to batch culture. Increment of pullulanase activity in exponential feeding mode improved hydrolyzation of sago starch into maltotriose and panose by 4.5 and 2.5-fold respectively compared to batch system.



**Keyword:** Pullulanase; Sago; Fed batch; Maltose; Maltotriose; Panose