

SELECTION OF A CARBON SOURCE AND FED BATCH PROCESS FOR CITRIC ACID PRODUCTION BY *ASPERGILLUS NIGER*

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Use of a locally available cheap carbon source, sucrose in palmyrah fruit pulp extract (PFP extract I) to produce citric acid was investigated. In addition sugars in partially purified PFP extracts such as pectin removed with CaO (PFP extract II), pectin removed with propan-2-ol (PFP extract III), rice flour hydrolysate (obtained by simultaneous liquefaction and saccharification, RFH) were used as carbon sources. Commercially available glucose and sucrose were used as controls. The fermentation medium contained (g l^{-1}) sugar, 80, NH_4NO_3 , 0.75; KH_2PO_4 , 0.5; $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, 0.1; peptone, 14.0; $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$, 0.1×10^{-3} , ferrous ammonium sulphate, 0.1×10^{-3} and $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, 0.6×10^{-3} and (ml l^{-1}) methanol, 30 and gingili oil, 2.0. *Aspergillus niger* was grown in the fermentation medium by surface culture at pH 5.2 and 30°C . When PFP extract I, PFP extract II and PFP extract III were used as carbon sources 6.5 g l^{-1} (6th day), 6.0 g l^{-1} (7th day) and 2.3 g l^{-1} (7th day) citric acid was produced respectively. But when rice flour hydrolysate (RFH), glucose and sucrose were used as carbon sources 32.7, 27.4 and 16.9 g l^{-1} citric acid was produced respectively on the 6th day. The results indicated that sugars in rice flour hydrolysate was the best carbon source for citric acid production. The sugars in rice flour hydrolysate was used as carbon source for the fed batch citric acid production while glucose containing medium was used as the control. This process was continued for 14 days in 4 cycles.

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