

ABSTRACT

In a comparison between sweet potato and maize starch hydrolysates for citric acid production by *Aspergillus niger* IIB-A6, the maximum citric acid production (23.87 ± 2.75 g/l) was obtained with sweet potato starch hydrolysate at an initial sugar concentration of 200 g/l. The product formation rates, Q_p (0.1 g/l/h) and q_p (0.02 g/g/h) were higher for sweet potato than maize starch hydrolysate. Incubation period (264 h), Initial pH (3.0), volume of fermentation medium (50 ml) and inoculum size (2.0 %) were also optimized. The optimal citric acid production (40.23 ± 2.27 g/l) was obtained when methanol (1.5 %, v/v) as a stimulant was added into the medium after 24 h of inoculation. Different metal complexing agents such as EDTA and ferrocyanide were employed on citric acid fermentation. The maximum amount of citric acid (41.90 ± 4.20 g/l) was achieved when 200 ppm of $K_4Fe(CN)_6$ was added into the medium before inoculation. EDTA showed insignificant production as compared to ferrocyanide. The overall citric acid production was 3.45 fold improved.