

## **Kojic acid production by *Aspergillus flavus* using gelatinized and hydrolyzed sago starch as carbon sources**

### **ABSTRACT**

Direct conversion of gelatinized sago starch into kojic acid by *Aspergillus flavus* strain having amylolytic enzymes was carried out at two different scales of submerged batch fermentation in a 250-mL shake flask and in a 50-L stirred-tank fermentor. For comparison, fermentations were also carried out using glucose and glucose hydrolyzate from enzymic hydrolysis of sago starch as carbon sources. During kojic acid fermentation of starch, starch was first hydrolyzed to glucose by the action of  $\alpha$ -amylase and glucoamylase during active growth phase. The glucose remaining during the production phase (non-growing phase) was then converted to kojic acid. Kojic acid production (23.5g/L) using 100 g/L sago starch in a shake flask was comparable to fermentation of glucose (31.5 g/L) and glucose hydrolyzate (27.9 g/L) but in the 50-L fermentor was greatly reduced due to non-optimal aeration conditions. Kojic acid production using glucose was higher in the 50-L fermentor than in the shake flask.

**Keyword:** Kojic acid; *Aspergillus flavus*; Sago starch; Fermentation