

**CONTINUOUS HYDROLYSIS OF STARCH AND DEXTRINIZED  
STARCH BY  
AMBERLITE IRA-904 IMMOBILIZED AMYLOGLucosidase**

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Continuous hydrolysis of starch, dextrinized starch (DE 36) and maltose was performed at pH 4.5 using thermostated (30 and 50°C) column reactors (1.7 x 15 cm) having 7000 AMG units in 25g Amberlite IRA-904. The productivity of the enzyme reactor at 30°C for 2% (w/v) starch, dextrinized starch(DE 36) and maltose increased from 3.2, 8.25 and 7.92 to 10.9, 49.5 and 47.5 respectively when the flow rate was increased from 1 to 6 ml ml<sup>-1</sup>, while glucose yield decreased from 37.0 to 20.8% for starch and no change in glucose yields for dextrinized starch(98%) and maltose (96%). For the hydrolysis of dextrinized starch (20%, w/v; DE 36) glucose yield decreased from 82.5 (at 1ml min<sup>-1</sup>) to 55% (at 1ml min<sup>-1</sup>) at 30°C. The productivities for dextrinized starch solutions 2, 4, 10 and 20% (w/v; DE 36) were 10.9, 98.2, 237.6 and 290.4 g l<sup>-1</sup> h<sup>-1</sup> respectively at a flow rate of 6ml min<sup>-1</sup> at 30°C. At 55°C and 6ml min<sup>-1</sup> flow rate the productivities for starch (2%; w/v) and dextrinized starch of concentrations 2, 4, 10 and 20% (w/v; DE 36) were 18.5, 52.3, 101.9, 250.8 and 353.6 respectively while the glucose yields for dextrinized starch 2, 4 and 10% (w/v) were 18.5, 52.3, 101.9, 250.8 and 353.6 respectively. The glucose yield for starch (2%, w/v) and dextrinized starch (20%, w/v) at 55°C decreased from 52 and 90% to 35 and 66.8% respectively when the flow rate was increased from 1 to 6ml min<sup>-1</sup>. Temperature has a negligible effect on the productivity of the column reactor, when dextrinized starch solutions of 2, 4 and 10% (w/v; DE 36) were used. The glucose yield did not change with increase in flow rate up to 6 ml min<sup>-1</sup> however productivity increased linearly. Productivities at 30 and 55°C with 20% (w/v; DE 36) dextrinized starch were 290.4 and 353.6 g l<sup>-1</sup> h<sup>-1</sup> respectively. Thus temperature has an influence on the hydrolysis of higher concentrations of dextrinized starch under experimental conditions.

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