

البحث السابع

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Title	Amylolytic Enzymes Production using Agricultural Wastes for Production of Pharmaceutical Glucose.
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ABSTRACT

The amylolytic enzymes are a group of hydrolytic enzymes of wide application in many industries such as food, textile, paper and digestive pharmaceutical preparations. The aim of the present study was to find the best nutritional conditions for the production of the two amylolytic enzymes namely; α -amylase and glucoamylase, using cheap and locally available wastes. For this reason, strains of *Bacillus subtilis* and *Aspergillus foetidus* were used for the production of α - and glucoamylase, respectively. Several media were tested for the production both enzymes on laboratory scale using agricultural wastes. The best media for α -amylase production (230 U/ml) consists of 6% of both corn starch and dried yeast, 0.1% K_2HPO_4 , 0.02% $MgSO_4 \cdot 7H_2O$, 0.001% $MnSO_4$ and 0.001% $Fe_2(SO_4)_3$, and NaCl. The highest activity of glucoamylase (46 U/ml) was obtained on a medium containing 6% wheat bran, 4% dried yeast, 0.1% K_2HPO_4 , 0.05% $MgSO_4$, 0.05% KCl and 0.001% $FeSO_4$. The use of these two enzymes for production of glucose from corn starch was remarkable with 88-90% conversion efficiency. The IR spectroscopic analysis of the produced dextrose powder showed that it meets the pharmaceutical grade. We conclude that both enzymes produced using agricultural wastes can be applied in the production of glucose from corn starch with high conversion efficiency.