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## ABSTRACT

The present research work was planned to optimize the growth conditions for *A. niger* in stirred fermentor in order to enhance the production of glucose oxidase. The results have revealed that the medium M2 containing (g/l) glucose 80.0; peptone 3.0;  $(\text{NH}_4)_2\text{HPO}_4$  0.388;  $\text{KH}_2\text{PO}_4$  0.188;  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$  0.156 was the best of all the four medias experimented in this study. Glucose (8%) was the best carbon source for the maximum yield of glucose oxidase (118 U/g cell mass) followed by sucrose (103 U/g cell mass) and fructose (99 U/g cell mass). The best nitrogen sources for the growth of *A. niger* and production of glucose oxidase was  $(\text{NH}_4)_2\text{HPO}_4$  followed by peptone. The maximum activity (118 U/g) of glucose oxidase was produced after 72 hours of fermentation at pH 5.0, temperature 30°C, agitation 200 rpm and aeration of 1 vvm.