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**Effect of replacement of analar grade chemicals
with locally available substitutes on α -amylase production
from *Bacillus Licheniformis***

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α -Amylase production could be achieved by using locally isolated *Bacillus licheniformis* in a fermentation medium prepared with salts. This study was aimed to check the effect of substitution of salts on the production of α -amylase in the fermentation medium with locally available fertilizers, table salt and Cuttle fish shell powder. The fermentation medium contained (gL^{-1}) soluble starch, 3.0; green gram powder, 8.0; $(\text{NH}_4)_2\text{HPO}_4$, 1.0; NaCl, 1.0; KH_2PO_4 , 1.0; K_2HPO_4 , 2.5; FeCl_3 , 0.01; $\text{MgCl}_2.6\text{H}_2\text{O}$, 0.01; and $\text{CaCl}_2.2\text{H}_2\text{O}$, 0.01 at pH 7.0 and the highest α -amylase activity produced was $106.1(\pm 0.26) \text{UmL}^{-1}$ at 60h. When $\text{CaCl}_2.2\text{H}_2\text{O}$ was replaced with Cuttle fish shell powder, the α -amylase production ($117.6\pm 0.34 \text{UmL}^{-1}$) was increased by 1.1 fold (at 60h). There was 1.05 fold (at 60h) increase in the α -amylase production ($111.5\pm 0.46 \text{UmL}^{-1}$) when NaCl was substituted with table salt. It was noticed that α -amylase production ($88.4\pm 0.35 \text{UmL}^{-1}$) was reduced by 1.2 fold (at 60h) when the $(\text{NH}_4)_2\text{HPO}_4$ was substituted with $(\text{NH}_4)_2\text{SO}_4$ fertilizer.

Substitution of KH_2PO_4 and K_2HPO_4 with triple super phosphate (T.S.P) reduced the α -amylase activity ($81.1\pm 0.31\text{UmL}^{-1}$) by 1.3 fold (at 60h). When Cuttle fish shell powder and table salt which increased the α -amylase activity were substituted together instead of $\text{CaCl}_2.2\text{H}_2\text{O}$ and NaCl in the fermentation medium, 1.08 fold (at 60h) increase in the α -amylase activity ($113.4\pm 0.43\text{UmL}^{-1}$) was observed. Substitution of KH_2PO_4 , K_2HPO_4 and $(\text{NH}_4)_2\text{HPO}_4$ with different amount of triple super phosphate showed 1.13 fold increase in the α -amylase activity ($120.2\pm 0.27\text{UmL}^{-1}$) at the concentration of 3.0gL^{-1} at 60h. This study showed that the medium containing (gL^{-1}) soluble starch, 3.0; green gram powder, 8.0; table salt, 1.0; T.S.P 3.0; FeCl_3 , 0.01; $\text{MgCl}_2.6\text{H}_2\text{O}$, 0.01; and Cuttle fish shell powder, 8.0 (mgL^{-1}) could be used for better α -amylase production ($120.2\pm 0.27\text{UmL}^{-1}$) which was 1.13 fold higher than the medium with analar grade salts.

Key words: α -Amylase, activity, T.S.P, *B. licheniformis*, Cuttle bone powder, table salt.