

Supplementation of Carbohydrate to Enhance the α -amylase Production by *Bacillus licheniformis* ATCC 6346 in Presence of Seed Cakes

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ABSTRACT

Aims: The effect of carbohydrate and amino acids on the production of α -amylase by *Bacillus licheniformis* ATCC 6346 was investigated.

Methodology and results: To find out the influence of carbohydrate the total carbohydrate content of the medium containing different concentration (2-18 gL⁻¹) of defatted seed cake powder of sesamum and mustard containing medium was kept constant by the addition of soluble starch separately. The highest α -amylase activity obtained in the medium containing 18gL⁻¹ mustard (59.11 \pm 1.48 U mL⁻¹) and sesamum seed cake powder (55.23 \pm 1.55 U mL⁻¹). The results indicated that under these conditions the carbohydrate content had no effect on the production of α -amylase. Effect of amino acids (0.2gL⁻¹ of Glycine, Methionine, Proline, Lysine, Leucine, Threonine, Serine, Arginine, Alanine, Glutamic acid, Tryptophan, Glutamine, Asparagine, Histidine, Valine, Phenylalanine, Isoleucine and mixture of amino acids) on the production of α -amylase in fermentation medium was investigated. Among the different amino acids supplemented, eight amino acids improved the α -amylase production but casaminoacids slightly inhibited the enzyme production. In presence of Tryptophan highest enzyme activity was obtained than control.

Conclusion, significance and impact of study: In these study amino acids especially Tryptophan takes part in a particular role rather than carbohydrate in the production of α -amylase from *B.licheniformis* ATCC 6346.

Keywords: Amino acids, α -amylase, casaminoacids, *Bacillus licheniformis*
