The influence of nitrogen sources on the alpha-amylase productivity of Aspergillus oryzae in continuous cultures

The influence of nitrogen sources on the alpha-amylase productivity of Aspergillus oryzae was quantified in continuous cultivations. Both inorganic and complex nitrogen sources were investigated and glucose was used as the carbon and energy sources. For production of alpha-amylase, nitrate was shown to be inferior to ammonia as a nitrogen source. A mixture of ammonia and complex nitrogen sources, such as yeast extract or casein hydrolysate, was better than with ammonia as the sole nitrogen source. Even a low concentration of casein hydrolysate (0.05 g l\(^{-1}\)) resulted in a 35% increase in the cc-amylase productivity. The higher alpha-amylase productivity during growth on casein hydrolysate was not caused by increased transcription of the alpha-amylase genes but was caused by a faster secretion of alpha-amylase or by a lower binding of alpha-amylase to the biomass.

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