

**EFFECT OF PROCESS PARAMETERS ON CHITINASE  
AND  $\beta$ -N-ACETYL-D-HEXOSAMINIDASE PRODUCTION  
BY *Penicillium oxalicum* 20B**

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**ABSTRACT**

The effect of process parameters such as medium composition including nitrogen source, chitin concentration, magnesium sulfate and cultivation parameters such as pH, inoculum concentration, time of cultivation on chitinase and  $\beta$ -N-acetyl-D-hexosaminidase (NAHase) activities produced by *Penicillium oxalicum* 20B were investigated. Furthermore the influence of their activities on GlcNAc yield during chitin hydrolysis was also studied. The results showed that yeast extract and peptone had positive effect on growth and both enzyme activities. The chitin concentration above 0.4% inhibited the growth and enzyme production. The initial pH medium of 6 was optimal for growth and  $\beta$ -N-acetyl-D-hexosaminidase production, meanwhile chitinase production was maximal at pH 5. The production of chitinase and  $\beta$ -N-acetyl-D-hexosaminidase was reached maximum after 4 days of cultivation.  $MgSO_4$  concentration had only slight effect on chitinase but strong effect on NAHase activities. Chitinase and  $\beta$ -N-acetyl-D-hexosaminidase activities as well as their ratio affected the GlcNAc yield during chitin hydrolysis.

**Keywords:** *Chitin, chitinase, N-acetyl- D-hexosaminidase, GlcNAc yield*

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