



Molecular cloning and characterization of the glyceraldehyde-3-phosphate dehydrogenase gene from *Penicillium expansum* PE-12

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ABSTRACT. *Penicillium expansum* produces large amounts of lipase, which is widely used in laundry detergent and leather industry. We isolated the glyceraldehyde-3-phosphate dehydrogenase gene (*PeGPD*) from *P. expansum* PE-12 through reverse transcriptase PCR and 5'-3'-rapid amplification of cDNA ends (RACE-PCR). The gene is 1266 bp long, including an ORF of 1014 bp, encoding a polypeptide chain of 337 amino acids. A phylogenetic tree based on GPD proteins showed that *P. expansum* is close to *Aspergillus* species, but comparatively distant from *P. marneffei*. Southern blot results revealed a single copy of *PeGPD*, and expression analysis gave evidence of high expression levels. *PeGPD* genes have potential for genetic engineering of *P. expansum* for industrial lipase production.

Key words: Glyceraldehyde-3-phosphate dehydrogenase gene; *Penicillium expansum*; 5'-3'-RACE-PCR; Codon bias; Homology modeling; Southern blot