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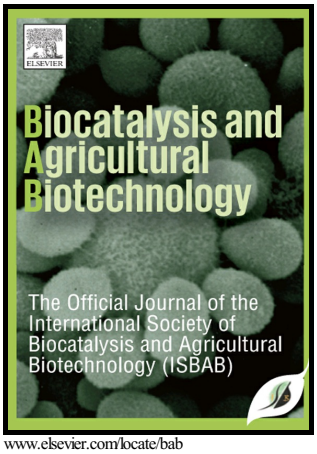

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A cold tolerant lipase develops enhanced activity, thermal tolerance and solvent stability in the presence of calcium nanoparticles: alternative approach to genetic modulation

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Abstract

An extracellular cold active lipase producing bacterium was isolated from soil. It was identified as *Pseudomonas aeruginosa* KC1 strain (GenBank accession number **KT334371**). There are no previous reports on purification of cold active lipase protein from *Pseudomonas aeruginosa.* The lipase of molecular weight 54 kDa was purified to 33 fold with 8% recovery. The enzyme was active within the range 10 – 40 °C with maximum activity at 15 °C; pH 7.0 to 8.5 with 4-nitrophenyl butyrate substrate. Substrate utilization by lipase showed better affinity for short chain fatty acid esters. The enzyme activity was enhanced by Ca^{2+}, Ba^{2+},