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Title:	Engineering of a metagenome derived lipase toward thermal tolerance: Effect of asparagine to lysine mutation on the protein surface
Authors:	Sharma, Pushpender K. (/jspui/browse?type=author&value=Sharma%2C+Pushpender+K.)
Keywords:	asparagine DNA hydrogen
Issue Date:	2012
Publisher:	Elsevier B.V.
Citation:	Gene, 491 (2), pp. 264-271
Abstract:	A highly thermostable mutant lipase was generated and characterized. Mutant enzyme demonstrated 144 fold enhanced thermostability over the wild type enzyme at 60°C. Interestingly, the overall catalytic efficiency (k cat/K m) of mutant was also enhanced (~20 folds). Circular dichroism spectroscopy, studied as function of temperature, demonstrated that the mutant lipase retained its secondary structure up to 70-80°C, whereas wild type protein structure was completely distorted above 35°C. Additionally, the intrinsic tryptophan fluorescence (a probe for the tertiary structure) also displayed difference in the conformation of two enzymes during temperature dependent unfolding. Furthermore, mutation N355K resulted in extensive H-bonding (Lys355 HZ1OE2 Glu284) with a distance 2.44Å. In contrast to this, Wt enzyme has not shown such H-bonding interaction.
Description:	Only IISERM authors are available in the record.
URI:	<a href="http://www.sciencedirect.com/science/article/pii/S0378111911005518">http://www.sciencedirect.com/science/article/pii/S0378111911005518</a> ( <a href="http://www.sciencedirect.com/science/article/pii/S0378111911005518">http://www.sciencedirect.com/science/article/pii/S0378111911005518</a> ) <a href="http://dx.doi.org/10.1016/j.gene.2011.09.028">http://dx.doi.org/10.1016/j.gene.2011.09.028</a> ( <a href="http://dx.doi.org/10.1016/j.gene.2011.09.028">http://dx.doi.org/10.1016/j.gene.2011.09.028</a> ) <a href="http://hdl.handle.net/123456789/167">http://hdl.handle.net/123456789/167</a> ( <a href="http://hdl.handle.net/123456789/167">http://hdl.handle.net/123456789/167</a> )
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