

Rational engineering of mesophilic *Bacillus* lipase to higher thermostability: Role of proline at secondary structure

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Bacillus subtilis lipase, being extracellular in nature and smallest known lipase, is an important source for protein evaluation and for commercial use. Proline is reported as thermalpreferable residue while its role in thermostability is very much influenced by its position at the secondary structure level. Two variants were designed rationally with proline substituted at varying position at the secondary structure level i.e. helix and loop. The proline replaced by a polar residue lysine at terminal of helix observed to be destabilizing. In other variant proline placed within loop at protein surface enhanced its thermostability significantly. The molecular basis of enhanced thermostability is explained by formation of proline-aromatic residue and proline-proline interactions in the local region. Present study has firmed the role of proline in providing rigidity and hence stability to protein.

Biography

Shelly Goomber is working as Ph.D. research fellow at department of Biotechnology, Panjab University, Chandigarh. She has six year experience in teaching graduate students of biotechnology. She has two publications in journal of international repute.

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