Molecular Mechanism on the Remarkable Activation and Stabilization of Thermolysin in the Presence of High Concentration of Salts

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Summary

The activity of thermolysin is greatly enhanced in the presence of high concentration of neutral salts. NaBr and NaCl are the most effective in the activation. An absorptoin difference spectrum having a peak around 293 nm was observed on mixing thermolysin with NaCl. As the peak disappeared in the presence of competitive inhibitors of the enzyme the peak was considered to be derived from a tryptophyl residue (Trp 115) located at the active site of the enzyme. This peak was not observed on the mixing of thermolysin and NaBr, suggesting that a slight difference in size between chloride and bromide ions is critical in the interaction with the tryptophyl residue.