RECOMBINANT AMINOPEPTIDASE FROM *THERMOTOGA MARITIMA*: CLONING, EXPRESSION, PURIFICATION AND CHARACTERIZATION

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Hyperthermophiles are a fascinating group of microorganism that has the remarkable property of growing at a temperature of 70°C or above. Because of the thermostability of the enzymes extracted from these organisms, there is a developing interest of utilizing thermoenzymes as biocatalysts for the industries.

A putative aminopeptidase P gene (TM0042, Swissport Q9WXP9, GeneBank AAD35136) of *Thermotoga maritima* was cloned and expressed in *Escherichia coli* BL21 (RIL). The enzyme was purified by the combination of ion exchange chromatography; Q-Sepharose and Mono-Q column. The purified recombinant
T. maritima aminopeptidase P enzyme gave a homogenous protein band with an apparent molecular weight of 40 kDa in SDS-PAGE analysis. The enzyme was purified 23-fold with the specific activity of 16.5 units/mg and the final recovery of 22%. The enzyme was thermostable up to 90°C for 30 min. An optimal activity was observed at 90°C at pH 7.5. The purified enzyme was stable between pH 6.5 to 8 at 80°C with the pH optimum of 7.5. The enzyme aminopeptidase P showed high thermostability which would possibly be advantageous for biotechnological applications.