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## Purification of protease from *Bacillus licheniformis* and its application as thrombolytic agent

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Thrombosis leads to myocardial infarction, stroke and other cardiovascular complications. Thrombolytic agents such as t-PA, u-PA, streptokinase etc are used to treat complications related to thrombosis. However, investigations are being pursued to find out new microbial enzymes as thrombolytics having better efficacy and specificity with less side effects, availability and affordability. To search for new thrombolytic proteases from microbial sources, two mutant strains of *Bacillus licheniformis* *MZK05M9* and *Bacillus licheniformis* *EMS250-O-1* were cultured in modified Urea-glucose and Urea-molasses medium at 37 °C under shake culture conditions yielding 840.112 units/mg and 1128.992 units/mg respectively. The enzymes were partially purified using ammonium sulfate precipitation and ultrafiltration yielding 37713.922 units per mg from *MZK05M9* and 40129.916 units per mg from *EMS250-O-1*. The molecular weight of the partially purified enzymes from the strain *MZK05M9* was approximately 27.2 kDa and purification increased its specific activity to 16.49 fold with a recovery of 10%, whereas the same from the strain *EMS250-O-1* was approximately 25.5 kDa with an increase in 12.28 fold having a recovery of 17.8%. The partially purified protease enzymes exhibited 32.84% and 38.01% thrombolytic activity for strain *MZK05M9* and *EMS250-O-1* respectively, by *in vitro* clot lysis assay. The present results will be useful basis for development of viable thrombolytic drugs to prevent or cure thrombosis and related disorders.

### Biography

Muhammad Asad Uz Zaman has completed his BPharm and MPharm from the Department of Pharmaceutical Chemistry, University of Dhaka, Bangladesh. He was awarded the National Science and Technology Fellowship (2014-2015) provided by Ministry of Science & Technology, Government of Bangladesh. He is a registered Pharmacist (Grade-A) under the Pharmacy Council of Bangladesh. He is currently working as a Product Development Officer in ACI (Advanced Chemical Industries) Pharmaceuticals Ltd.

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