



## Production of an Alkaline Protease from *Exiguobacterium indicum* TBG-PICH-001 Isolated from Pichavaram Estuary

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### Keywords

*Exiguobacterium*;  
Alkaline Protease;  
Fermentation;  
Purification.

**ABSTRACT:** Proteases have high commercial value and hold largest share with 65% of global industrial enzymes market. Their application extends over a wide range of sectors such as detergent formulations, pharmaceuticals, leather industry, food, meat tenderization, waste treatment etc. Although proteases of animal, plant and microbial origins are reported, microbial proteases are preferred over other sources due to their extracellular nature of production, prospect of large-scale production and relatively simple downstream processes. They are also favored because of possible easy genetic manipulation. Microbial proteases are probably the most extensively studied enzymes. Among the bacterial producers, genus *Bacillus* contributes towards largest share. Their wide range applications attract researchers to search for novel and potent strains for maximizing production. A proteolytic bacterial strain, TBG-PICH-001, was isolated from soil of Pichavaram Estuary, Tamil Nadu, and was identified as *Exiguobacterium indicum* based on 16S rDNA sequence similarity. Parameters such as incubation time, temperature, initial pH, rate of agitation and inoculum required for peak production of the protease by the newly isolated bacterium under submerged fermentation were optimized using one factor at a time method. Purification of enzyme was achieved by ammonium sulphate fractionation followed by ion-exchange chromatography with DEAE-Cellulose, to give total yield of 27%. The molecular weight determined by SDS-PAGE was approximately 60 KDa. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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