

## Proteolytic Activity of Bacteria Isolated from Soil

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### Abstract:

Bacteria are well known for their ability to excrete enzymes into the environment. The aim of this work was to screen and isolate protease-producing bacterial strains from the bank soil of the DOJRF-TORBA dam. The collected soil samples were serially diluted and 0.1 ml of sample was spread on skim milk agar plates at 37°C for 24 hours, ten bacterial colonies showed a clear zone around the colony indicating that they had high proteolytic activity (caseinolytic) due to the degradation of casein. The protease activity of the isolates was determined both qualitatively and quantitatively, where in the first test isolates B4 and B10 showed the largest clear zones on skimmed milk agar (51.1 and 43mm) respectively. With regard to the quantitative protease assay carried out using casein as a substrate revealed a variation in yield between strains, however isolate B4 always gave the best results. Subsequently, the enzymatic assay showed that the B9 and B4 isolates gave excellent protease activities, whereas isolate B7 had low activity with only 7 µg/ml tyrosine release. The identification of these ten proteolytic isolates was based on macroscopic and microscopic characters. Among the ten isolates, five isolates (B2, B3 and B5, B7, B9) are Gram positive cocci, Gram negative cocci are represented by the strains (B4, B6), while the strains B1 and B8 possibly belong to the genus *Bacillus*. The results of this work are very motivating for further studies to identify and exploit certain strains (B4, B8, B5 and B2) which may open up possibilities for application in various industries.

### Keywords:

Soil, bacteria, proteolytic activity, screening.