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## Abstract:

The present study was an attempt to isolate *Bacillus cereus* bacterial strain under controlled conditions related to sterile environment, temperature and pH. Strain with high protease yield was optimized with respect to temperature, agitation speed, initial medium pH and incubation time. Selected bacterial strain C-2 showed the high protease activity 3.93 U/ml at optimum temperature 37°C and pH8.0. Trypton and Dextrose used as a nitrogen and carbon source showed maximum activity of protease as 5.36 U/ml and 3.46 U/ml. Partial purification performed by using ammonium sulphate that showed maximum activity at 80% as 8.48 (U/mg).  $Mg^{+2}$  and  $CaCl^{+2}$  have stimulatory effect while other metals as  $Zn^{+2}$ ,  $Cd^{+2}$ ,  $Cu^{+2}$ , NaCl have inhibitory effect on activity of enzyme. Detergents having different concentrations 10mM, 20mM and 30mM for EDTA, SDS and Triton used to check impact on enzyme activity as 30mM concentration have more negative impact on enzyme activity by inhibiting its production. Obtained results showed *Bacillus cereus* under study is a good producer of extra cellular protease, which can be beneficial for industries.

**Key Words:** *B cereus*, Gel-Electrophoresis, Ribo-typing, EDTA, SDS, Partial purification