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Cloning and Expression of the ansZ Gene from Bacillus sp. CH11 Isolated from Chilca salterns in Peru

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Abstract : L-asparaginase from bacterial sources is used in leukemic treatment and food industry. This enzyme is classified based on its affinity towards L-asparagine and L-glutamine. Likewise, ansZ genes express L-asparaginase with higher affinity to L-asparagine. The aim of this work was to clone and express of ansZ gene from Bacillus sp. CH11 isolated from Chilca salterns in Peru. The gene encoding L-asparaginase was cloned into pET15b vector and transformed in Escherichia coli BL21 (DE3) pLysS. The expression was carried out in a batch culture using LB broth and 0.5 mM IPTG. The recombinant L-asparaginase showed a molecular weight of ~ 39 kDa by SDS PAGE and a specific activity of 3.19 IU/mg of protein. The cloning and expression of ansZ gene from this halotolerant Bacillus sp. CH11 allowed having a biological input to improve a future scaling-up.

Keywords : ansZ gene, Bacillus sp, Chilca salterns, recombinant L-asparaginase
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