Purification and Characterization of a protease by Bacillus subtilis W-118

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ABSTRACT

The production of useful protease by Bacillus subtilis W-118 , using SCSP (Shrimp and crab shell powder) as the major carbon source, was studied. The optimized conditions for protease production was found when the culture was shaken at 30oC for 2 days in 100ml of medium (pH6) containing 1% shrimp and crab shell powder, 0.1% K2HPO4 and 0.05% MgSO4 . 7H2O. The protease was purified through ammonium sulfate fractionation , DEAE-Sepharose CL-6B, Sephacry S-200 Gel filtration. A 2.31 fold purification of the enzyme over Sephacry S-200 Gel filtration and specific activity of 0.6 (U/mg) was shown. The recovery of activity was 2% . The protease was found to have a optimum pH at 7~9, a optimum temperature at 50oC as acting on casein. The protease was stable under 37oC in an hour and stable at pH8. The activity of protease was strongly inhibited by PMSF.The properties of composts made by bio-fertilizer crab and shell wastes with Bacillus subtilis W-118 were studied. The effected of the composts on the growth of Chinese cabbage were observed. The weight and height of the whole plant were grown enormously; they are 156 % and 133% in comparison with the control.

Keywords : Bacillus subtilis ; SCSP ; protease ; purification

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