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Growth conditions and production of the Bacillus intermedius subtilisin-like serine proteinase by the recombinant Bacillus subtilis strain

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Abstract

The effect of the components of the nutrient medium on growth and production of the Bacillus intermedius subtilisin-like serine proteinase by the recombinant strain Bacillus subtilis AJ73(pCS9) was studied. The production of proteinase was found to be dependent on the composition of the nutrient medium and showed two peaks, at the 28th and 48th h of growth. The concentrations of the main components of the nutrient medium (peptone and inorganic phosphate) optimal for the biosynthesis of subtilisin-like serine proteinase at the 28th and 48th h of growth were determined in factorial experiments. Complex organic substances, casein at concentrations of 0.5-1%, gelatin at concentrations of 0.5-1%, and yeast extract at a concentration of 0.5%, stimulated the production of subtilisin-like serine proteinase by the recombinant strain. The study of the sporulation dynamics in this strain showed that the proteinase peaks at the 28th and 48th h of growth correspond, respectively, to the initial stage of sporulation and to the terminal stages of endospore formation (V-VII stages of sporulation). © Pleiades Publishing, Inc., 2006.

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Keywords

Bacillus intermedius, Biosynthesis, Extracellular subtilisin-like serine proteinase, Recombinant strain, Sporulation