

## Conditions of the biosynthesis of an extracellular subtilisin-like proteinase by *Bacillus pumilus* KMM 62

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### Abstract

The influence of the cultivation conditions on *Bacillus pumilus* KMM 62 growth and effectiveness of the production of a subtilisin-like serine proteinase were investigated. Enzyme accumulation in the culture fluid reached the maximum value after 32 and 46-48 h of growth; it depends on the composition of the nutrient medium. The ratio of the concentrations of two main components of the medium, peptone and inorganic phosphate, which was optimal for enzyme biosynthesis was determined by multifactor experiments. Ammonium salts, when introduced as an additional nitrogen source, had different effects on the proteinase biosynthesis at different growth stages: they suppress enzyme production at the early stationary growth phase and stimulate the biosynthesis of the enzyme after 46-48 h of growth. Complex organic substrates (albumin, casein, hemoglobin, and gelatin) have a repressive effect on the biosynthesis of the enzyme. The effect of amino acids on culture growth and enzyme biosynthesis during the early and late stationary growth phase is different. Hydrophilic amino acids, glutamine, and glutamic acid exhibit the most pronounced repressive action on biosynthesis. The involvement of different regulatory mechanisms of the synthesis of this proteinase is assumed in the early and late stationary phases of growth. © Nauka/Interperiodica 2007.

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### Keywords

*Bacillus pumilus*, Biosynthesis, Conditions of growth and biosynthesis, Subtilisin-like proteinase