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Biosynthesis of endochitinase of *Serratia marcescens*

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Abstract

The growth of a mutant strain of *Serratia marcescens* with high chitinase activity and the biosynthesis of endochitinase by this strain were investigated. The study was carried out using semisynthetic culture medium without inducers and culture medium containing colloidal chitin as a sole nitrogen and carbon source, with and without mitomycin C. The mutant strain, unlike the native one, was shown to produce endochitinase and to secrete the enzyme into the medium during the growth on culture medium without the inducers, chitin and mitomycin C. During growth on the medium with chitin the mutant strain differed from the native one with a short lag-phase of growth, the early appearance of endochitinase in the culture liquid and a high level of endochitinase activity. The difference between the strains disappeared after the addition of mitomycin C, an inducer of the cell SOS-response, to the culture medium containing chitin. Specific endochitinase activity of *S. marcescens* mutant strain grown on various culture media had two maxima, namely at the beginning and at the end of the stationary phase. Mitomycin C increased the specific activity in a second peak of endochitinase activity during the growth of the mutant strain.

Keywords

Biosynthesis, Endochitinase, Mitomycin C, *Serratia marcescens*