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Preparations of Bacillus pumilus secreted RNase: One enzyme or two?

Ulyanova V., Khodzhaeva V., Dudkina E., Laikov A., Vershinina V., Ilinskaya O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2015, Pleiades Publishing, Ltd. Immunochemical analysis of the following purified preparations of Bacillus pumilus RNase (binase) was carried out: industrially manufactured enzyme (Institute of Organic Synthesis, Riga, Latvia) and the enzymes isolated from the culture liquid of the native B. pumilus producer and from the Escherichia coli BL21 recombinant strain bearing the pGEMGX1/ent/Bi plasmid. Electrophoresis of all three samples of purified binase revealed two protein fractions with ribonuclease activity possessing molecular masses of ~12 and 25 kDa. The possible presence of binase II, a second secreted RNase, was ruled out. Both high- and low-molecular mass proteins interacted with binase-specific antibodies in the immunoblotting reaction, which indicated their antigenic identity. The difference in molecular mass between these proteins indicated the possible presence of two forms of binase in solution, a monomer and a dimer.

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Keywords

Bacillus pumilus, binase, binase II, immunoblotting, immunodiffusion, RNase