

Cloning and expression of *Bacillus amyloliquefaciens* BLB 369 endo- β -1,3-1,4-glucanase in *Escherichia coli*

Imen Zalila-Kolsi, PhD

Liwa College, Abu Dhabi, UAE

Abstract

The endo- β -1,3-1,4-glucanases are glycoside hydrolases involved in the enzymatic depolymerization of 1,3-1,4 β -glucans and showed an antifungal activity against some fungi. *Bacillus amyloliquefaciens* BLB369 has a high antagonistic activity against phytopathogenic fungi. Its *glu369* full-coding sequence of the endo- β -1,3-1,4-glucanase gene (732 bp) was sequenced, cloned, and successfully expressed in *Escherichia coli* Top10. The encoded protein (243 amino acids) has a calculated molecular mass of 27.3 kDa. In order to simplify the purification procedure, the *glu369* coding sequence was cloned into the vector pKJD4. The produced OmpA-His-Glu369 harboured OmpA signal sequence for *E. coli* periplasmic localisation and followed by a 6His residues for its purification. The purified His-tagged proteins revealed two bands on SDS-PAGE analysis with molecular masses of about 30.5 (His-Glu369) and 32.5 kDa (OmpA-His-Glu369). They had the ability to inhibit the growth of phytopathogenic fungus *Alternaria alternata*. These favourable properties make the endo- β -1,3-1,4-glucanase a good candidate for biotechnological applications.

Biography

Dr. Imen Zalila is an Assistant Professor in the faculty of Medical and Health Sciences, Liwa College, Abu Dhabi UAE. She earned many years as a full-time researcher at Centre of Biotechnology of Sfax. She has many years of teaching experience in both Al Ain University of Science and Technology, College of Pharmacy, Abu Dhabi and Al Khawarizmi International College, Abu Dhabi. She supervised many graduation projects and joined many international conferences. Dr. Zalila published many original articles in top-tier international peer-reviewed journals. Her research interests include Applied Microbiology, Biochemistry, Molecular Biology and others.