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Cloning and Sequence Analysis of the Levansucrase Gene from *Rahnella aquatilis* ATCC 15552

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A levansucrase gene, *lscR*, from *Rahnella aquatilis* ATCC 15552 was cloned and expressed in *Escherichia coli*, and its nucleotide sequence was determined. The *lscR* consisted of 1248 bp open reading frame for a protein of 415 amino acids. The recombinant *E. coli* for the production of levansucrase was prepared by transforming *E. coli* BL21 (DE3) with the expression vector pTRLSU. The expression vector was constructed by inserting a levansucrase gene into pCR II-TOPO vector. Most of the levansucrase activity was observed in the cell free extract. The optimum pH and temperature of the enzyme activity was around pH 6.0 and 30oC, respectively. Although the amino acid sequence of the *lscR* gene showed high homology with sequences from Gram-negative bacteria, it has relatively low similarity with Gram-positive levansucrases. This result indicates that the levansucrases between Gram-negative and Gram-positive bacteria are quite divergent.