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Genetic analysis of *Serratia plymuthica* using transposon mutagenesis to investigate the production of secreted antimicrobial activity**Mai Al-Ghanem**

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The aim of this project is to investigate the production of secreted antimicrobial activity in *S. plymuthica* (P) and the genetic analysis of (P) using transposon mutagenesis and cloning the genomic regions that code for antimicrobial activity to determine the number of genes involved and the structure and position of the identified genes in the bacterial genome. Also, the effect of various growth conditions on the production of secreted anti- microbial activity and the purification and basic characterization of the secreted antimicrobial compound/s.

During a screen of seaweed associated marine microorganisms for their ability to produce antimicrobial metabolites, a bacterial strain which later named (P) demonstrated antimicrobial activity against a variety of gram-positive pathogens. Ribotyping analysis showed the strain had high sequence identity (99%) to *Serratia plymuthica*. Tests with a type strain of *S. plymuthica* obtained from the DSMZ strain bank revealed that (P) did not produce a similar spectrum of antimicrobial activity and initial studies of the inhibitory activity of the antimicrobial compound/s produced by (P) demonstrated that it has a low molecular weight, pH and heat resistant and was not affect by enzymes like (Proteinase K). Also, a modified method of transposon mutagenesis (Larsen et al., 2002) has been used to identify gene/s involved in antimicrobial production and 14 mutants defective in antimicrobial production were isolated and partially characterized. Sequence analysis of three of these mutants revealed the presence of transposon insertions in genes encoding proteins similar to polyketide synthases.

Biography

Mai Al-Ghanem has pursuing his PhD from School of Life Sciences Heriot-Watt University, UK.

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