University of Zabol

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The Thesis Submitted for the Degree of M.Sc

Subject:

The Prevalence of *Sea* and *Seb* Genes in the Production of Enterotoxins A and B in *Staphylococcus Aureus* Bacteria in Sistan Province

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Abstract

Staphylococcus aureus is one of the most important human pathogens that produces a wide range of toxins and causes various di*sea*ses. Enterotoxins A and B are the main causes of food poisoning in the world. The aim of this re*sea*rch was to investigate enterotoxin A (*sea*) and B (*seb*) genes in *S. aureus* isolated from raw milk of traditional farms in Sistan region. The raw milk samples (n=300) were sent to the laboratory under sterile conditions. The isolated bacteria were evaluated by polymerase chain reaction (PCR) to detect the genes encoding *SEA* and *SEB*. The results showed that 60 samples 20% were positive for *S. aureus* contamination. Among the strains of *S. aureus*, 21 samples 35% have *sea* gene and 9 samples 15% have *seb* gene. The presence of a 120 base pair fragment 120 bp related to the replication of the *sea* gene and the presence of a 478 base pair fragment 478 bp related to the replication of the *seb* gene indicated the presence of these genes in *S. aureus*. The high level of enterotoxin genes in *S. aureus* isolated from milk samples is a possible risk factor for consumer health. Therefore, it is necessary to improve the sanitary quality of milk in the study area.

Keywords: gene, *sea*, *seb*, enterotoxins, *Staphylococcus aureus*, Sistan