Detection of mecA gene in *Staphylococcus aureus* isolated from hamburgers

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ABSTRACT

Introduction: Staphylococcal food poisoning is a gastrointestinal illness. It is caused by eating foods contaminated with enterotoxins produced by *Staphylococcus aureus*. The enterotoxins are fast acting, sometimes causing illness within one to six hours. Patients typically experience nausea, vomiting, stomach cramps, and diarrhea. Infections with methicillin-resistant *Staphylococcus aureus* (MRSA) are increasing community acquired. The contamination sources for foods, especially animal-origin foods, maybe livestock as well as humans involved in animal husbandry and food-processing. Under favorable environmental conditions for growth and enterotoxin production, enterotoxigenic *Staphylococcus aureus* isolates present in foods can cause staphylococcal food poisoning (SFP), irrespective of the contamination origin. The aim of present study was to investigate the frequency of methicillin resistance *Staphylococcus aureus* isolates in hamburger samples.

Materials and Methods: one hundred samples of packed and handmade hamburgers from markets were investigated for the presence of *S. aureus* and detection of mecA gene in Iran-Tehran. Sensitive and specific polymerase chain reaction (PCR) technique as a gold standard assay was employed.

Results: Results showed that 39% of samples were positive for *S. aureus*. PCR analysis detected the mecA gene in 6 isolates (15.38%).

Conclusion: The results of this study indicate that the PCR for detection of mecA gene is a fast, accurate and valuable diagnostic method. The high presence of *S. aureus* in hamburgers requires policies that will lead to hygienic practices in the industrial and ready-made foods. Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Point (HACCP) systems in food industries are recommended to overcome current problems.