Rapid Molecular Detection of Salmonella spp. Based on Amplification of invA Gene

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ABSTRACT

Background and objectives: Salmonella spp are the most important cause of food poisoning and diarrhea. Routine diagnostic methods for identification of Salmonella such as culture are time consuming. The aim of this study was to evaluate a Uniplex PCR for rapid molecular detection of Salmonella spp.

Material and methods: In this study, a pair of primers was designed and used to replicate a chromosomal sequence (invA gene) of Salmonella spp. We evaluated the method on Salmonella spp isolated from clinical cases that had been confirmed serologically and biochemically. Boiling method was used for DNA extraction. PCR was performed by different thermal gradient. Amplified product was electrophoresed, stained by ethidium bromide and visualized by gel documentation. For evaluation of specificity of the method, some related bacterial strains were used.

Results: The result of PCR showed expected amplified DNA band in Salmonella spp. Any non-specific reaction with other bacterial strains such as Escherichia and gram positive cocci was not seen and designed method was able to detect all tested Salmonella spp.

Conclusion: The results showed that invA gene is an appropriate target for rapid detection of Salmonell spp. Designed method with new primers is sensitive, easy, rapid, reliable and is recommended for detection of Salmonella spp.

Keywords: Salmonellosis, PCR, Salmonella spp, Rapid detection