A Specific Multiplex PCR for Detection of Shigella Spp

Davoud Afshar*[1]; Reza Ranjbar[2]

1-Department of Pathobiology, School of Public Health, Tehran University of Medical , Tehran, Iran

2-Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

davoodafshar@yahoo.com

Background & Objectives: Shigella is a gram-negative bacterium that belongs to enterobacteriaceae family. It is the etiological agent of bacillary dysentery. Hence, the advantage of rapid detection of Shigella spp in clinical samples is evident.

Methods: A rapid and accurate MPCR for simultaneous detection of Shigella spp. in clinical and standard species were established by using four specific pair primers. In this study, Shigella genus and three species of Shigella (S. boydii, S. sonnei, S. flexnery) were detected by a specific universal and three separately primers.

Results: MPCR for detection of genus plus three species were performed and expected results were observed. The specific genus amplicon with 159bp size observed in all tested species. Also specific amplicons for *S. boydii* (247bp), *S.flexnery*(314bp), and *S.sonnei*(503bp) standard species were observed. we did not have any false positive and false negative results.

Conclusion: MPCR can be sensitive in the detection of diarrheal pathogens if provided that the used primers be specific and have no cross reaction. MPCR by using a specific and conserve region of genome is more sensitive and it has reproducibility. Finding a conserve sequence in Shigella genome's that it has no similarity to other related bacteria such as *E.coli*, and Salmonella spp. is very difficult. However we found some conserve regions in Shigella spp. that on base four pair primers were designed. This approach allowed us to distinguish Shigella species from each others in the clinical and standard species simultaneously.

Keywords: Multiplex PCR; Shigella Spp; Acute Gastroenteritis