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Multiplex quantification of *Escherichia coli*, *Salmonella typhi* and *Vibrio cholera* with three DNA targets in single reaction assay

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Abstract

Escherichia coli (*E. coli*), *Salmonella typhi* and *Vibrio cholera* harmful pathogens, which causes various diseases in humans. Rapid diagnosis of bacterial infection is important for patient management and appropriate therapy during the early phase of the bacteria-induced disease. Among the existing techniques for identifying pathogens were less sensitive and time-consuming processes. In the present study total, 48 clinical 31 blood and 17 urine samples of patients suspected with the infections were collected from SVRR Hospital and used to detect the pathogens. Multiplex polymerase chain reaction (PCR) assay was set to design for the detection of *Escherichia coli* (ATCC 43895), *Salmonella typhi* (ATCC 19430) and *Vibrio cholera* O from the different clinical samples. So the rapid diagnosis of *Escherichia coli* (*E. coli*), *Salmonella* and *Vibrio cholera* pathogens can be done simultaneously in single multiplex PCR assay by using species-specific primers with adjusted PCR conditions. Through this approach, the results represented without of 31 blood samples 1 to 17 shows the positive with *E. coli* and remaining 14 only 11 were correlated with multiplex results of *E. coli* and *Vibrio cholera*, remaining the urine samples all are positive with 17 samples correlate with the *Salmonella typhi*. Through the high specificity benefits of excellent sensitivity, with high resolution and reproducibility. This

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