Rapid Molecular Detection of *Pseudomonas aeruginosa* Using Real-Time PCR

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ABSTRACT

This study was performed to validate the targeted molecular detection of DNA isolated from *Pseudomonas aeruginosa* using a Synergy Brands Inc Green real-time polymerase chain reaction (PCR) assay. Rapid detection of infections caused by *P. aeruginosa* are clinically necessary because of their propensity for a high level of pathogenicity and resistance. They are a significant cause of nosocomial infections (~10%) and can infect a wide variety of systems, especially in the immunocompromised population. Real-time PCR assays can contribute a faster turn-around-time and more accurate sensitive identification compared with traditional culture methods. For this study, 95 samples were run to determine the analytic statistics, and 60 blinded samples were analyzed for clinical characteristics. From the data collected, the assay was determined to have an accuracy of 99%, precision of 99.26%, clinical sensitivity and specificity of 100%, and a lower limit of detection at 0.00005ng of DNA per 25µL reaction. The investigators concluded that this test offered a highly accurate, sensitive, and rapid detection of the pathogen when compared with traditional culture methods. These results suggest the potential advancement of diagnosis, treatment, and an improved clinical picture of a possibly serious infection.

ABBREVIATIONS: PCR - polymerase chain reaction.

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