Kuppuswamy N Kasturi

US Food and Drug Administration, USA

Real-Time PCR for detection of Salmonella *spp.* in environmental samples

The methods currently used in FDA field laboratories and other public health laboratories for detecting *Salmonella* in food /environmental samples require 2 days and have limited sensitivity. We describe the development and validation of a real-time PCR method that detected *Salmonella* and presence of group D in 24 h. Primers and probes specific to the *invA gene of Salmonella*, group D, and Enteritidis serovar were designed and evaluated for the inclusivity and exclusivity using a panel of 329 *Salmonella* isolates consisting 126 serovars from 32- O groups and 22 non-*Salmonella* environmental organisms. The invA-, group D-and Enteritidis - specific sets identified the isolates accurately. The PCR method was100% inclusive for *Salmonella spp* and had a detection limit of 2 copies of *Salmonella* DNA per reaction. A Single-laboratory validation performed on 1,741 environmental samples demonstrated that the PCR method detected 55% more positives than the VIDAS method that is currently used. The method is more specific and did not report any false-negatives. The receiver operating characteristic (ROC) analysis documented excellent agreement between the results from the culture and PCR methods (area under the curve, 0.90; 95% confidence interval of 0.76 to 1.0) confirming the validity of the PCR method. The validated PCR method will help to strengthen public health efforts through rapid screening of *Salmonella spp*. in environmental samples.

Speaker Biography

Kuppuswamy N Kasturi after completing DSc from the University of Paris South, France, pursued postdoctal studies at the Beatson Institute for Cancer Resaerch, Glasgow, Scotland, United Kingdom and then worked as a Member of Microbiology Faculty at Mount Sinai Meical Center, New York, USA prior to joining USFDA as a Microbiologt in 2002. He has published more than 50 papers in reputed international journals and has been serving as an Editorial Board Member of *International Journal of Food Science, Nutrition and Dietetics*.

e: Kuppuswamy.Kasturi@fda.hhs.gov

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