Can Multiplex SYBR Green Real-Time PCR Assay Serve as a Detection and Quantification Method Comparable to the TaqMan Method for SARS-CoV-2 Diagnosis?

ABSTRACT

The reopening of schools, business, and social sectors during the COVID-19 pandemic has caused a current increase in the number of COVID-19 cases and clusters all over the globe. While the COVID-19 pandemic is far from over, the reopening and resumption of all economic sectors are essential to recovering the world economy. Health experts all over the world have determined that the real-time quantitative reverse transcription polymerase chain reaction (RT-qPCR) method is the gold standard for diagnosing COVID-19 infections due to the test's high sensitivity and specificity. During the past 3 years when WHO declared the COVID-19 pandemic, the cost of laboratory diagnosis of COVID-19 using a robust RT-qPCR assay is still considerably expensive, especially for low and middle-income countries. Therefore, numerous studies have reported optimized SYBR green methods which are more economical than the qPCR probe assay. Continuous diagnostic testing is vital to mitigate the spread of COVID-19. However, there is a question as to whether SYBR Green may serve as an excellent detection and quantification method for molecular diagnosis to perform SARS-CoV-2 screening. This review summarizes the numerous studies using SYBR Green RT-PCR to detect SARS-CoV-2. The reliability of SYBR Green qPCR assays for determining gene expression based on their performance is justified and the quality is comparable to the TaqMan method.