عنوان مقاله:

Development a hydrolysis probe-based quantitative PCR assay for the specific detection and quantification of Candida auris

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خلاصه مقاله:

Background and Purpose: Candida auris is an emerging multidrug-resistant pathogen. The identification of this species with the conventional phenotypic or biochemical mycological methods may lead to misidentification. Molecular-based species-specific identification methods such as quantitative real-time polymerase chain reaction (qPCR) facilitate a more reliable identification of C. auris than mycological methods. Regarding this, the present study aimed to develop a hydrolysis probe-based qPCR assay for the rapid, accurate identification of C. auris. Materials and Methods: The internal transcribed spacer ۲ regions in the nuclear ribosomal DNA of C. auris and other related yeasts were assayed to find a specific PCR target for C. auris. A ۱۲۳-base-pair target was selected, and primers and a probe were designed for hydrolysis probe-based real-time PCR with TaqMan chemistry. Ten-fold serial dilutions of C. auris ranging from ۱۰۶ to ۱۰۰ CFU/mL were prepared to establish a standard curve to quantify the yeast. Results: The qPCR assay was able to identify and quantify C. auris with a detection limit of ۱ C. auris CFU per reaction. Specificity was confirmed by the non-amplification of the sequences belonging to other Candida species, yeasts, molds, bacteria, or human DNAs. The standard curve of the assay showed a highly significant linearity between threshold values and dilution rates (R۲=۰.۹۹; slope=−۳.۴۲). Conclusion: The applied qPCR assay facilitated the rapid and accurate identification and quantification of emerging opportunistic C. auris. Therefore, considering the promising test validation results, we succeeded to develop a rapid and accurate hydrolysis probe-based qPCR assay for the screening and identification of C. auris.

کلمات کلیدی:

Candida auris, Quantification, Real-Time PCR