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Isolation of Candida auris in Clinical Specimens

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Abstract

Candida auris is a multidrug-resistant yeast causing healthcare-associated outbreaks of blood stream infections worldwide. Currently, C. auris isolation and identification is complicated by issues such as misidentification and long turnaround time associated with application of commonly used diagnostic tools. Based on phenotypic characteristics, differentiation of C. auris from related Candida haemulonii complex spp. is problematic. Candida auris can be misidentified using biochemical-based systems such as VITEK 2 YST, API 20C, BD Phoenix yeast identification system, and MicroScan. C. auris growth at 42 °C and in the presence of 10% NaCl helps in presumptive identification of this yeast from related Candida haemulonii complex spp. A new CHROMagar™ Candida Plus agar is an excellent alternative to current conventional mycological media for the screening of patients colonized/infected with Candida auris. Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) can differentiate C. auris from other Candida species, but not all the reference databases included in MALDI-TOF devices allow for detection. Currently, accurate identification of C. auris can be performed using the updated FDA-approved libraries or "research use-only" libraries. Molecular techniques have greatly enhanced the diagnosis of C. auris. Sequencing of rDNA genetic loci, namely, internal transcribed spacer and D1/D2 region of large subunit (LSU), and PCR/qPCR assays has successfully been applied for identification of C. auris. Real-time PCR assays bear incomparable potential of being the most efficient tool for high-throughput screening of surveillance samples. If properly validated, they can deliver the diagnostic result within several hours, since the DNA can be isolated directly from the patient specimen without the need of obtaining a colony. In this chapter we detailed the isolation of Candida auris from various clinical specimens and its currently available identification methods and hitches.

Keywords: CHROMagar Candida; Candida auris; Misidentification; Molecular identification; Phenotypic identification.

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