CPHM06 Sunday - 270 6/22/2025

# Comparison of Three Chromogenic Agar Plates for the Detection of Candida auris



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## Introduction

Candida auris is an emerging multi-drug resistant pathogen first identified in 2009. It is a nosocomial pathogen causing hospital outbreaks due to its ability to colonize patients and survive on surfaces in healthcare facilities. Using a chromogenic media that differentiates *C. auris* can aid in earlier detection on routine and surveillance culture. Growth of *C. auris* on BBL CHROMagar Candida (BD, USA) (BBL) appears pink, making it difficult to differentiate from other Candida and non-Candida species. We compared the growth of *C. auris* and other fungi on BBL, a medium currently being used in our clinical laboratory, to two other chromogenic media that can differentiate *C. auris*.

### Methods

18 yeast isolates, 2 molds, and 8 ATCC strains (*Escherichia coli* 25922, *Pseudomonas aeruginosa* 27853, *Candida albicans* 10231, *Candida tropicalis* 1369, *Candida krusei* 6258, *Candida glabrata* 66032, *Candida parapsilosis* 22019, *Candida auris* B11903) (see table) were plated to BBL, Hardy CHROM Candida + auris (Hardy, USA) (H+), and CHROMagar Candida PLUS (CHROMagar, France) (CM). Isolates were plated individually and in various combinations at 1,000 CFU per plate and incubated at 37°C. The obverse and reverse colors were noted from 24h to 72h for comparison.

## Results

- C. auris and phylogenetically related Candida haemulonii and Candida duobushaemulonii exhibited light pink obverse and light blue reverse on CM
- C. auris, C. haemulonii, and C. duobushaemulonii appear bright blue and fluoresce under UV light at 48h on H+
- C. parapsilosis, Candida guilliermondii and Candida lusitaniae are pink on BBL and blue on H+
- A. fumigatus showing a blue-green obverse color on CM
- Other organisms exhibit similar color on CM and BBL
- Different organisms are distinct on all media in mixed culture

#### Conclusion

- On BBL, it is difficult to discern C. auris from other organisms due to similar pink colors
- CM showed distinct color for *C. auris* while also maintaining similar growth color to BBL for other organisms, which would be easier to transition to for routine culture
- Without using fluorescence, *C. auris* is difficult to see on the H+ as it is white at 24h
- For laboratories with a dark room and UV lamp, H+ can be an alternate chromogenic agar for *C. auris* screening
- Since *C. auris*, *C. haemulonii*, and *C. duobushaemulonii* appear similar, confirmation is needed
- CM and H+ are both effective screening tools

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Organism	BBL CHROMagar Candida	CHROMagar Candida Plus	HardyCHROM Candida + auris	
Escherichia coli	Inhibition	Inhibition	Inhibition	
Pseudomonas aeruginosa	Inhibition (partial)	Inhibition	Inhibition (partial)	
Candida albicans	Green	Green	Green	
Candida dublinensis	Green	Green	Green	
Candida parapsilosis	Pink - White	Pink - Purple	Bright blue	
Candida krusei	Pink	Pink - Purple	Pink	
Candida glabrata	Pink	Pink	Pink	
Candida guilliermondii	Pink	Pink	Blue	
Candida kefyr	Pink	Pink - Purple	Pink	
Candida lusitaniae	Pink	Pink - Purple	Blue	
Candida tropicalis	Dark Blue	Dark Blue	Dark Blue	
Candida haemulonii	Pink	Light blue (Reverse)  – Pink (Obverse)	Bright blue, fluoresces	
Candida duobushaemulonii	Pink	Light blue (Reverse)  – Pink (Obverse)	Bright blue, fluoresces	
Candida auris	Pink	Light blue (Reverse)  – Pink (Obverse)	Bright blue, fluoresces	
Magnusiomyces capitatus	Pink	Purple - Blue	Pink	
Cryptococcus neoformans	Pink - White	Pink	Pink - Blue	Total Assessment
Cryptococcus gattii	Pink - White	Pink	Pink - Blue	
Apiotrichum mycotoxinivorans	Blue - Pink	Blue - Green	Blue - Green	
Saccharomyces cerevisiae	Purple	Purple	Purple	
Rhodotorula mucilaginosa	Pink	Pink	Purple	
Aspergillus fumigatus (obverse)	Tan	Blue - Green	Tan	
Exophiala dermatitidis	Brown	Brown	Brown	

