A Preliminary Study of Germicidal Efficacy against Candida auris

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Background

- Candida auris is an emerging fungal pathogen that is often resistant to major classes of antifungal drugs and can survive on healthcare environmental surfaces.
- It is now considered a serious global health threat.
- It remains unclear whether C. auris is also resistant to germicides (e.g., disinfectants, antiseptics).
- Despite evidence that resistance to germicides is challenging, these organisms can survive on environmental surfaces for long periods of time.
- The disc-based quantitative carrier testing was performed to evaluate the germicidal activity of chemical germicides.

Methods

- We assessed 21 different germicides plus 2 dilutions of sodium hypochlorite for germicidal activity against C. auris and Candida albicans.
- The inoculum containing approximately 10^5 colony-forming units was placed on each disk.
- The dried inoculum was exposed to the test germicide for 1 minute exposure time at room temperature then neutralized.
- The Log10 reduction of the test organism for each biocide was calculated and compared to mean carrier control counts.

Results

- The study results suggest that many germicides are effective against C. auris.
- Further evaluations are warranted (e.g., QAC, triclosan, chlorhexidine gluconate, hydrogen peroxide) under less challenging test conditions (e.g., without 5% FCS and/or longer exposure time).

Conclusions

- Our preliminary study results suggest that many germicides commonly used in healthcare facilities are effective against C. auris.

**Figure. Germicidal Activity against C. auris and C. albicans**

- Efficacy of germicides with active ingredient, product name, and classification against C. auris and C. albicans is provided in the Figure.
- Our germicidal study demonstrated at least 3-log10 reduction (12/22, 55%) and 2-log10 reduction (15/22, 68%) for C. auris as well as 3-log10 reduction (14/22, 64%) and 2-log10 reduction (17/22, 77%) for C. albicans in the challenging test conditions (5% FCS and 1 minute exposure time).
- C. auris was less susceptible to 0.55% ortho-phthalaldehyde, 2% chlorhexidine gluconate, 1% chloroxylenol compared to C. albicans.
- C. auris was more susceptible to 70% ethanol compared to C. albicans.
- Several germicides (21.7% quaternary ammonium compounds [QAC], 3% hydrogen peroxide, 5.25% sodium hypochlorite [1:50 dilution], 0.5% triclosan) had <2-log10 reduction for both C. auris and C. albicans.