

Hospital superbug traced to remote island beach

April 14 2021, by Ranjit Devraj



Samples taken from Andaman Islands (pictured), together with Nicobar Islands, revealed the presence of both multidrug-resistant and drug-susceptible isolates of *Candida auris*. Credit: [Hussainkhan55](#), (CC BY-SA 4.0)

Researchers confirmed the presence in the wild of *Candida auris*, a multidrug-resistant fungus commonly found infesting hospitals. The findings could provide scientists insights into a pathogen that threatens inpatients, including those being treated for COVID-19.

Bursting onto the medical scene a decade ago, *C. auris* is now recognized as a 'recently emerged multidrug-resistant fungal pathogen' that causes severe infections in hospitalized patients, said the study. However, the origins of *C. auris* in nature and its rapid acquisition of multidrug resistance have remained a mystery.

Significantly, samples taken from the [salt marshes](#) and beaches of India's remote Andaman and Nicobar Islands, in the Bay of Bengal, showed up both multidrug-resistant and drug susceptible isolates of *C. auris*, according to the study, published March in *mBio*. The samples from the 'wild' establish *C. auris* as an environmental organism.

Anuradha Chowdhary, professor of mycology, Vallabhbhai Patel Chest Institute, University of Delhi, and corresponding author of the study, says that while *C. auris* isolates found on the beach were multidrug-resistant, those found in the remoter salt marshes of the Andaman islands were not resistant to ordinary anti-fungal drugs.

"So far, no [environmental studies](#) to explore the presence of *C. auris* outside [hospital](#) settings have been conducted—this study will prompt future studies in different geographical areas to undertake screening for *C. auris*," Chowdhary tells SciDev.Net. "Isolation of the yeast in the tropical, coastal environment suggests that it has an association with the marine ecosystem."

"In hospital settings *C. auris* is typically found in immunocompromised patients under prolonged admission and those requiring the use of invasive devices such as catheters, feeding and breathing tubes are especially vulnerable to infections by the fungus or yeast," says Chowdhary.

Dinesh Raj, consultant at the Holy Family Hospital, New Delhi, and medical researcher tells SciDev.Net that *C. auris* is increasingly being

found in intensive care units of hospitals in India. "This is a matter of grave concern in the current COVID-19 pandemic. Among the severe cases of COVID-19, about two-thirds of hospitalized patients who develop *C. auris* fungemia do not recover."



Proposed scheme for the emergence of *Candida auris*. Image credit: [Arturo Casadevall, Dimitrios P. Kontoyiannis, Vincent Robert/mBio \(CC BY 4.0\)](#)

According to Chowdhary, it is vital to strictly implement hospital infection control strategies to curtail infections with *C. auris*. "Thorough screening of patients and their environment is required as also cohorting (putting together) of patients who are colonized by *C. auris*—since they continuously shed viable yeast cells from their skin and contaminate

hospital environments."

Chowdhary says that because COVID-19 patients tend to develop [respiratory distress](#) that requires mechanical respiratory support, this opens the way to secondary infections.

"Even before the arrival of SARS-CoV-2, *C. auris* was considered a major global health threat due to high rates of drug resistance and ease of transmission in hospital settings. Indeed, multidrug resistant *C. auris* has been reported from over 40 countries across six continents since its first description a decade ago," says Chowdhary.

Both *C. auris* and SARS-CoV-2 are found on hospital surfaces including on bedrails, beds, air conditioner ducts, windows and floors, says Chowdhary. "So, COVID-19 [critical care](#), involving the use of ventilators and catheters makes patients potentially susceptible to *C. auris* infection."

COVID-19 patients often share co-morbidities, such as diabetes and chronic kidney disease, with those infected by *C. auris*. Treatments may also be similar and involve systemic steroids and [broad-spectrum antibiotics](#), apart from ventilation and intubation, according to the study in the Journal of Global Antimicrobial Resistance.

As with SARS-CoV-2, medical researchers have been trying to determine the natural origins of *C. auris* but with little success so far. Experts suspect that it emerged from the wild possibly as a result of climate change. The present study notes that a hypothesis published July 2019 in mBio suggests that *C. auris* might be native to wetlands and that its emergence as a human pathogen may be linked to the effects of global warming effects on wetlands.

"It is to understand the mystery of environmental niches of *C. auris* that

we explored the coastal wetland habitat around the very isolated Andaman Islands," Chowdhary and her colleagues write in the new study. "The isolation of *C. auris* from uninhabited marine wetlands suggests that prior to its recognition as a human pathogen, it existed as an environmental fungus."

Chowdhary says that despite the findings of the study the link to human infections remains to be investigated. "So far, no implications can be derived as to how it is transmitted to humans."

More information: Parth Arora et al. Environmental Isolation of *Candida auris* from the Coastal Wetlands of Andaman Islands, India, *mBio* (2021). [DOI: 10.1128/mBio.03181-20](https://doi.org/10.1128/mBio.03181-20)

Provided by SciDev.Net

Citation: Hospital superbug traced to remote island beach (2021, April 14) retrieved 24 April 2024 from <https://phys.org/news/2021-04-hospital-superbug-remote-island-beach.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.