Isolation of *Cryptococcus adeliensis* from Clinical Samples and the Environment in Germany

Rimek and colleagues (1) recently published an account of the first case of meningitis caused by *Cryptococcus adeliensis* in a German patient with acute myeloid leukemia. *C. adeliensis* was previously described as a new cryptococcal species isolated from algae in Antarctica (2).

In the context of an excursion aimed at getting some information about the occurrence of different genotypes of *C. neoformans* in Germany, bird droppings from various German areas were cultured on Sabouraud glucose agar and *Guizotia abyssinica* agar. Yeast colonies suspected to belong to the genus *Cryptococcus* were isolated and characterized by studying urease hydrolyzation on Christensen’s urea medium and assimilation of carbohydrates (ID 32C; bioMérieux, Marcy l’Étoile, France) and by sequence analysis of the internal transcribed spacer (ITS) region and the D1/D2 domain in the 28S rRNA gene (2).

Surprisingly, we isolated *C. adeliensis* in two out of nine samples: one isolate (RKI 147I/04) from pigeon droppings taken from an urban recreation area (Tegel Lake in Berlin) and one (RKI 173II/04) from a pigeon breeding facility near Hanover, Germany.

*C. adeliensis* can be misidentified as *C. albidus* due to the high variability of phenotypic markers of the latter. Therefore, we reexamined six isolates from our strain collection originally identified as *C. albidus*. Three of the six strains turned out to be in fact *C. adeliensis*: (i) strain RKI 779/76, isolated from pigeon droppings (Berlin), (ii) RKI 311/77, originally obtained from a lung biopsy of a male adult suffering from progressive lung disease, and (iii) RKI 456/93, obtained from the oral cavity of an 8-year-old human immunodeficiency virus-infected girl. Both patients lived in Berlin. Since the clinical isolates were found in mixed cultures with other fungi, their clinical significance is not clear.

*C. adeliensis* isolates grew in cream-colored and smooth colonies (1, 2). Colonies of RKI 779/76 and RKI 456/93 were markedly mucoid, resembling *Cryptococcus gattii*. All isolates were able to grow at 30°C but not at 35°C and failed to assimilate lactate. Biocoding for the carbohydrate assimilation test (ID32C) resulted in 4473 3441, 4473 7643, or 4473 3443, each of which should indicate an “excellent identification of *C. albidus*.” In contrast to the type strain, the isolates were not able to tolerate 0.01% cycloheximide. This has already been noticed before for isolate CBS 9061 (1). Also in contrast to the results seen with CBS 8351T, the *C. adeliensis* isolates from Europe were not able to tolerate 10% NaCl.

Sequence analysis of the five *C. adeliensis* isolates studied revealed a 100% identity within the D1/D2 domain already deposited in the GenBank (AF137603) and the ITS1-5.8S rRNA gene-ITS2 region (AF145328) of CBS 8351T except for the isolate RKI 147I/04. The latter demonstrates a single nucleotide exchange (T instead of C) at position 450 in the ITS region (AY733079).

The isolation of *C. adeliensis* from clinical as well as environmental specimens in Germany might indicate a wider distribution of the species in Germany and possibly in other Western European countries. Their intolerance for 10% NaCl might give a hint that the continental strains are not as well adapted to salt water as the type strain originally obtained from algae in Antarctica. Sequence analysis for clinical isolates of the *C. albidus* clade is mandatory to identify *C. adeliensis* (3) and to elucidate its role as an opportunistic pathogen in man.

The described *C. adeliensis* isolates have been deposited in our culture collection.

We thank Gerhard Haase for critical reading of the manuscript.

REFERENCES


Kathrin Tintelnot*
Heidemarie Losert
Konsiliarlabor für Cryptococcus neoformans
Robert Koch-Institut
Berlin, Germany

*Phone: 49 30 45472208
Fax: 49 30 45472614
E-mail: Tintelnotk@rki.de