

The URM Culture Collection in Characterizing Glycoconjugates on the Cell Surface of *Candida* Strains Marked with Lectins as Taxonomic Tool

Author(s) Rejane Pereira Neves¹, Eduardo Isidoro Carneiro Beltrão¹, Fabíola Maria Marques do Couto¹, Danielle Patrícia Cerqueira Macêdo¹, Cristina Maria de Souza-Motta¹, Reginaldo Gonçalves Lima-Neto¹

Institution(s) 1. UFPE, Universidade Federal de Pernambuco, Avenida Professor Nelson Chaves s/n Cidade Universitária, 50670-910, Recife-PE. 2. UFPE, Universidade Federal de Pernambuco, Avenida Professor Nelson Chaves s/n Cidade Universitária, 50670-910, Recife-PE.

Abstract:

Identification of *Candida* species by conventional morphology and assimilation tests requires 3 to 5 days or even longer when unusual species are studied. Lectin-binding analysis of glycoconjugates present on cell surface of *Candida* species could provide another approach for identification and typing of yeasts. The staining patterns of lectins from different *Candida* isolates were compared, and their value as a taxonomic tool assessed. Forty-three strains of *Candida* including *C. albicans* (20), *C. krusei* (6), *C. parapsilosis* (12) and *C. tropicalis* (5) were analyzed. The lectins selected to cover a wide range of sugar specificities were concanavalin A (Con A), wheat-germ agglutinin (WGA), Ulex europeus agglutinin (UEA-1) and peanut agglutinin (PNA) conjugated to peroxidase (25 µg.mL⁻¹). Ninety eight percent of isolates were stained by all lectins, although with different affinities. We were able to distinguish nine distinct staining patterns from the 43 isolates studied. Staining by the fucose-specific UEA is evidently a good marker for *C. albicans* and *C. tropicalis*, while WGA agglutinin proved to be efficient for *C. parapsilosis*. A characteristic agglutination pattern was not observed for *C. krusei*, suggesting interspecies variations among the studied isolates. The Analysis of Similarities (ANOSIM) showed that there were significant differences among staining patterns, and indicated the presence of two distinct types of association, ranking *C. albicans* with *C. tropicalis* and *C. krusei* with *C. parapsilosis* (RGlobal = 0.699, number of permutations = 999, p = 0.001). The lectin histochemistry may be of great value for taxonomic studies of yeasts in culture collections. This characterization may also have implications for the targeting and delivery of drugs, besides contributing to epidemiological data.

Key words: Culture Collection, *Candida* characterization, Lectin-binding, Taxonomy Tool, Cell surface carbohydrates