TITLE: EVIDENCE OF RIBOPHAGIA IN C*andida orthopsilosis* BIOFILM CELLS

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ABSTRACT:

Macroautophagy involves non-selective sequestration of intracellular macromolecules and portions of the cytosol by a double-membrane vesicle designated autophagosome, and this process depends on autophagy-related (Atg) proteins. Moreover, the selective autophagic degradation of specific biomolecular targets, called microautophagy, involves direct sequestration and degradation of organelles. In this study, the proteins related to microautophagy from *C. orthopsilosis*, a newly identified *Candida* species, were analyzed on planktonic and biofilm growth mode. Ion mobility separation within mass spectrometry analysis and bioinformatics tools were used for the identification of expressed proteins. A total of 75 proteins related to biogenesis and degradation of ribosomes were identified in *C. orthopsilosis* cells. In addition, both Ubp6 (ubiquitin-specific protease of the 26S proteasome) and Ald6 (acetaldehyde dehydrogenase) were detected only in biofilm cells; AAA ATPase Cdc48 (transitional endoplasmic reticulum ATPase) and Bcy1 (cAMP-dependent protein kinase regulator) were more abundant in biofilms. Together, the founded proteins evidencing that the degradation of ribosomes or ribophagy operates in *C. orthopsilosis* biofilm cells. In contrast, in *C. orthopsilosis* planktonic cells, the cytoplasm-to-vacuole targeting (CVT), a yeast-specific Atg-dependent autophagosomal process, seems to be active, as demonstrated by the abundance of Ape3 (vacuolar aminopeptidase Y) and Ams1 (α-mannosidase) proteins. The identified proteins can be a potential targets for the design of antibiofilm drugs, and to the possible early diagnosis of infections associated with *C. orthopsilosis* biofilms.

Keywords: *C. orthopsilosis*, ribophagy, biofilms, proteome, fungal biofilm.

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