

Title: MONITORING THE SPORE GERMINATION OF *Aspergillus carbonarius* CDCA 0169 CO-CULTIVATED WITH *Debaryomyces hansenii* CCMA 0156 BY OPTICAL MICROSCOPY

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Abstract:

The presence of yeasts on coffee has been related to beneficial factors since studies point to the potential of *Pichia sp.* and *Debaryomyces sp.* on inhibiting the development of filamentous fungi, some of them producing mycotoxins (OTA). In order to observe the growth of *Debaryomyces hansenii* CCMA 0156, isolated from coffee, in co-cultivation with *Aspergillus carbonarius* CDCA 0169, isolated from grape, we prepared a sample of 3 mL of YEPG containing 10 µL of the suspension at the concentration of 10⁵ spores mL⁻¹ and 50 µL of the suspensions of yeast cells at the concentration of 10⁷ cells mL⁻¹. This sample was monitored in 16 h through a magnification of 40X using BioStation IM-Q (Nikon), a compact system of cell incubation and monitoring which allows making images of live cells. It was observed that after 20 min of inoculation of both isolates some yeasts were already budding. At the same time the spores were in different maturation stages. Thus, the growth of spores was monitored and a great increase on the amount of yeast cells was observed. An analysis after incubation allowed observing the increase on the hyphae extent, moreover the formation of nuclei was evident. The extension of hyphae was not homogeneous and some spores smaller than the hyphae were detected. Regarding the difference of the hyphae extent, one may infer that the yeast cells were competing for space or nutrients, what would lead to a slow growth rate. We concluded that *Debaryomyces hansenii* CCMA 0156 may be a potential applicant to be used on the biological control of *Aspergillus*, since tests conducted when this yeast was co-cultivated with *A. carbonarius* CDCA 0169, *A. carbonarius* CDCA 0126 and *A. ochraceus* CDCA 0153 showed that it was efficient on inhibiting the production of OTA, what was analyzed through Thin Layer Chromatography.

Keywords: *Aspergillus carbonarius*, *Debaryomyces hansenii*, biocontrol

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