Título: **GAMMA RADIATION INDUCES MORPHOLOGICAL CHANGES IN *Candida tropicalis***

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Candida species are opportunistic fungi that live commensal of humans, however, is often reported in cases of immunosuppression that infection by species of this genus are increasing, especially those caused by *C. tropicalis*. Phenotypic switching is a temporary characteristic of the yeast, important in pathogenic fungi for colonization and infection of different host niches. Patients on treatment for head and neck cancer are more susceptible to fungal infection, because the gamma radiation is very aggressive to the mucosa, allowing yeast settles in injuries, being responsible for systemic infection. The radiation may cause genomic alterations, becoming the commensal yeasts more virulence. Therefore, the aim of this work was verify if phenotypic switching was happened in irradiated *Candida tropicalis* colonies. A culture on Sabouraud Dextrose Broth tubes containing $1x10^5$ colony forming units/mL were exposed to gamma radiation, aiming to mimic a treatment done on patients. Yeast cells were inoculated into YPD medium broth and incubate at 35ºC overnight. Cells of this culture were diluted and $2x10^2$ CFU/mL plated onto YPD agar and incubated at room temperature for 4 days. Colonies were counted until $5x10^3$ and examined by digital USB microscope 20-800x. The most common morphologies were subcultured under the same conditions, for 10 consecutive times to observe parental morphotypes and variants. We observed that the yeast non-irradiated morphology was fuzzy and ring shape (94.45%), wrinkled shape (4.75%), the remainder had various formats. After irradiation, there was a significant change in the morphology of the colonies, becoming completely smooth and only 3 morphologies were detected. Sphere shape (98,40%), half wrinkled (1,37%) and completely wrinkled (0,23%). After 10 subculture, the morphologies not changed, highlighting an phenotypic switching radiation-induced. The fuzzy appearance that was lost after irradiation can be altered expression of genes that regulate the filamentous growth. So we can conclude that gamma radiation has caused permanent changes in colony morphology, specifically in filamentous grow. Other tests are being performed to verify changes in other virulence factors.

Keywords: *Candida tropicalis*, cancer, switching, Gamma radiation.

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