Cellular alterations induced by *Candida albicans* RC nosodes: an *in vitro* study

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**ABSTRACT**

**Introduction:** Candidiasis is an opportunistic infection, caused by yeast of the genus *Candida*, which emerges as one of the main causes of systemic infections in hospitalized patients. *Candida albicans* is the most common causing agent of these infections. According to the Brazilian Homeopathic Pharmacopeia[1], nosodes are medicines compounded from chemically undefined biological products. Living nosodes are prepared using the etiologic agent of an illness in its infective form, were first developed by Brazilian physician Roberto Costa (RC). Roberto Costa’s research indicated that living nosodes present a higher capability to stimulate the host’s immunological system [2].

**Aim:** This study aims to evaluate cellular alterations induced in *C. albicans* yeasts and RAW 264-7 macrophages by *Candida albicans* RC.

**Methodology:** To prepare *Candida albicans* RC, one part of *C. albicans* infective yeast suspension (10⁸ cell/ml) was diluted in 9 parts of sterile distilled water and submitted to 100 mechanical succussions. This process was successively repeated to the potencies of 12x and 30x¹. Water 30x was prepared by the same technique, as control. The cell viability of *C. albicans* previously treated with nosodes in both potencies and respective controls was evaluated using the samples at the concentration of 10% (V/V), in a volume of 1ml, distributed in 1-3 days. The viability of the yeast cells was analyzed by MTT (3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolic) (5mg/ml) assay [3] and by Propidium Iodide (PI) incorporation methods. Additionally, using macrophages RAW 264-7 as a cell model, Nitric Oxide (NO) production and cell viability were also evaluated. For this, the following protocol of cell treatment was employed: on each experimental day, RAW 264-7 cells were treated 4 times (4 stimuli) with RC nosode 30x at the concentration of 10% (V/V).

**Results:** The nosodes (12x and 30x) did not present cytotoxic effects on macrophage cells (n=1), or on *C. albicans* yeasts (n=2), as detected by MTT and PI methods. Moreover, no statistically significant differences on NO production were detected among the experimental groups (n=6).

**Conclusion:** Preliminary results of *in vitro* assays indicate that nosodes (12x and 30x) do not alter mitochondrial activity or cell viability of *C. albicans*. Similarly, treatment by RC nosodes does not seem to alter NO release and mitochondrial activity of RAW macrophages. New experiments are being performed to confirm these preliminary data.

**Keywords:** Candidisis; *Candida albicans*; Nosodes; Macrophages.
References:

