

**TITLE:** Antifungal activity of *Syzygium aromaticum* extract against *Candida albicans* and *Candida tropicalis*

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**ABSTRACT:**

The *Candida* spp. yeasts are usually part of the commensal microbiota of humans and animals but can also be associated in pathological conditions. They are the etiological agent on different clinical manifestations in animal health, being correlated with gastrointestinal lesions on birds, abortion, mastitis, and systemic infections in mammals, for example. The species *Candida albicans* is the most commonly isolated from clinical samples, and its virulence capacity, as well as the antifungal resistance is widely discussed in the literature. The indiscriminate use of antibacterial drugs is one of the main reasons for the conversion of these yeasts to a pathogenic role, and the use of antifungal drugs, on the other hand, promote a selective pressure that is favorable to the available therapeutic options. Based on this, the interest in new antimicrobials compounds is increasing and the use of extracts and vegetable oils is one of the main sources of material for this search. The plant *Syzygium aromaticum* (clove) already has medical application in Brazil and other countries. The antifungal activity is already recognized against opportunistic fungi, which suggests its potential for the control of other microorganisms. This study aimed to evaluate the effects of *S. aromaticum* extract on *Candida albicans* and *C. tropicalis* growth. The extract was obtained by immersing 5 g of *S. aromaticum* floral buds in 100 mL of 92% ethyl alcohol for 4 days, followed by filtering to remove the solid parts, evaporation and concentration of the final extract, until the final volume of 5 mL. The yeasts used are part of the collection of microorganisms of the Laboratory of Pathogenic and Environmental Yeasts (IV – UFRRJ). Sabouraud Agar Dextrose was used to perform the sensitivity tests. Each yeast sample was previously activated and suspended on a saline solution (McFarland scale 0.5). After that, using swabs, they were seeded on the culture medium surface. Applying a metal sterilized tool, wells were made (6-7 mm), filled with 20 µl of the extract. Negative control was performed (distillated water + alcohol, followed by the same evaporation process). The results were read after 48 and 72 h of incubation at 37 °C. The growth inhibition was verified around the diffusion extract application well in all culture mediums. The halo formation suggests an antifungal effect of the *S. aromaticum* extract against the yeast strains tested, with a variable size that ranges between 20 and 22 mm of diameter. The results are limited to the species and tested samples, and it is interesting to highlight that different strains of the same species may have a different behavior against antifungal drugs. Besides that, the results obtained on this initial screening provides interesting perspectives for the use of this plant on further studies aiming to control these and other fungi species.

**Keywords:** Antifungal; Yeasts; Cloves; *Candida*