

**TITLE:** OZONIZED OLIVE OIL EFFECT ON PLANKTONIC CELLS FROM *Candida albicans* and *Candida glabrata*

**AUTHORS:** MELO, R.C.; FARIA, D.R.; GALINARI, C.B.; SAKITA, K.M.; ARITA, G.S.; RODRIGUES, F.A.V.; CONRADO, P. C. V.; VILEGAS, L. V.; KIOSHIMA, E.S.; BONFIM-MENDONÇA, P.S.

**INSTITUTION:** UNIVERSIDADE ESTADUAL DE MARINGÁ (AVENIDA COLOMBO, 5790, BLOCO T20, 2° ANDAR, CEP 87020-900, MARINGÁ-PR, BRAZIL)

**ABSTRACT:**

Infections caused by *Candida* species are the most prevalent fungal infections of humans and has increased significantly in the last decades, represent a serious concern for patients with compromised immune systems. *Candida albicans* is the most common species, but other non-*C. albicans* species (NCA), including *C. glabrata* are emerging as serious nosocomial infections threats. Besides that, resistance of *Candida* spp. to conventional antifungals has been observed. These facts are very worrisome and thus stimulate the search for new drugs that are effective in the treatment of infections caused by such fungi. In this sense, the aim of this study was to evaluate the antifungal activity of ozonized olive oil on *C. albicans* and *C. glabrata* planktonic cells as an alternative for treatment of *Candida* infections. The effect of ozonized olive oil on the planktonic cells of *C. albicans* (ATCC 90028) and *C. glabrata* (ATCC 90030) was evaluated by Colony Forming Units (CFU) determination. The assay was performed by broth microdilution method according to the *Clinical and Laboratory Standards Institute* (M27-A3) with some modifications. Ozonized olive oil was tested in 5 different concentrations, ranging from 439.2 to 27.45 mg/mL. The RPMI 1640 medium only with inoculum was used as control. The test was performed in 96-well plates which were incubated at 35°C for 24 and 48 hs. After incubation, aliquots of the different concentrations were collected, diluted in Phosphate Buffered Saline (PBS) and plated on Sabouraud Dextrose Agar (SDA) plates for determination of CFUs. The ozonized olive oil showed fungicidal action against *C. albicans* and *C. glabrata*, in the two highest concentrations tested (439.2 and 219.6 mg/mL) in 24 and 48h, reducing 100% of the Colony Forming Units. From 109.8 mg/mL, the cellular growth of both species increases, but still shows an important inhibition of fungal growth, thus suggesting a effect dose-dependent. The CFU reduction was statistically significant ( $p<0,05$ ) in relation to control at all concentrations tested for *C. glabrata*, whereas for *C. albicans* at only the four highest concentrations, at both period. Thus, ozonized olive oil is a natural compound with important antifungal potential to be exploited, owing to your significant antifungal activity against *Candida* spp.

**Keywords:** Ozonized oil.; Fungicidal effect.; *Candida* spp