TITLE: ANTIFUNGAL ACTIVITY OF OZONE GAS ON CANDIDA ALBICANS

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ABSTRACT:

With its high oxidizing power, ozone gas (O_3) has antimicrobial and cleaning action for areas, food, industry and medical-hospital. In hospital settings, disinfectant chemicals do not always guarantee the complete elimination of microorganisms on surfaces, which exposes patients to greater complications. Thus, the search for new antimicrobial agents and innovative protocols is relevant with O_3 appearing to be a feasible alternative. The species *Candida albicans* is important, as it is the main etiological agent of fungal infections in intensive care units within the hospital environment. The present study aimed to evaluate the antifungal activity of O_3 on surfaces contaminated by *C. albicans* in respect to the variables: time, distance, direction, temperature and humidity, in a room with and without air conditioning. OZON® O_3 GEO 20000/AR generator equipment was used with flow of 100 x 5 ppm ozone and nominal power of 127 W. Once the inoculum was standardized by spectrophotometry, ten Petri dishes containing *Brain Heart Infusion Agar* (BHI) received 100 µL of the inoculum using a Drigalski spatel. One plate received the inoculum, but was not treated using ozone, thereby serving as control. The remaining plates, after sowing, were placed open, inclined and parallel on a bench at distances of 30 cm, 1 m and 2 m from the ozone gas generating equipment (triplicate tests). They were exposed to O_3 gas for 60 minutes, after which the dishes were closed and incubated at 30°C for five days, with daily observations. The results showed a significant reduction in the number of colony forming units. There were general associations between the direction and the distance analyzed with statistically significant differences (p-value <0.05). There was no significant difference between the plates at a distance of 2 m with the air conditioner turned on and the control. According to the data, it is evident that disinfection is guaranteed with the antimicrobial potential of O_3 generated by the GEO 20000/AR equipment on following the described method. This fast and easy-to-use device can be used in sanitizing and disinfecting hospital protocols as pathogenic microorganisms are eliminated from surfaces.

Keywords: ozone gas, surface, *Candida albicans*, antifungal activity

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