

**Title: STUDY OF THE EFFECTIVENESS OF DIFFERENT DISINFECTANT AGENTS ON THE REMOVAL OF *Candida* SPECIES ATTACHED TO ACRYLIC RESIN FROM DENTURES.**

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**Abstract:**

**Introduction**

Denture related stomatitis is a mucosal inflammation, frequent in denture wearers' patients. A multifactorial aetiology is recognized: trauma associated with the prosthesis mismatch, poor hygiene, continued use without removal, impaired immune status, etc. Then, colonization of prosthetic surfaces by *Candida* yeasts may occur, and it could predispose the wearer to oral candidiasis.

The aim of this study was to evaluate effectiveness of different disinfectant agents and optimum exposure time to them, for the clearance of yeast in acrylic resins used in manufacture of dentures.

Strains of *Candida albicans* (33 strains), *C. dubliniensis* (5), *C. tropicalis* (5) and *C. parapsilosis* (4) were studied on acrylic thermosetting polymer samples. The disinfectant solutions tested were 5% acetic acid (alcohol vinegar), 20% chlorhexidine, sodium hypochlorite (NaClO) and 5% alkaline peroxide (tablets). As control, saline rinse of sodium chloride (NaCl) was used. The resins were incubated in Sabouraud glucose broth (Sb) with strains. Then they were washed in saline solution and then soaked in disinfectant. Exposure times tested were 5, 10, 15, 20 minutes and 3 hours. After exposure, resins were re-incubated again in Sb, and positive growth was recorded as turbidity, film formation on the resin and/or sediment.

Against *C. albicans*, chlorhexidine and NaClO showed statistically significant activity compared to NaCl, at 5 minutes exposure ( $p=0.00$ ; Test  $\chi^2$ ). Acetic acid since 20 minutes of exposure ( $p=0.005$ ), and alkaline peroxide since 3 hours ( $p=0.001$ ). Against *C. dubliniensis* NaClO and chlorhexidine were again effective since the shorter exposure time ( $p = 0.01$ ). Acetic acid and alkaline peroxide showed activity at 3 h but it was not statistically significant compared with rinsing with NaCl ( $p=0.29$ ). For *C. parapsilosis* NaClO and chlorhexidine were effective since 5 minutes ( $p=0.004$ ); while alkaline peroxide showed no activity; acetic acid showed some effectiveness since 3 h of exposure, but it was not statistically significant ( $p = 0.28$ ). Only chlorhexidine and NaClO were effective against *C. tropicalis*, clearing yeasts at 5 minutes ( $p=0.0002$ ).

Chlorhexidine and NaClO shown to be the most effective disinfectant solutions to remove candidiasic plaque attached to dentures. Study of the effectiveness of disinfectants is vital due to dentures are used for time, and oral infections that can occur as a result of inadequate hygiene can greatly affect the quality of life of patients.

**Keywords:** Disinfectants. *Candida*. Stomatitis. Dentures.