

Efektifitas sodium hipoklorid 0.125% dalam menghambat pertumbuhan candida albicans pada nilon termoplastik = The effectiveness of sodium hypochlorite 0,125% in inhibiting the growth of candida albicans on thermoplastic nylon / Metty Anggraeni

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Abstrak

ABSTRAK

Basis gigi tiruan selalu berkontak dengan mikroorganisme rongga mulut dan saliva sehingga menjadi tempat tumbuhnya plak dan perkembangan mikroorganisme, khususnya C.albicans. Diperlukan pembersihan yang dapat secara efektif menghambat pertumbuhan C. albicans. Larutan pembersih gigi tiruan yang sering digunakan adalah alkalin peroksida dan sodium hipoklorid. Masih terdapat kontradiksi mengenai keefektifan alkalin peroksida dalam menghambat pertumbuhan C.albicans pada nilon termoplastik. Sodium hipoklorid dengan konsentrasi yang tinggi dan waktu perendaman yang lama akan menyebabkan kerusakan pada basis gigi tiruan. Tujuan penelitian ini adalah menganalisis efektifitas sodium hipoklorid dengan konsentrasi yang rendah, yaitu 0,125% dan pengaruh lama perendaman terhadap pertumbuhan C. albicans, juga sodium hipoklorid 0,5% dan alkalin peroksida sebagai pembanding. Penelitian eksperimental laboratorik menggunakan 24 spesimen, sebelumnya dilakukan uji kekasaran permukaan pada sisi permukaan halus dan kasar pada masing-masing spesimen. Kemudian dikontaminasi dengan C.albicans, direndam dalam 3 macam larutan pembersih selama 5 menit dan 10 menit. Dibiakkan pada media Agar Sabouraud Dextrose, diinkubasi selama 48 jam, koloni yang tumbuh dihitung dan dianalisis. Dari hasil analisis data didapatkan bahwa nilai rerata larutan sodium hipoklorid 0,125% sama dengan sodium hipoklorid 0,5% pada perendaman selama 5 menit ($p=1,000$) dan 10 menit ($p=1,000$). Nilai rerata sodium hipoklorid 0,125% lebih kecil dari pada nilai rerata alkalin peroksida pada perendaman 5 menit ($p=0,014$) dan 10 menit ($p=0,014$). Dari penelitian ini dapat disimpulkan bahwa larutan sodium hipoklorid 0,125% sangat efektif dalam menghambat pertumbuhan C.albicans pada nilon termoplastik dengan lama perendaman 5 menit.

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ABSTRACT

Due to constant contact between denture surface and oral environment, denture surfaces usually act as a reservoir for microorganism, especially C. albicans. Proper cleaning technique is needed to inhibit the growth of C. albicans. Soaking denture in a chemical solution is known as the simplest and the most effective way to maintain a clean denture. The widely used substances to soak the dentures are alkaline peroxide and sodium hypochlorite. There have been numerous researches done on the effectiveness of soaking solution against C. albicans, but there is some contradiction on the

effectiveness of alkaline peroxide as a denture cleanser especially for thermoplastic nylon material. Soaking denture in high concentration of sodium hypochlorite during a long period of time can deteriorate the texture and color of denture surface. The purpose of this study is to analyze the effectiveness of low concentration sodium hypochlorite 0.125% in inhibiting the growth of *C. albicans* on thermoplastic nylon with variables in soaking duration and different soaking solution such as 0.5% sodium hypochlorite and alkaline peroxide. This is an experimental laboratory study. The study is conducted using 24 thermoplastic nylon plate specimens with surface roughness test conducted before the immersion procedure. The specimens were exposed to *C. albicans* and soaked in 3 different cleaning solutions (0.125% sodium hypochlorite, 0.5% sodium hypochlorite, and alkaline peroxide) for 5 minutes and 10 minutes. Afterwards, the specimens were cultured in SDA medium and kept inside incubator for 48 hours, and the colonies of *C. albicans* formed in the SDA medium were counted. Statistical analysis showed there was no significant mean differences between 0.125% sodium hypochlorite with 0.5% sodium hypochlorite for 5 and 10 minutes soaking duration ($p=1.000$). But there was a mean difference between 0.125% sodium hypochlorite and alkaline peroxide, with smaller mean value in 0.125% sodium hypochlorite in both 5 and 10 minutes soaking duration ($p=0.014$). The result showed that 0.125% sodium hypochlorite was the most effective solution in inhibiting the growth of *C. albicans* on nylon thermoplastic in 5 minutes soaking duration.