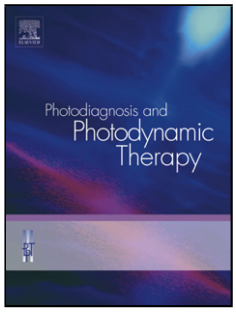

Title: Efficacy of photodynamic therapy in the inactivation of oral fungal colonization among cigarette smokers and non-smokers with denture stomatitis

Authors: Tariq Abduljabbar, Mansour Al-Askar, Mohammed K. Baig, Zeyad H. AlSowygh, Sergio Varela Kellesarian, Fahim Vohra

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Efficacy of photodynamic therapy in the inactivation of oral fungal colonization among cigarette smokers and non-smokers with denture stomatitis

1. Introduction

Oral rehabilitation of partially and completely edentulous individuals is usually done using partial and complete dentures, respectively [1]. Dentures bases are commonly fabricated from polymethyl methacrylate resin [2]; however, fungal colonization (such as *Candida* species, predominantly *Candida albicans* [*C. albicans*]) on the porous surface of the acrylic resin is a major cause of oral mucosal inflammatory conditions, such as denture stomatitis (DS) [3]. DS has been reported in up to 67% of complete denture wearers [4]; and is commonly seen on the palatal mucosa [4]. DS is characterized by the presence of small yellowish areas in the hard palate, which discharge a whitish creamy material on gentle pressure [5]. The surrounding mucosa may also be erythematous. Another risk factor that has been associated with an increased oral candida carriage is cigarette smoking [6, 7]. The precise mechanism by which cigarette smoking enhances oral *Candida* carriage remains unclear; however, it has been suggested that the aromatic hydrocarbons contained in cigarette smoke act as nutrients for the growth and proliferation of fungi [8]. Moreover, according to Arendorf and Walker [9], cigarette smoke induces alterations in epithelial tissues thereby facilitating fungal carriage.

Various techniques that have been used for the disinfection of denture surfaces include the use of (a) disinfectant solutions (such as alkaline glutaraldehyde, sodium hypochlorite and povidine-iodine), (b) antiseptic mouthwashes (such as chlorhexidine) and microwave irradiation [10-14]. however, these techniques have been associated with denture staining and compromised mechanical properties (such as linear stability and elastic modulus) and soft tissues irritation [10, 13,