

**TITLE:** IDENTIFICATION OF ANTIMICROBIAL RESISTANCE GENES IN ORAL MICROBIOTA OF INDIVIDUALS WITH AND WITHOUT PERIODONTAL DISEASE AT SALVADOR-BA.

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**ABSTRACT:**

Antimicrobial agents represent one of main therapeutic tools in both medicine and odontology to control and treat a variety of bacterial infectious diseases. However, during the past five decades, the use and sometimes misuse of antimicrobials in those fields has resulted in the emergence of bacterial strains that no longer respond to antimicrobial therapy. Oral Mouth microbiota is an important site of spreading resistance, since the oral cavity can be colonized by more than 1000 species of bacteria, and its environment can play a role as a reservoir of antimicrobial resistance genes. The aim of this study was to evaluate the frequency of antimicrobial resistance genes in the oral cavity of individuals with and without periodontal disease. As part of the study, we performed a dental examination according to the international guidelines and Periodontal Screening and Recording (PSR) scores were used to determine the level of periodontal disease. Unstimulated saliva samples were collected from all participants and stored at -80 °C until further analysis. DNA extraction from saliva samples was performed using the Maxwell<sup>®</sup> 16Cell Lev DNA Purification Kit, and the most common antimicrobial resistance genes were screened by PCR. A total of 110 individuals were enrolled and evaluated in this study, 85 (77.3%) had any type of oral disease and 25 (22.7%) had clinically health mouth. The study population was predominately female (87/110; 79.1%) and the median of age was 43 years (range: 30-51). There was no difference in demographic and clinical features among individuals with periodontal disease and those without. Presence of dental caries was associated to less number of brushes (median: 2 per day,  $p < 0.05$ ) plus absence of floss use [ $p = 0.01$ , OR 0.38, 95% CI 0,18-0,82)]. Up to time, 31/110 (28.2%) individuals had saliva samples investigated to antimicrobial resistance genes. The frequency of resistance genes found were *bla*TEM (25.8%), *ermB* (22.5%) and *aaa6'* gene (9.7%). Addressing the issue of antimicrobial resistance is one of most urgent priorities in both medicine and odontology fields. It is important to know the most prevalent resistance genes in the oral cavity so that health care professionals can customize the choice and prescription of specific antimicrobials, obtaining a higher success rate in the treatment of infections of the oral cavity and avoid spread of resistance genes.

**Keywords:** Oral microbiota, antimicrobial resistance, antimicrobial resistance genes.

**Development Agency:** Faculdade de Farmácia – UFBA.