Oral candidosis is the most common fungal infection in humans, whose main etiological factor is *Candida albicans* (Ca). This infection is associated with other microorganisms such as *Streptococcus mutans* (Sm) forming a multispecies biofilm. The conventional treatment of candidosis is the use of topical or systemic antifungal agents, whose widespread use has lead to the development of resistant strains. A promising alternative for microbial inactivation is antimicrobial Photodynamic Therapy (aPDT), which associates a photosensitizer with a light source of suitable wavelength.

This study evaluated the effect of aPDT mediated by Curcumin (CUR) and blue LED light against *Candida albicans* (Ca) monospecies biofilm and *Candida albicans* (Ca) and *Streptococcus mutans* (Sm) multispecies biofilms.

Standardized suspensions (10^6-10^7 CFU/mL, mid-log phase) of Ca (ATCC 90028) and Sm (UA159 ATCC700610) were transferred to 96-well culture plates, which were incubated for 90min at 37°C (adhesion phase). All experiments with *S. mutans* were performed in 5% CO_2 incubator. Then, the samples were washed with PBS and incubated with BHI broth at 37°C. After 48h, biofilms were washed and subjected to aPDT by incubation with CUR (1200μM) for 40min followed by irradiation for 30min with LED light (455nm; 43.2 J/cm^2). Additional samples were treated only with LED or CUR, while the control group received no treatment (n = 9). Afterwards, the biofilm was disrupted and aliquots of each sample were transferred to specific culture mediums and incubated for 48h for colonies quantification. Values of $\log_{10}$(CFU/mL) were analyzed by ANOVA/Welch and Tukey/Games-Howell tests (α=0.05).

Results demonstrated that aPDT reduced significantly (2.26 $\log_{10}$, ρ<=0,043) the viability of Ca biofilm compared with C-L-, C+L- and C-L+ groups, which did not show significant differences among them. aPDT in multispecies biofilm reduced significantly the viability of Ca (ρ<=0,002) in 1.5 $\log_{10}$ in relation with control group. There was no statistical difference between groups for Sm.

Biofilms are involved by extracellular polymer matrix (EPM). Multispecies biofilm is more resistant than single biofilm, due to interactions between different polymer matrix of different microorganism.

CUR-mediated aPDT reduced the viability of Ca in both biofilms, but not of Sm in multispecies biofilms.