**Influence of Culture Medium on the Death Curve of *Aggregatibacter actinomycetemcomitans* Induced by Antimicrobial Blue Light (aBL)**

Luciana Toledo Costa Salviatto

Nine of July University

**Abstract:**

Periodontitis is highly prevalent chronic disease that affects the supporting tissues of the teeth, in response to the presence of microorganisms organized in biofilms. Antimicrobial blue light (aBL) consists of the interaction of blue light with metal-free porphyrins and flavins produced endogenously by microorganisms leading to the production of highly toxic reactive oxygen species (ROS) such as singlet oxygen, leading to microbial death. The hypothesis of this work was that different culture media can influence the formation of photosensitizers by the bacterium *Aggregatibacter actinomycetencomitans* and evaluate the potential of aBL in the death curve of this periodontopathogen. Methods: The study groups were *A. actinomycetencomitans* cultured in BHI culture medium and *A actinomycetencomitans* cultured in blood agar and the parameters used were a LED 403 ± 15 nm with 1W of radiant power and irradiance of 588.2 mW/cm2. The irradiation times were 0, 1, 5, 10, 30 and 60 minutes. The plates were cultured for 48h in microaerophilic or anaerobic conditions with a temperature of 37°C in a bacteriological incubator and the colonies were counted by CFU/mL. Spectroscopy and fluorescence microscopy were performed in order to confirm the presence of endogenous photosensitizers in the microorganisms. Results: No statistical significance was observed in the survival fraction of colonies (p>0.05) when the microorganism was cultivated in different culture media, nonetheless when the irradiance reached 1.058 J/cm2 there was a statistical and biological difference in the amount of microorganisms in both culture media (p<0.05). The results of spectroscopy and fluorescence microscopy indicated the presence of endogenous porphyrins produced by microorganisms regardless of the culture medium used.

Biography:

Luciana graduated in Dentistry at University Santo Amaro in 1995. She has two Latu sensu postgraduations degrees in the areas of Periodontology and Implantology. In 2019, she started her master's degree in Biophotonics at Universidade Nine of July, completed in 2021. She is currently pursuing her doctorate at the same University. Her area of research is antimicrobial photodynamic therapy as an adjunct to periodontal treatment. In her free time, she stays with her family, practices physical exercises and watches TV series.