

The Impact of Photodynamic Therapy on the Viability of *Aggregatibacter actinomycetemcomitans* Induced by Methylene Blue or Erythrosine Dyes.

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Introduction: Photodynamic therapy (PDT) is a promising new treatment that involves the combination of visible light and a photosensitizer. Each factor is harmless by itself, but when combined with oxygen, can produce lethal cytotoxic agents that can inactivate cells. *Aggregatibacter actinomycetemcomitans* (*A.a*) is a bacterial species found in the oral cavity. It is related to the periodontal disease etiology and it also acts as an opportunist pathogens of the bacterial endocarditic, subcutaneous and brain abscesses. Antibiotics are frequently used to treat the periodontal disease, but due to the increase in bacterial resistance to drugs, new anti infectious therapies have to be developed. Objective: Our objective was to evaluate the effect of methylene blue (MB) and erythrosine (ERY) on *A.a*, using an odontological resin photopolymerizer as a light source (1 minute at a total dose of 0.65 J/cm²). Results and conclusions: The concentration used of the MB and ERY used did not show toxicity "per se" to the *A.a* cells, but with the photoirradiation during 1 minute, using MB 0.5µM we obtained a 25% reduction of *A.a* viability, and 34% with 3 minute photoirradiation. MB 1.0µM with 1 minute the photoirradiation reduced 41% and 50% with 3 minute photoirradiation. Using ERY 0.5µM we obtained a 39% reduction with 1 minute photoirradiation and 59% with 3 minute. ERY 1.0µM with 1 minute photoirradiation reduced of *A.a* viability in 44% and 75% with 3 min. photoirradiation. We have concluded that MB and ERY are an efficient photosensitizer to inactivate *A.a*. and its does not cause damage to fibroblast cells under the same conditions. Financial support: CAPES and CNPq.

Key words: PDT, Methylene blue, Erythrosine, *Aggregatibacter actinomycetemcomitans*.