

**STREPTOCOCCUS MUTANS INATIVATION BY PHOTODYNAMIC  
THERAPY: EFFECT ON ATPase ACTIVITY AND ACIDOGENYC CAPACITY.**

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*S. mutans* is one of the main responsible for dental cavity development. This pathology develops basically by the action of yielded acids after a lactic fermentation, which solubilizes the hydroxiapatite and a new mechanism to inactivate this bacterium is necessary. This work shows the effect of Photodynamic therapy (PDT) on acidogeny and ATPase activity of *S. mutans*, using 0.5 $\mu$ mol/L Rose Bengal (RB), 0.2 $\mu$ mol/L Protoporphyrin IX (PPIX) and liposome (DPPC:LPC 10:1 ratio) entrapped 0.37 $\mu$ mol/L Zinc phtalocyanine (ZnPc), as dyes. Bacterium growth caused an expressive decrease of medium pH (?pH=0.55), without PDT treatment, demonstrating an acidogenesis capacity of this microorganism. On the other hand, when using PDT, a decrease of acidogenic ability was observed for RB and PPIX (?pH about 0.01 and 0.05, respectively). These results suggest a reduction on the metabolic process responsible for extrusion and/or acid production. When using ZnPc-liposome, PDT did not show significant decrease on acidogenic ability (?pH=0.4). Surprisingly, none of the studied dyes promoted significant alterations on ATPase activity of membrane fraction obtained from the bacterium previously treated with PDT. These results suggest that oxygen reactive species, yielded by PDT, may have an effect on other essential processes to induce the bacterium to death.

CNPq, CAPES and FAPESP.

Key words: *Streptococcus mutans*, photodynamic therapy, acidogenesis.