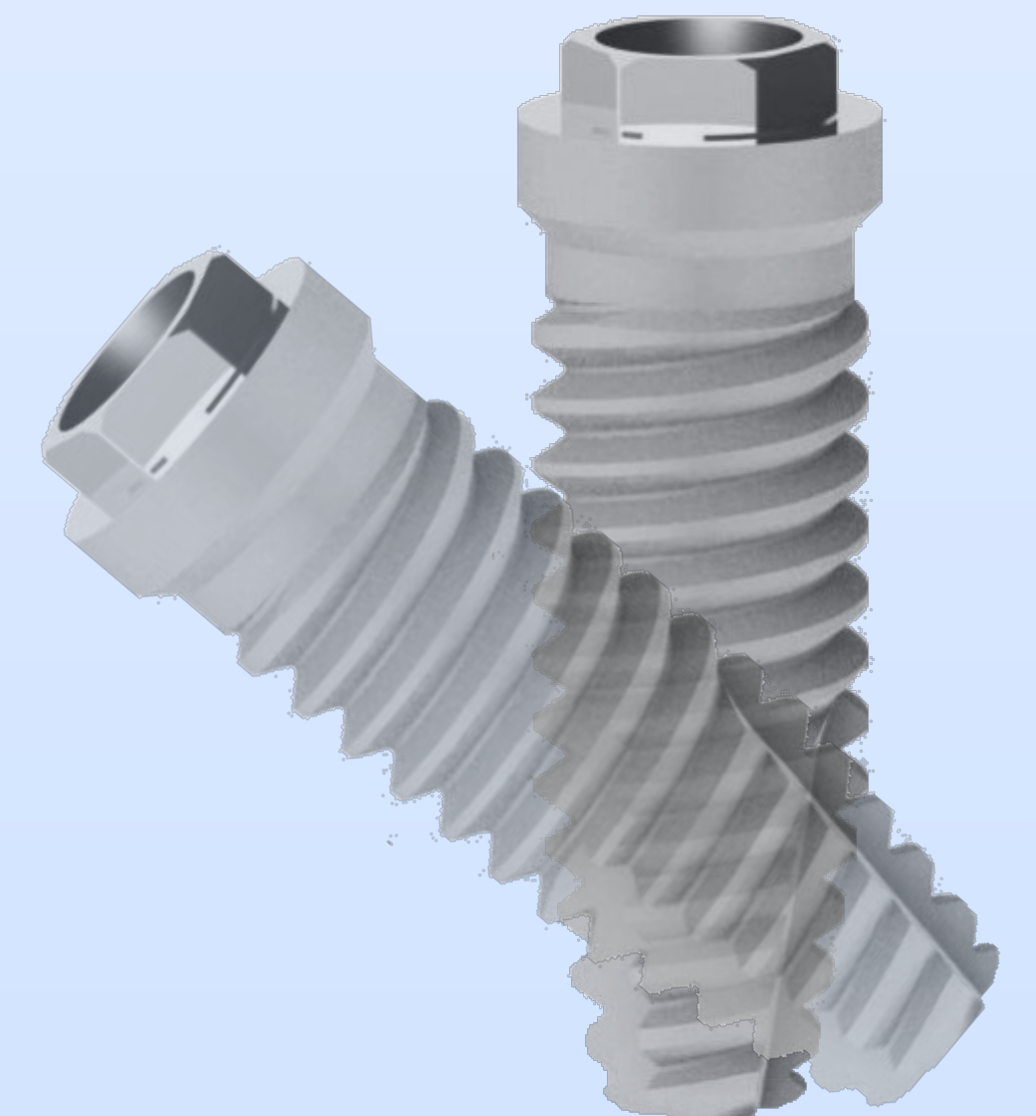


IN VITRO EVALUATION OF DECONTAMINATION POTENTIAL AND POSSIBLE CHANGES ON SURFACE OF DENTAL IMPLANTS USING AIR-POWDER ABRASIVE SYSTEM WITH SODIUM BICARBONATE

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Introduction

Increasing in use of dental implants for oral rehabilitation has contributed to raise cases of peri-implantitis, a clinical condition with a complex resolution that persists without an ideal treatment protocol. The aim of this study was to verify the potential for decontamination of an air-powder abrasive system with sodium bicarbonate *in vitro*, and the presence of possible changes caused to implant surface.

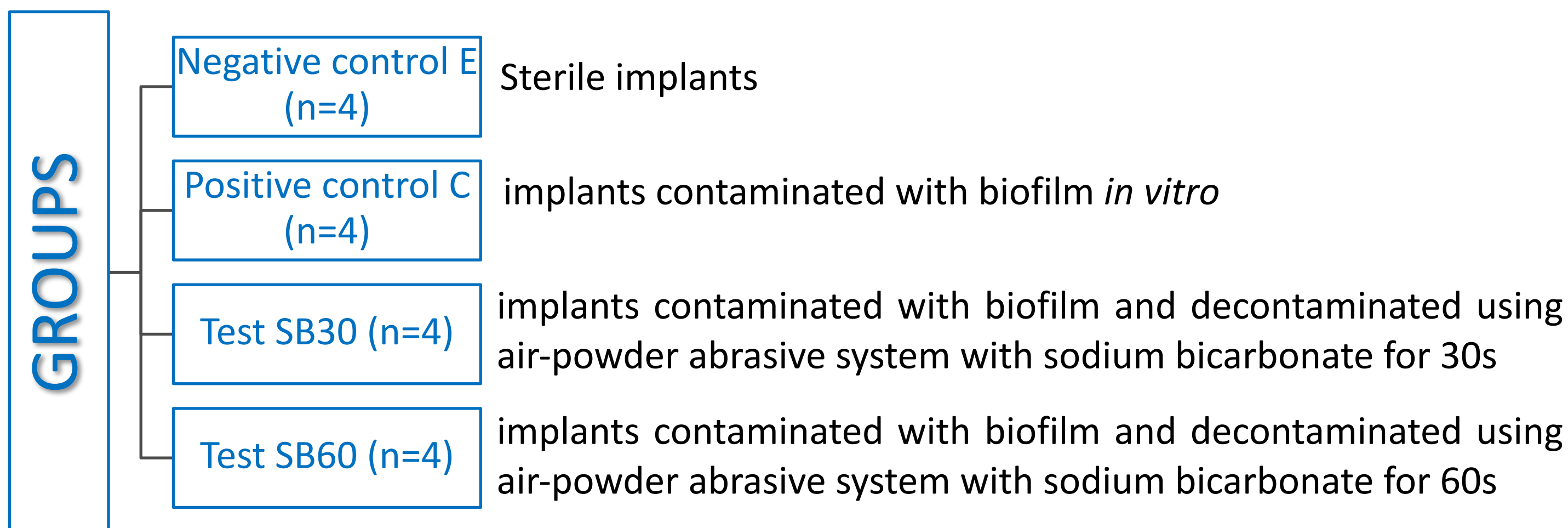


Material and Methods

Sixteen double acid-etched surface external hex titanium implants were used. Implants were divided into 4 groups. Implants were firstly analyzed by counting of colony-forming units (CFUs); then, implants were prepared, and images acquisition were performed using scanning electron microscopy (SEM) to descriptive analysis for changes on surface.



Implants *in vitro* contamination by oral biofilm



Implants decontamination

Means and standard deviations of CFU's – experimental groups (one-way ANOVA, post-hoc Tukey)

GROUPS	S	C	SB30	SB60	p
CFU's	0,00 x 10 ⁶ (0,00) ^a	5,05 x 10 ⁶ (0,43) ^b	3,63 x 10 ⁶ (0,32) ^c	2,74 x 10 ⁶ (0,21) ^d	0.000*

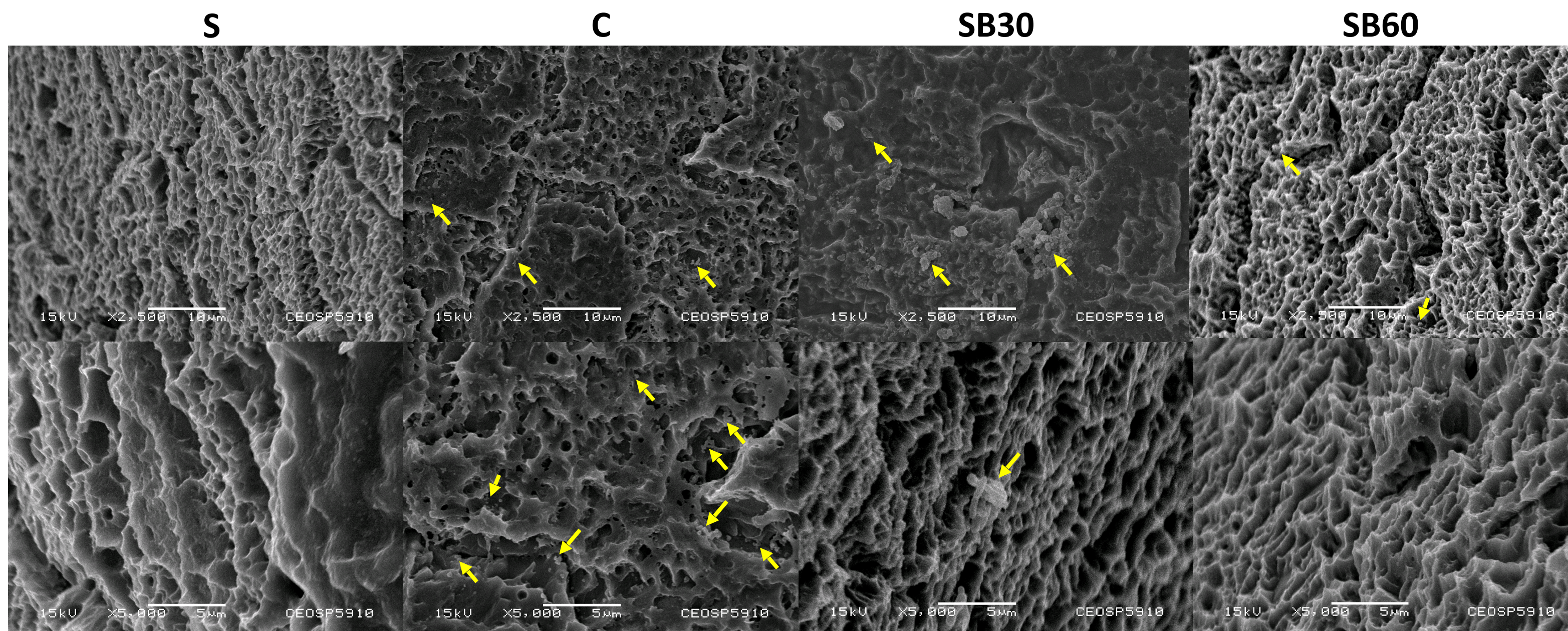
*Statistically significant p<0.01. Different letters indicate statistically significant difference among groups

Means and standard deviations of CFU's – test groups compared separately (independent t test)

GROUPS	SB30	SB60	p
CFU's	3,63 x 10 ⁶ (0,32)	2,74 x 10 ⁶ (0,21)	0.000*

*Statistically significant p<0.01

Results

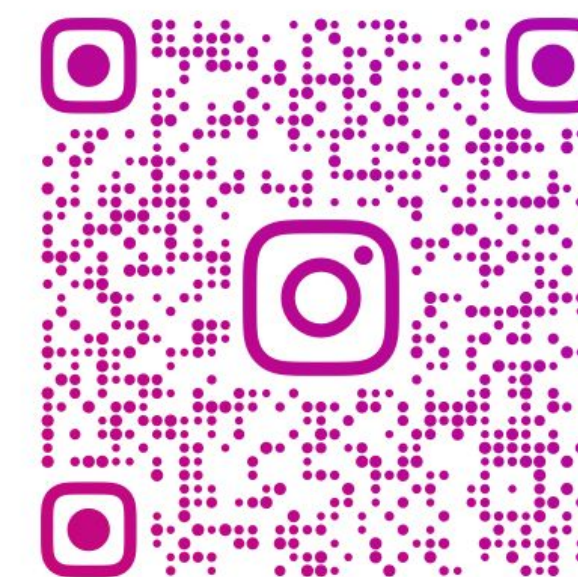


Qualitative descriptive analysis showed **no** visible changes on implant surface.

SEM images (x2.500; x5.000)
Yellow arrows show bacteria on surface

Conclusion

Regarding the limitations of this study, it was possible to conclude that the use of air-powder abrasive system with sodium bicarbonate showed to be effective in decontamination of titanium implants *in vitro*, causing no damage to the surface. Further studies are needed to prove these effects using more specific analyses.



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