Brazilian Dental Science

Subject: [BDS] Editor Decision

Dear Mahmood Naser, Emad Al-Hassani , Fatima Al-Hassani :

Your submission An in Vitro Evaluation of Wettability and Microbial Adhesion of 316L Stainless Steel Orthodontic Archwires Coated with Ag/PTFE Nanoparticles to Brazilian Dental Science, has been revised and according to reviewers' comments, there are questions to be addressed and/or points to be clarified/corrected.
Please answer the reviewers considerations point-by-point in a separate document and also please make all the corrections in the text highlighted in yellow.

Deadline: 15 days.

Thank you for considering Brazilian Dental Science for publishing your research.
We are looking forward the revised version of you manuscript.

Sincerely,

Prof. Bruno Matos.

Editor.

Reviewer A:

Brazilian Dental Science

Comments

Comments to the Author

I would like to thank the Editor for the opportunity to review this manuscript. I have organized my comments and suggestions by section to facilitate the authors' revision and improve clarity.

1) Abstract
• Objective: To improve sentence structure and readability, I suggest replacing "how silver/polytetrafluoroethylene (Ag/PTFE) nanoparticle coatings influence the surface wettability and bacterial adhesion of 316L…" with "the effect of silver/polytetrafluoroethylene (Ag/PTFE) nanoparticle coatings on the surface wettability and bacterial adhesion of 316L …".
• Materials and Methods: It would be helpful to briefly mention the statistical analyses performed, including the tests used.
• Results: The bacterial species names (S. mutans and S. aureus) should be italicized.
• Conclusion: While the results are promising, the conclusion would benefit from more cautious wording. Given the in vitro design, clinical implications should be presented as potential rather than definitive outcomes.

2) Introduction
• The first paragraph appears repetitive ("bacteria" and "microorganisms, mainly bacteria"). Consider simplifying the sentence and using a broader term such as "microorganisms" or "oral microbiota" initially, followed by more specific terminology (bacteria) when appropriate, to improve clarity and conciseness.
• References 1 and 2 may need to be reviewed, as the cited passage discusses oral health consequences of orthodontic treatment (e.g., enamel demineralization and periodontal disease), whereas the referenced studies focus on silver nanoparticle synthesis. More directly relevant references may be preferable.
• The sentence "Oral hygiene presents a greater complexity for patients" could be better contextualized or more cohesively linked to the paragraph. The use of transitional/connective wording may improve flow.

• Reference 6 does not seem directly relevant to stainless steel archwires, as it discusses biodegradable magnesium implants. A more appropriate citation supporting the properties of stainless steel orthodontic wires is recommended.
• A supporting reference would be helpful for the statement regarding increased retention of food particles, changes in oral pH, and enhanced bacterial colonization associated with orthodontic appliances.
• Reference 7 does not appear to fully support the statement regarding S. mutans as the primary agent in biofilm-related caries development. Please verify the appropriateness of this citation.
• Since reference 9 specifically addresses silver nanoparticles, the sentence defining nanoparticles could be clarified by specifying "silver nanoparticles."
• Reference 13 focuses on implants and may not be the most suitable source for this context. Consider replacing it with a more relevant reference.
• References 16 and 19 also appear not fully aligned with the statements they support and may benefit from careful revision.
• Overall, the reference list would benefit from a thorough review to ensure all citations directly support the corresponding statements.

3) Materials and Methods
• The protocol described for ultraviolet sterilization (reference 21) was not clearly identified in the cited source. Please verify the accuracy of this citation.
• Please specify the type or formulation of artificial saliva used.
• It would be helpful to indicate the origin/strain identification of the bacterial cultures (e.g., ATCC numbers).
• Please clarify the sample size calculation and the number of samples per group (n/group).

4) Results
• Abbreviations used only once may not be necessary. Consider reducing excessive abbreviations to improve readability.
• Please clarify the meaning of "sample symbol" in Table 1.
• In Table 2, the designations A, B, and C should be explained in the legend for clarity.
• Consider presenting the statistical comparisons currently shown in Tables 3 and 4 as graphs, with distinct lettering to indicate statistical differences. Including standard deviation/error bars would enhance visualization.
• The statistical test used should be specified in the legend of Table 5.

• It may be helpful to clarify why only the 30-minute group was evaluated microbiologically, rather than also including the 10- and 20-minute groups.

5) Discussion
• Please consider citing an appropriate reference when discussing the Wenzel model.
• The absence of elemental/chemical surface characterization (e.g., EDS/EDX or XPS) could be acknowledged as a limitation of the study.
• While the discussion appropriately links wettability and bacterial adhesion, a deeper explanation of the relative contributions of surface chemistry versus roughness would further strengthen the interpretation.

6) Conclusion
• The conclusion appears somewhat overstated given the in vitro nature of the study. Statements implying clinical benefits (e.g., “improve oral hygiene” or “prevent caries/gingivitis”) may benefit from more cautious wording. The authors might consider using more conservative expressions such as “may help reduce bacterial adhesion”.
• In addition, the conclusion section is relatively lengthy and could be condensed to present the main findings in a more concise and focused manner.

Reviewer B:

Comments

Comments to the Author

Methods

There are many parts of the methods where there are no citations to the literature used to support the methodology. Please, include the citations.

Brazilian Dental Science

Methods/Surface preparation

Which were the parameters used for ultrasound cleaning?

Was the UV light an appropriate method for sterilization? Why were not the wires autoclaved?

Methods/Antiadherent Activity Assessment

Which microorganisms and cell concentration were used for microbial suspension?

Was shaking an appropriate method for bacterial detaching?

Which agar was used?
