Reviewer’s report

Title: Individual Fluoride Bioavailability in Saliva and Plaque.

Version: 1 Date: 10 June 2011

Reviewer: Juliano Pessan

Reviewer’s report:

Major compulsory revisions:

1. Why did the authors compare a tablet to a dentifrice (Material and Methods, page 4, paragraph 2)? This seems to be one of the main issues of the manuscript, as dentifrices are much more complex formulations than rinses and tablets. It is known that some compounds of dentifrices, as sodium lauryl sulphate, are able to change the structure of plaque biofilms (Robinson et al., Arch Oral Biol 2006; 51(11):1006-14), what could affect fluoride uptake and release by plaque.

2. Page 5, paragraph 3, line 4. What was the dentifrice used by the subjects during the wash out periods? Was this standardised?

3. Page 5, paragraph 4, line 3. Why not using acid extraction or microdiffusion techniques for fluoride extraction prior to analysis? A reference on the methodology of fluoride extraction would be instructive.

4. Page 5, paragraph 4, line 11. Power analysis description should be moved to the beginning of Material and Methods, after "24 - 65 years of age)". Was power calculation based on a pilot study or existing data on the literature? This needs to be addressed in more details. As the authors mentioned in the manuscript, plaque fluoride presents high variability among subjects, what usually requires a higher number of participants in studies of this nature.

5. Page 8, paragraph 1, line 8. The authors stated that "there is no difference between NaF and amine fluoride". However, on the following paragraph the authors also mentioned that the high interindividual variability "may be a reason for the non significant differences" found in the study. Therefore, we suggest that the authors should move this sentence to the end of the discussion, stating that according to the research protocol and considering the limitations of the study, no differences between NaF and amine fluoride were observed for plaque and fluoride concentrations. The conclusion in the Abstract should also contain this information.

6. Page 8, paragraph 2, line 5. No information on salivary flow rate is available for the subjects. This is paramount in studies on fluoride clearance, as salivary flow rate can increase or decrease the rate of fluoride removal from intraoral fluoride reservoirs. The wide variability found in the study may have caused not only by the reduced number of subjects in the study and the wide age range of...
the participants, but also due to differences in salivary flow rate. Information on salivary flow rate should be provided in Material and Methods and their implications on the results should be commented in the Discussion.

Minor essential revisions:

1. The authors should consider excluding the word "individual" from the title of the manuscript, as no information on individual data is provided. "Fluoride bioavailability in saliva and plaque" seems to be more adequate.

2. Abstract (page 2, line 3 of 'background'). We suggest that the information on plaque fluid fluoride is deleted from the abstract, since the study assessed fluoride levels in whole plaque and saliva only. Including a background on plaque fluid may mislead the reader.

3. Abstract (page 2, line 6 of 'results'). Replace "...bioavailability correlate..." by "...bioavailability correlated...".

4. Abstract (page 2, line 7 of 'results'). Replace "... plaque is back..." by "plaque was back..."

5. Page 3, paragraph 2, line 3. Reference 13 should be excluded from this paragraph, as the study present data on samples collected only at 1 and 12 h after brushing, what does not correspond to the information on that paragraph.

6. Page 3, paragraph 3, line 2. Exclude comma in "...been demonstrated, that..."

7. Page 4, paragraph 1, line 2. Insert a comma in "... rather complex, the source..."

8. Page 4, paragraph 3, line 1. Replace "test persons" by "subjects"

9. Page 4, paragraph 3, line 4. Change "fluoride - rich" to "fluoride-rich"

10. Page 4, paragraph 4, line 3. Change "... tooth brushing.and the teeth..." to "...tooth brushing, and the teeth..."

11. Page 6, paragraph 3, line 3. Did the authors mean "sign" test?

12. Page 6, paragraph 3, line 4. Insert a comma after "time intervals"

13. Page 6, paragraph 4, line 5. Suggestion of change: Replace "... NaF study arm was immediately after brushing higher compared..." by "... NaF study arm immediately after brushing was significantly higher compared..."

14. Page 7, paragraph 4, line 1. Remove comma from "Several studies have shown, that"

15. Page 7, paragraph 5, line 3. A reference is needed to support the sentence "...the time for fluoride diffusion into the plaque biofilm".

16. Page 7, paragraph 5, line 5. Suggestion of change: replace "principle" by
"trend".

17. Page 8, paragraph 2, line 3. Replace "interindividual high variability" by "high interindividual variability".

Discretionary revisions

1. The introduction of the manuscript, although very informative and well written, is excessively long. We suggest that it should be reduced to 3-4 paragraphs, focusing on the main research question. Some of the information described in the Introduction could be moved to the Discussion.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests