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# Sugar Replacers in Confectionary beyond Sugar-Free Chewing-Gums: Demonstration of Oral Health Benefits of Polyols in Tablets Using a Customized-Reversed pH-Telemetry Test †

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† Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

**Abstract:** Background and Objectives: Positive impacts of sugar-free chewing-gum (SFCG) were largely described in the literature. In addition to the increase in salivary flow and the mechanic effect of CG, their main ingredient, i.e., polyols, can also have some specific benefits on oral health on their own. Some have been shown to have a bacteriostatic effect on acid-producing bacteria, and others have been shown to be particularly active on dental plaque early colonizers, resulting in both a reduction in dental caries prevalence or a decrease in gums inflammation. Here, we aimed to demonstrate these positive effects using the tablet vector only composed of compressed polyols. Methods: We used a customized inversed pH-telemetry test that is often used to demonstrate the "safe for teeth" characteristics of a food product. This inversed pH-telemetry test was designed to evaluate the potential of a food product to counteract the dental plaque drop in pH following a sucrose challenge, according to the regulatory advised test. It was performed on five healthy volunteers that grew 5-day dental plaque over a micro electrode to measure their pH in situ. Three different tablets were tested: 100% maltitol versus 100% sorbitol versus control tablets (70% starch + 30% resistant dextrin). Results: For each tablet, a neutralization score was calculated as the difference in the pH values (pH values at the end of the consumption of the respective tablets—pH value just before consumption of the tablets). Positive values indicate a neutralization (increase in pH during the consumption of the product), meaning that the neutralization with maltitol tablets was the greatest among tested tablets ($p = 0.003$ vs. control). Sorbitol tablets also had a significant impact ($p = 0.01$ vs. control). Discussion/Conclusions: This inversed pH-telemetry was designed to show a neutralizing effect of polyol tablets as it has been conducted with sugar-free chewing-gums. We demonstrated here that tablets were also able to counteract the dental plaque pH drop induced by a sucrose challenge, showing clearly that tablets should also be considered as oral health beneficial products. Consequently, the consumption of polyols in various vectors should be regulatory, as is recommended for SFCG.

**Keywords:** polyol; oral health; sweetener



**Citation:** Perreau, C.; Wils, D.; Thabuis, C. Sugar Replacers in Confectionary beyond Sugar-Free Chewing-Gums: Demonstration of Oral Health Benefits of Polyols in Tablets Using a Customized-Reversed pH-Telemetry Test. *Proceedings* **2023**, *91*, 372. https://doi.org/10.3390/proceedings2023091372

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 27 February 2024



**Author Contributions:** Conceptualization C.P., D.W. and C.T.; methodology, C.P., D.W. and C.T.; investigation, Zurich University; writing—original draft preparation, C.T.; writing—review and editing, C.T.; visualization, C.T.; supervision C.T.; project administration, C.T.; funding acquisition, C.T. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by Roquette.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the local ethic committee of the canton Zurich (protocol code KEK-ZH-Nr. StV and 14/11/2019).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data available on request due to restrictions of privacy, legal and ethical reasons.

**Conflicts of Interest:** Clémentine Thabuis, Caroline Perreau and Daniel Wils are employees of Roquette.