

***In-situ* enzymatic conversion of sucrose into prebiotic fructooligosaccharides for the development of a functional strawberry preparation**

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The increased search for reduced-sugar and healthier food products has driven the growth of the functional food market [1]. This opened space for the development of *novel* functional products. Frulact SA, a partner in this project, is specialized in the development and production of fruit-based preparations, which are mainly utilized in the dairy industry for incorporation in flavored yogurts. Its market is expected to increase at a compound annual growth rate of 6.1% until 2030 [2]. However, despite being rich in nutrients, these preparations have a high amount of caloric added sugar. To reduce this sugar in a strawberry preparation, we herein propose an *in-situ* enzymatic conversion of its sucrose content into prebiotic fructooligosaccharides (FOS) [3,4].

Two commercial enzymatic complexes were evaluated for the *in-situ* synthesis of FOS. At optimal conditions (60 °C and pH 5.0), Pectinex[®] Ultra SP-L yielded 0.57 ± 0.01 g_{FOS}/g_{ini.sucrose} after 7 h reaction and Viscozyme[®] L, 0.66 ± 0.00 g_{FOS}/g_{ini.sucrose} after 5 h. The resultant strawberry preparations contained more than 50% (w/w) of FOS in total carbohydrates. Also, more than 80% of the original sucrose content was reduced, diminishing its caloric value by 31%. The data show that consumption of dairy products containing 10% of the developed prebiotic preparation would result in the ingestion of >2.5 grams of FOS per 100 mL of product. The prebiotic preparation showed also to resist the harsh conditions of the gastrointestinal tract since more than 90% of FOS were not hydrolyzed during digestion. The conversion of sucrose into FOS changed some physicochemical and textural attributes of the original product (*i.e.*, sweetness, color, viscosity, consistency), yet those can be easily adjusted.

The *in-situ* technological approach here developed shown great potential as an innovative strategy for the development of low-sugar and low-calorie prebiotic food.

Acknowledgments: This work was supported by the FCT under the scope of the strategic funding of UIDB/04469/2020 unit, by National Funds through the FCT under the project cLabel+ (POCI-679 01-0247-FEDER-046080) co-financed by Compete 2020, Lisbon 2020, Portugal 2020 and the European Union, through the European Regional Development Fund (ERDF) and by LBBELS – Associate Laboratory in Biotechnology, Bioengineering and Microelectromechanical Systems, LA/P/0029/2020. Daniela A. Gonçalves acknowledge the Portuguese Foundation for Science and Technology (FCT) for the PhD Grant (2022.11590.BD). The authors acknowledge Frulact SA for all support concerning the materials and information related to the industry sector.

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