

## Topic 2: Bioaccessibility/absorption of beneficial and harmful compounds | Poster

### (22765) - STRATEGY TO ENHANCE THE BIOACCESSIBILITY OF CAROTENOIDS IN PERSIMMON CONCENTRATE

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#### Abstract

Persimmon has been associated to potential health benefits due to its high levels of bioactive compounds like polyphenols, carotenoids and fibers. Its production and consumption has been expanding in Brazil, making it the focus of a great deal of researches. These studies have been conducted to overcome the post-harvested losses and to add value to the food production chain. Valuation strategies for this chain include the diversification of products across the world to develop functional foods and natural ingredients. Since carotenoids are bioactive compounds that present low bioavailability, the knowledge of the steps limiting their bioavailability is mandatory for the design of functional foods/ingredients. The type of food processing and its strategies, as well as carotenoid delivery systems, can drive to an enhanced carotenoid bioavailability in the final product. The aim of this work was to obtain a carotenoids concentrate with low soluble solids content from persimmon, determining the content and bioaccessibility of carotenoids in the final product. Persimmon pulp was obtained from fresh fruits. Since persimmon is rich in polysaccharides, to enable membrane processing, the pulp was subjected to a pre-treatment that consisted of dilution in water (1:1 w/w), followed by centrifugation in a basket centrifuge equipped with a 150 µm nylon sieve mesh. The diluted and centrifuged pulp was subjected to microfiltration in diafiltration mode, aiming to remove sugars and other low molecular weight solutes, with the addition of distilled water as washing fluid. Then, the process was conducted in concentration mode in order to obtain the final concentrate of persimmon carotenoids. The bioaccessibility was evaluated using the harmonized *in vitro* digestion protocol INFOGEST 2.0. The mean total carotenoid content of the concentrate (2800.6 µg/100 g) did not differ from the pulp (2962.5 µg/100 g), however its soluble solids content was 87% lower than pulp (2.2 °B instead of 17.7 °B). The processing provided an increase in the bioaccessibility of carotenoids from 2.1% to 11.0%, which can be associated with the pre-treatment of the pulp since it decreased the suspended solids content of the pulp. Persimmon carotenoid concentrate showed good bioaccessibility and can be used as a natural ingredient with high biological value.

#### Acknowledgments

This work was supported by FAPERJ - Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro.

**Keywords :** Functional ingredients, carotenoids concentrate, membrane technology, diafiltration, microfiltration