

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

(22760) - BIOACCESSIBILITY OF PHENOLICS IN RED FRUIT ICE CREAM WITH POWDERED JUÇARA PULP AS NATURAL COLORANT

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Abstract

This study aimed to investigate the bioaccessibility of phenolic compounds of a red fruit ice cream added of powdered juçara pulp as a natural colorant after simulated digestion using the INFOGEST 2.0 static digestion protocol. Phenolic compounds and anthocyanins were determined by HPLC, respectively. The addition of powdered juçara did not affect the physico-chemical and technological characteristics of the ice cream but contributed to an increase of 47%, 20%, and 50% in total phenolic compounds, total monomeric anthocyanins and in the ABTS+ scavenging capacity, respectively. Nine polyphenols were identified and quantified before *in vitro* digestion, with phenolic acids (75.3%) and anthocyanins (24.2%) being the main compounds of the total polyphenol content, while a minor quantity of other flavonoids was also identified (0.45%). Ellagic acid was the main phenolic acid (97.3%), while cyanidin-3-ruthenoside and cyanidin-3-glucoside accounted for 62.6% and 34.0% of the total anthocyanins, respectively. Despite the decrease of anthocyanins observed after *in vitro* digestion, approximately 55-62% of them were still available for absorption in the small intestine or even to reach the large intestine at the end of digestion. Regarding the phenolic acids, except for syringic acid and p-coumaric acid, which were not detected at the end of *in vitro* digestion, 4-hydroxybenzoic acid, protocatechuic acid, and ellagic acid presented higher contents in relation to the initial matrix content, representing a bioaccessibility of 423 %, 654 %, and 200 %, respectively. Concerning the flavonoids, rutin increased by 190% after *in vitro* digestion compared to undigested ice cream. The high bioaccessibility of the phenolic compounds in the ice cream indicates a great preservation of these compounds after *in vitro* gastrointestinal digestion, contributing to the functionality of the product.

References

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