BIOACESSIBILITY OF β-CAROTENE FROM YELLOW CASSAVA BRS JARÍ (*Manihot esculenta Crantz*) *IN NATURA* AND THE EFFECTS OF BOILING AND FRYING

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Food biofortification with β-carotene is a complimentary strategy to fight vitamin A deficiency, and cassava is highly produced and consumed in areas with endemic vitamin A deficiency, which motivates the biofortification of the roots with β-carotene. However, the effectiveness of this approach depends on the bioaccessibility of this pro-vitamin A carotenoid, that is the limiting factor for its bioavailability, especially in the preparations used by the target populations. The aims of the present study were to investigate the *in vitro* bioaccessibility of β-carotene from biofortified yellow cassava roots BRS *Jari* after boiling and frying, and to characterize by fluorescence microscopy the micellar fraction of boiled and fried cassava after *in vitro* digestion. Uncooked cassava roots, used as controls, and boiled and fried cassava roots were subjected to *in vitro* digestion, and then the miscellarization efficiency was determined and fluorescence microscopy was performed. The carotenoids' composition before and after *in vitro* digestion was analyzed by HPLC, and contents of total carotenoids were determined by spectrophotometry at 450 nm. The bioaccessibility was favored by the preparations investigated, especially in the fried cassavas, which presented the highest ($P<$ 0.01) efficiency of micellarization of total carotenoids and of all-*trans*-β-carotene (14.1 ± 2.2% and 14.4 ± 2.4%, respectively). The higher bioacessibility of carotenoids in the fried cassavas could be attributed to two main factors, the higher temperature might have released more effectively carotenoids from caroteno-proteins, and also the incorporation of lipids in the sample might have increased the transference of carotenes to micelles. Fluorescence microscopy confirmed the presence of β-carotene emulsified in the micellar fraction of the samples. Morphologies of the emulsified fraction containing carotenoids from the samples of boiled and fried yellow BRS Jari cassava indicated the absence of fluorescent crystal structures, and the presence of fluorescent microemulsions.