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НАУЧНИ ИНСТИТУТ ЗА ПРЕХРАМБЕНЕ ТЕХНОЛОГИЈЕ

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Enriching cereals-based products with bioactive compounds is a valuable strategy to improve product quality. We studied carotenoid bioaccessibility and intestinal uptake from a pumpkin-enriched porridge, cookies and sponge cakes by using in vitro digestion coupled with Caco-2 cell uptake. Among the carotenoids recovered in different products, α -carotene was the most important abundant one. However, lutein displayed a significantly higher bioaccessibility compared to α -carotene and β -carotene in baked products (up to 10.28% compared to 1.22% and 0.88%, respectively). α -Carotene was the only carotenoid recovered in Caco-2 cells after micelle incubation. Cookie micelles led to the highest percentage of α -carotene cell uptake (2.33% and 1.38% for cookies with butter and cookies with vegetable oil, respectively) compared to the other baked products, followed by dry pumpkin puree micelles (1.31%). Overall, our data show that both bioaccessibility and cell uptake of carotenoids from cereal-based products are variable and highly depend on food formulation and structure.

