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Microstructure and bioaccessibility of different carotenoid species as affected by hot air drying: study on carrot, sweet potato, yellow bell pepper and broccoli

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Abstract:

Carotenoids are widely distributed in fruits and vegetables. However, their bioactivity depends on their release and intestinal uptake. Food matrix changes due to processing seem of critical importance to understand the effect of food processing on carotenoid bioaccessibility and bioavailability. Based on the observation of outstanding dissimilarities of the morphology of pigment-containing chromoplasts in carotenoid sources, the bioaccessibility of carotenoids from edible portions of carrot, sweet potato, yellow bell pepper and broccoli was compared during hot air drying (HAD) in present study. The natural structural barriers and the other factor interact to govern the carotenoid bioaccessibility upon HAD. HAD resulted in cell wall disruption and induced an anticipated enhancement of carotenoid release in carrot and yellow bell pepper. Starch granules might be playing an important role in limiting carotenoid