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Encapsulation: a technological alternative to protect caroteinoids in food matrices

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Buriti (*Mauritia flexuosa*) is a well-known source of bioactive compounds and carotenoids, which are essential molecules with significant nutraceutical potential and health-promoting actions, particularly against chronic non-communicable diseases. These characteristics support its promising application in both the food and pharmaceutical industries. More recently, different matrices derived from buriti have been investigated with a focus on their use as encapsulation (wall) materials capable of protecting bioactive compounds against oxidation, thermal degradation, and photodegradation, extending their functional stability across various processing conditions. At the same time, shifting eating habits have led consumers to seek food products with higher nutritional value and functional properties, a demand that can be most effectively met through the strategic combination and fortification of food matrices. In this scenario, buriti oil emerges as a multifunctional food ingredient with a complex chemical composition — encompassing fatty acids, phenolic compounds, and carotenoids — that can be successfully incorporated into a wide range of food products, including yogurt, meat, juices, and isotonic beverages. Current studies have increasingly focused on the use of microencapsulated buriti oil as a strategy to improve preservation and modulate the antioxidant capacity of these food systems. Notably, protein–polysaccharide associations such as gum arabic and inulin, as well as bean flours derived from red kidney and mung beans, have been employed as wall materials to encapsulate buriti oil, effectively maintaining oxidative stability in ground beef and preserving β-carotene content in nutritionally enriched and sensorially fortified yogurts.The encapsulation of buriti bioactive compounds, followed by their incorporation into food products, positively impacts both nutritional potential and sensory characteristics, demonstrating that this technology represents a promising approach to ensuring greater stabilization while preventing oxidative, thermal, and photodegradation.

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