

Polysaccharide-based nano-/micro-gels for the food sector

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Polysaccharides are the major natural originated components finding extensive investigation and utilization in diverse fields including the nutritional manufacturing sector. Due to their advantageous properties such as safety, stability, biocompatibility, biodegradability and nontoxicity, polysaccharide-based complex systems have a significant potential in the fields of cosmetics, pharmaceuticals and food engineering. Microencapsulation of active ingredients such as, flavors, antioxidants, vitamins, lipids into biopolymer nano-/micro-gels offers greater bioavailability, effectiveness, lower toxicity and more lasting stability than conventional formulations. Understanding the physicochemical properties of these micro- and nanogels and their encapsulating and release properties in different conditions is therefore crucial for their optimization and use in the food sector.

In this communication we present k-carrageenan-based nanogels obtained as a result of coassembly with α -lactalbumin as macro-ionic crosslinking agent. Such systems are of interest as carriers for bioactive ingredients therefore we compared the microstructure and VD3 encapsulation capacity of nanogels as a function of preparation protocol and various environment conditions (pH, T) applying combination of scattering and spectroscopic techniques.

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