

Next Generation Nanochitosan

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Chapter 31 - Application of nanochitosan in tagging and nano-barcoding of aquatic and animal meats

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Abstract

Nanochitosans obtained from crustacean shells are biodegradable and biocompatible offering valuable functional, nutritional, and binding properties. Their low toxicity favors diverse industrial applications in various research models and can enable their use in the tagging of commercially sold aquatic and animal meat, easily contaminated by microbial sources during packaging, storage, and transportation. In this capacity, nanochitosans have been applied in fingerprinting for tracking and identifying the manufacturing and expiry dates of commercially sold meats and fish, as well as delivery of antioxidants and antimicrobials in these food products without affecting product consistency, composition, and organoleptic property. This chapter reviews current research on chitosan-based nanoparticles as barcodes and biosensors in tagging and monitoring aquatic and animal meats; and highlights methods of fish tagging and coding, and the benefits as well as the properties of materials used as biosensors in nano-barcoding of fish and meat.