Special Issue

Sustainable Applications of Bioactive Compounds from Food By-Products in Smart Packaging

Message from the Guest Editors

The use of bioactive compounds derived from food by-products (FBPs) is emerging as a promising strategy in sustainable food packaging technologies. Naturally occurring substances such as polyphenols, anthocyanins, and essential oils are being incorporated into biodegradable polymer matrices to develop intelligent packaging systems with antioxidant, antimicrobial, pH-sensitive, and color-changing properties. The aim is to support food quality monitoring and extend shelf-life. However, practical application remains limited due to challenges such as instability, low water solubility, and high reactivity. Recent research efforts have focused on green extraction methods, encapsulation, and molecular modifications to enhance stability and compatibility with food-grade biopolymers, including starch, PLA, chitosan, and cellulose. This growing field bridges waste valorization and food safety innovation, contributing to the goal of achieving a circular economy and sustainable packaging solutions. Further studies are encouraged to explore novel materials, processing techniques, and applications involving FBPs for active and smart packaging systems.

Guest Editors

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Message from the Editor-in-Chief

Foods (ISSN 2304-8158) is an open access and peer reviewed scientific journal that publishes original articles, critical reviews, case reports, and short communications on food science. Articles are released monthly online, with unlimited free access. Currently, Foods has been indexed by the Science Citation Index Expanded (SCIE - Web of Science), PubMed, and Scopus. Our aim is to encourage scientists, researchers, and other food professionals to publish their experimental and theoretical results as much detail as possible. We therefore invite you to be one of our authors, and in doing so share your important research findings with the global food science community.

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