

Special Issue on Innovative Food Products and Processing

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The food industry is experiencing a significant transformation, driven by evolving consumer preferences, sustainability concerns, and technological advancements. This revolution involves introducing innovative food products and processing techniques that cater to changing tastes, improve nutritional value, ensure food safety, better utilize food waste as well as byproducts, and reduce environmental impact.

In this Special Issue, much focus has been placed on research and development (R&D) related to innovative food products, including functional foods or ingredients, as well as processes that integrate fundamental knowledge of food science and technology with emerging processing and preservation technologies. For instance, encapsulation techniques are used to protect sensitive nutrients during food processing and storage, targeted delivery preserving their effectiveness and nutritional benefits [1]. Emulsifiers derived from soybean lecithin and pea protein isolate are being studied for their capacity to encapsulate as well as emulsify antimicrobial molecules under different pH conditions and drying methods [2].

The increasing emphasis on healthy lifestyles has influenced the food and beverage industry. A formulation for a potentially functional beverage mixture with low energy content has been developed to cater to personalized nutrition, children, athletes, and older individuals [3]. Additionally, there is a consumer preference for reduced salt content in food and beverages. Incorporating seaweed into reduced salt patties has been found to enhance textural properties while maintaining an acceptable taste profile [4].

Emerging modern processing techniques are revolutionizing the food industry by enhancing quality, safety, and sustainability. Process optimization plays a crucial role in improving efficiency, product quality, safety, and sustainability. For example, there have been proposed optimizations of oligosaccharide preparation from underutilized red seaweed through thermal hydrolysis [5] and the study of factors that influence stabilization processes in amaranth purees and brandies [6,7]. Furthermore, research has explored the potential of using bambangan, a tropical fruit, as a cocoa butter replacer, offering an alternative fat source for food applications [8].

Advancements have also been made in gluten-free bakery products to improve their taste, texture, and nutritional profiles. New flours and ingredients are being utilized to create gluten-free alternatives that closely resemble traditional wheat-based products [9]. Bakery items can also be transformed into functional foods by incorporating ingredients and fortification techniques that provide additional health benefits beyond basic nutrition [10,11].

Additionally, the utilization of byproducts as food ingredients is gaining attention for its potential to reduce waste, enhance sustainability, and create value-added products. Byproducts from various food processing industries can be upcycled into valuable ingredients, supporting a circular and efficient food system. For example, byproducts of canned pulse liquids have shown promise as egg white replacers in the development of various food products, and needlefish skin collagen possesses potential industrial applications [12,13].



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Overall, these innovations are reshaping the food industry, offering improved products, sustainable practices, and novel approaches to meet the evolving needs and preferences of consumers.

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