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Bioactive Compounds from Functional Foods, 2nd Edition

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Functional foods continue to attract significant scientific and consumer interest due to their health-promoting properties, largely attributed to the presence of bioactive compounds. Such compounds include plant-derived metabolites such as polyphenols, carotenoids, or sulfur- and nitrogen-containing compounds, as well as bioactives from animal and microbial sources, including peptides, fatty acids, and polysaccharides. Their biological activity is associated with antioxidant, immunomodulatory, and metabolic effects, contributing to disease prevention and overall health maintenance.

This compilation of scientific publications presents current advances in the identification, characterization and application of bioactive compounds in food systems. The collected contributions highlight the importance of food matrix structure, processing conditions and technological approaches in determining stability, bioavailability and functionality. Attention is also given to molecular mechanisms of action, including interactions with the gut-brain axis, immune regulation and inflammation pathways. In addition, both experimental and computational methods are addressed, including advanced analytical techniques and in silico predictions supporting bioactivity assessment. The diversity of sources and approaches reflects the complexity of the field and emphasizes the need for critical and evidence-based evaluation of health effects.

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