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Bioactive Compounds in Foods and Their Health-Promoting Effects

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Abstract

Bioactive compounds are naturally occurring substances in foods that exert biological effects beyond basic nutrition. These compounds play a significant role in disease prevention, health promotion, and functional food development. Found in plant and animal-based foods, bioactive compounds contribute to improved physiological functions and reduced risk of chronic diseases. This article discusses the importance of bioactive compounds in food and their impact on human health.. This article discusses the role of food biotechnology in modern food science and its contribution to sustainable food production. Improper post-harvest practices can lead to significant food losses, reduced nutritional value, and economic challenges. The application of appropriate post-harvest technologies enhances food safety, extends shelf life, and ensures year-round availability of food products. This article discusses the role of post-harvest technology in improving food quality and reducing post-harvest losses.

***Keywords:** Bioactive compounds, Functional foods, Phytochemicals, Health promotion, Nutraceuticals*

Introduction

Bioactive compounds are non-nutrient components in foods that influence physiological processes and promote health. These substances include polyphenols, flavonoids, carotenoids, peptides, and phytosterols, which exert protective effects against various diseases [1]. Their biological activity makes them valuable components of functional foods.Scientific studies have linked bioactive compounds to reduced risk of cardiovascular diseases, cancer, and metabolic disorders [2]. These compounds modulate inflammation, oxidative stress, and immune responses, contributing to overall health maintenance [3]. Their presence in natural foods highlights the importance of dietary diversity and plant-based nutrition.In food science, bioactive compounds are increasingly used in the development of functional and fortified foods [4]. Advances in extraction, stabilization, and delivery technologies have improved their bioavailability and effectiveness [5]. Therefore, bioactive compounds represent a vital intersection between nutrition, food science, and preventive healthcare. Bioactive compounds are non-nutrient components in foods that influence physiological processes and promote health. These substances include polyphenols, flavonoids, carotenoids, peptides, and phytosterols, which exert protective effects against

various diseases. Their biological activity makes them valuable components of functional foods. Therefore, bioactive compounds represent a vital intersection between nutrition, food science, and preventive healthcare.

Conclusion

Bioactive compounds play a crucial role in promoting health and preventing disease. Their integration into food systems supports the development of functional foods and health-oriented dietary strategies. Continued research will expand the understanding and application of bioactive compounds in improving global health outcomes . When used responsibly and regulated effectively, they contribute to product stability and consumer satisfaction. Ongoing research and regulatory oversight are essential to ensure the safe and beneficial use of food additives in the global food industry.

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