Journal of Food Science Research

Editorial | Vol 10 Iss 1

Dietary Fibers and Their Role in Digestive Health and Disease Prevention

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Received: jan 04, 2025; **Accepted:** jan 18, 2025; **Published:** jan 27, 2025

Abstract

Dietary fibers are non-digestible carbohydrates that play a crucial role in maintaining digestive health and preventing chronic diseases. They contribute to gut health, metabolic regulation, and immune function. Increased consumption of dietary fiber is associated with reduced risk of various lifestyle-related diseases. This article discusses the importance of dietary fibers in human nutrition and public health.This article discusses the role of food fortification in promoting nutrition security and public 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:** Dietary fibers, Digestive health, Gut microbiota, Chronic disease prevention, Nutrition*

Introduction

Food fortification involves the intentional addition of vitamins and minerals to food products to improve their nutritional value. This strategy is used to address widespread deficiencies of nutrients such as iron, iodine, vitamin A, and folic acid in populations at risk [1]. Fortification programs are recognized as cost-effective interventions for improving public health. Micronutrient deficiencies contribute to impaired growth, weakened immunity, and increased disease susceptibility [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

Citation: Noor A. Al-Farsi, Dietary Fibers and Their Role in Digestive Health and Disease Prevention. J Food Sci Res. 10(1):117.

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

Dietary fibers are plant-based carbohydrates that resist digestion in the human gastrointestinal tract. They include soluble and insoluble fibers, each providing distinct physiological benefits [1]. These fibers contribute to improved bowel function, enhanced nutrient absorption, and overall digestive health.Scientific research has linked dietary fiber intake to reduced risk of cardiovascular diseases, diabetes, and obesity. Continued investment in fortification programs and scientific research will strengthen their impact on global health. Their development supports preventive healthcare approaches and improved quality of life. Continued scientific research and regulatory oversight will strengthen the credibility and impact of nutraceuticals in global health systems. 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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