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Enhancing Sustainable Nutrition: Optimizing the Physical and Nutritional Characteristics of Cookies with Apple Pomace Extrudates

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Introduction

In recent years, there has been a growing focus on promoting sustainable nutrition, which aims to meet present dietary needs while considering environmental impact and long-term food security. One such approach gaining traction in the food industry is the use of food by-products, like apple pomace, to enhance the nutritional value and physical properties of everyday foods. Apple pomace, a by-product of the juicing industry, is rich in fiber, antioxidants, and other bioactive compounds, making it an excellent candidate for enhancing the nutritional profile of baked goods, including cookies.

Apple pomace, which typically ends up as waste, can be processed into extrudates—structural food particles created through extrusion cooking. These extrudates can then be incorporated into cookie recipes to boost their fiber content, improve texture, and provide functional health benefits. This article explores how the use of apple pomace extrudates in cookies can promote sustainable nutrition by enhancing their physical properties and nutritional quality while contributing to a more sustainable food system. Apple pomace is the solid residue left after the extraction of juice from apples. This by-product is often discarded or used as animal feed, despite its rich nutritional composition. Apple pomace contains significant amounts of dietary fiber, polyphenols, flavonoids, and essential minerals, making it a valuable source of nutrients. The fiber content in apple pomace includes both soluble and insoluble fibers, which are beneficial for digestion and overall gut health. Furthermore, polyphenols such as quercetin and chlorogenic acid in apple pomace have antioxidant properties, which can help reduce oxidative stress and inflammation in the body. Given its abundant nutritional profile, apple pomace presents a sustainable solution for improving the quality of various food products, including baked goods. By converting this by-product into a useful ingredient, food producers can reduce waste while enhancing the nutritional value of their products. Incorporating apple pomace extrudates into cookies is one such innovative way to improve the overall health benefits of these popular treats [1-3].

Description

Extrusion cooking is a widely used process in food processing that involves forcing food ingredients through a machine under high pressure and temperature to form a specific shape or texture. This method is commonly used to create snacks, cereals, and pet food, but its application to the development of functional food ingredients is gaining attention. In the case of apple pomace, the extrusion process can transform the raw pomace into extrudates structured particles that can be easily incorporated into baked goods. The high temperature and pressure during extrusion not only alter the texture of apple pomace but also improve its digestibility and make its nutrients more bioavailable. Extrusion also leads to the breakdown of certain compounds, which can increase the antioxidant activity of the pomace [4,5].

Conclusion

Incorporating apple pomace extrudates into cookie recipes offers a unique opportunity to enhance the physical and nutritional properties of these popular treats, contributing to more sustainable nutrition. By improving fiber content, boosting antioxidant levels, and increasing nutrient density, apple pomace extrudates can make cookies a healthier snack option without compromising their taste or texture. Moreover, the use of food by-products like apple pomace helps reduce waste and promotes sustainability in food production. As the food industry continues to seek innovative solutions to address both nutritional needs and environmental concerns, the utilization of apple pomace extrudates in cookies presents a promising approach to creating functional, sustainable, and nutritious food products.

Acknowledgement

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Conflict of Interest

None.

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