

Promoting Sustainable Nutrition: Improving Physical and Nutritional Properties of Cookies Using Apple Pomace Extrudates

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Introduction

In the modern world, the increasing demand for sustainable food production systems has led to the exploration of novel ingredients that not only meet nutritional needs but also contribute to reducing food waste. One such ingredient is apple pomace, the solid remains left after juice extraction from apples. Apple pomace is typically discarded or used for animal feed, but its potential as a valuable food ingredient is gaining attention. When processed through extrusion, a popular method for enhancing the functionality of food ingredients, apple pomace can improve the nutritional and physical properties of baked goods, particularly cookies. The inclusion of apple pomace extrudates in cookies offers several advantages, including enhanced dietary fiber content, improved antioxidant properties, and a reduction in food waste. This article explores the benefits of using apple pomace extrudates to improve the physical and nutritional qualities of cookies, thus promoting more sustainable nutrition. Apple pomace is a rich by-product of the fruit juice industry, containing significant amounts of fiber, phenolic compounds, vitamins, and minerals. It is estimated that up to 20% of the apple's weight is lost as pomace during juice processing. While it is traditionally used in animal feed or discarded, apple pomace is highly nutritious and can be utilized in human food products [1-3].

Description

Extrusion is a versatile food processing technique that involves forcing ingredients through a mold under high heat and pressure. The process can significantly alter the physical properties of food ingredients, improving their texture, digestibility, and functionality. In the case of apple pomace, extrusion not only enhances its nutrient release but also transforms it into a more palatable form, making it suitable for incorporation into a variety of food products, including baked goods like cookies. During extrusion, the high temperatures and pressures applied help break down the cell walls of apple pomace, making its nutrients, particularly the fiber and phenolic compounds, more bioavailable. The process also helps reduce the moisture content of the pomace, making it easier to incorporate into dough formulations and increasing its shelf life. Furthermore, extrusion can improve the texture of the pomace, making it more acceptable for human consumption in processed foods. Including apple pomace extrudates in cookie formulations can significantly enhance their nutritional profile. Below are some key benefits: One of the primary benefits of incorporating apple pomace into cookies is the substantial increase in dietary fiber. Fiber is an essential component of a balanced diet, contributing to digestive health, regulating blood sugar levels, and supporting cardiovascular health [4,5].

Conclusion

The incorporation of apple pomace extrudates into cookie formulations offers an innovative approach to enhancing the physical and nutritional

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properties of cookies while promoting sustainable nutrition. This not only leads to cookies that are higher in fiber, antioxidants, and essential nutrients but also contributes to reducing food waste and improving the overall environmental footprint of the food industry. By utilizing apple pomace, food manufacturers can create healthier, more sustainable baked goods that align with the growing demand for nutritious, eco-friendly products. This approach not only offers benefits for consumer health but also supports a more circular, waste-reducing food system. As the food industry continues to seek sustainable solutions, the use of apple pomace in cookies represents a promising step forward in advancing sustainable nutrition. Apple pomace is rich in insoluble fiber, which can help prevent constipation and promote a feeling of fullness, aiding in weight management. The extrusion process helps improve the solubility and bioavailability of this fiber, enhancing its positive effects on health.

Acknowledgement

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Conflict of Interest

None.

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