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A STUDY ON THE NUTRITIONAL COMPOSITION AND SENSORY PREFERENCES OF MUFFINS FORTIFIED WITH PEA SPROUTS

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Abstract

In response to increasing interest in functional foods that support health and well-being, this study examines the fortification of muffins with pea sprouts to evaluate their potential as nutrient-enriched bakery products. Pea seeds were germinated over a 15- day period, after which the sprouts were dried and processed into flour. Muffins were formulated by incorporating varying proportions of pea sprout flour (2,5%, 5%, and 7,5%) as a partial replacement for wheat flour. Comprehensive nutritional analyses were conducted, encompassing protein, lipid, mineral, and carbohydrate content, along with assessments of total polyphenol content and antioxidant activity. The findings revealed significant improvements in mineral content and antioxidant levels, suggesting a positive impact on the nutritional quality of the fortified muffins. Sensory evaluation further indicated a preference among consumers for muffins containing 2,5% pea sprout flour, demonstrating favorable acceptance across all sensory parameters assessed.

• Introduction

This paper investigates the effects of fortifying muffins with flour obtained from pea shoots. The shoots were grown for a period of 15 days, dried and processed into flour, which was then incorporated into muffin recipes at 2.5%, 5% and 7.5% as a partial substitute for pea flour. Nutritional analysis included the determination of protein, lipid, mineral and carbohydrate content, as well as the evaluation of polyphenol content and activities.



DAY 1



DAY 15

• Material and method

This paper examines the impact of fortifying muffins with flour derived from pea sprouts. The sprouts were cultivated for 15 days, dried, and transformed into flour, which was then incorporated into muffin recipes at proportions of 2.5%, 5%, and 7.5%, partially replacing wheat flour. Nutritional analyses focused on determining the content of proteins, lipids, minerals, and carbohydrates, as well as evaluating the polyphenol content and antioxidant activities.



• Results and discussions

The results obtained showed a significant improvement in the nutritional quality of the fortified muffins, in particular through increased mineral content and antioxidant activity. In addition, sensory analysis demonstrated a high acceptability of the muffins, with a clear preference for the 2.5% pea shoots flour variant. Thus, this study supports the integration of functional ingredients in traditional food products, contributing to the development of innovative and nutritious foods. Muffins with 2.5% flour obtained the best sensory scores, being appreciated for taste, texture and overall acceptability. At 7.5%, the muffins showed a slight decrease in sensory scores, possibly due to the impact on texture and flavor. In the mixtures with pea shoots flour and barley flour, a significant increase in polyphenol content was observed compared to pure barley flour.

Conclusions

The trend in the food industry is to develop products that not only provide superior nutritional benefits, but also meet the physical demands of consumers. In this context, flour blends based on pea shoots were formulated, combined with wheat flour in various substitution ratios. The results obtained suggest that the use of pea shoots is a promising option for the development of functional food products.

