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Production of Functional Brotchen Bread Enriched with Pomegranate Wastes (Peel And Bone Marrow) Powder

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Abstract

Pomegranate peel and bone marrow are by-products of pomegranate processing industries, which have a high nutritional and practical value, which are mainly used as animal feed. The purpose of this research was to use pomegranate peel and bone marrow powder in the production of Brotchen breads and to investigate the characteristics of the produced breads. This study involved the substitution of 2.5% and 5% of wheat flour in the Brotchen bread formulation with pomegranate peel and bone marrow powder. The investigation focused on analyzing the chemical properties, which included assessments of ash, moisture content, fiber, total phenolic content, and color characteristics.The obtained results showed that the addition of pomegranate peel and bone marrow powder had no a significant difference in the moisture content of the produced breads, but in terms of ash, fiber and total phenols, there were a significant increase in samples replaced by 2.5. and 5% of pomegranate peel and bone marrow powder. Also, with the increase in the replacement amount of pomegranate waste powder, the amount of color indices a*, and L* increased and decreased in the produced breads, respectively. Also, the findings of this research showed that adding of 5% pomegranate waste powder caused undesirable color due to high darkness of the produced breads. Finally, it can be mentioned that the use of pomegranate waste powder at the rate of 2.5% had no adverse effects on the visual and physicochemical properties, and also due to it's functional compositions such as phenolic compounds, it can be used to enrich Brotchen breads.