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**Development and quality evaluation of a walnut-based chocolate paste designed as an alternative with an improved nutritional profile to conventional products**

*Dezvoltarea și evaluarea calității unei paste de ciocolată pe bază de nucă, concepută ca alternativă cu profil nutrițional îmbunătățit la produsele convenționale*

Increasing concerns regarding excessive sugar intake and the use of palm oil in conventional chocolate creams have stimulated research toward nutritionally improved alternatives based on local raw materials. The present study aimed to develop and evaluate a walnut-based chocolate paste formulated with roasted walnut kernels (83.5%), powdered sugar (10%), dark chocolate (5%), and cocoa (1.5%). The product was characterized in terms of oxidative stability, total phenolic content, antioxidant activity, rheological behavior, and sensory acceptability during four months of storage.

The results indicated good oxidative stability, with free fatty acid values ranging between 0.10 and 0.17 g oleic acid/100 g and peroxide values increasing moderately from 1.17 to 2.22 meq/kg oil, remaining within acceptable quality limits. The initial total phenolic content reached 47.20 mg GAE/g, while antioxidant activity assessed by DPPH radical scavenging capacity was approximately 70%. Although a gradual decrease in phenolic compounds (about 31%) and antioxidant activity (approximately 33%) was observed during storage, the product maintained a considerable bioactive potential. Rheological analysis demonstrated non-Newtonian pseudoplastic behavior, characteristic of nut-based chocolate pastes, with a slight reduction in apparent viscosity over time. Sensory evaluation (n = 20) revealed high overall acceptability (4.58 on a 5-point hedonic scale), particularly for taste and flavor attributes.

The obtained results demonstrate the technological feasibility of producing a walnut-based chocolate paste with enhanced nutritional attributes and satisfactory oxidative stability. The product represents a promising alternative to conventional high-sugar, palm-oil-containing formulations, while simultaneously contributing to the valorization of locally cultivated walnut resources.

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