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Influence of the addition of hazelnut skins on the physico-chemical and polyphenol content of yogurt and fresh egg pasta

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Abstract

Although the size of hazelnut crop varies slightly from year per year, generally, world production of hazelnut averages around 800000 tons per year. Turkey, having 57% of the world hazelnut production, is the first world producer and exporter, followed by Italy (16%), the United States (5%) (FAO, 2016). Hazelnuts are typically consumed as the whole nut (raw or roasted) or used as an ingredient in various processed food. Two different by-products are obtained during the transformation of hazelnuts through the post-harvesting processes, shells and hazelnut skin. Among these, only the shell has a direct commercial value as a heating source. Hazelnut skin, representing approximately 2.5% of the total kernel weight, is a rich source of dietary fibre, as well as phenolic compounds with antioxidant properties.Therefore, the aim of our works was to evaluate the possibility of using hazelnut skin as a source of antioxidants in yogurt[1] and fresh egg pasta[2]. The skin of three hazelnut varieties ("Tonda Gentile Trilobata", "San Giovanni" from Italy and "Georgia" from Georgia) were used in the yogurt production at two different percentage of addition (3% and 6%). For pasta production, the same skin varieties but at three different percentage (5, 10 and 15%) were used. Concerning of hazelnut skin yogurt addition, the microbiological and physical stability of the products were evaluated during 3 weeks of storage at 4°C. The final products were also subjected to a consumer acceptance. In the application of hazelnut skin into fresh egg pasta, the products were subjected to the texture analysis and, after cooking, to a consumer acceptance. The raw material and the final products were subjected, for a nutritional evaluation, to the total phenolic content assay using the Folin-Ciocalteu method and to the free radical scavenging capacity assay by using the DPPH radical. The studies demonstrated that hazelnut skin can be utilized as a source of antioxidants to fortify yogurt and pasta, but the characteristics of the final products were strictly correlated with the hazelnut variety used and the percentage of addition.

Keywords

hazelnut by-products, polyphenols, yogurt, pasta

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