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PRELIMINARY RESEARCH ON GARLIC PEEL POWDER AS A SOURCE OF ESSENTIAL MINERAL ELEMENTS

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Abstract: The purpose of this paper is to determine the content of mineral elements in the garlic peel obtained by peeling the local white garlic bulbs sold in local markets and to evaluate their mineral intake. The average values obtained when determining the mineral content: 0.302 g/100g Na, 1.786 g/100g K, 6.074 g/100g Ca, 0.542 g/100g Mg, 5.74 mg/100g Fe, 0.382 mg/100g Mn, 2.51 mg/100g Zn, and 0.816 mg/100g Cu, shows that the analyzed garlic peel samples contain increased amounts of essential macro and microelements. In the conditions of the present experiment, a quantity of 50 g of garlic peel, covers different percentages of the daily requirement (men and women aged 19-50) of essential elements: 1.01% Na, 26.3% K, 304% Ca, 64.5% Mg, 35.9% Fe, 8.30% Mn, 11.4% Zn, 45.3% Cu – men, and 1.01% Na, 34.5% K, 304% Ca, 87.4% Mg, 15.9% Fe, 10.6% Mn, 15.7% Zn, 45.3% Cu – women. These values suggest that the investigated garlic peel powder could be taken into consideration for obtaining products with added mineral content, especially in the case of Ca, K, Cu and Fe. The superior utilization of garlic peels can provide an ecological method of reducing the garlic waste .

• Introduction

Garlic (*Allium sativum*) peels resulting from garlic processing (about 25% of the total garlic) contain important amounts of nutritional and biologically active compounds, similar to garlic bulbs, which make it possible to use them as ingredients for improving the quality of food products, or to obtain functional products.

• Material and method

We used the peels obtained when peeling three batches of white garlic bulbs sold in agro-food markets in the city of Timisoara - Romania. The garlic peels (inner and outer) , previously washed, dried and ground (GPPs), constituted the medium samples GPP1, GPP2 and GPP3 used for the analysis of the interested mineral elements.

Method: The mineral elements were determined by the flame atomic absorption spectrometry method. The FS Varian 280 Spectrometer was used to measure Na, K, Ca, Mg, Fe, Mn, Zn and Cu concentrations.

• Results and discussions

The results obtained from the analysis of the mineral profile of garlic peel powders show that they contain increased amounts of essential macroelements and important amounts of essential microelements unevenly distributed depending on the producer of the garlic and the nature of the mineral element: 5652-6386 mg/100g Ca, 1714-1857 mg/ 100g K, 485-586 mg/100g Mg, 27.5-32.3 mg/100g Na, 4.94-6.41 mg/100g Fe, 2.43-2.61 mg/100g Zn, 0.753-0.889 mg/100g Cu and 0.332-0.433 mg/100g Mn . Microelements were determined in much lower concentrations than macroelements, their average concentrations showing the following values: 5.74 mg/100g Fe, 0.382 mg/100g Mn, 2.51 mg/100g Zn, and 0.816 mg/100g Cu. The average concentrations of the essential mineral elements in the analyzed GPP show the following downward trend: Ca> K> Mg> Na> Fe> Zn> Cu> Mn.

• Conclusions

The results show that the garlic peel powder, obtained by peeling of commercialized garlic contains increased amounts of mineral elements, especially Ca, K, and Mg (6074, 1786, respectively 542 mg/100g), and important amounts of Na, Fe, Zn, Cu and Mn (30.23, 5.74, 2.51, 0.816, and respectively 0.382 mg/100g Mn), essential for the proper functioning of the body. The preliminary results obtained from the evaluation of the mineral intake show that, under the conditions of the present experiment, a quantity of 50 g of garlic peel covers can cover high percentages of the need for Ca, Mg, Cu, Cu, Mn, and significant percentages of Zn and Fe. These results suggest that the investigated garlic peel could be considered for obtaining products with added mineral content, especially in the case of calcium, potassium, zinc, copper and iron. The superior utilization of garlic peels can provide an ecological method of reducing the waste resulting from peeling garlic bulbs.



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