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DETERMINATION OF SOME NUTRITIONAL PARAMETERS OF POTATO PEEL – PRELIMINARY RESEASCHES

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Abstract: The potato peel waste, a by-product resulting from the processing of potato tubers, contains available amounts of nutritional and biologically active compounds essential for the health of the human body. Previous research on the proximate analysis composition reveals that this by-product is an excellent resource of nutritional and bioactive compounds such as minerals, carbohydrates, proteins, dietary fibers, reduced fat content, and other valuable phytochemicals. This paper presents the preliminary results obtained from the analysis of potato peels obtained by peeling potato tubers sold in the local agro-food markets from Timisoara city. The results obtained: 4.78-6.82% moisture, 5.11-6.57% ash, 9.54-12.86% protein, 1.02-1.92% fat, 12.11-14.95% fibers, and 59.64-68.71% carbohydrates suggests the use of peel powder as a natural additive in food with added value or as an alternative source in animal feed ingredients. In addition, the superior utilization of this by-product as food products, pharmaceutical ingredients, low-value animal feed or as agricultural fertilizer can reduce the load of potato peel waste on the environment pollution and serve the pharmaceutical and food sectors businesses.

Introduction

The potato (*Solanum tuberosum* L.) is a vital agricultural product, widely cultivated and consumed throughout the world. It is an important source of nutrients for people and animals, being mostly used in food production due to their short growing time and their potential for use, as well as their ability to adapt to different climatic conditions. Potatoes are a valuable source of starch, proteins, carbohydrates, minerals, vitamins and fibre, alkaloids, flavonoids, phenolic compounds and reduce fats

Material and method

To carry out the experiment, were used potatoes sold by local producers from agro-food markets in the city of Timisoara. Potatoes randomly chosen were bought from three different producers, obtaining three batches of potatoes. The peels obtained were dried in an oven at 60°C, until the constant mass. The dried samples of potato peel were ground in a kitchen grinder and stored in brown jars.

Method: The determination of the nutritional composition of the potato peel powder was performed according to AOAC Official Methods of Analysis, 2000. For moisture content, dried potato peel powder was dried in an oven at 105°C to constant mass. The ash (mineral substances) were determined by the calcination method at 550 °C. The protein content was determined by the Kjeldahl method, using a conversion factor for nitrogen of 6.25. The carbohydrate content was obtained by difference. Each determination represents the average of three measurements

Results and discussions

The determined nutritional parameters showed different values that vary depending on the origin of the potatoes used to obtain the powder from the potatoes peel and on the analyzed parameter. The analyzed potato peel contains relatively low amounts of **moisture**, within limits between 4.78 - 6.82%. The average value of humidity ($5.57 \pm 0.89\%$) shows that potato peel powder does not present a major risk of degradation. The analyzed peels contain important amounts of total minerals within limits between 5.11-6.57%.

These values, as well as the average value of the **ash content** ($5.96 \pm 0.62\%$) reveals that potato peel can be considered as a potential source of mineral elements in the form of essential macro and micro elements. The concentration of **proteins**, essential macronutrients from human nutrition determined in analyzed potato peel has values between 9.54-12.86%. The average value of this nutritional parameter ($11.42 \pm 1.39\%$) shows that potato peels have a relatively important protein supply.

The **fat concentration** in the analyzed potato peel powder samples has reduce values between 1.02-1.92%. The average value of the fat concentration ($1.36 \pm 0.40\%$) shows that analyzed potato peel powder has low value of the fat supply. The concentration of the fibers in the potato peel samples analyzed has values between 12.11-14.95%. The average value of **dietary fiber** content (13.76 ± 1.20) show that analyzed potato peel could be considered as a source of dietary fiber. The analyzed samples contain increased amounts of carbohydrates, their concentration being between 59.64-68.71%. The fact that the analyzed potato peel powders can be used as sources of carbohydrates is also confirmed by the average value of their carbohydrate content ($64.18 \pm 3.81\%$).

•Conclusions

The analyzed potato peel powder contains important amounts of nutritional compounds, especially increased amounts of carbohydrates, total mineral content, sufficient protein and fiber content and reduced amounts of moisture and fat. The mean preliminary results: 5.57% moisture, 5.96% total minerals, 11.42% proteins, 1.36% fats, 13.76% fibers and 64.82% carbohydrates, shows that potato peel, a by-product of potato processing, can be used (after a simple and inexpensive preparation) to obtain food products with added value or as an additive to improve animal feed. In addition, the superior recovery of potato peel wastes can offer a cheap ecological way of reducing environmental pollution with waste from potato processing.

