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PHYSICAL AND CHEMICAL PROPERTIES AND MICROBIOLOGICAL QUALITY CONTROL OF CARROT ROOTS

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INTRODUCTION

Carrot (Daucus carota L.) is a biennial vegetable which originates from Central Asia. It belongs to the group of plants that grow in temperate climatesand its root, which can be sweet, mildly sweet and aromatic, is used in food preparation. The root of the carrot has an exceptional nutritional and biological value, its main characteristics being high content of sugar, proteins, crude fibers, minerals, vitamins and specific etheric oils. It is also known as a good source of β-carotene, as well as provitamin A. Carrot roots can be consumed fresh, but they are most often used for preparing baby food, for the production of fruit juices and nectars and they can also undergo the process of freezing or drying.

AIM

The aim of this work is to examine the physical and chemical properties, as well as to perform the microbiological quality control of carrot roots. As a part of the analysis, the following properties were examined: water activity (a_w), pH, acid content (e.g. citric acid), carbohydrate, protein and fat content in fresh and dried carrot roots.

MATERIALS AND METHODS

Water activity was measured using an avemeter (Pawkit), while pH value was measured with a pH meter (InoLabWTW, Germany). Acid content was determined using the volumetric titration method with NaOH. Carbohydrate content was determined by the volumetric Luff Schoorl titration method. Protein content was determined by the Kjeldahl method, while fat content was determined by Soxhlet extraction method. During the microbiological quality control of fresh and dried carrot roots, the samples were subjected to the bacteria that cause food spoilage, such as *Salmonella spp., Listeria monocytogenes* and *Enteriobacteriaceae*. All methods were based on the SRPS EN ISO standard, namely *Salmonella spp*. SRPS EN ISO 6579-1:2017, *Listeria monocytogenes* SRPS EN ISO 11290-1:2017, *Enterobacteriaceae* SRPS EN ISO 21528-2:2017.

CONCLUSION

The results of our tests indicated that fresh and dried carrot roots contain a low fat content, but are a good source of carbohydrates. Performed microbiological methods to test the frequency of *Salmonella spp.*, *Listeria monocytogenes* and *Enterobacteriaceae*, showed the absence of *Salmonella spp.* and *Listeria monocytogenes* and the presence of *Enterobacteriaceae* (less than 10cfu/ml).

***Key words**: carrot, chemical properties, microbiological control*