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Collection of abstracts by leading scientists, specialists and young researchers in the field of food science, technology, chemistry, economics and management presented to the Congress

The congress addressed the following topics:

FOOD EXPERTISE, SAFETY AND TECHNOLOGIES

- **Food Expertise and Safety**
- **Food Technologies**

ENERGY SYSTEMS FOR FOOD CHAIN

- **Energy Efficiency**
- **Machine Building for Food Chain**
- **Intelligent Control Systems**

NATURAL BIOACTIVE COMPOUNDS, FUNCTIONAL AND NATIONAL FOOD PRODUCTS, PACKING, STORING AND PROCESSING

- **Natural Bioactive Compounds, Functional and Local Food Products**
- **Packaging, Storing and Processing**
- **Food Processing**

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YOUNG FOOD SCIENTISTS — OUR HORIZON

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THE MODERN METHOD OF DETERMINING OF BAKERY PRODUCTS' POROSITY

The food industry requires the application of innovative technologies, improvement of working conditions and manufacturing, diversifying of assortment as well as introduction of advanced methods of determining the produce quality.

This is especially relevant for the baking industry. Bread is very popular among the people, therefore it requires careful monitoring. Porosity is a major indicator determining the quality of bread. It describes the structure of bread, its size and level of digestibility. Pore size differs depending on the varieties of bread. Therefore, the definition of this indicator is a hot topic.

Zhuravlev's classical method provides an actual determination of volume of the air phase in a specific volume of crumb. This method has certain disadvantages. For example, an inability to use products of small size or irregular geometric shape.

The proposed method for determining the porosity presupposes the acquisition of digital images with the aid of flatbed scanner. The resulting digital images were entered in a special program ImageJ, written in the Java programming language by the staff of the National Institutes of Health.

The program performs automatic processing of images with subsequent correction as well as formatting of photos to grayscale and their division into dark (pores) and bright areas (non-porous part). To determine the total porosity value, the pixel area is calculated, corresponding to the bright image parts.

The different assortment of bakery products was investigated. The accuracy of the analysis of porosity determination by using the digital image is not inferior to the standard method.

Based on the conducted research, the advantages of computer method can be highlighted: such a method avoids weighing operation as well as the use of additional equipment and it enables performing an auto documenting of analysis' results.

KEY WORDS: *bakery products, porosity, digital image*