Abstract

     Spectral Optoelectronic System

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     Topic relevance.

In the realities of today, the issue of food quality control at production is urgent. The use of spectral analysis methods is a promising trend in the field of food production, since the methods of analysis are quite accurate, are a kind of non-destructive control, and allow to analyze several quality parameters at the same time. Such technologies can be used both for direct quality assessment and for the sorting of organic products. Currently, there is a lot of research in the field of studying the parameters of the quality of organic products using spectral technologies, so the direction is quite relevant and in demand..

     The aims and objectives of the study. The purpose of the work is to identify areas of the spectrum of organic products that meet the actual quality parameters using a hyperspectral camera and to develop a spectral optical-electronic system that could analyze only important areas of the spectrum.

     Object of study. Property of meat products.

     Subject of study. Measurement tool - reflective spectral radiometry in the range of 0.4-1 microns.

     Research methods. Analysis of spectral images of food products obtained on a hyperspectral camera. Determination of dependence of change of spectral characteristics on change of indicators of product quality. Development of a simplified, compared to hyperspectral camera, spectral optical-electronic system that is able to analyze selected areas of the spectrum and determine whether the product meets the established quality standards of the enterprise.

Scientific novelty of the obtained results. On the basis of existing systems, methods and means of quality control of foodstuffs at enterprises, it was identified the need to develop such a spectral optical-electronic system, which has lower cost, increased processing speed, and is able to satisfy the needs for quality control at the same level as similar and more complex systems.

Keywords: spectral imaging technologies, hyperspectral camera, quality assessment, optical-electronic systems, organic products.