УДК 544.653.2/.3+637.072

Electrochemical Platform for antibiotic detection

Pomytkina A.V. (ITMO University), Nikolaev K.G. (ITMO University),

Research supervisor – Prof. Dr. Skorb E.V. (ITMO University)

The primary task of the food industry is the production of high-quality and products safe for health, while food products must have the highest biological value and high consumer properties. Certainly, the manufacturing of food products that meet these requirements is possible using raw materials and technologies developed on the basis of the latest scientific research. This may make the products on store shelves safe for human health, and Russian manufacturers may produce products of the highest quality. The problem of food contamination with inhibitory substances is increasing every year. Antibiotic residues pose a great danger to humans and a serious problem for the food industry, as they can disrupt the production process. Hence, this leads to serious financial losses. Moreover, if it enters the human body, it can lead to dangerous health consequences. Different antibiotics have different allergic, toxic effects and the nature of the effect on the microflora. All antibiotics are immunosuppressive. In the long run the negative effect of various antibiotics on the microflora is manifested to varying degrees in a change in its composition or in the appearance of resistance to them in microbes. As a result, there are methods for detecting antibiotics, but they do not provide a 100% guarantee of product safety.

The purpose of research is to create an electrochemical sensor platform for detecting antibiotics in raw milk. This approach is a new way of assessing the food industry. For research, propose an electrode system consisting of copper. The voltammetric method is used as an electrochemical detection method. The electrodes are placed in the analyzed medium and a constant voltage is applied to them. The measured parameter will be the current strength. As a result, of the research, an electrochemical sensor platform for the quantitative determination of antibiotics proposed. Various machine learning methods are used in the Weka program to process and interpret the obtained data and improve the accuracy of the analysis.

The application of machine learning methods in this work will allow obtaining significant scientific results and opening up new possibilities of analysis. All of the above indicates the need to solve this problem.

Pomytkina A.V. (Author) Signature

Skorb E.V. (Research supervisor) Signature