

Identification of regulatory sequences of the 35S promoter and NOS terminator in agricultural products

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Abstract

The pace of scientific and technological progress is steadily growing every day, in this regard much attention is paid to the problems of using genetically modified organisms (GMOs) in agricultural products, since there are risks of negative impact on human health and the environment. Thus, there is a need for constant monitoring of all agricultural products for the content of GMO regulatory sequences.

This work is devoted to studying the frequency of occurrence of GMO fragments in the products of agricultural enterprises of the Republic of Tatarstan. The material describes the monitoring of agricultural products for the presence of genetic modification: the 35S promoter of the cauliflower mosaic virus and the NOS terminator – *Agrobacterium tumefaciens*. Diagnostics was based on real-time polymerase chain reaction using commercial PCR kits. Laboratory work consisted in sample preparation of agricultural products, DNA extraction from received samples, and amplification of genetic material. 1142 samples of agricultural products were analyzed.

Based on the studies carried out, the content of the 35S promoter and the NOS terminator was revealed in 18 samples. In most cases, the content of genetic insertions was found in combined and extruded feeds for pigs, poultry, and cattle. This once again increases the relevance of the ongoing research, despite the numerous experiments and scientific discoveries carried out to study GMOs. The results of this study are the reason for further more detailed study of the creation, influence and application of GMOs both in the agricultural sectors and in ecology and molecular biology.

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