



Detection of genetically modified maize and soybean in feed samples

S. Meriç¹, Ö. Çakır¹, N. Turgut-Kara¹ and Ş. Arı^{1,2}

¹Department of Molecular Biology and Genetics, Faculty of Science, Istanbul University, Istanbul, Turkey

²Research and Application Center for Biotechnology and Genetic Engineering, Istanbul, Turkey

Corresponding author: Ö. Çakır
E-mail: ozgurckr@istanbul.edu.tr

Genet. Mol. Res. 13 (1): 1160-1168 (2014)

Received May 29, 2013

Accepted December 2, 2013

Published February 25, 2014

DOI <http://dx.doi.org/10.4238/2014.February.25.2>

ABSTRACT. Despite the controversy about genetically modified (GM) plants, they are still incrementally cultivated. In recent years, many food and feed products produced by genetic engineering technology have appeared on store shelves. Controlling the production and legal presentation of GM crops are very important for the environment and human health, especially in terms of long-term consumption. In this study, 11 kinds of feed obtained from different regions of Turkey were used for genetic analysis based on foreign gene determination. All samples were screened by conventional polymerase chain reaction (PCR) technique for widely used genetic elements; cauliflower mosaic virus 35S promoter (CaMV35S promoter), and nopaline synthase terminator (T-NOS) sequences for GM plants. After determination of GM plant-containing samples, nested PCR and conventional PCR analysis were performed to find out whether the samples contained Bt176 or GTS-40-3-2 for maize and soy, respectively. As a result of PCR-based GM plant analysis, all samples were found to be transgenic. Both 35S- and NOS-containing feed samples or potentially Bt176-containing samples, in other words, were analyzed with Bt176 insect resistant *cryIAb* gene-

specific primers via nested PCR. Eventually, none of them were found Bt176-positive. On the other hand, when we applied conventional PCR to the same samples with the herbicide resistance CTP4-EPSPS construct-specific primers for transgenic soy variety GTS-40-3-2, we found that all samples were positive for GTS-40-3-2.

Key words: Genetically modified organism; PCR; Feed; Maize; Soybean