

HDA-GT12 System for Detection of Genetic Modified Organism (GMO) Using Strain Specific PCR* Amplification Primers

Introduction:

Identification of GMO species from plant material has become a necessary and important in food market. A traditional method to identify these genetically modified foods was to use strain specific primers for PCR amplification followed by slab gel electrophoresis to distinguish primer specific amplification products.

BioCal is demonstrating a cost-effective multi-channel capillary electrophoresis system for a high efficiency GMO detection. This bench-type HDA-GT12 system uses fluorescence type detection. 12 DNA samples are automatically injected and analyzed simultaneously by using a multiple usage multi-capillary cartridge. The HDA-GT12 system provides high resolving power in 7minute separations for GMO DNA analysis. A total of 96 GMO samples in a plates, which can be automatically analyzed within 1 hour. This affordable system can be used in laboratories for routine GMO analysis.

Methods:

GMO kits from BIOTOOLS B&M labs, SA (Madrid, Spain) was used in this study. 35 cycles of amplified DNA using maize or soya genetically modified specific primers for GMO detection and plant specific primers as internal controls. The amplified DNA was analyzed in the HDA-GT12 system.

HDA-GT12 Operation Process:

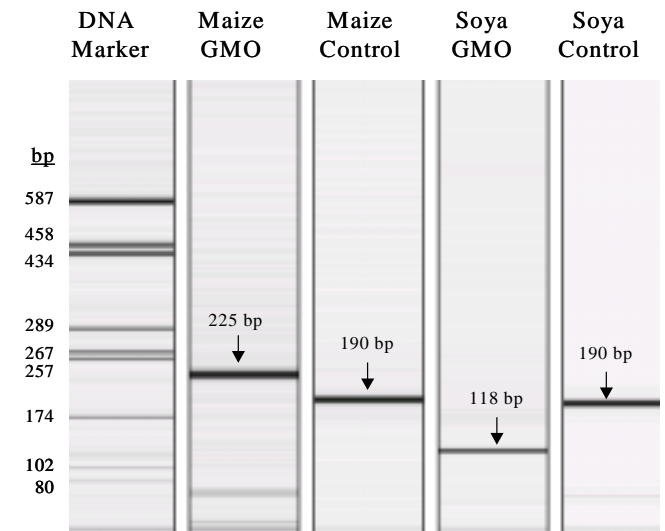
1. Insert BioCal's gel cartridge into system. (Cartridge capacity: 1200 sample tests) (45 seconds)
2. Place GMO PCR solution (20 µl) in 0.2 ml tubes (or plate) on the sample tray (30 seconds)

3. Select a method from BioCalculator software and click "run" bottom to start analysis (45 seconds).
4. Separation condition for GMO detection: 600 seconds at 5 kV.

Results:

A specific 225 bp maize GMO specific product and an internal 190 bp product were detected in Maize GMO samples and a specific 118 bp soya GMO specific product and an internal 190bp fragment were detected from soya GMO samples

*The PCR process is covered by patents owned by Hoffmann-LaRoche.



Total automatic analysis time: 10 minutes

HDA-GT12 Instrument Features:

- Automated Process: No need for manual sample loading.
- Replaceable Gel Cartridge: No need for gel preparation.
- 10-minute electrophoresis time.
- Detection : 0.1 ng/ µl DNA concentration in the solution.
- Resolution: 1-5 bp in DNA fragment sizes between 50-500 bp.
- 96-Sample Capacity
- Data View: In electropherogram or gel-view format.
- Software: Digital data for qualitative and quantitative analyses.
- Compact Design: Fits on any lab bench.
- Competitive System Cost
- Economic Consumables

