CanoGMO: A new microarray for the detection of transgenic rapeseed

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Array-On is introducing the CanoGMO Chip. This microarray for the analytics of rapeseed products carries all necessary features for reliable transgene detection and characterisation. All tests are in concordance with VDLUFA and LAG standards. Fast and safely validated results are achieved by the application of three different methods that are combined in one protocol (PCR, hybridisation and primer extension). Chip applications are ecological monitoring, food safety surveys, feed analytics, seed testing and audits for processed plant materials.

Along with pat, bar, epsps, nptII, tNos and 35S monitoring additional features are the detection of sample impurities caused by traces of maize and soybean and discrimination of natural CaMV infection from 35S transformation. A species-specific probe for the confirmation of rapeseed DNA in the sample is a matter of course. The CanoGMO Chip has been developed in cooperation with TU-München-Weihenstephan, Centre of Life and Food Sciences, Department of Plant Science, Chair of Plant Breeding.

The CanoGMO Chip offers multitasking opportunities: parallel detection of six different transgene modules along with the detection of sample impurities featuring sensitivities <0.1%. Additionally, discrimination of natural CaMV infection from 35S transformation is introduced. Rapeseed-specific probes as well as negative and positive controls are also included. Electrophoresis is not required for the analysis and a fulfilment kit is delivered together with the chips. According to streamlined parallel analytics by linking different methods to one platform costs are quite low as compared to fully validated results from conventional serial analytics.

Chips are distributed in a kit-like design, together with PCR primers and extension mixtures optimized for the loci in question. Target sequences are amplified from the sample, purified via spin-columns and digested with exonuclease to eliminate the opposite strand.

Target strands are then mixed with extension reaction solution (containing DNA polymerase and labelled ddNTPs) and, either by hand or a pipetting robot, applied to the corresponding substrate areas on the chip.

Annealing and primer extension is performed within 45 min and results read out with a conventional microarray scanner.

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