

Bioluminescent technology for easy tracking of GMO

April 30 2012

It is important to be able to monitor genetically modified (GM) crops, not only in the field but also during the food processing chain. New research published in BioMed Central's open access journal *BMC Biotechnology* shows that products from genetically modified crops can be identified at low concentration, using bioluminescent real time reporter (BART) technology and loop mediated isothermal amplification (LAMP). The combination of these techniques was able to recognise 0.1% GM contamination of maize, far below the current EU limit of 0.9%.

In agriculture GM crops have been bred to improve crop yield or viability. For example some are resistant to herbicides or viruses. They are also used in the pharmaceutical industry to produce proteins such as collagen. However there is a constant debate about the safety of these crops and whether the man-made transgenes might enter the wild population by cross-fertilization and produce herbicide [resistant weeds](#).

Careful handling and sampling techniques are required to assess the GM content of a crop. The most common technique is [polymerase chain reaction](#) (PCR), however, this involves complex extraction procedures and rapid thermocycling, both of which require specific equipment. To overcome these problems researchers from Lumora Ltd. assessed whether they could use LAMP to amplify DNA at a constant temperature and use BART to identify GM-specific DNA in real time.

Dr Guy Kiddle from Lumora, who led the research, explained that

LAMP-BART was able to detect as little as 0.1% GM contamination of maize, and, compared to PCR, was more tolerant of contaminating polysaccharides, meaning that the DNA clean-up process did not need to be as thorough. He commented, "This method requires only basic equipment for [DNA extraction](#), and a constant temperature for [DNA amplification](#) and detection. Consequently LAMP-BART provides a 'field-ready' solution for monitoring [GM crops](#) and their interaction with wild plants or non-GM crops."

Provided by BioMed Central

Citation: Bioluminescent technology for easy tracking of GMO (2012, April 30) retrieved 25 April 2024 from

<https://phys.org/news/2012-04-bioluminescent-technology-easy-tracking-gmo.html>

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