

Investigation of genetically modified (GM) ingredients in packaged maize containing food products in Indian market: A regulatory study

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In compliance with the regulatory status of genetically modified (GM) maize and derived food products in India, checking unauthorized presence of GM maize in packaged food products from marketplace is required. This article details a pilot research to track the GM status of fifty samples of food products with maize as an ingredient where 12 were manufactured in the countries where GM maize products are commercially available. Amplifiability of DNA was first verified using endogenous gene-specific polymerase chain reaction (PCR) or real-time PCR, or by inhibition test. Four transgenic elements were selected for the GMO tests, which could screen for 90% of the globally approved GM events of maize. PCR assays targeting screening elements, *Cauliflower Mosaic Virus (CaMV) 35S promoter (P-35S)* and nopaline synthase terminator (*T-nos*), followed by real-time PCR assays targeting *ctp2-cp4epsps* and *cry1Ab/Ac*, were used to monitor their GM status. None of these samples were found GM positive based on the tests conducted indicating unauthorized presence of GM maize ingredients was not detected. Such regulatory studies will provide quality assurance that there are no unapproved GM events in the food products in the marketplace and the regulatory system is in place in the country.

Keywords: GM detection, Inhibition test, Maize products, Polymerase chain reaction (PCR), Real-time PCR