

Toxin-neutralizing GMO peanuts could solve serious food safety issue in Africa and Asia

Aflatoxin contamination in peanuts poses major challenges for vulnerable populations of sub-Saharan Africa and South Asia. Developing peanut varieties to combat preharvest *Aspergillus flavus* infection and resulting aflatoxin contamination has thus far remained a major challenge....

Our study reports achieving a high level of resistance in peanut by overexpressing (OE) antifungal plant defensins *MsDef1* and *MtDef4.2*, and through host-induced gene silencing (HIGS) of *afIM* and *afIP* genes from the aflatoxin biosynthetic pathway.

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This is the first study to demonstrate highly effective biotechnological strategies for successfully generating peanuts that are near-immune to aflatoxin contamination, offering a panacea for serious food safety, health and trade issues in the semi-arid regions.

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Our data show that using two different interventions, we achieved aflatoxin levels in peanut that are nondetectable or as low as 1–2 ppb, within the safety limits. This finding is of high significance as there are no resistant peanut lines/varieties available that demonstrate resistance levels even remotely closer to the US or EU legislative limitation of <20 ppb and <4 ppb aflatoxin, respectively.

Data presented here suggest that co-expression of antifungal defensins and hpRNAs targeting mycotoxin genes in transgenic peanuts could boost immunity, potentially resulting in absolute aflatoxin control.

The GLP aggregated and excerpted this article to reflect the diversity of news, opinion and analysis. Read full, original post: [Peanuts that keep aflatoxin at bay: a threshold that matters](#)