Media release

Can Bt toxins cause allergies?

Mexican scientists disagree with EFSA

6 December 2018 / At the request of the EU Commission, the European Food Safety Authority (EFSA) has assessed some new research published by Mexican scientists. This new research concludes that a Bt toxin (Cry1Ac) which is also produced in several genetically engineered plants authorised for import into the EU can cause allergies. However, the EFSA has come to the conclusion that the study does not provide any new information and suffers from methodological flaws. Testbiotech in turn asked the Mexican scientists for their comments. In their reply, the Mexican scientists show that EFSA is not correct on crucial details and their own findings are still valid.

The Mexican scientists state that their research was not designed to find evidence for detrimental effects from consumption of food derived from genetically engineered plants. But they emphasize that their findings show that these risks should be investigated in more detail: *"We consider our publication contributes to the knowledge of the immunological effects of Cry1Ac toxin and the new information provided should not be negatively judged or disqualified just because it has been considered relevant for the risk assessment of GM plants."*

Bt toxins are normally only found in soil bacteria, but several toxins such as Cry1Ac are also produced in genetically engineered plants, such as maize, cotton and soybeans: these plants produce the bacteria to prevent pest insect infestation. There are several studies indicating that immune responses are triggered by these toxins. The Mexican study now shows for the first time that Cry1Ac is taken up via the ingestion route and can trigger allergic reactions if the dosage is high enough. The study is highly relevant since the EU for import is approving more and more GE plants producing more than just one Bt toxin; these then lead to higher concentrations in the food and feed chain. However, so far only very few Bt toxins have been investigated in regard to their potential impact on the immune system and effects caused by a combination of several toxin remain largely untested.

As the Mexican scientists state: *"… there are variations in the expression levels in the distinct plants and tissues. Moreover, there are already stacked events on the market which produce a much higher overall concentration of Bt toxins than plants producing just one Bt toxin."*

Testbiotech considers the EFSA assessment to be based on a biased perspective. There might have been a specific reason for EFSA's conclusion: the authority would have called its own previous risk assessments into question if it had come to any other conclusion. Indeed, there are indications in the EFSA opinion of the one-sided approach they have taken: the GMO Panel cites all kinds of details that may be seen to call the Mexican study into question. At the same time, other studies supporting their view are hardly assessed in any depth at all.

Currently, Testbiotech is aiming to make more detailed investigations mandatory in a case brought before the EU court. This court case (C-82/17 P) deals with potential immune responses caused by

Cry1Ac produced in the genetically engineered soybean ‘Intacta’ (MON 87701 x MON 89788) produced by Monsanto. Both the EFSA and the Commission are involved in this court case and are defending the risk assessment and decision-making process. This court case might have been an additional and very specific reason for EFSA to take a biased perspective of the research carried out by the Mexican scientists. Unfortunately, at the moment, as stated by the Attorney General, the EU Court does not seem to be in a position to request a further, more detailed risk assessment.

The main responsibility for the safety of genetically engineered plants lies neither with the EU court, nor with EFSA, but with the EU Commission. According to Testbiotech, the Commission should not simply restrict itself to passing on questions to EFSA, but use its power to set significantly higher standards for risk assessment that would protect health and the environment. This includes the systematic investigation of the immune responses caused by Bt toxins produced in genetically engineered plants.

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Further information:
The reply from the Mexican scientists to EFSA: www.testbiotech.org/node/2304

The original publication by the Mexican scientists:
www.sciencedirect.com/science/article/pii/S1567576918302467

The EFSA assessment: https://efsa.onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2019.EN-1504

Information about the court case C-82/17 P: www.testbiotech.org/en/eucourt

Scientific publication by Testbiotech on the potential health risks of GE soybeans producing Cry1Ac: https://enveurope.springeropen.com/articles/10.1186/s12302-016-0099-0