



Biosafety Brief

Recent Study Linking GM Foods to Cancer is Withdrawn by Journal- results are deemed “Inconclusive”

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Brief Background

A little over a year ago, specifically on the 11th of November, 2012, the scientific community woke up to grotesque pictures of tumorous rats in a well-respected journal, *Food and Chemical Toxicology* (FCT), purported to be as a result of the consumption of GM maize (NK603). The study concluded that consumption of GM foods could have long term health effects including cancers and increased mortality. The study was met with widespread criticism following close scrutiny by the scientific community and regulatory bodies around the world. The overwhelming conclusions of the scientific community and the regulatory bodies (captured in [two separate briefs](#) earlier circulated by ABNE) were that the study was flawed in many ways and could not support the conclusions of the authors. Subsequently, a series of protest letters to the editor of the journal triggered an in-depth scrutiny of the raw data of the study by the Journal.

Findings are ‘Inconclusive’ - Journal withdraws article

After a year of painstaking investigation and thorough scrutiny of the raw data as well as the peer-review that preceded its publication, the publishers concluded that the paper did not meet the requisite scientific standards for publication by the journal and thus has been withdrawn from the journal. The editor-in-chief stated that:

“A more in-depth look at the raw data revealed that no definitive conclusions can be reached with this small sample size regarding the role of either NK603 or glyphosate in regards to overall mortality or tumor incidence. Given the known high incidence of tumors in the Sprague-Dawley rat, normal variability cannot be excluded as the cause of the higher mortality and incidence observed in the treated groups”¹.

This is consistent with the reviews of the wider scientific community that have been calling on the journal to withdraw the publication and reinforces previous conclusions that **the findings of the study are flawed in many ways and do not contribute any significant new information**

¹ <http://www.elsevier.com/about/press-releases/research-and-journals/elsevier-announces-article-retraction-from-journal-food-and-chemical-toxicology>

towards the risk assessment of genetically modified foods or glyphosate itself, a view strongly shared by the NEPAD Agency African Biosafety Network of Expertise (ABNE).

What does this mean for African Countries?

This means that that the publication no longer exists and cannot legitimately be cited as a scientific justification for any risk assessment and decision making regarding GM foods. In other words, any negative decisions regarding GMOs based on this study lack merit and are scientifically unjustifiable. This includes a call for the ban on GM foods in Africa as a result of this study. You may recall that despite the widely acknowledged shortcomings and condemnation of this study, the publication influenced perceptions and discussions on the safety of GM foods in a number of African countries, with a member state placing a ban on GM maize imports. It is now clear that the very foundation on which these decisions were based is flawed and that no scientifically justifiable biosafety decision should be made using information from this study, particularly with regards to the safety of GM foods. This therefore calls for a careful re-examination of any such decisions that were based on the findings of this publication and possibly a reversal of those decisions.

So why did the journal publish it in the first place?

Publications are usually subjected to scientific peer review prior to publishing. This first peer review is usually by a handful of scientists (two – three) selected by the editorial board of the journal. Should the paper pass this level of peer review, it will be published. This is usually effective but not an entirely flawless process. Reviewers make errors or may not have expertise across the full range of methods and conclusions of the study. In this case, even though issues were found with the study during this level of peer review, a decision was made to go ahead on conviction that the study had merit. To quote the editor-in-chief;

“...the low number of animals had been identified as a cause for concern during the initial review process, but the peer review decision ultimately weighed that the work still had merit despite this limitation”.

After publishing, the paper continues to go through peer review, this time, by the entire scientific community. Should it seriously fail this peer review, the author is asked to retract the paper or it is withdrawn by the journal. This is normal practice, although unusual, and exactly the case for this paper.

Lessons learnt

The controversy surrounding this paper seems far from over and replication of the study may be the only way to bring finality to the issue. However it should be noted that existing studies involving the long term feeding of other GM crops to rats have not revealed any significant ill-effects, and several previous studies of the herbicide glyphosate have similarly failed to demonstrate evidence of carcinogenicity. ABNE therefore continues to emphasize the growing

body of evidence demonstrating that GM foods are as safe as their conventional counterparts. As we continue to build the capacity of regulators to make science-based informed decisions, we encourage all regulators to consider each application on a case-by-case basis and to weigh the totality of the evidence regarding safety.

This was developed by the African Biosafety Network of Expertise (ABNE) to address possible fall-outs from the 'French rat study'. This brief is primarily for regulators, policy-developers and decision-makers.

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