

Cotton-GHB-119

Organisation: The European GMO-free Citizens/ De Gentechvrije Burgers

Country: The Netherlands

Type: Others...

a. Assessment:

Molecular characterisation

see 5

Comparative analysis (for compositional analysis and agronomic traits and GM phenotype)

see 5

b. Food Safety Assessment:

Toxicology

see 5

Nutritional assessment

see 5

Others

See also www.gentechvrij.nl/wetenschappers.html

3. Environmental risk assessment

see 5

4. Conclusions and recommendations

see 5

5. Others

We refer to a letter from Ms L. Eijsten who raised objections to Bt cotton as early as 2001. (reproduced with permission). What do allergens taste like? (Question from the Nutrition Centre [*Voedingscentrum*]) Amsterdam, 31 October 2001.

Ministry of Agriculture, Nature Management and Fisheries (LNV), PO Box 20401, 2500 EK The Hague

Ministry of Health, Welfare and Sport (VWS), PO Box 20350, 2500 EJ The Hague

Ministry of Housing, Spatial Planning and the Environment (VROM), PO Box 20951, 2500 EZ The Hague - IPC 100

Dear Sir/Madam,

What do allergens taste like? The advertisement in various newspapers (including the NRC 10/10/01) about your senses really took the biscuit! I would never have thought that the government would take supernatural advice from a medium to determine how safe our food is! Neither did I imagine that you would play on the feelings of the ignorant majority. This is a very weak and irresponsible way to behave. Is your sixth sense supposed to guarantee our safety? The policy-makers are constantly changing. What does your “guarantee” actually mean? Is it some kind of contract, with government guaranteeing our recovery to health if your sixth sense runs amuck? Or are there some kind of financial arrangements? For example, in the case of a lifelong allergy triggered by sensitivity to herbicides (e.g. Liberty/Basta/Finale, or by a substance in a pesticide. I could go on). What happens if we 1. consume Bt maize sprayed with Btk delta endotoxin, or 2. have inhalation problems as a result of the use of Bt spray in organic agriculture? Bt (*thuringiensis*), Bc (*cereus*), and Ba (*anthracis*) are closely related and I have read that the transfer of genetic material has occurred. The chances of this happening are no doubt very small but where does the anthrax come from? Since time immemorial, there have been anthrax spores here and there in the soil. Vondel even wrote a poem about it. Worms and mice can bring it to the surface. What about the pH value in insects’ intestinal tract? At a pH of more than 7, insects fall victim to delta-endotoxins. Differences in pH in various insects have an impact on the effectiveness of toxins. (A certain toxin kills a specific group of insects, according to what I’ve read). I have also read that the excessive use of pesticides is making certain insects resistant. That is something else.

Has enough research been done on this? “Each of the more than 800 strains of *Bacillus thuringiensis* may exhibit toxicity to insects, rodents and humans”. The Bt-sprays in GM maize apparently cause their own problems in the long run, each in their own way. We do not yet know what may happen tomorrow, as a result of a multiplicity of interactions. Bt israelensis has been shown to kill rats if injected into the abdomen and the brain, and “the irritancy of Bt.i. to eyes depends on the physical characteristics of the formulation”. The delta endotoxin from Bt israelensis has also caused destruction of rat, mouse, sheep, horse and human blood cells. Regarding Bt kurstaki, users have reported all sorts of trouble in the event of contact with the face. Another interesting case concerns the scientist who accidentally injected himself with Bt israelensis “and another kind of bacteria commonly found on human skin”. It is also nice that the Oregon Health Division suggested before a Btk spray program that “‘individuals’ with ... physician-diagnosed causes of severe immune disorders may consider leaving the area during the actual spraying”. And the 1991 Material Safety Data Sheet for Foray 48B states that “Repeated exposure via inhalation can result in sensitization and allergic response in hypersensitive individuals.” And “Inert Ingredients - All Bt-products contain ingredients other than Bt. These are identified only as ‘inert’ ingredients and are called trade secrets by the manufacturers of the products. The ‘inert’ ingredients are potentially the most toxic components of the formulations”. Examples follow.

Because ‘inerts’ are called trade secrets, there, there is little public information that is available indicates they could cause health problems”. Sodium hydroxide, sulphuric acid, phosphoric acid, methyl paraben and potassium phosphate are then given as examples of ‘inerts’. They constitute less than 10% of Foray 48b, “they pose hazards”. This is followed by a list of symptoms: mild cases to irritation of the mucous membranes of the nose; damage to the upper respiratory tract; corrosive; severe deep skin burns, permanent loss of vision; severe bronchial constriction, and bronchitis; irritant to skin and mucous membranes; throat irritation and both methyl paraben and potassium phosphate were once registered by EPA as pesticide active ingredients. Sodium sulphite (inert) in Dipel 8AF: up to ten per cent of asthmatics (about one million people in the United States) may react to sulphites, particularly those people who are treated with steroids. Symptoms of exposure in those sensitive to sulphites usually involve the respiratory system, and can also include nausea, diarrhoea, lowered blood pressure, hives, shock, and loss of consciousness. And so on. Enough misery for the time being. I'll just leave you with the fact that Bt.i. formulations are especially unhealthy because the ‘inerts’ in the product deplete the dissolved oxygen in water. The Bt.i formulation Teknar was acutely toxic to brook trout fry, probably because of xylene used as ‘inert’ in the product. There is so much in the literature about Bt and other pesticides, the formulations and their effects, that I already have a nasty taste in my mouth: the taste of allergies, sickness and death.

Yours faithfully,

L. Eijsten, Amsterdam.

<http://www.gentechvrij.nl/rvs0107.html>

We also include a letter from Ms Eijsten and Mr J. van der Meulen concerning PAT. Reproduced with permission.

Study by Hoechst (Dr Arno Schulz) concerning the substrates of phosphinothricin acetyltransferase (PAT). _____ Amsterdam,

7 November 1999. Two studies that arrive at opposite conclusions, namely 1. Charles J. Thompson, 1987: Characterisation of the herbicide-resistance gene bar from *Streptomyces hygroscopicus*: 2. Dr Arno Schulz, 1993: L-Phosphinothricin N-Acetyl-transferase - Biochemical Characterisation - a report incorporated into Wehrmann 1996 (Schulz is co-author). The subject is the characterisation of the enzyme phosphinothricin acetyltransferase (PAT), and in particular the specificity of the substrates. The first study concerns the reaction of phosphinothricin with acetyl co-enzyme A under the influence of PAT and compares this with a number of structural analogues of phosphinothricin (PPT). One of the analogues is L-glutamate. The products of the reaction were identified via a mass spectrogram and the equilibrium constants (affinity) determined. In addition to phosphinothricin (PPT) a number of structural analogues were tested to determine whether there was an acetylation reaction. L-glutamic acid was one of the substances investigated. Compared with PPT the affinity of most of the substances was low: one substance did not react at all. In this test, where a numerically reportable reaction occurred to an identified product (the detection threshold is not an issue here) there does not appear to be any reason to doubt that glutamic acid is a substrate of PAT.

The second study concerns the reaction of a large number of amino acids, including L-glutamic acid, which was also involved in the first study, in a reaction mix together with a 100% excess of PPT in relation to the acetyl source acetyl co-enzyme A and PAT. Products of the reaction were identified via chromatography. Even with a very large excess of L-amino acid no products of reaction with the amino acids were found. Only acetyl phosphinothricin was found. The authors concluded that PAT very specifically has only PPT as a substrate. The following criticisms can be made of this conclusion, which conflicts with that produced in the first study. (Incidentally, the first study is cited in the bibliography to the second study):

1. No detection threshold was determined for acetylated L-glutamic acid.
2. The possibility of acetylated glutamic acid being a source of acetyl for the acetylation of PPT was ignored. This could have been tested in the study by adding acetylated glutamic acid to the reaction mix in a quantity above the detection threshold and examining whether this added quantity disappears during the reaction. Based on the results of the first study it could certainly be predicted to disappear!!
3. The study was conducted using a reaction mix in which a large excess of a competing substrate, PPT, was present. Observations of the pure amino acids were not conducted.
4. There is no discussion whatsoever of the results of the first study, in particular as to why these were so different.
5. Essentially, the authors of the second study accuse the authors of the first study of fabrication, of fraud (the first study contains a wealth of numerical data; in the second there are no figures). In the second study this aspect is not fully explored. The background to the conclusion that PAT has only one substrate - PTT – is as follows: in herbicide-resistant (i.e. PPT-resistant) crops, PAT is present. In order to obtain approval for products to be placed on the market the toxicity of this gene-product must be examined. Could this gene product react with the content of our GUT, e.g. with the – important – amino acid L-glutamic acid? It would cost a fortune in research to demonstrate that the dangers were minimal. For HOECHST, it would seem that total denial is a better strategy!

We believe that the conclusion drawn in the second study is completely unfounded and that the so-called 'study' is unworthy of the name. It is an incompetent study and those persons who cite it need to be told about its incompetence.

<http://www.gentechvrij.nl/rvs9911.html>

J. van der Meulen, L. Eijsten.

Vananda Shiva, India writes: 25 July 2015 Today, Indian cotton farmers are facing a genocide that has resulted in the death of at least 300 000 of their brothers and sisters between 1995 and 2013, averaging 14 462 per year (1995-2000) and 16 743 per year (2001-2011). This epidemic began in the cotton belt, in Maharashtra, where 53 818 farmers have taken their lives. Monsanto, on its own website, admits that pink bollworm "resistance [to Bt] is natural and expected" and that the resistance to Bt "posed a significant threat to the nearly 5 million farmers who were planting the product in India." Eighty-four percent of the farmer suicides have been attributed to Monsanto's Bt Cotton, placing the corporation's greed and lawlessness at the heart of India's agrarian crisis. Source: [click here](#).

<http://www.gentechvrij.nl/wetenschappers.html> Statements made by scientists: "The process of genetic engineering always involves the risk of altering the genetics and cellular functioning of a food organism in unanticipated ways. These unanticipated alterations can result in GE foods being allergenic, toxic, or reduced in nutritional value".

Professor John Fagan, award-winning Geneticist, Maharishi University of Management, Iowa, USA. Dr Fagan on the dangers of genetically modified food

Dr George Wald * Nobel Laureate in Medicine (or Physiology) 1967 * Higgins Professor of Biology, Harvard University.

"Recombinant DNA technology [genetic engineering] confronts our society with problems unprecedented not only in the history of science, but of life on the Earth. It places in human hands the capacity to redesign living organisms, the products of some three billion years of evolution."

"Such intervention must not be confused with previous intrusions upon the natural order of living organisms; animal and plant breeding, for example; or the artificial induction of mutations, as with X-rays. All such earlier procedures worked within single or closely related species. The nub of the new technology is to move genes back and forth, not only across species lines, but across any boundaries that now divide living organisms. The results will be essentially new organisms, self-perpetuating and hence permanent. Once created, they cannot be recalled."

"Up to now, living organisms have evolved very slowly, and new forms have had plenty of time to settle in. Now whole proteins will be transposed overnight into wholly new associations, with consequences no one can foretell, either for the host organism, or their neighbours."

"It is all too big and is happening too fast. So this, the central problem, remains almost unconsidered. It presents probably the largest ethical problem that science has ever had to face. Our morality up to now has been to go ahead without restriction to learn all that we can about nature.

Restructuring nature was not part of the bargain. For going ahead in this direction may be not only unwise, but dangerous. Potentially, it could breed new animal and plant diseases, new sources of cancer, novel epidemics.”

From: ‘The Case Against Genetic Engineering’ by George Walt, in The Recombinant DNA Debate, Jackson and Stich, eds. pp. 127-128. (Reprinted from The Sciences, Sept./Oct. 1976 issue)

6. Labelling proposal

No labels because this product should not be approved! If you nevertheless choose to place this defective, genetically modified cotton on the EU market, there must be compulsory labelling for all clothing, bandages, feedingstuffs and oil, and for other products that are derived from GM cotton.
