GM Food Newsletter

April 2003
Genetically Modified Food Section

食物環境衞生署
Food and Environmental Hygiene Department

Healthy Mother's Recipe for Soya Bean Milk

Healthy Mother (Mummy) :
"Soya bean milk is not only delicious, but also nutritious because of its high protein and calcium content. You can make it at home and share it with your family. I am now going to show you how to make a bottle of additive-free soya bean milk.."

"Starting from the ingredients, we should use fresh soya beans that look smooth and lustrous . ...

Ingredients :
Soya beans (1/2 Kg), sugar.

Directions :
Rinse the soya beans until water runs clear. Soak the beans ..... Discard the soaking water. Add 10 cups of water. Grind the beans in a blender till they are completely mixed. Filter out the sediment. Bring the juice to the boil and stir ... ...

All of a sudden, Mummy wondered, "Other than conventional soya bean, there is genetically modified (GM) soya bean available in the market. What are their differences?" She then called upon her daughter (Yan), who is a university student studying biotechnology, for clarification.

Mummy : "Why do we need GM soya bean, Yan?"

Yan : "Let me tell you why, Mummy! For a very long time, farmers have been using herbicides to kill weeds, but this resulted in damaging to the crops. To reduce the loss, scientists developed GM soya bean possessing the trait of herbicide tolerance. There is also another type of GM soya bean developed to contain more oleic acid, and less unsaturated fatty acid, such that steps in processing of the beans can be simplified."

Mummy : "Some people say that GM soya bean is unsafe for consumption. I am rather worried about that."

Yan : "Don't worry, Mummy. The safety of GM food is assessed on a case by case basis. Only when the GM food has met all the assessment criteria, will it be allowed to be released into the market. As for conventional food products, they are considered to be safe merely because of their long history of consumption."

Mummy : "What is ***safety assessment***?"

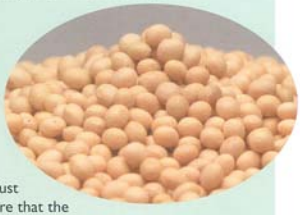
Yan : "The main purpose of ***safety assessment*** is to ensure food safety. The principle is not very complicated. In the course of the assessment, GM food is compared with its conventional counterpart. If there are no obvious differences in the nutrient, toxicity and allergenicity, it can be concluded that the GM food is as safe as its conventional counterpart. However, further assessment will be needed if there are differences in nutrient or safety factor; or if there is any unintended effect ."

Mummy : "Well, it seems that safety assessment of GM food is very comprehensive. But how can I trust the result if the assessment is done by individual scientists?"

Yan : "Come on, Mummy. We talk about international standard even in writing up dissertation in the university. The standards of safety assessment for GM food are developed by the World Health Organisation (WHO), the Food and Agriculture Organisation (FAO)[1] of the United Nations and the Organisation for Economic Cooperation and Development (OECD)[2]. The Codex Alimentarius Commission[3] has also compiled a set of guidelines for its Members to follow."

Mummy : "I see. The safety assessment of GM food sounds quite stringent. Can you tell me more about it?"

Yan : "Mummy, you are curious to learn today! Let me illustrate it with the scenario in GM soya bean."



"First of all, the evaluation of the ***characteristics of genetic materials*** is the key element in the exercise. Scientists would assess the origin and function of the inserted gene and to make sure that other genetic materials of the soya bean remain unaffected after the modification."

"Secondly, ..."

Mummy : "That comes to the ***toxicity*** *and* ***allergenicity***, right? As you have just told me, scientists have to look into these factors in order to ensure that the GM food is safe for consumption."

Yan : "Genius, you are really a wonderful Mummy. But don't forget the ***nutrients*** *and* ***other compositions***, such as natural anti-nutrients (substances within the food that interfere with the uptake of nutrients) and the allergenic proteins."

Mummy : "Right. But I still don't quite understand how the toxicity and allergenicity are examined."

Yan : "Food toxicity and allergenicity are usually elicited by protein. To make sure that the GM soya bean being assessed is unlikely to cause any toxic or allergic effects, scientists have to examine the new proteins in the GM soya bean and compare them with known toxins and allergens."

Mummy : "With the safety assessment requirement in place, I don't have to worry about the safety of GM soya bean any more. By the way, does it mean that the products derived from the GM soya bean have to undergo the same sort of safety assessment ?"

Yan : "No, Mummy. As all GM soya beans available in the market have passed the safety assessment and they are as safe as their conventional counterpart, they can be used as ingredient in other kinds of food such as bean curd and soya bean beverages. The safety of their derived food products would not need to be re-assessed individually."

Mummy : "Thanks, Yan. You are really good in biotechnology. With your safety tips, I can go on to make the soya bean milk with either GM soya bean or conventional soya bean. Remember to come home to take the soup this weekend" ... ...

World Health Organisation (WHO) has pointed out that GM foods currently available on the international market have passed risk assessments and are not likely to present risks for human health. In addition, no effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved.

1 The FAO of the United Nations was founded in 1945 with a mandate to raise levels of nutrition and standards of living, to improve agricultural productivity, and to better the condition of rural populations.

2 OECD has 30 member countries. With a view to helping members and non-members cope with an increasingly globalised world, it provides a unique forum for its members to discuss, develop and coordinate economic and social policies. OECD has been undertaking the work on biotechnology-related projects since 1982.

3 Codex Alimentarius Commission was established by WHO and FAO in 1963. It is recognised by the World Trade Organisation as an international authority for setting food-related standards and guidelines.