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IFPH; Training – Workshop

OUR MISSION

The International Forum for Public Health – IFPH is an international organization devoted to enhance and promote public health globally, through education, training, workshops and quality research for better understanding of the science involved in human health and wellbeing.



Training-workshop on: “Advancement in Food Biotechnology: Safety and Regulations”

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Advancement in Food Biotechnology: Safety and Regulations

Background

The connotation of food biotechnology is a food produced through the genetic modification of a plant, animal, or microorganism in a laboratory by scientists. Scientists developed new plant varieties, such as an herbicide-resistant plant that reduced weed growth without harm to the plant, for instance, corn and cotton are developed through food biotechnology with the US leading other countries.

This 5-day training workshop delves in the general scientific concepts, safety issues, and regulations relating to food biotechnology.

The AFBSR short training comprises the following topics [with short summary]:

1. Why food biotechnology exists?

This session will reveal:

The primary goals of food biotechnology are to provide a safer, more abundant, less expensive, and a more nutritious food supply in order to address the needs of our growing global population.

2. Exploring modern techniques associated with food biotechnology

This session will reveal:

Individual "specific" genes are transferred from one organism to another in order to improve the nutrient levels of a food, for example, such as fortifying a fruit or vegetable. Modern food biotechnology techniques include the joining of two pieces of DNA from different organisms leading to a single piece of DNA. Modern techniques are much faster and more precise. It is possible to quickly transfer a specific gene of interest rather than waiting on the random shuffling of genes over several generations.

3. Nutraceuticals and Food products which are being developed with biotechnology

This session will reveal:

Nutraceuticals developed through biotechnology to increase the levels of nutrients or to address a health concern include oils, such as canola, in which the levels of nutritionally essential fatty acids are increased, varieties of wheat that do not contain gluten, and potatoes (protein), kiwi (resveratrol), and lettuce (iron).

Products developed through food biotechnology include corn varieties containing a bacterial gene that kills insects and soybeans inserted with a gene that renders them resistant to weedkillers. Cotton, squash, and papaya are other commodities in which biotechnology was used to reduce pesticide use, increase profitability through greater yield, and ultimately reduce the cost of commodities at the consumer level.



4. Safety concerns associated with food biotechnology

This session will reveal:

Significant food safety issues may be triggered as food biotechnology could introduce toxins and allergens into foods. Research demonstrated that some varieties of soybeans which were enhanced with genes from the Brazil nut caused allergic reactions in sensitive people.

5. FDA appraisal of products developed through food biotechnology

This session will reveal:

The US Food and Drug Administration (FDA) requires a food product, including those developed through food biotechnology, to be labeled if it is significantly different from what occurs in a standard product. For example, if wheat gluten was introduced into a potato, its label would require a warning for sensitive populations with celiac disease.

6. The US Environmental Protection Agency (EPA) Standards and Regulations of food developed through biotechnology

This session will reveal:

In the case of plant biotechnology, the US Environmental Protection Agency (EPA) standards consider many factors, which is the use of biotechnology to control crop pests in lieu of a pesticide. Those factors include:

- Studies assessing risk to human health
- Studies assessing risk to non-target organisms and the environment
- The potential for gene flow (biotech crop traits transferring to non-biotech crops)
- The need for insect resistance management plans

7. Consumer perceptions to products developed through food biotechnology

This session will reveal:

Research in numerous countries on consumer opinions regarding food products developed through biotechnology reported that pesticides, hormones, and antibiotics, followed by food ingredients developed through biotechnology were the greatest concerns of consumers regarding food production.

Consumer awareness is on the rise, primarily due to increased media coverage and proposed legislation such as the genetic labelling of products developed through food biotechnology.

8. Responses of Environmental advocates to products developed through food biotechnology

This session will reveal:

Several environmental and consumer advocacy groups believe that products developed through food biotechnology introduce food and environmental safety risks [toxicity, allergenicity, antibiotic resistance, immune-suppression, and cancer] that warrant premarket testing and review. Advocacy groups discuss fears of antibiotic resistance transferring from plants to human gut microorganisms through antibiotic gene markers used in the plant biotechnology process.



Environmentalists fear that more pest-resistant crops, such as Bt Corn, which is developed with the use of biotechnology to control crop pests, will lead to the evolution of highly resilient pests or weeds that pose a threat to all crops, particularly organic ones, and harm the environment.

9. The European Union (EU) Regulations regarding products developed through food biotechnology

This session will reveal:

The European Union (EU) has tight requirements on the approval and labeling of products developed through food biotechnology. Regulation (EC) No 1829/2003 requires a company to apply for authorization to grow and sell products developed through food biotechnology. Within 14 days of receiving the application, the national authority notifies the European Food Safety Authority (EFSA), which is responsible for performing a risk assessment within 6 months. Once approved, food and feed products developed through food biotechnology must be identified on the label. Approvals are valid for ten years.

Certain jurisdictions in Japan, UK, Australia, New Zealand, and Canada also require premarket safety inspections for foods developed through biotechnology.

10. Global organizations [WHO and FAO] advocate businesses which are using food biotechnology to improve public health worldwide

This session will reveal:

Both the World Health Organization (WHO) and the Food and Agriculture Organization (FAO), of the United Nations, assess food biotechnology as a tool that can be used to reduce hunger, improve food quality and sustainability if safety, environmental, methodology, and ethical concerns are addressed.

HarvestPlus, a non-profit organization supported through the Bill and Melinda Gates Foundation, donates funds for studies that use food biotechnology in order to fortify a staple crop like rice or cassava with essential micronutrients such as vitamin A, through intake of beta- carotene.

HarvestPlus is partnered with the Consultative Group on International Agricultural Research (CGIAR), which is associated with government and research organizations worldwide, in the effort to use food biotechnology to reduce suffering in Southeast Asia and Africa from the inadequate intake of essential nutrients such as vitamin A, zinc, and iron.

11. The national industry's position regarding products developed through food biotechnology

This session will reveal:

The national industry considers that it is the role of the government to establish and enforce standards that ensure the safety of the nation's food supply. National uniformity and consistency are imperative in the development and enforcement of food safety laws governing food from production to consumption.