

To check if the food is still fit for eating, Filipinos usually do it the traditional way: smell it. But though one's nose has been trained to smell spoiled food, there is a more foolproof way of ascertaining the safety of food. This more precise way of determining food fit to eat is done through the science of genomics, more specifically through a process called DNA analysis.

DNA, or deoxyribonucleic acid, is the basic molecule that carries the genetic information of all living organisms. It is not affected by high temperature and its structure remains in all tissues of a person, animal, or plant, making it an excellent material to identify organisms, even in food products. By analyzing DNAs in a certain food product, foreign species, or those organisms present in spoiled food, can be easily detected.

Thus, DNA analysis facilitates foreign species detection in food products which traditional food analysis may not notice.

According to Department of Science and Technology Secretary Mario G. Montejo, "Genomics can be a 'game-changing tool' that could offer enormous rewards to our people."

The DOST which has identified genomics as one of its priority programs has funded researches in DNA analysis in food products by the Philippine Genome Center (PGC), a nationwide network of laboratories established by the University of the Philippines. PGC conducts tests and other activities related to species identification in food products.

As PGC Executive Director Dr. Carmen Padilla said, the PGC is "envisioned to be a world-class center of excellence in gene discovery and genomics research that effectively translates knowledge into applications beneficial to society, particularly, to the Filipino people." This includes DNA analysis to warrant food safety.

Ensuring food safety via DNA analysis

Normally, food analysis is sufficient but traits of a species such as size, shape and appearance are removed or altered due to processing, identifying the species of a plant or animal present in food can be uncertain.

Meat products may contain several species in different proportions, which, when mixed together, may be undetectable by the naked eye or by eating. DNA analysis is a stronger, more effective alternative to traditional methods of analyzing food.

Food adulteration

Species identification in food products via the PGC is one answer to the problem of food adulteration very common to Filipino consumers.

These days, food adulteration has become a common practice. To add bulk or volume to the product, some manufacturers as well as food processing factories purposely add different types of meat or ingredients different from what is originally required.

Recently, a big multinational company withdrew its product in the face of scandal involving beef pasta which was sold across Europe and was found to contain horsemeat. Also, Forbes reported online the widespread substitution of cheaper species of fish for more expensive and desirable ones in retail fish markets and restaurants in the United States, especially those that serve sushi.

Dangers of adulterated food

First of all, exotic or less desirable species used but undeclared in products, may pose a potential health risk to people, including pregnant women and children who are a sensitive group. This is because certain people have allergies to a particular ingredient or protein, thus consumption of an undeclared ingredient may result in serious health condition or worse, death. The same holds true for pregnant women who have to avoid certain foods which may affect their pregnancy.

Further, undeclared food adulteration or substitution may also lead to the consumption of prohibited foods by a sick person, a Muslim, or a strict practicing vegetarian.

The issue likewise poses a problem financially, as the consumer may not be getting his money's worth if a cheaper substitute is used in place of a supposedly more expensive yet higher quality fish or plant ingredient.