



IPN Specialist Warns About the Consumption of Foods Containing Mycotoxins

- **Fungi produce these substances, which can infect all types of grains, fruits, vegetables, and dairy products, potentially affecting the health of both animals and humans.**
- **Researcher Doris Luna Escalona from the ENCB recommends optimizing food storage in dry places and avoiding the consumption of food in the process of degradation.**

Mycotoxins are naturally produced by fungi during the colonization process of host plants in the field or during food decomposition, explained Doris Luna Escalona, a researcher at the Instituto Politécnico Nacional (IPN).

She illustrates the process: we have all seen how, over time, bread, tortillas, yogurt, or fruits develop pink, yellow, green, or black spots. However, some people simply remove the affected part without realizing that the entire food item may be contaminated with mycotoxins.

The professor from the Escuela Nacional de Ciencias Biológicas (ENCB) explained that these toxins can affect the health of humans and animals and can be absorbed through contact or inhalation but primarily through ingestion. This occurs either by direct exposure to contaminated food or by consuming meat from animals that were fed while undergoing a decontamination process or their by-products.

"These mycotoxins can affect various organs, including the nervous and endocrine systems, lungs, gastrointestinal system, liver, and immune system. All cells in our body can be impacted. Not only do they deteriorate these organs or their functions, but some mycotoxins, such as aflatoxins, have even been correlated with cancer development, according to the International Agency for Research on Cancer (IARC)," she stated.

It is a serious food safety issue, she explained, because once mycotoxins have entered any stage of the production, distribution, or consumption chain, it is impossible to decontaminate the food. These toxins can withstand grinding, extremely high acidity





levels, ultra-freezing, pasteurization, fermentation, and exposure to temperatures exceeding those used for cooking or baking.

She added that the World Health Organization (WHO) has reported the existence of around 400 mycotoxins, including some of the most well-known: aflatoxins, ochratoxin A, patulin, fumonisins, zearalenone, and nivalenol/deoxynivalenol. Some of these have been classified as carcinogenic by the European Food Safety Authority (EFSA) and the WHO's Chemical Safety Agency.

From the ENCB's Phytopathology and Phytotechnology Laboratory—where basic and applied research is conducted on fungi, oomycetes, bacteria, viruses, and phytopathogenic nematodes—the biotechnology specialist emphasized the importance of preventing fungal contamination from the production stage of plants and their derivatives (flowers, bark, roots, seeds, and fruits) through transport and storage processes.

She noted that the WHO and the Food and Agriculture Organization (FAO) have issued the Codex Alimentarius, a set of standards aimed at protecting consumer health and facilitating international food trade. This document provides recommendations for raw material sampling, analysis for mycotoxin detection, and establishing maximum permissible limits for humans, animals, and their products.

"The problem is persistent, and it is necessary for each of us to take action to avoid consuming mycotoxins. This includes carefully selecting the quality of the food we eat, optimizing food storage in dry and cool places, discarding seeds that float when soaked (such as beans, lentils, or rice), spitting out seeds with a bad taste, and not consuming food in the process of degradation," she advised.

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