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FSSAI issues new manual for analysing aflatoxin in food

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The apex food regulator, FSSAI, has issued a revised manual for methods of analysis of mycotoxins including aflatoxin in food. FSSAI has stated that the manual shall be used by the laboratories with immediate effect and this manual shall supersede the earlier manual on mycotoxins.

According to the FSSAI all food samples suspected of being contaminated with mycotoxins must be handled with extreme care, as aflatoxins are potent carcinogenic substances.

The manual talks about personal safety precautions, precautions during analysis and handling of glassware for aflatoxin analysis.

Currently, the regulatory limits for mycotoxins in food as defined by the FSSAI include 15 microgram per kg in cereals, and cereal products, pulses, nuts and nuts for further processing. For Aflatoxins the limit is prescribed at 10 microgram per kg for ready to eat products, and dried figs, while 30 microgram per kg for spices and for oilseeds for further processing, the limit is set at 15 microgram per kg.

Similarly, the limit of Aflatoxin M1 in milk is 0.5 microgram per kg, Ochratoxin A in wheat, barley and rye is at 20 microgram per kg, and for Patulin, the limit is 50mcrogram per kg in apple juice and apple juice ingredients in other beverages.

Further, the limit for Deoxynivalenol in wheat is fixed at 1000ppm.

Mycotoxins—toxic secondary metabolites of filamentous fungi—are biological in origin. Only a few of the thousands of mycotoxins present significant food safety challenges to the farm-to-fork food continuum. The natural fungal flora associated with food safety is dominated by three genres: Aspergillus, Fusarium, and Penicillium.

Aflatoxins are highly toxic secondary metabolites and aflatoxin-producing fungi can contaminate crops in the field, at harvest, and during storage. Some of the more common crops susceptible to contamination with aflatoxins are cereals (e.g. maize, rice and wheat). The husk of these cereals are often used as animal feed.

Deoxynivalenol (DON) Deoxynivalenol (DON) also known as vomitoxin is a trichothecene mycotoxin mainly produced by Fusarium fungi (Fusarium molds). This plant pathogens can cause scab mainly in wheat and barley etc., and damages cereals the most widely by contamination in the field. The main commodities affected are cereals such as wheat, rice, barley, oats and maize etc.

Patulin is a mycotoxin that is produced by certain species of Penicillium, Apergillus, and Byssochylamys molds that may grow on a variety of foods including fruit, grains, and cheese while Ochratoxin A (OTA) is a naturally occurring foodborne mycotoxin found in a wide variety of agricultural commodities worldwide, ranging from cereal grains to dried fruits to wine and coffee.