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***Viraspillai J., Samyuktha R.***

**DETECTION METHODS OF MYCOTOXINS IN FOOD SOURCES**

***Tutor: PhD, associate professor. Borisevich Y.N.***
*Department of General Hygiene,*
*Belarusian State Medical University, Minsk*

Mycotoxins (MT) are low molecular mass (MW 600DW) and indeed a significant concern in food safety due to their harmful effects on human and animal health. They represent a wide range of secondary, naturally occurring and practically unavoidable fungal metabolites and are low molecular mass (MW ~700 Da) secondary metabolites of filamentous fungi which are harmful to human and animal health. Consumption of mycotoxin contaminated food and feed can cause acute or chronic toxicity in humans and animals. The main genera of mycotoxigenic fungi are: *Aspergillus, Fusarium, Penicillium, Alternaria, Claviceps, and Stachybotrys*. Among the mycotoxins, aflatoxins (AFs), ochratoxin A (OTA), zearalenone (ZEA), patulin (PAT), fumonisins (FUMs), and trichothecenes (TCs) like deoxynivalenol (DON) and T-2 toxin (T-2) are the most dangerous and lethal also. MT are thermally and chemically more stable, so normal methods of detoxification is not enough to consume food. So, detection of MT before consuming is more important.

There are so many useful detection methods throughout the technology but some are more efficient. So most vital detection methods are Chromatography(CR), and its types thin layer CR(TLC) and high performance liquid chromatography (HPLC) and another liquid chromatography-tandem mass spectrometry (LC-MS/MS) , gas chromatography-tandem mass spectrometry (GC-MS/MS) and some quick detection methods are immunoassay methods those are enzyme-linked immunosorbent assay (ELISA) and lateral flow immunoassay (LFIA) and some researchers say biosensors also used to detect MT. (Younis, M.; Younis, A.; Xia, X.-H 2020).

Nowadays, most useful way is TLC, by this we can measure large number of samples at one time. TLC has stationary phase made of either alumina, silica, or cellulose, immobilized on an inert material like plastic or glass, which serves as a matrix. The mobile phase consists of methanol acetonitrile, and water mixtures, that carry the sample in the solid stationary phase (J. Appl. Chem. 2014). This method is much affordable and used with UV rays. So, its accuracy and its sensitivity are quite good. But anyway, all results are depended on MTs types and its properties.

GC, depends on differential partitioning of analytes between the two phases of GC column. The various chemical components in the sample distribute themselves between the stationary and mobile phases. After these preparation process, volatile products are detected using a mass spectrometer, an electron capture detector (ECD) or flame ionization detector (FID) (Food Sci. Nutr. 2020).

As rapid technology, ELISA, is good, accurate but much expensive also. The test is based on the interaction of the antigen antibody complex with the presence of chromogenic substrates. Mostly it can be used to detect all types of foods (Solcan et al). Sometimes it can detect over or a smaller number of mycotoxins as a result.

Moreover, some not widely used but good examples are electronic nose, fluorescent polarization and molecularly induced polymers.

Overall, by prevention of contaminated mycotoxin sources will prevent us from neurotoxicity, hepatotoxicity and nematotoxicity. After the affection of mycotoxins, it is really hard to cure.