

A Comparative Analytical Investigation on Properties of Aflatoxin-B Production and Variants (B1,B2) Patterns in Aspergilli Biomasses Regarding to Section & Subgenouses of Northern States in Iran

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Background & Objectives: Mycotoxins are metabolites of fungi capable of having immunotoxic, effects in man and animals are known to as “mycotoxicoses”. Contamination with mycotoxins is a major problem of food and feeds storage which leads to adversely effects also economic losses influencing the public health and agriculture. Aflatoxins have been classified as the most carcinogenic and placed under Group I type while the others grouped 2B and some kept under non-carcinogenic category of Group 3. Aflatoxins are produced by a large number of *Aspergillus* species, the naturally occurring aflatoxins designated as aflatoxin B1, B2, G1, and G2 are the most toxic and carcinogenic secondary metabolites as aflatoxicosis causative agents.

Methods: Since contamination by mycotoxigenic fungi is a major problem and while serum-based methods work on “one substance one assay” concept instead of detecting the toxins from aspergilli after its production by chromatographic methods specially HPLC, an alternative ELISA approach was used to identify directly these molds before the toxin production and then checked by HPLC. Due to attention toward the molecular based diagnostic Methods the clinical, forensic science and in the agriculture sector regional inspections, target isolates specificity was determined by Afla-B expression production and growth.

Results: We discriminate the aflatoxin-producing (>30IU) from the non-aflatoxigenic through the same process (< 5-10IU) and even some strain as “fast”(> 30IU) or “slow” aflatoxin accumulators (< 30IU) which consider these as ‘gold standard’ with reliable specificity and sensitivity level definition.

Conclusion: Identification and specification of *Aspergillus* from cultures or environmental samples have resulted in development of more and more chemical technologies or other molecular approaches. We will suggest approaches to investigate more efficient on the matter of Aflatoxin contamination of crops and food products in the targeted areas.

Keywords: Aflatoxin; *Aspergillus*; Iran