

## STUDY OF TOTAL AFLATOXIN CONTAMINATION IN FLOUR SAMPLES FROM TIRANA, ALBANIA

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### Abstract

Mycotoxins, especially aflatoxins are toxic compounds that are naturally produced by different types of fungi. They are commonly found in foods such as cereals, dried fruits, nuts and spices, because they enter the food chain as a result of crops infection before or after harvest. The aim of the study is to determine the level of total aflatoxin contamination in flour samples, due to the high toxicity of aflatoxin and its effects on public health.

To investigate the incidence of total aflatoxin in wheat and maize flour that were consumed in Tirana in period April - May 2021, 18 samples were randomly collected in Tirana markets and mill flour. Aflatoxin levels in all the samples (11 wheat flour and 7 maize flour) were determined by enzyme-linked immune sorbent assay (ELISA) method, measured in 450 nm. Moisture content was also, determined for all samples analyzed via a thermogravimetric method, i.e., by weight loss after drying.

Mean total aflatoxins (B1, B2, G1, G2, and M1) levels in the samples were 2.42 and 7.37 µg/kg in wheat and maize flour, respectively. Total aflatoxin incidence in maize flour was higher compared with wheat flour samples, 100%, and 63.6%, respectively. However, about 14.28 % of the maize flour and 27.27 % of wheat flour samples analyzed exceeded the European Union maximum residue level. Moisture content in all flour samples result less than 14%.

The results showed that the high incidence of positive samples, especially for the maize flour indicates the importance of routine monitoring of total aflatoxin contamination in flour consumed by human, should be performed regularly.

**Key words:** Total aflatoxin, ELISA, Wheat flour, Maize flour.