World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:13, No:03, 2019

Ochratoxin-A in Traditional Meat Products from Croatian Households

Authors : Jelka Pleadin, Nina Kudumija, Ana Vulic, Manuela Zadravec, Tina Lesic, Mario Skrivanko, Irena Perkovic, Nada Vahcic

Abstract : Products of animal origin, such as meat and meat products, can contribute to human mycotoxins' intake coming as a result of either indirect transfer from farm animals exposed to naturally contaminated grains and feed (carry-over effects) or direct contamination with moulds or naturally contaminated spice mixtures used in meat production. Ochratoxin A (OTA) is mycotoxin considered to be of the outermost importance from the public health standpoint in connection with meat products. The aim of this study was to investigate the occurrence of OTA in different traditional meat products circulating on Croatian markets during 2018, produced by a large number of households situated in eastern and north Croatian regions using a variety of technologies. Concentrations of OTA were determined in traditional meat products (n = 70), including dry fermented sausages (Slavonian kulen, Slavonian sausage, Istrian sausage and domestic sausage; n = 28), dry-cured meat products (pancetta, pork rack and ham; n = 22) and cooked sausages (liver sausages, black pudding sausages and pate; n = 20). OTA was analyzed by use of quantitative screening immunoassay method (ELISA) and confirmed for positive samples (higher than the limit of detection) by liquid chromatography tandem mass spectrometry (LC-MS/MS) method. Whereas the bacon samples contaminated with OTA were not found, its level in dry fermented sausages ranged from 0.22 to 2.17 µg/kg and in dry-cured meat products from 0.47 to 5.35 µg/kg, with in total 9% of positive samples. Besides possible primary contamination of these products arising due to improper manufacturing or/and storage conditions, observed OTA contamination could also be the consequence of secondary contamination that comes as a result of contaminated feed the animals were fed on. OTA levels obtained in cooked sausages ranged from 0.32 to 4.12 µg/kg (5% of positives) and could probably be linked to the contaminated raw materials (liver, kidney and spices) used in the sausages production. The results showed an occasional OTA contamination of traditional meat products, pointing that to avoid such contamination on households these products should be produced and processed under standardized and well-controlled conditions. Further investigations should be performed in order to identify mycotoxin-producing moulds on the surface of the products and to define preventative measures that can reduce the contamination of traditional meat products during their production on households and period of storage.

Keywords : Croatian households, ochratoxin-A, traditional cooked sausages, traditional dry-cured meat products
Conference Title : ICFMFS 2019 : International Conference on Food Microbiology and Food Safety
Conference Location : Prague, Czechia
Conference Dates : March 21-22, 2019

Open Science Index, Nutrition and Food Engineering Vol:13, No:03, 2019 publications.waset.org/abstracts/104865/pdf