



Determination of Ochratoxin A contamination in Tarhana, a traditional Turkish fer-mented cereal food

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Abstract

Tarhana is a popular traditional Turkish cereal based fermented and functional food mainly produced at home or at home-scale level. It is prepared by mixing wheat flour, yoghurt, yeast, salt, some raw or cooked vegetables (tomato, pepper and onion) and spices (mint, basil, dill, paprika, tarhana herb etc.) followed by lactic and alcoholic fermentation for one to seven days. Tarhana is mainly used in the form of a thick and creamy soup reconstituting with water followed by simmering and is consumed at lunch or dinner especially on cold days in Turkey. Tarhana-like products are known under different names in the other countries: kishk (sour milk-wheat mixture with boiled chicken stock) in Egypt, Syria, Lebanon and Jordan, kushuk (milk-sour dough mixture with turnips) in Iraq, and tahonya/talkuna (fermented cereal mixture with vegetables) in Hungary and Finland. The low pH (3.8-4.5) and low moisture content (about 10%) of tarhana provide a bacteriostatic effect against pathogenic and spoilage microorganisms. However, some certain mould species can grow even at low moisture and pH values and produce mycotoxins in several food commodities. Among all mycotoxins, Ochratoxin A, is a well-known nephrotoxic, hepatotoxic, teratogenic and carcinogenic mycotoxin, produced by some species of mould genera such as *Aspergillus* spp. (mainly *A. ochraceus*) and *Penicillium* spp. (mainly *P. verrucosum*) under various environmental conditions. This study was conducted to determine Ochratoxin A levels in tarhana. For this purpose a total of 75 tarhana powder samples were collected from bazaars and markets in Istanbul and analysed for Ochratoxin A by means of LC-MS/MS. As a result, 14 out of 75 tarhana samples (18.7%) were found to be contaminated with Ochratoxin A in the range of 0.052 – 3.62 µg/kg. Only one of the examined samples exceeded the maximum limits of Ochratoxin A (3 µg/kg) set in the Turkish Food Codex. The average pH, moisture and aw results were detected as 3.72, 13.25% and 0.705, respectively.

Biography

Akkaya E has completed her PhD at the age of 28 years from Istanbul University-Cerrahpasa, Turkey in 2019. She is research assistant at Istanbul University-Cerrahpasa, Faculty of Veterinary Medicine, Department of Food Hygiene and Technology. She has 7 publications, and also over 40 presentations at international food congresses / conferences. Happy for what you did.



Publication

1. Detection, Characterization and Antibiotic Susceptibility of *Clostridioides* (*Clostridium*) *difficile* in Meat Products Esra Akkaya Department of Food Hygiene and Technology, Faculty of Veterinary Medicine, Istanbul University-Cerrahpasa, 34500, Istanbul, Turkey
2. Effect of Nisin-EDTA combinations and modified atmosphere packaging on the survival of salmonella Enteritidis in Turkish type meatballs Esra Akkaya Department of Food Hygiene and Technology, Faculty of Veterinary Medicine, Istanbul University-Cerrahpasa, 34500, Istanbul, Turkey
3. The prevalence of *Clostridium difficile* in cattle and sheep carcasses and the antibiotic susceptibility of isolates Esra Akkaya Istanbul University, Department of Food Hygiene and Technology, Faculty of Veterinary Medicine, 34320 Istanbul, Turkey

9th International Conference on Food Science & Technology
March 18-19, 2020 | Frankfurt, Germany

Author Citation: Esra Akkaya, Determination of Ochratoxin A contamination in Tarhana, a traditional Turkish fer-mented cereal food, Food Technology 2020, 9th Conference on Food Science & Technology, March 18-19, 2020, Frankfurt, Germany, 20