

THE INVESTIGATION OF OCHRATOXIN A IN CONSUMED WHEAT FLOUR IN FASA BAKERIES OF FASA CITY, IRAN

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Abstract: *Ochratoxin is a mycotoxin produced by A Ochraceus, P. Vercusom and Pviridicatum. The aim of this study was to investigation of Ochratoxin A in fasa bakeries. In this research 50 samples of wheat flour selected and the presence of this toxin evaluated by ELISA method. The results of this study revealed that 23 samples(46%) were contaminated with fungi toxin in concentration range 0.44-14.3mg and the contamination level of 5 samples slightly more than 5mg (European Union Laws). No significant differences observed among contamination levels in different seasons.*

Introduction

Mycotxins, a group of natural toxins, produced by fungus (Anderson, 1984). They contain a complicated chemical structures which produce by a wide range of fungus (Frank, 1991).Ochratoxins are phenylalanine compounds with a Isocumarin core. Ockratoxins produce by Aspergillus Ochraceus. Their toxicity relates to how facility they lose phenol group. The most toxicity is related to Ochratoxin A, while Ochratoxin LD50 contains the half toxicity of Ochratoxin A and is 10.1 µg/µl in *Artemia Salina*.Ochratoxin cause of chickens and sheeps death and respiratory malfunction. When its concentration increases , kidney lesions occur. The combination of hepatic phosphorilase leads to increase glycgen in liver (Abouzeid et al 2002 ; Anisworth et al, 1959 and Alvarez et al,2004).

Material and methods

Extraction method of Ochratoxin A in cereals:

Regarding the nature of sample, a homogenous sample shall prepare of it.almostly near 50 g of sample grinded, 5 g of it poured in a test tube, 10ml phosphoric acid added and well mixed, then 20 ml dichloromethane added,centrifuged with 2000xg. The supernatant removed , mixture vortexed and finally centrifuged with 2000xg for 5 min.

Results

In this study, 86 samples of distributed bread in Fasa city investigated with aim to presence of ochratoxin A by ELISA method. Overall 45 samples exhibited this toxin. While the average, mean and standard deviation of Ochratoxin A in all samples were 1.47,0.31 and 2.61mg/kg respectively, beside the contamination range measured in 0-10.4mg/kg (table1).They were 2.81,1.08 3.04mg/kg in contaminated samples and their contamination range was 0.19-10.7mg/kg (table2).

Table1. abundance, average and standard deviation Ochratoxin A level in breads (mg/kg)

N.O.	Average	Con-taminated samples	Standard deviation	mean	Contami-nation (%)	Con-tamination range
86	1.47	45	2.61	0.31	52	0-10.37

Table2. Abundance, Ochratoxin A level in contaminated breads (mg/kg)

N.O.	Average	Standard deviation	mean	Contamination range
45	2.81	3.04	10.8	0.19-10.37

In another part of this study the presence and the level of Ochratoxin A in different types of distributed beards (Samgak, Barbari, Taftoon, Lavash, Industrial, domestic, Baguettes, machine produced). Although the highest level of contamination observed in Lavash, overall no significant difference found in all samples in results of ANOVA test (table 3).

Table3. the amounts of contamination of Ochrar=toxin in different Breads of Fasa Bakeries.

Beard type	Samples N.O.	Contamina- taed samples N.O.	The average of Ochratoxin A amount (mg/kg)	Standard Deviation
Samgak	9	88%	1.76	2.60
Barbari	11	81%	1.76	2.57
Taftoon	10	40%	1.43	3.03
Lavash	12	41%	0.41	0.64
Industrial	9	33%	0.45	1.03
domestic	15	40%	1.30	2.53
Baguettes	13	61%	3.32	3.94
machine pro- duced	7	28%	0.15	0.28
Total	86	52%	1.47	2.61

This study cover 3 seasons, winter, spring and summer. Results revealed no significant difference in the season and the level of contamination in these seasons ($p>0.05$). The amounts of contamination in winter, spring and summer were 1.74, 1.57 and 1.06 mg/kg respectively (table4).

Table4. the amounts of contamination in Fasa Breads in different seasons

Season	samples	Con- taminated samples	Ochratoxin amount (mg/kg)	Standard deviation
winter	28	15	1.74	3.02
spring	32	18	1.57	2.52
summer	26	12	1.06	2.27
Total	86	45	1.47	2.61

References

1. Abouzeid, M.M, Horvath, A.D., Podlesny, P.M. Regina, N.O., Metodiev, V.D., Ka, enova-Toseva, R.M., Niagolova, N.D., Stein, A.D., Prepoulos, E.A., Ganrv, V.S. 2002. Food Additives Contamination, 19, 755-764.
2. Alvarez, L., Gil, A.G. Ezpeleta, O., Garcia Jalon, J.A. Lopez De Certain, A. 2004. Immunotoxic effects of ochratoxin A in vistar rats after oral administration. Food Chemistry. toxicology. 42, 825-834.

3. Anderson, a.1984.Ceneral and Cereal products trace elements.food additives, nutrients and ergot, publicationstotens levnedsmiddl institute, 93,p,68.
4. Anisworth G,C.,Austwick P,K,C.1959. Fungal Diseases of animals. Commonwealth Bureau of Animals Health Review Series n 6, p,148.
5. Frank, H.K. 1991. Tood Contamination by Ochratoxin. A., in Germany. [Meta-Anahysis]. IARC Scientific Publications (Lyon) 115. 77-81.

INVESTIGATING OF RHEOLOGICAL PROPERTIES OF OIL EXTRACTED FROM THREE VARIETIES OF OLIVE IN THE PROCESS OF BLEACHING

The Investigation of Stigmasta Diene in Three Varieties of Iranian Olive Oil

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Abstract: *Olive oil is one of the most vegetable oils in the diet. It contains lots of functional compounds such as sterols, tocopherols etc. B-sitosterol has the most amounts in olive oil. Since it effects in lowering cholesterol levels, therefore its maintenance has great importance. B-sitosterol dehydrates in olive oil bleaching and deodorizing and transform to stigmasta 3,5 diene. Its presence in oil indicates olive oil fraud by blending it with other refined oils. In this study 3 varieties of Iranian olive including Zard , Roghany ,Phishomi were selected of two province ,Gilan (Roudbar region) and Fars (Darab and Fasa regions). In this stages samples were neutralized and treated by adding 1.5% Tansyl activated bleached soil and vacuum condition 9mmHg in bleaching process under temperatures of 40, 50,60,70,80. Results were analyzed by SPSS and Pearson*