AFLATOXIN IN UNCOOKED MARKET COMMODITIES : SPICES

Pages with reference to book, From 109 To 111

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Abstract

Seventy one samples of different spices sold open as well as packed were collected from different localities of Karachi city to evaluate their purchased.
aflatoxin contamination. Thirteen percent of foods sold open were contaminated with aflatoxin while no aflatoxin was detected in foods packed in polythelene bags. (JPMA 36:109,1986).

INTRODUCTION

Poor storage of raw and cooked foods at individual household and market levels has often resulted in considerable contamination with aflatoxin[1-5] Evidence also indicated that some of the human population regularly consumes aflatoxin through contaminated foods. [6,7] Studies in Pakistan have revealed a higher contamination of foods especially rice, wheat, few cereals and some oil seeds.[8-13]But no attempt was made to detect the presence of aflatoxin in spices which are irrespectively consumed daily by all socioeconomic groups. It is, therefore, considered necessary to detect the presence of this toxic substance in the commonly used spices sold in Karachi city which are often stored and sold open in the market providing an excellent microclimate for the elaboration of aflatoxin.

MATERIAL AND METHODS

Collection of samples: 50 Gm of the various spices commonly consumed by the local populations were obtained from shops sold open in different parts of Karachi. Moreover packed spices marketed by different trade names were also Preparation of samples and detection of aflatoxin: The aflatoxin was extracted from the food by column chromatography and TLC methods[14].

RESULTS

TABLE I

Aflatoxin contamination in Foods sold in Different Localities as Unpacked Samples.

	Nazimabad		Saddar		P.E.C.H.S.	
	Sample	Aflatoxin	Sample	Aflatoxin	Sample	Aflatoxin
Red Chillies	1	–	1	+	1	+
Cardamon (Large)	1	–	1	–	1	–
(Small)	1	–	1	–	1	–
Cloves	1	–	1	+	1	=
Cremein Seeds (black)	1	–	1	–	1	–
(white)	–	–	1	–	1	–
Cinnamon	1	–	1	–	1	–
Coriender Seed	1	–	1	–	1	–
Powder	1	–	1	–	1	–
Nutmeg	1	–	1	–	1	–
Onion Seeds	1	–	1	–	1	–
Tamarind indicus	–	–	1	–	1	–
Mace	1	–	1	–	1	–
Mustard	1	–	1	–	1	–
Nut	1	+	1	–	1	–
Black papper	1	+	1	=	1	–
Poppy Seed	1	–	1	–	1	–
Turmeric Powder	1	–	1	–	1	+
Fennel Seeds	1	+	1	–	1	–
Total (%)	17	3 (17.6)	19	2 (10.5)	19	2 (10.5)

TABLE II

Aflatoxin Contamination in Packed Foods distributed by National Food Industries and Ahmad Food Industries.

Food Item	Samples examined	Aflatoxin
Chillies	1	–
Cardamon (large)	1	–
Cloves	1	–
Cumin Seed (black)	1	–
Cumin Seed (white)	1	–
Cardamon (small)	1	–
Coriender	1	–
Curry Powder	1	–
Cinnamon	1	–
Fennel seed	1	–
Mixed Spices	1	–
Tamarind indicus	1	–
Mustard seed	1	–
Poppyseeds	1	–
Pepper	1	–
Turmeric	1	–
	16	Nil

Table I and II show the details of aflatoxin positive spices obtained open/packed from various localities of the city. The data is a notable illustration of the exploitation of foods at the market level. Spices kept and sold open contained detectable amounts of aflatoxin whereas packed products with different trade names were aflatoxin negative.

DISCUSSION

This study indicated aflatoxin contamination being the result of the conditions under which they are sold open in the market. The climate in Karachi is hot and humid as compared to other parts of the country which perhaps aids in the growth of fungi in the foodstuffs and the elaboration of aflatoxins. Siddiqi[15] has indicated a gradual increase in liver cancer as one travels south from northern areas and in Karachi it has been found to be the highest. Alpha fetoprotein and Hepatitis B antigen were present in 34.6% and 60% case of liver cancer respectively.[16] Therefore, some of the remaining may be due to the ingestion of aflatoxin through the foods especially spices which are often stored and sold open in the market. Studies in Thailand,[5,17] Uganda[6,18] and in Kenya[19] have also indicated relation between the type of food consumed (aflatoxin contaminated) and the incidence of liver cancer. Even in the absence of visible molds this can produce liver cancer.[20] Aflatoxin B has also been detected by flourescence microscopy in liver cancer patients.[21]

An interesting finding in this study is that foods sold packed in polythelene bags were found to be aflatoxin negative which might play an important role in the prevention of exposure to aflatoxins. Therefore for prevention of liver cancer government should take necessary measures so that all foods including spices be kept and sold in airtight polythelene bags.

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