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Occurrence of *Aspergillus* Species and Aflatoxin Contamination in Peanuts in Khartoum State

SIHAM SULIEMAN¹, WEAAM ABDULGADER²

¹University of Medical Sciences and Technology, Microbiology, Sudan

²University of Medical Sciences and Technology, Microbiology,

Abstract

Background: Peanuts are one of the consumed snacks worldwide and also have an important role among Sudanese's food habits. Natural contamination of peanuts with aflatoxin is unavoidable and causes a special challenge for peanuts safety and quality.

Materials and Methods: A total number of 100 peanut kernel samples in two consumption forms (50 roasted and 50 raw) were collected from street vendors and retail shops. Samples were analysed for the presence of fungi by culture on Sabouraud dextrose agar media. And identified using Needle Mount technique. After the initial preparations, (TLC) Thin Layer Chromatography technique was performed for aflatoxin measurement.

Results: Out of 100 collected peanut samples fungi were detected in 49(49%) of the samples. The 49 isolates were belonged to two fungal genera *Aspergillus*(71.4%)35/49 and *Rhizopus* (28.6%)14/49. *Aspergillus* was the predominant isolate and has been isolated in(12.2%)6/49of the roasted peanuts and in(59.2%)29/49 of the raw peanuts. Among the species of *Aspergillus* *A. niger*(57.1%)20/35 were the most frequently isolated species in the collected samples, followed by *A.flavus*(34.3%)12/35, *A.fumigatus*(5.7%)2/35 and *A.terreus*(2.9%)1/35.

Aflatoxins extracted were Aflatoxin B1, Aflatoxin B2, Aflatoxin G1 and Aflatoxin G2. The level of specific aflatoxin concentration varied between 5 and 100 μ g/kg for AFB1 and AFB2, and between 10 and 48 μ g/kg for AFG2 and AFG1 respectively.

Conclusion: This study confirms the contamination of peanut in Khartoum state, Sudan. There is a need of good storage practices in order to prevent the occurrence of aflatoxin in peanuts.

Recommendations: In Sudan, a necessary steps should be taken by the health organisation and other related agencies to minimise the aflatoxin contamination. Educating people is very much needed about the danger of aflatoxin in peanuts, which are favourable products and used as nourishing and safe snacks in the Sudanese society.

Keywords: Aflatoxin,, aspergillus sp., Peanut