CONTAMINATION OF LEGUME MARKETED SEEDS IN SOME GOVERNORATES OF MAKKAH ALMUKARRAMAH REGAIN WITH FUNGI AND MYCOTOXINS AND REDUCING IT WITH SAFE METHODS

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Abstract

This study was planned to investigate the mycoflora associated with marketed legume seeds and their effect in the seeds deterioration during storage, determine mycotoxins and their association with samples(N=324) collected from three governorates in region of Makkah Almokaramah in 2006-2007,and used in following investigation:

*Isolation trials from stored seeds proved the presence of fungi belonging to twenty genera. The five(from 20 genera) most prevailing fungal genera were *Aspergillus* (32.97%) ,*penicillium*(16.29%) ,*Fusarium*(14.74%) *Alternaria*(12.74%) and *Colletotricum* At the species level *Aspergillus niger* *Alternaria alternata* A.*flavus* *Fusarium moniliforme* , *Penicillium expansum* , F.*oxysporium* A.*terreus* recorded the highest percentage of occurrence and frequency. The legume seeds obtained from Jeddah had the highest number of the isolated fungi, while those collected from Makkah Almukarramah the lowest figure, also the white beans had the highest percentage of the infection in samples , as follows: Faba beans, Lentil seeds, kidney beans.

*Isolation trials from in the indoor dust proved the presence of fungi belonging to the more twenty genera. This fungi differed in their occurrence according to prevailing environmental conditions and regain of storage . The five most prevailing fungal genera were *Aspergillus* (29.5%) ,*penicillium*(14.8%) ,*Fusarium*(14.74%).

*Pathogenically test proved that these fungi were able to cause serious damage during storage .They increased seeds invasion an discoloration . Fungi isolates differed either in their ability to invasion Faba seeds. Isolates of A.*niger* and A.*flavus* were highly pathogenic .they recorded high infection percentage in seeds . Isolates of *Fusarium* and *Pencillium* after that . But other isolates such as *(Drechslera* and *Cladosporium* recorded the least pathogenic fungi in sample of seeds. Also fungal infection decreased alimentary contents of seeds for example (proteins ,carbohydrates , lipids ,fibers, ash and elements of metal .Increasing all temperature degree ,moisture content and storage period lead to an increase in the fugal infection of seeds.

*About 60 fungal isolates of the genera *Aspergillus Penicillium* and *Fusarium* were tested for their ability to produce mycotoxins by using (TLC) & HPLC. were positive for aflatoxin B1&G1 ,ochratoxin B1,Zearalenone fumonisin B1,Citrinin ,alternariol and rubratoxin B production. In this respect, the samples collected from Jeddah presented the highest level of aflatoxins ,ochratoxin while the samples collected from Al-taif presented the highest level of fumonisin B1 , but the samples collected from Makkah Almokaramah presented the lowest level of mycotoxins .The biological assay of fungal extracts effects of toxins on bacteria(*E.coli*, *Streptococcus Lactis* ,*Salmonilla typhimurium*, *Lactobacillus lactis*, and *Streptococcus lactis*) , fungi (A.*flavus* ,A.*ochraceus* ,A.*alternata*,P.*citrinum*,F.*moniliforme* ,F.*oxysporum*) and chicks. The Bacteria had the highest average of the inhibition of growth while The fungi had the lowest average of the inhibition of growth

*The toxicity in-quisition on Chicks shown the behavior of the chick was affected, when the chick start to show neuro disturbance, rage emotion, shivering, and discoloration of the body. Also the histological examination in ultra section on the organs of chick (liver &Kidney),shows the cells were decayed and the very large nucleus were found, and the blood vessels were big, wide and fill of blood reducing bile salt , negatively affects lipid and pigment.

* The extracts of medicinal plant(Peppermint, Anise, clove, Cardamom , Cinnamon, Piper nigrum, Ginger , thymeand Cummins) were examined against some fungal strains and their mycotoxins such as(*Aspergillus flavus*, *Fusarium oxysporum* , and *Penicillium rubrum* . The acetone extracts of Cinnamon , clove and Anise showed higher inhibitory effect towards fungal growth and production of mycotoxins but The acetone extracts of (Piper nigrum, Ginger , thymeand Cummins)showed inhibitory effect towards production of mycotoxins.