Abstract

Effect of different corn storage conditions on mould classification, Aspergillus flavus population and aflatoxin production.


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Preservation of grains is one of the most important issue for the country's economy and people life. The majority are species of Aspergillus and Penicillium, the most common genera causing storage rot. To find out the best, costless and practical way for the storage of corn which prevent or limit the contamination of this fungus (Aspergillus flavus) and preventing or reducing its capability of producing the toxin. Three replicates of sample each contains 200 g of unsterilized corn obtained from Alexandria shipment, were placed into sterilized 500 ml flasks closed by sterilized cotton. Different parameters were studied, moisture (14% and 18%), storage period (0, 14, 21 day and 6 months) and temperature (25 ºC and 37 ºC) to study their effect on mould classification, especially Aspergillus flavus and aflatoxin production. Results showed that moisture played the first role or the key for the good storage followed by temperature and storage period, moisture (18%) and temperature (25 ºC or 37 ºC) caused to turned the corn to the green color because high presence of Aspergillus flavus reached 4 Log cfu/g corn and its aflatoxin production 300 ppb. When corn stored at moisture (14%) and temperature (25 ºC) no observation was shown for fungi, especially Aspergillus by the naked eye. Under this conditions, all fungal were spores only, spores were decreased and aflatoxin was under the safety level of 20 ppb determined by FAO and WHO from begining until the end of storage period 6 months.