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Effect of storage conditions on prevalence of aflatoxins in different spices

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ABSTRACT

The core objective of current research is to examine the effect of storage conditions on occurrence of a flatoxins in different spices. For the purpose, different samples of spices (Red chillies, Black peppers and Cumin) were packed in high density polyethylene (HDPE) bags and jute bags. The samples were stored in controlled environment chambers at 25°C temperature with three different conditions (65, 75 and 85% relative humidity). The samples were evaluated for total antioxidant activity, aspergillus count, total fungal count and a flatoxins. Spices are hydrophilic in nature and packaging material has significant effect on water absorption. The phenolic compounds hinder microbial growth and boost up the resistance against different ailments. Additionally, phenolic compounds act on the secondary metabolic pathway for aflatoxins biosynthesis. Packaging materials and storage conditions illustrated momentous effect on moisture content, total phenolics, aspergillus count, total fungal count, and aflatoxin content. Gradual increase in total fungal count, aspergillus count and aflatoxin content with increase level of relative humidity was observed. Furthermore, it was concluded that spice for better quality retention can be safely stored in polyethylene bags at 65 % relative humidity. The utilization of polyethylene bags as compared to jute bags is better for the preservation of spices with respect to the production of aflatoxin during storage at different humidity levels.

BIOGRAPHY

Muhammad Abrar is a director at post harvest research centre, AARI, Faisalabad, Pakistan. He completed his food technologist at Post Harvest Research Centre, AARI, Faisalabad, Pakistan during 2017. He worked as a visiting scholar in Grain Science and Industry Department, Kansas State University, U.S.A.

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