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The analysis of aflatoxin levels in corn obtained from South Carolina farms

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The mold *Aspergillus* grows on a number of raw food commodities producing highly toxic compounds known as aflatoxins. These compounds can cause developmental and immune system suppression, cancer and death if ingested. Crops contaminated with aflatoxins can result in losses to the U.S. corn industry ranging from \$52.1 million to \$1.68 billion annually. Because of the harm these toxins pose, a food safety survey was administered to SC farmers. The results indicated that of the 190 farmers surveyed, 58% reported they never heard of it, 26% revealed they somewhat knew about it, while only 16% definitely knew about. The aim of this study was to determine the aflatoxin levels in corn obtained from farms in South Carolina. Aflatoxin levels were measured using a fast and convenient method involving the Vicam test reader. Five grams of corn were weighed, blended and transferred into an extraction tube containing 25 ml of 70% methanol. The mixture was vortexed for 2 minutes and filtered. One hundred microliters (100 μ l) of the extracted sample were mixed with 100 μ l of Afla-V dilute contained in an eppendorf tube. The samples were mixed well for 10 seconds using a vortexer. The sample mixture was then placed on the Alfa-V test strip for 5 minutes and inserted inside the Vicam test reader. Two of the samples collected from the six farms indicated readings of 58.40 ppb and 89.15 ppb. These numbers were 2.34 and 3.57 times higher, respectively, than the recommended 25 ppb established by the USDA.

Biography

James B Stukes is an Associate Professor of Biology and Biology Program Coordinator for the Department of Biological and Physical Sciences at South Carolina State University, USA. He has received his PhD in Microbiology from Atlanta University, USA. He has served as the Principal Investigator for several grants, written various publications and presented his work at numerous conferences. He was named University Teacher of the Year, Outstanding Young Man of America, served as a Member of the Governor's Mathematics and Science Advisory Board and Who's Who Among America's Teachers. He currently serves as a Co-Principal Investigator of the Evans-Allen 1890 Food Safety Research Grant funded by the USDA.

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