

Post-harvest Practices of Maize Farmers in Trans Nzoia, Kisii, Kisumu, Bungoma, Migori, Kericho, Machakos, Kitui and Meru Counties, Kenya and isolation of mycotoxin producing fungi from maize samples.

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Abstract

Mycotoxins produced by fungi are among the leading causes of human mortality and morbidity all over the world. This study aimed at establishing the post-harvest practices that lead to contamination of maize with fungi in Trans Nzoia, Kisii, Kisumu, Bungoma, Migori, Kericho, Machakos, Kitui and Meru Counties in Kenya. The study was also aimed at isolating the most common mycotoxin producing fungi from maize samples collected from the study areas. The post-harvest practices were determined using a questionnaire. From each county, a total of 130 maize samples were collected. The samples from each county were mixed to make a composite sample. The moisture content of the maize samples were determined and percentage moisture content calculated. Each sample was ground using a dry mill kitchen blender (BL335, Kenwood, UK). A sample of 1g was suspended in 9mL of sterile distilled water and serial dilution up to 10^{-2} carried out. A sample of 0.01mL was plated on potato dextrose agar. Mycotoxin producing fungi were identified using morphological characteristics and fungal identification keys. The post-harvest practices within the counties varied significantly. The mean moisture content of stored maize varied from 16.78% in Kitui to 19.33% in Trans Nzoia. The number of mycotoxin producing fungi ranged from 10.33 CFU/g in Machakos to 61.00CFU/g in Trans Nzoia. This study established that the post-harvest practices observed in the study areas led to contamination of maize with mycoflora. In addition, the moisture content levels of stored maize in the counties favoured growth of mycotoxin producing fungi. There is need to identify the mycotoxins produced by the mycotoxin producing fungi isolated in this study.

Key words: mycotoxins, food security, maize