



Contribution ID: 1

Type: **Abstract for Research Paper**

Dr

FUNGICIDE USE IN HORTICULTURE LINKED TO ANTIFUNGAL RESISTANT ASPERGILLUS SPECIES IN KAJIADO COUNTY, KENYA.

Abstract

Pesticides use in agriculture has been associated with antifungal resistance in clinical practice. Azole-resistant *A. fumigatus* isolates have been reported in some countries ascribed to either previous antifungal treatment, prophylaxis or fungicides use in agriculture. The use of azole-based fungicides in robust horticulture in Kenya is a risk factor for antifungal resistance. The study analyzed environmental isolates of *Aspergillus fumigatus*, *Aspergillus flavus* and *Aspergillus niger* for the presence of resistance against the triazoles antifungal (Itraconazole (ITZ), voriconazole (VCZ) and posaconazole (PCZ). Cross-sectional study design was used. Dry top surface soils were sampled from the study site. Each soil sample was processed and approximately 100 μ l of the preparations plated onto SDA containing no drug, 1 μ l/ml itraconazole and 1 μ l voriconazole. *Aspergillus* species were identified by MALDI TOF MS and ITS genes amplification. Absence or presence of TR34 in the promoter region was determined by *A. fumigatus* DNA amplification using AFCYPPR and AFCYPPF primers. While L98H the mutation was determined by amplification of isolates DNA using AFCYP98R and AFCYP98F primers. Gel electrophoresis was run to detect DNA amplicon. A total of 250 *Aspergillus* spp were isolated of which, 7.2% were resistant to either of the three azoles antifungal (Itraconazole, Voriconazole and Posaconazole) with MIC greater than 4. The resistant isolates were; 83.3% (15) *A. fumigatus*, 11.1% (2) *A. niger* and 5.6 % (1) *A. terreus*. Occurrence of triazole resistant aspergillus species with TR34/L98H mutation in *cyp 51A* gene from fungicide exposed horticultural soils in Kenya was established. The finding is of public health concern and calls for policies on rational use of fungicides in agriculture over concerns of emerging resistance in clinical practice. There is also need for antifungal drug resistance surveillance among environmental and clinical fungal pathogens.

Primary authors: KEMOI, Edson (University of Kabianga); Dr BII, Christine (KEMRI)