

## Keywords:

- *Fusarium* spp.; mycotoxins; wheat; aflatoxin; deoxynivalenol; enniatins; ochratoxin

## Abstract

Mycotoxin contamination of wheat kernels and diversity of fungal pathogens were monitored in a survey of 26 fields in Nakuru district, Kenya, in 2006. Sampling was performed twice; at mid-anthesis in July for leaves, stems and spikelets and at harvest in September for spikelets and kernels. Kernels were analysed for the occurrence of 32 mycotoxins using a high performance liquid chromatography – electrospray tandem mass spectrometry (LC-ESI-MS/MS) method. Fungi were isolated from surface-sterilized tissues and differentiated morphologically to the genus level. *Fusarium* isolates were identified based on the sequence of translation elongation factor 1-alpha gene. Eleven *Fusarium*-related mycotoxins were quantified with deoxynivalenol being detected at highest frequency (69%) and highest concentrations. Occurrence of enniatins in wheat (50%) is reported for the first time in Kenya. Non-*Fusarium* mycotoxins detected included aflatoxin G2, ochratoxin A, alternariol and alternariol monomethyl ether. Prevalence of *Fusarium* species on different wheat parts was 100% at both growth stages. Nineteen *Fusarium* species were identified with seven species – *Fusarium chlamydosporum*, *Fusarium boothii*, *Fusarium poae*, *Fusarium scirpi*, *Fusarium arthrosporioides*, *Fusarium oxysporum* and *Fusarium graminearum*– accounting for 80% of infections. At anthesis, spikelets and leaves were the most and least susceptible tissue, respectively. At harvest, infection of spikelets was 59% higher than that of kernels.