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**OCCURRENCE OF *FUSARIUM* SPECIES AND  
ASSOCIATED MYCOTOXINS IN EQUATORIAL  
BARLEY (*Hordeum vulgare* L.) GROWN IN KENYA.**

By

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## Abstract

In an investigative study on the occurrence of *Fusarium* species in Equatorial barley grown in Kenya and the ability of the isolates to produce mycotoxins, newly delivered barley samples from two barley-growing regions in Kenya; Olchoro- Mau Escarpment, Timau- Mt Kenya and composite in storage samples were obtained from Kenya Maltings Ltd., Nairobi. They all comprised of good quality barley accepted for malting. The kernels were surface sterilized and plated on Potato Dextrose Agar and Synthetic Nutrient Agar for isolation of *Fusarium spp.* The isolates were identified to species level based on cultural and morphological characteristics. In addition they were screened *in-vitro* on rice cultures for their ability to produce Type A trichothecenes (T-2 toxin, HT-2 toxin, diacetoxyscirpenol), Type B trichothecenes (deoxynivalenol and nivalenol) and zearalenone. The barley samples positive for *Fusarium* were also screened for presence of the mycotoxins.

*Fusarium graminearum* (33.3%) and *Fusarium poae* (33.3%) were the most frequently isolated species. *Fusarium clamydosporum* and two unidentified *Fusarium spp.* were also isolated. The distribution of the species showed some regional specificity. *F. graminearum* and *F. poae* predominated in Olchoro region. All strains of *F. graminearum* produced both deoxynivalenol and zearalenone. *F. poae* strains did not produce detectable amounts of the mycotoxins. However, the two unidentified isolates of *Fusarium spp.* produced Deoxynivalenol only. None of the barley samples were found to contain detectable amount of trichothecenes or zearalenone.

The study has shown that toxigenic *Fusarium spp.* do occur in Equatorial barley grown in Kenya. Hence there is a considerable risk for presence of *Fusarium* molds and their mycotoxins in barley destined for malting, and finally in the beer. However, presence of toxigenic strains does not translate to direct presence of mycotoxins in the infected kernels.