

PRELIMINARY STUDY ON NATURAL OCCURRENCE OF AFLATOXINS, ZEARALENONE AND FUMONISINS IN GRAIN MAIZE GROWN IN PENINSULAR MALAYSIA

Wan Syahidah Hussain

Department of Veterinary Services

Corresponding author: syahidah@dvs.gov.my

The maize plant and kernel are prone to infection by fungal attack and are most likely to be contaminated with mycotoxins under suitable temperature and humidity conditions, during both the growing and storage period. The aim of this study is to evaluate the occurrence of aflatoxins, zearalenone and fumonisins in grain maize grown in Peninsular Malaysia. A total of 144 samples from Terengganu, Kedah, Pulau Pinang, Perak, Selangor and Johor were analysed for this study. Aflatoxins, zearalenone and fumonisins testing were carried out by fast screening method using ELISA technique (Ridascreen, R-Biopharm) with Ridasoft win software for quantification. Zearalenone were the most common toxins detected in all samples (68.9%) with values ranging from 62.5 µg/kg to 226.4 µg/kg, followed by fumonisins (34.5%) with values ranging from 0.6 mg/kg to 5.6 mg/kg and aflatoxins (26.4%) with values ranging from 5.2 µg/kg to 41.7 µg/kg respectively. The incidence of aflatoxins above maximum tolerable levels (MTL) >20 µg/kg was detected in 0.7% of the samples while no samples detected above MTL for fumonisins (>60 mg/kg) and zearalenone (>3 mg/kg). Overall, this study shows that there was minimum occurrence of mycotoxins contamination in local grain maize. This occurrence was considered to be safe for livestock consumption. For further study, more sample size is needed to ensure a better evaluation of occurrence rate throughout the whole country.