

Mycotoxigenic fungi contamination of grains and peanuts from open markets in Kelantan, Malaysia

ABSTRACT

The warm weather and high relative humidity in Malaysia are ideal for the survival and proliferation of mycotoxigenic fungi leading to a high rate of stored product contamination. This study was conducted to enumerate and characterise the mycotoxigenic fungi associated with commonly consumed food grains in Kelantan, Malaysia. The fungal bioburden and fungal identification from forty-four composite food samples comprising 11 samples each of maize, wheat, rice, and peanuts from open markets in Kelantan, Malaysia, were determined using standard mycological techniques. A total of 115 mould fungal isolates belonging to 12 species were isolated, of which *Aspergillus flavus* (17.39%), *A. versicolor* (13.04%), *A. felis* (12.17%), *Neoscytalidium dimidiatum* (11.3%), *Penicillium cheresanum* (11.3%) and *P. chrysogenum* (8.7%), were predominant. Peanuts were the most contaminated ($9.7 \times 10^5 \pm 1.5 \times 10^5$ CFU/g) followed by maize ($7.5 \times 10^5 \pm 1.8 \times 10^6$ CFU/g), wheat ($1.9 \times 10^5 \pm 2.6 \times 10^5$ CFU/g), and rice ($9.9 \times 10^4 \pm 1.5 \times 10^5$ CFU/g). The levels of the mycotoxigenic fungi in peanut, maize, and wheat were above the permissible limit of 102 CFU/g set by the Malaysian Ministry of Health and 102 to 105 CFU/g set by the International Commission for Microbiological Specification for Foods, signifying that they are unsafe for use as food or feed ingredients. Hence, there is a need for more stringent control measures.