ZEARALENONE CONTAMINATION OF MAIZE-BASED HUMAN FOODS

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Zearalenone is a mycotoxin produced by Fusarium species on cereal grains both in the field and during storage. Zearalenone behaves in a similar manner to an oestrogenic compound and has been associated with field cases of hyperoestrogenism and reproductive problems in farm animals, especially pigs (Bryden 1989). Cases of hyperoestrogenism have been reported in Australia during the last 50 years in pigs fed maize-based diets but there are no reports of the contamination level of zearalenone in human foodstuffs. With the advent of commercially available ELISA assays it is now possible to rapidly assay food samples for this mycotoxin. The purpose of this study was to survey retail maize-based products for the presence of zearalenone.

Forty items representing different lots of breakfast cereals, snack foods, popcorn, cornflour, maize meal and corn kernels were purchased from three retail grocery outlets. Samples were ground, extracted with methanol-water and assayed by ELISA (Veratox®, Neogen). Fourteen of the samples contained in the toxin with values ranging from 10-68 µg/kg with a mean for all positive samples of 23 µg/kg.

The results of the present survey agree with the results found in a similar survey conducted by Warner and Pestka (1987) in the USA. Interpretation of the results is difficult as it is not possible to know if they are truly indicative of the zearalenone levels found in Australian foods because of the limited nature of the survey. Nevertheless it would seem prudent for food processors to screen raw ingredients for zearalenone to minimise human exposure.

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