



Scientific Report

Zearalenone Contamination in Corn for Human Consumption
in Kamphaengphet, Thailand

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ABSTRACT

The study was due to survey the estrogenic mycotoxin zearalenone (ZEA) contaminated in corn and to verify the ELISA method to the HPLC method in the determination of ZEA. 55 corn samples with five categories consisted of popcorn (14), sweet corn (11), flour corn (6), waxy corn (10) and field corn (14) were collected from the local market in Kamphaeng Phet province, Thailand. Results from the analysis of ZEA contamination performed by ELISA method showed that 17 samples (31%) of the corn sample were contaminated with ZEA in a range 6.5 to 236 $\mu\text{g}/\text{kg}$. The highest contamination of ZEA had been seen in the sample of field corn with 9 of 14 samples in the concentration range from 7.3 to 126 $\mu\text{g}/\text{kg}$. According to the analysis methods, the HPLC method had higher %recovery of ZEA at the level of 100 – 550 $\mu\text{g}/\text{kg}$ spiked than ELISA method (98.2 VS 87.4%, respectively). It was also found that the HPLC method had more reproducibility than the ELISA. However, the ELISA method had more advantage over the HPLC method when time consumes, and cost of the analysis had been considered. Never the loss, both analytical methods showed high sensitive correlation. ($R^2 = 0.9538$). This study indicated that ELISA method could be suitable for screen the ZEA contamination in corn.

Keywords: zearalenone, corn, ELISA and HPLC