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Risk assessment of dietary exposure to aflatoxins contamination in spices

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The potential of aflatoxins (AFBI) contamination in spices which is attributable to the risk of developing liver cancer among the consumers in Malaysia was studied. All the AFBI contamination data in spices from various studies in Malaysia were calculated for dietary exposure and Margin of Exposure (MOE) to give the most representative risk assessment. The dietary exposure to AFB1 ranging from 0.21-1.32 ng/kg-bw/day (overall mean 0.59 ng/kg-bw/day), and 12.27 ng/kg-bw/day for the highest level of AFBI contamination. The MOE derived from these dietary exposures at BMDL10 (benchmark dose lower confidence limit 10%) of 0.305 µg/kg-bw/day were 230-1450 (overall mean, 520) and 25 which were less than 10,000 indicating the risk of AFBI contamination in spices as a high priority for risk management actions. The overall mean of 0.59 ng/kg-bw/day represents 3-53.6% of the TDI levels of 0.11–0.19 ng AFB1/kg-bw/day for liver cancer risk per 100,000 populations in Asia. Population risk for primary liver cancer attributable to AFB1 contamination were 0.01-0.03 (0.1-0.7%) and 0-0.31 (0-6%) cancers/year/100,000 population, for mean and range of exposures. The risk which was less than one cancer case/year/100,000 population suggested that Malaysian population is not significantly at risk. However, the cumulative life time liver cancer risk attributable to AFB1 contamination in spices and in peanuts will be more than 1 cancer case/year/100,000 population, indicating that local authority in Malaysia should have a more stringent food safety system, strictly enforce the existing regulatory control and disseminate knowledge and awareness program on AF contamination in foods and its health impacts to the population..

Biography

Norhayati Ali is a Senior Lecturer at Universiti Pendidikan Sultan Idris Malaysia since 2009. She was a Senior Government Chemist at Chemistry Department Malaysia for 25 years before joining the University. She did her Master's and PhD degrees at Kagawa University Japan, specialized in mycotoxin analysis in food. She has published a number of original research papers in reputable international journals and has been serving as research articles reviewer for a number of international journals.

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