

Safety issues related to polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) in fish and shellfish in relation with current Malaysian laws.

ABSTRACT

Dioxins (PCDDs) and furans (PCDFs) exposure has been linked to birth defects, child growth retardation, reduced levels of male reproductive hormones, altered ratios of male to female births, diabetes and cancer. These show that PCDDs and PCDFs give awful impact to mankind. This paper will highlight on the concentration of the contaminants in fish and shellfish as well as the estimate intake of the contaminants based on data from other countries. This paper also will identify the relevant regulatory framework presently available in Malaysia that governs the environmental management of PCDDs and PCDFs. In response to aggressive attempts globally to control PCDD/Fs emissions over the last 35 years, human exposures to PCDD/Fs from the environment have declined significantly. The primary source of human exposure to PCDDs and PCDFs is animal foods including fish and shellfish. The sources of these contaminants in the foods are not well understood and are probably varied. Data on the levels of PCDD/Fs measured in various fish samples collected from one country to another varies which correlate with the varied species of fish and shellfish available besides the human industrial activities nearby. As for Malaysia, the information on the level and type of PCDD/Fs present in food especially fish and shellfish is still lacking and need to be made available in order for specific recommendations (kind of species, frequency and size of meals) regarding human consumption to be made. This paper also has noticed that there is no specific legislation in Malaysia that governs the safety and environmental management on PCDDs and PCDFs. However, there are several legislations that regulate the safety and environmental management of PCDDs and PCDFs which include Environmental Quality Act (1974); the Occupational Safety and Health Act (1994); the Customs Act (1967) and the Food Act (1983). The enforcement of these legislations is not the responsibility of a single government agency. Different government departments may enforce the legislation relevant to the operation of that department. Hence, the Environmental Quality Act (1974) is the responsible of the Ministry of Natural Resources and Environment, the Occupational Safety and Health Act (1994) is by the Ministry of Human Resources whilst the Food Act (1983) is by the Ministry of Health and as for the Customs Act (1967) under the supervision and administration of the Ministry of Finance. Finally, this paper concluded that Malaysia has a sufficient regulatory framework in which may adequately control on PCDDs and PCDFs emission in various life cycles. However, there is no legal provision on the control of exposure toward PCDDs and PCDFs especially for human consumption by setting specific maximum residue level for various groups of food.

Keyword: Dioxins (PCDDs); Fish and shellfish; Furans (PCDFs); Regulations; Safety and environmental management.