

Health risk assessment of adults consuming commercial fish contaminated with formaldehyde.

ABSTRACT

The health benefits of consuming fish as a source of omega-3 fatty acids have been established. It can reduce cholesterol levels and the incidence of stroke and can protect against cardiovascular disease, improve cognitive development in children and slow cognitive decline in the elderly. Formaldehyde was used as antibacterial agent and preservative in food processing such as dried food, fish, certain oil and fats and disinfectants for container. Formaldehyde classified by the International Agency for Research on Cancer (IARC) in the Group 1 as carcinogenic to humans. If the amount of formaldehyde is small, it does not harm health. However, it can cause minor to serious problems such as pain, vomiting, coma and possible death when with large doses of formaldehyde is taken. Survey was conducted for adults, teenagers and children to identify the commercial fish consumption pattern in order to assess the risks of consuming different commercial fish contaminated with formaldehyde. Seven types of commercial fish species based on the survey were analysed. All the samples were purchased in different wet market and analysed under different circumstances; fresh, boiled and fried. Formaldehyde were determined in all fish circumstances analysed. Formaldehyde content was in range 2.38 to 2.95 $\mu\text{g/g}$ for fresh, 2.08 to 2.35 $\mu\text{g/g}$ for boiled and 2.28 to 2.49 $\mu\text{g/g}$ for fried. This study showed that there is formaldehyde content in fish sample analysis. However, formaldehyde content among all fish species and fish circumstances were still lower than amount that set by Malaysian Food Act (1985) and Malaysian Food Regulation (1985) that the maximum limit value for formaldehyde in fish and fish products are 5 mg/kg. The effect of cooking shows a reduction of the formaldehyde content. There is no adverse health effects on human related to the fish consumption contaminated with formaldehyde from the risk assessment calculation. Thus, the fish from wet market can be considered safe for consumption because of low formaldehyde content. Furthermore, some methods have suggested cooking and washing can potentially reduce the formaldehyde content in fish.

Keyword: Risk assessment; Formaldehyde; Fish