

**Mercury speciation in shell fishes from Korea**

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The most important source of human exposure to mercury and its compounds is dietary intake of methylmercury in seafood products. Methylmercury is retained in edible tissue of seafood and present in highest concentrations in predatory species such as shark, swordfish, and tuna. Mercury and methylmercury concentrations were analyzed to evaluate human exposure through the pathway of shellfish consumption in Korea. Direct mercury analyzer was applied in a gold amalgam mode for total mercury quantification. Speciation of mercury compounds was separated and measured by characterization using high performance liquid chromatography (HPLC) in association with inductively coupled plasma mass spectrometry (LC-ICP-MS). Mercury compounds were extracted from the whole body of eleven different shellfishes by adding 50ml aqueous 1% L-cysteine•HCl•H<sub>2</sub>O and heating 120 min at 60 ° C in glass vials. Mercury compounds in extract were separated by a reversed phase C-18 column and aqueous 0.1% w/v L- cysteine•HCl•H<sub>2</sub>O and 0.1% w/v L-cysteine mobile phase at room temperature. The method was validated by analyzing three certified reference materials (DORM-2, TORT-2, 1566b). The concentrations obtained by this method were in agreement with the certified reference values for total and methylmercury. Total mercury concentrations in shellfishes ranged from 0.013 mg/kg dry mass to 0.128 mg/kg dry mass. Unlike methylmercury in finfish, methylmercury in shellfish was not predominant form of mercury. Ratios of methylmercury/ total mercury determined by this method were 22-75%.