Methylmercury in marine fish from Malaysian waters and its relationship to total mercury content.

ABSTRACT

The study evaluated methylmercury concentrations, the methylmercury to total mercury ratio (%MeHg) and their correlations in ten fish species from different trophic levels. Methylmercury levels in fish studied were in the range of 0.007 to 0.914 μg g−1 wet wt. Muscle tissue of predatory fish contained significantly ($p < 0.05$) higher content of methylmercury than non-predatory fish. The methylmercury to total mercury ratio ranged from 49.1% to 87.5%, with the highest ratio in predatory fish. This ratio was always higher in muscle tissue compared to the liver tissues, indicating tissue-specific binding and accumulation of methylmercury in the muscle. All the fish species showed strong positive correlation between methylmercury and total mercury levels ($R 2> 0.86$). Except for long tail tuna and short-bodied mackerel, all fish species showed lower methylmercury levels and estimated weekly intake as compared to the maximum values established by US FDA (of 0.5 μg g−1) and by FAO/WHO (1.5 μg kg−1 bodyweight), respectively. This study showed that the percentage of methylmercury is rather high in fish and fish represents the major source of this toxic mercury form to the local population.

Keyword: Methylmercury; Total mercury; Correlation; Marine fish; Exposure assessment.