[ID-P#107] Levels of Methyl Mercury (MeHg) in Shrimp in Kuwait Market

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Introduction: Methyl Mercury (MeHg) exposure from contaminated seafood can cause adverse health effects including neurotoxicity. Although shrimp typically has low MeHg content, regional variation may exist. We conducted this study to evaluate the MeHg content of shrimp sold in Kuwait.

Methods: Ten shrimp products; five from a local fish market and five from the largest supermarket in Kuwait were sampled. The following data was obtained; country of origin, cooled or frozen, wild- caught or farm-raised. For each product, 6 samples were collected totaling 60 tissue samples. The samples were freeze-dried and assayed using direct mercury analysis method with Freeze Dry (Labconco) Model/Catalog #7755513 (Freezone 18) machine. Our null hypothesis is that shrimp sold in Kuwait have no mercury contamination. A one-sided t-test of the primary hypothesis, sub analyses comparing wild-caught vs farmed, and summary statistics were performed using Stata 18 (College Station, Texas, USA).

Results: Summary statistics demonstrated a mean mercury concentration of 80.6 ng/gm, range 0.16-749.4 ng/g, SD 157. MeHg was detected in all samples. Kuwaiti-origin samples had the highest Hg content. 10% of the samples were >0.23mg/kg and 5% >0.46mg/kg all from the same product.

Discussion: The US FDA recommended mercury level in fish for 1 serving ≤0.23-0.46 (mg/kg), 2 servings ≤0.15-0.2, 3 servings ≤ 0.15. Of the samples tested, ten percent were above these recommended safe levels. Notably, all highest mercury levels were found in Kuwait-origin wild-caught samples that had been cooled rather than frozen. These would typically be considered the freshest and most desired products by Kuwaiti consumers. Farm-raised shrimp had a lower MeHg level than wild-caught.

Conclusion: All shrimp sampled contained mercury and 10% were above the single serving FDA recommended limit. Kuwaiti-origin wild-caught samples had the highest Hg content. Further studies to evaluate the cause and reduce the Hg exposure risk should be undertaken.