Study of Mercury (Hg) Concentration Levels in Commercial Fish: A Quantitative Analysis

Ambroise-Robles , Jean (School: Colegio Rosa-Bell)
Vega- Calderon, Isabel (School: Colegio Rosa-Bell)

Fish is an essential and traditional element in the diet of many people in the Caribbean (Ricketts, 2016). However, some species have high concentration of Mercury (Hg), representing an increased concern about the presence of Mercury in commercial fish (American Heart Association, 2015). Mercury (Hg) exposure represents serious threats to human health (Ha et al., 2016). In accordance with previous studies (Drescher et al., 2014), high concentrations of Mercury (Hg) have been found in the body related to the consumption of contaminated fish. Due the need of exploring and understanding the potential exposure of Hg, this study assessed the Hg concentrations in three of the most consumed fish in Puerto Rico, comparing fresh and frozen commercial samples. The commercial fish used were cod, salmon, and snapper. The technique of cold vapor atomic absorption (EPA7471A method) was used to simulate digestion with 5g of each sample. This study stated that concentration levels of Mercury in commercial frozen fish were going to be greater than fresh commercial fish. After the data analysis, the results unveiled that commercial fresh cod contains the highest concentration of Hg (0.424 mg/kg). This means, 0.224 mg/kg over FDA maximum limits. Which represents, a potential dangerous exposure that can affect the well-being of consumers, since high levels of Hg may cause a wide range of diseases and defects. Further studies are recommended regarding the frequency of cod consumed per region in the island and the levels of Hg present in hair, nails and blood.