Mercury and arsenic content in seafood samples from the jakarta fishing port, indonesia / Tiny Agustini Koesmawati, Zainal Arifin

Tiny Agustini Koesmawati, author

Abstrak

ABSTRACT
Mercury and arsenic are considered to be among the most toxic metals and have been associated with serious adverse health effects. These two trace metals and other contaminants that are found in fish products are therefore of public concern for food safety reasons. Hence, we selected three marine species to study i.e., yellow fin tuna, marlin and green mussels because of their economic values in the international and local markets. The objective of our study was to determine the arsenic and mercury content in these three marine species as a first step in monitoring metal content in seafood products. The tissue samples of tuna and marlin were collected from the Jakarta Fishing Port, while the green mussels was collected from aqua culture sites in Jakarta Bay. The metal content was determined by ICP MS and validated using CRM DORM Z and DORM 3. The speciation of arsenic (organic and inorganic forms) was determined using HPLC ICPMS. All measurements were based on dry weight samples. The result showed that the mercury concentration in yellow fin tuna, marlin and green mussel samples was 0.68 :1: 0.08 mg kg", 0.56 :1: 0.06 mg kg"and 1.51 :t 0.10 mg kg, respectively. The total arsenic concentration in yellow fin tuna, marlin and green mussel samples was 3.47 i 0.21 mg kg, 2.71 i 0.18 mg kg, and 6.77 :t 0.32 mg kg, respectively. The mercury content in the fish tissue was below the maximum allowable concentration (National Standard of Indonesia 1.0 mg kg), except for the green mussels. For total arsenic concentration, all the samples were above the national standard concentration (1.0 mg kg). The organic arsenic species arsentobetaine (AB) found in tuna and marlin fish samples was not toxic. Inorganic and organic arsenic was found in the green mussel samples. Our results suggest that there is a need to establish a national program to regularly monitor the content of selected trace metals in fishery products.