Dietary intake of total mercury through yellowfin tuna and swordfish; a case study; Gampaha District in Sri Lanka, 2016

G.D.T.M. Jayasinghe*, B.K.K.K. Jinadasa and K.P.G.L Sandaruwan

National Aquatic Resources Research & Development Agency (NARA), Crow Island, Colombo 15, Sri Lanka

Total mercury (T-Hg) concentrations in fish from cooking effects were investigated in Gampaha District, Sri Lanka. The two large pelagic fish species which are most commonly consumed, yellowfin tuna (YFT, n=11) and swordfish (SF, n=11) were used in the present study. This study was done based on the "Total Diet Study (TDS) approach" introduced by the World Health Organization (WHO). The cooking techniques were comprised with utensils (aluminium and clay pots, 2:9), energy source (gas and firewood, 5:6) and cooking methods (chili curry, milk curry and ambulthial, 3:6:2). Total mercury concentration was determined before and after cooking by using microwave digestion and cold vapour atomic absorption spectroscopy (CV-AAS). The average T-Hg concentrations of flesh YFT and SF before cooking were 0.41and 0.86 mg/kg and 0.27 and 0.76 mg/kg after cooking. Data was analyzed by using Microsoft excel and SPSS software. The concentrations of T-Hg were not significantly different in the flesh fish before and after cooking. The data obtained from the TDS surveys, the average consumption of these fishes were 301 g per week. The provisional tolerable weekly intake (PTWI) suggested by the World Health Organization for total mercury (4 µg/kg bw per week) was calculated the average body weight person (50 kg). The percentage contribution of PTWI for T-Hg from YFT and SF were 41 and 114 respectively. Hence, consume the SF, might put consumers at potential risk of Hg poisoning.

Keywords: provisional tolerable weekly intake, total diet study, total mercury

*Corresponding author – email :thilini.madurangika123@gmail.com