

Levels of Selected Heavy Metals in Varieties of Vegetable oils Consumed in Kingdom of Saudi Arabia and Health Risk Assessment of Local Population

Authors : Muhammad Waqar Ashraf

Abstract : Selected heavy metals, namely Cu, Zn, Fe, Mn, Cd, Pb, and As, in seven popular varieties of edible vegetable oils collected from Saudi Arabia, were determined by graphite furnace atomic absorption spectrometry (GF-AAS) using microwave digestion. The accuracy of procedure was confirmed by certified reference materials (NIST 1577b). The concentrations for copper, zinc, iron, manganese, lead and arsenic were observed in the range of 0.035 - 0.286, 0.955 - 3.10, 17.3 - 57.8, 0.178 - 0.586, 0.011 - 0.017 and 0.011 - 0.018 µg/g, respectively. Cadmium was found to be in the range of 2.36 - 6.34 ng/g. The results are compared internationally and with standards laid down by world health agencies. A risk assessment study has been carried out to assess exposure to these metals via consumption of vegetable oils. A comparison has been made with safety intake levels for these heavy metals recommended by Institute of Medicine of the National Academies (IOM), US Environmental Protection Agency (US EPA) and Joint FAO/WHO Expert Committee on Food Additives (JECFA). The results indicated that the dietary intakes of the selected heavy metals from daily consumption of 25 g of edible vegetable oils for a 70 kg individual should pose no significant health risk to local population.

Keywords : vegetable oils, heavy metals, contamination, health risk assessment

Conference Title : ICNNS 2014 : International Conference on Nutritional and Nutraceutical Sciences

Conference Location : Singapore, Singapore

Conference Dates : March 30-31, 2014