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Determination of heavy metals in some imported and locally produced edible oils marketed in Addis Ababa, Ethiopia

Yemataw Addis Alemu
Hawassa University, Ethiopia

The concentrations of heavy metals (Cd, Cr, Cu, Mn, Ni, Pb and Zn) in edible oil samples collected from different retailers in Addis Ababa, Ethiopia were determined by flame atomic absorption spectrophotometer after wet digestion using a mixture of 69% HNO₃ and 30% H₂O₂ (2:1 v/v). The contents of the analyzed heavy metals ranged from ND-0.063 (Cd), ND-0.207 (Cr), 0.182–1.01 (Cu), 0.652–2.022 (Mn), ND-0.296 (Ni), ND-0.303 (Pb) and ND-15.20 (Zn) µg/g. Mn and Cu were found in all edible oil samples. Zn was also detected in all samples except in Orkide. Four metals (Cd, Pb, Ni & Cr) were found below the method detection limit in the majority of the samples except for Cd in Viking; Pb in Pflanzenol and Hayat; Ni in Viking and Orkide; and Cr in Viking and Orkide. The detected heavy metal contents of edible oils were found above the allowable limits set by different organizations except for Zn in some samples (Chief, Oki, Fortune, Hatun, Hayat, Pflanzenol and Viking). The levels of the majority of detected metals in the present study were found to be higher than the other literature values in many of the samples. However, due to the much lower estimated daily intake as compared to the TDI, consumption of these edible oils could not be a significant source of toxicity because of the assessed metals

Biography

Yemataw Addis Alemu has done his BSc degree in Applied Chemistry and MSc degree in Pharmaceutical Chemistry in 2006 and 2011, respectively. He has worked in Hawassa University, Ethiopia as Academic Staff in Chemistry department from 2006-2015. Currently, he is a second year Erasmus Mundus student of Chemical Innovation and Regulation by four European universities (University of Algarve, Portugal; University of Barcelona, Spain; University of Bologna, Italy and University of Heriot Watt, UK). He has teaching and research experiences.

yematawaddis@yahoo.com

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