

Abstract

In this study, a food survey was carried out with two purposes: (1) to investigate the levels of nickel (Ni), zinc (Zn), and copper (Cu) in various vegetables randomly collected in supermarkets of La Rochelle and (2) to assess the potential health risk for consumers by estimating the daily intake (EDI) and the target hazard quotient (THQ) for each heavy metal. The concentrations of Ni, Cu, and Zn in selected foodstuffs were detected within the following ranges: (3.2-9.6), (25.2-104.7), and (10.8-75.6) mg/kg (DW), respectively. Results showed that metals are more likely to accumulate in fruit vegetables (8.8, 63.8 and 47.8 mg/kg DW for Ni, Cu, and Zn, respectively), followed by leafy vegetables (6.5, 60.9 and 42.6 mg/kg DW for Ni, Cu, and Zn, respectively) and finally root vegetables (5.4, 40.0 and 27.3 mg/kg DW for Ni, Cu, and Zn, respectively). The levels of the metals match with those reported for similar vegetables from some other parts of the world. For all foodstuffs, EDI and THQ were below the threshold values for Cu (EDI 11.30; THQ 0.283) and Zn (EDI 6.86; THQ 0.023), while they exceeded the thresholds for Ni (EDI 20.71; THQ 1.035), indicating an obvious health risk over a life time of exposure.