**Risk assessment of heavy metals (Chromium, Nickel, Lead, Copper and Iron) in fast foods consumed in Isfahan, Iran**

1

Roya Alsadat Madani, 2\*Shabnam Kermani, 3Masoud Sami, 3Zahra Esfandiari, 2Ebrahim Karamian

**Orcid code:** 0000-0003-3186-1068, 0000-0001-6306-3488, 0000-0001-9265-579X, 0000-0003- 2399-2762 and 0000-0001-5929-7839

1 Ph.D. Student, Department of Food Science and Technology, Najafabad Branch, Islamic Azad University, Najafabad, Iran

2 Department of Food Science and Technology, Najafabad Branch, Islamic Azad University, Najafabad, Iran

3 Department of Food Science and Technology, School of Nutrition and Food Science and Food Security Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

 **\*** Corresponding author: Tel: +989131284600 E-mail: sh\_kermany@yahoo.com

**Abstract**

The hazards of heavy metals in fast foods have been evaluated in this study. For this purpose, the carcinogenic and the non-carcinogenic hazards of chromium, nickel, lead, copper, and iron concentrations were measured in 40 fast food samples purchased in 2018 from the restaurants in two districts of Isfahan, Iran.The results indicated that in all the tested samples, only the average concentrations of copper are within the permissible limits. For the two groups of children and adults, the highest target hazard quotients for lead were 33.84 and 98.72%, respectively. The cumulative hazard index for all the considered metals in both groups was greater than 1. Of all the heavy metals analyzed in the examined food samples, only chromium (in both age groups) and nickel (in children only) showed an incremental lifetime cancer risk. The concentrations of chromium, nickel, lead, and iron in Mushroom burger, Fried mushrooms, Hamburger with mushroom, and Vegetables pizza were higher than those in other fast foods respectively. Thus, it can be concluded that the mentioned foods are the major sources of heavy metal ingested by human and that their consumption should be closely monitored and managed by the authorities and supervising organizations.

**Keywords**: Heavy Metals. Fast Foods. Risk Assessment. Public Health. Iran