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Correction

Correction: Mukherjee et al. Heavy Metal and Metalloid Contamination in Food and Emerging Technologies for Its Detection. *Sustainability* 2023, *15*, 1195

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The authors would like to make the following corrections to the published paper [1]. The changes are as follows:

(1) At the end of the first paragraph in "Section 2.2. Lead (Pb) Toxicity", an extra reference needs to be added. The reference number [26] should be changed to [26,27].

(2) Replacing the second paragraph in "Section 2.4. Tin (Sn) Toxicity" on page 6:

"It has been calculated, however, that a Western adult could consume an additional 109.1 mg of Sn per day, with the vast majority of this amount coming from fruits (fruits contain 500 mg/kg of Sn, while meat contains 2 mg/kg, potatoes contain 22 mg/kg, spinach contains 2 mg/kg, and cereals contain 47 mg/kg) [55]".

with

"It has been calculated, however, that a Western adult could consume an additional 109.1 µg of Sn per day, with the vast majority of this amount coming from fruits (fruits contain 500 µg/kg of Sn, while meat contains 2 µg/kg, potatoes contain 22 µg/kg, spinach contains 2 µg/kg, and cereals contain 47 µg/kg) [49,55]".

(3) At the end of the second paragraph in "Section 2.4. Tin (Sn) Toxicity", an extra reference needs to be added. The reference number [55] should be changed to [49,55].

(4) In Section 2.4, the lines "Maximum allowable levels of Sn in food are usually 250 mg/kg (200 mg/kg in the UK) for solid foods and 150 mg/kg (2.5 mmol/L) for liquids, with a PTWI of 14 mg/kg body weight" have a typo error. They should be replaced with

"Maximum allowable levels of Sn in food are usually 250 mg/kg (200 mg/kg in the UK) for solid foods and 150 mg/kg for beverages, with a PTWI of 14 mg/kg body weight".

In similar fashion, the data in Table 1 in the section Tin (Sn) should be modified with similar data, so we need to replace the original Table 1 and we added the word "problems" after "Parkinson's disease, with tremors and facial muscle" in Table 1.

Table 1. The role of heavy metals, the sources of heavy metals, recommended usage of heavy metals, and their side effects.

Metal	Sources	Recommendation of Intake	Side Effects	Reference
Cadmium (Cd)	staple food, rice, and several specific foods, such as animal kidneys, blood cockle, and local vegetables	The European Food Safety Authority's (EFSA) panel on contaminants in the food chain recommended in 2009 that the PTWI be lowered to the tolerable weekly intake (TWI) level of 2.5 μg/kg body weight.	Kidney disease, osteoporosis, diabetes, cardiovascular disease, and cancer	[21]
Lead (Pb)	wind, consumption of Pb-contaminated soils, oral intake of Pb-contaminated water, and consumption of food cultivated in Pb-contaminated areas	The WHO and the FAO have approved daily Pb intakes of up to 7 μg/kg body weight or 490 μg of Pb for adults.	liver, kidneys, and bone tissue	[32,33]
Mercury (Hg)	ingestion of fish, whale sharks, sailfish, marlin, other billfish, and mercury amalgams	-	impaired motor skills, fatigue, anxiety, skin rashes, memory loss, difficulty hearing, difficulty speaking, difficulty seeing, Minamata disease, and acrodynia	[42,43]
Tin (Sn)	Cans for drinks are commonly made from tinplate. Over fifteen billion internally lacquered tinplate beverage cansare made and used annually in Europe	Maximum allowable levels of tin in food are usually 250 mg/kg (200 mg/kg in the UK) for solid foods and 150 mg/kg (2.5 mmol/L) for liquids, with a with a provisional tolerable weekly tn intake of 14 mg/kg body weight	unfavourable gastrointestinal effects	[47–50]
Manganese (Mn)	foods, with some vegansconsuming > 10 mg daily	Recommended intake of Mn is 1.8 (women) or 2.3 (men) mg/d, while the upper limit is 11 mg/d, according to the National Academy of Sciences.	Parkinson's disease, with tremors and facial muscle	[64]
Aluminum (Al)	Corn, yellow cheese, salt, herbs, spices, tea, and tap water	Al intake should be kept below 1 milligram per kilogram of body weight per week, as determined by the European Food Safety Authority. Food Additives reported in 1989 that the average daily intake of aluminium for children is 2–6 mg/kg, and for adults, 6–14 mg/kg. Al has a PTWI value of 7 mg/kg.	pathogenesis of Alzheimer's disease, impaired skeletal system, reduced collagen synthesis, slowed down mineralization, weakening resistance, and a propensity toward breaking	[77]
Chromium (Cr)	canned and other processed foods, brown sugar, and molasses	Dietary intake above 25 μg (0.5 μmol)/d for adults and between 0.1 and 1.0 μg/kg/d (2 and 19 nmol/k/d) for children and adolescents are considered safe and appropriate. However, the Panel has not established any reference nutrient intakes (RNI) for Cr compounds.	carcinogenic, corrosive, and delayed contact sensitizers	[98,99]

Table 1. *Cont.*

Metal	Sources	Recommendation of Intake	Side Effects	Reference
Iron (Fe)	lowland rice	To prevent this common iron toxicity endpoint, a safe upper threshold of 25–50 mg Fe/day can be calculated by applying a safety factor of 2.	stomach upset, primary and secondary hemochromatosis, hepatic fibrosis, diabetes, and heart failure	[104]
Nickel (Ni)	marine fish and plants watered with untreated sewage	Consumption of 325 mg causes vomiting, dizziness, and a slowing of heart rate.	respiratory and digestive damage, cerebral edema, or diffuse interstitial pneumonitis	[107–109]

with

Table 1. The role of heavy metals, the sources of heavy metals, recommended usage of heavy metals, and their side effects.

Metal	Sources	Recommendation of Intake	Side Effects	Reference
Cadmium (Cd)	staple food, rice, and several specific foods, such as animal kidneys, blood cockle, and local vegetables	The European Food Safety Authority's (EFSA) panel on contaminants in the food chain recommended in 2009 that the PTWI be lowered to the tolerable weekly intake (TWI) level of 2.5 μg/kg body weight.	Kidney disease, osteoporosis, diabetes, cardiovascular disease, and cancer	[21]
Lead (Pb)	wind, consumption of Pb-contaminated soils, oral intake of Pb-contaminated water, and consumption of food cultivated in Pb-contaminated areas	The WHO and the FAO have approved daily Pb intakes of up to 7 μg/kg body weight or 490 μg of Pb for adults.	liver, kidneys, and bone tissue	[32,33]
Mercury (Hg)	ingestion of fish, whale sharks, sailfish, marlin, other billfish, and mercury amalgams	-	impaired motor skills, fatigue, anxiety, skin rashes, memory loss, difficulty hearing, difficulty speaking, difficulty seeing, Minamata disease, and acrodynia	[42,43]
Tin (Sn)	Cans for drinks are commonly made from tinplate. Over fifteen billion internally lacquered tinplate beverage cans are made and used annually in Europe	Maximum allowable levels of Sn in food are usually 250 mg/kg (200 mg/kg in the UK) for solid foods and 150 mg/kg (2.5 mmol/L) for beverages, with a PTWI of 14 mg/kg body weight.	unfavorable gastrointestinal effects	[47–50]
Manganese (Mn)	foods, with some vegans consuming > 10 mg daily	Recommended intake of Mn is 1.8 (women) or 2.3 (men) mg/d, while the upper limit is 11 mg/d, according to the National Academy of Sciences.	Parkinson's disease, with tremors and facial muscle problems	[64]
Aluminum (Al)	Corn, yellow cheese, salt, herbs, spices, tea, and tap water	Al intake should be kept below 1 milligram per kilogram of body weight per week, as determined by the European Food Safety Authority. Food Additives reported in 1989 that the average daily intake of aluminum for children is 2–6 mg/kg, and for adults, 6–14 mg/kg. Al has a PTWI value of 7 mg/kg.	pathogenesis of Alzheimer's disease, impaired skeletal system, reduced collagen synthesis, slowed-down mineralization, weakening resistance, and a propensity toward breaking	[77]

Table 1. *Cont.*

Metal	Sources	Recommendation of Intake	Side Effects	Reference
Chromium (Cr)	canned and other processed foods, brown sugar, and molasses	Dietary intake above 25 µg (0.5 µmol)/d for adults and between 0.1 and 1.0 µg/kg/d (2 and 19 nmol/k/d) for children and adolescents is considered safe and appropriate. However, the panel has not established any reference nutrient intakes (RNI) for Cr compounds.	carcinogenic, corrosive, and delayed contact sensitizers	[98,99]
Iron (Fe)	lowland rice	To prevent this common iron toxicity endpoint, a safe upper threshold of 25–50 mg Fe/day can be calculated by applying a safety factor of 2.	stomach upset, primary and secondary hemochromatosis, hepatic fibrosis, diabetes, and heart failure	[104]
Nickel (Ni)	marine fish and plants watered with untreated sewage	Consumption of 325 mg causes vomiting, dizziness, and a slowing of heart rate.	respiratory and digestive damage, cerebral edema, or diffuse interstitial pneumonitis	[107–109]

(5) In Section 4.2, reference number [148] is mistakenly cited and should be replaced with the following references: [144,145].

(6) In Section 4.4, reference [164] should be cited at the end of line "However, the complex matrix with high salt concentration makes it challenging to examine their As content."

(7) At the end of Section 3.3, reference number [131] should be changed to [127,131].

(8) In Section 4.1, in the second paragraph, there is a typo error in the statement. The sentence "Pb concentrations of 0.040–0.25 mg/kg had a repeatability relative standard deviation of 20–50%, Cd concentrations of 0.001–0.51 mg/kg had a range of 12–352%, Zn concentrations were 0.7–8.0%, Cu concentrations were 0.5–45%, and Fe concentrations were 11–14% [133]." should be replaced with

"Pb concentrations of 0.040–0.25 mg/kg had a repeatability relative standard deviation of 20–50%, and Cd concentrations of 0.001–0.51 mg/kg had a range of 12–352%. Ranges were from 4 to 8% for zinc concentrations of 0.7–38 mg/kg, from 7 to 45% for Cu concentrations of 0.51–45 mg/kg, and from 11 to 14% for Fe concentrations of 4–216 mg/kg [133]."

(9) Accordingly, the reference numbers in the reference list should also be updated. We have renumbered the references starting with [27–31,148–270].

Reference

1. Mukherjee, A.G.; Renu, K.; Gopalakrishnan, A.V.; Veeraraghavan, V.P.; Vinayagam, S.; Paz-Montelongo, S.; Dey, A.; Vellingiri, B.; George, A.; Madhyastha, H.; et al. Heavy Metal and Metalloid Contamination in Food and Emerging Technologies for Its Detection. *Sustainability* **2023**, *15*, 1195. [CrossRef]

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