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# Dietary Exposure of Heavy Metals through Cereals Commonly Consumed by Dhaka City Residents

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**Abstract :** Contamination of soil and agricultural products by heavy metals resulting from rapid industrial development has caused major concern. Dietary exposure to heavy metals has been associated with toxic and adverse health effects. The main threats to human health from heavy metals are associated with exposure to Pb, Cd and Hg. The aim of this study was to monitor the presence of heavy metals in cereals collected from different wholesale markets of Dhaka City. One hundred and sixty cereal samples were collected and analyzed for determination of heavy metals. Heavy metals were analyzed by inductively coupled plasma mass spectrometry (ICP-MS). A total of six heavy metals– lead, chromium, cadmium, mercury, arsenic and antimony were estimated. The average concentrations of heavy metals in cereals fall within the safe limit established by regulatory organizations except for Pb (152.4 µg/100g) and Hg (15.13 µg/100g) which exceeded the safe limits. BARI gom-26 was the highest source of Pb (304.1 µg/100g) whereas Haski-29 rice variety contained the highest amount of Hg (60.85 µg/100g). Though all the cereal varieties contained approximately same amount of Cr the naizer sail varieties contained huge amount of Cr (171.8 µg/100g). Among all the cereal samples miniket rice varieties contained the least amount of heavy metals. The concentration of Cr (63.24 µg/100g), Cd (5.54 µg/100g) and As (3.26 µg/100g) in all cereals were below the safe limits. The daily intake of heavy metals was determined using the total weight of cereals consumed each day multiplied by the concentrations of heavy metals in cereals. The daily intake was compared with provisional maximum tolerable daily intake set by different regulatory organizations. The daily intake of Cd (23.0 µg), Hg (63.0 µg) and as (13.6 µg) through cereals were below the risk level except for Pb (634.0 µg) and Cr (263.1 µg). As the main meal of average Bangladeshi people is boiled rice served with some sorts of vegetables, our findings indicate that the residents of Dhaka City are at risk from Pb and Cr contamination. Potential health risks from exposure to heavy metals in self-planted cereals need more attention.

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