

Abstract

The Research was conducted to detect the concentration of selected heavy metals (Zinc, Lead, Cadmium, Chromium, Nickel, Iron, Manganese, Copper, Gold, and Silver) in human biological samples (Blood, Hair and Nails) and their relation to Multani mitti consumption. Geophagy (Practice of earth or clay eating) is very common in central Pakistan, especially amongst women and child. A comprehensive analysis was made on the samples (n=60) of Multani mitti consumers (MMC) to analyzed the bio-accumulation of heavy metals in the human body by using blood (n=20), hair (n=20) and nails (n=20) as a biological marker. The biological samples were collected from three sites; Jalalpur Pirwala, Khan Bella, Laar Janoobi in Multan, Pakistan. The samples were collected from MMC to quantitatively determine the presence of heavy metals by using Flame Atomic Absorption Spectrometry (Shimadzu AA-700F). Mean concentration level of heavy metals in the samples of MMC was determined. The concentration of eight heavy metals was analyzed below the detection limit except for Zn and Fe. Mean value of zinc and iron heavy metals calculated from the samples of MMC was significantly lower than permissible level indicating that Multani mitti contributes to heavy metals deficiency and cause of many diseases in the human body. The concentration of these two detected heavy metals were significantly lower than the permissible level recommended by the Pakistan Environmental Protection Agency and World Health Organization. This study recognized the factors which were responsible for deficient the trace metals in MMC, existing challenges and requirements to maintain the permissible level of trace metals. Thus, there is an emerging requirement to raise the alarming situation about the participation of trace metals in serious health issues. Conclusively, the government will have to take action against the Multani mitti sellers to omit the demon of grave ruthlessness.