

ASSESSMENT OF HEAVY METALS CONTAMINATION IN INDOOR AIRBORNE DUST WITHIN SOKOTO METROPOLIS

Musa Y. F and Ali B. J.

Department of Geography, Usmanu Danfodiyo University, Sokoto

Corresponding Author's email: musa.yakubu@udusok.edu.ng



Abstract

Indoor airborne dust pollution is a growing environmental and public health concern due to its potential to expose occupants to harmful heavy metals. This paper assesses the concentration of lead (Pb), cadmium (Cd), and chromium (Cr) in indoor airborne dust samples collected from various locations in Sokoto Metropolis, Nigeria. A total of 21 samples were analyzed using Atomic Absorption Spectroscopy (AAS), and the results were compared to permissible limits set by the World Health Organization (WHO). The findings indicate that Pb concentrations were elevated across all study sites, with three locations exceeding 1 ppm, raising serious health concerns. Cadmium concentrations were found to be within permissible limits in some areas, while Cr levels were consistently low throughout the sample locations. The study attributes these variations to anthropogenic activities, including vehicular emissions, industrial discharges, and household sources such as paints, cosmetics, and fossil fuel combustion. The presence of heavy metals in indoor dust poses potential health risks, particularly to children, the elderly, and individuals with respiratory conditions. The paper highlights the need for enhanced indoor air quality management, stricter regulatory policies on industrial emissions, and public awareness campaigns to mitigate exposure.

Keywords: Indoor airborne dust, heavy metal pollution, lead, cadmium, chromium, environmental health.