

# Preliminary studies on trace element contamination in dumping sites of municipal wastes in Indian and Vietnam

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**Abstract:** The disposal of wastes in dumping sites has increasingly caused concern about adverse health effects on the populations living nearby. However, no investigation has been conducted yet on contamination in dumping sites of municipal wastes in Asian developing countries. In this study, concentrations of 11 trace elements (V, Cr, Mn, Co, Cu, Zn, Mo, Ag, Cd, Sb and Pb) were determined in scalp hair from the population living nearby and in soil from dumping sites and control sites of India and Vietnam. Soil samples in dumping site in India showed significantly higher concentrations of some trace elements than soils in control site, whereas this trend was not notable in Vietnam. This is probably due to the fact that the wastes were covered with the soil in the dumping site of Vietnam. Cadmium concentrations in some hair samples of people living near dumping site in India and Vietnam exceeded the level associated with learning disorder in children. Levels of most of the trace elements in hair were significantly higher in dumping site than those in control site in India and Vietnam, suggesting direct or indirect exposure to those elements from dumping wastes. To our knowledge, this is the first study of trace element contamination in dumping sites in India and Vietnam.

**Index Keywords:** Contamination; Soils; Toxic materials; Waste disposal; Dumping sites; Municipal wastes; Scalp hair; Heavy metals

Year: 2003

Source title: Journal De Physique. IV : JP

Volume: 107

Issue: I

Page : 21-24

Cited by: 9

Link: [Scopus Link](#)

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Editors: Boutron C.Ferrari C.

Conference name: XII International Conference on Heavy Metals in the Environment

Conference date: 26 May 2003 through 30 May 2003

Conference location: Grenoble

Conference code: 61098

ISSN: 11554339

CODEN: JPICE

Language of Original Document: English

Abbreviated Source Title: Journal De Physique. IV : JP

Document Type: Conference Paper

Source: Scopus

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