Authors:	Jha, Amrit Kumar (/browse?type=author&value=Jha%2C+Amrit+Kumar)
Advisor:	Sarkar, A. K. (/browse?type=author&value=Sarkar%2C+A.+K.)
Title:	TRACE METAL ACCUMULATION BY DIFFERENT PLANTS GROWN IN INDUSTRIAL AREA OF JHARKHAND: EFFECT OF AMENDMENTS AND BIOINOCULANTS
Publisher:	Birsa Agricultural University, Kanke, Ranchi, Jharkhand
Language:	en_US
Type:	Thesis
Pages:	117
Agrotags:	null
Keywords:	TRACE METAL ACCUMULATION BY DIFFERENT PLANTS GROWN IN INDUSTRIAL AREA OF JHARKHAND: EFFECT OF AMENDMENTS AND BIOINOCULANTS

Abstract:	Accumulation of trace metals and their bio-availability in soils is likely to have for reacting consequences on soil health as well as growth, yield and quality of crops. To assess the extent of trace metal contamination, soil and plant samples were collected from farmers fields around Patratu Thermal Power Station, Patratu, Kathara and Gobindpur Project CCL, Bokaro and waste disposal site, Jamshedpur. Analysis of soil pH, electrical conductivity and organic carbon content revealed that soils collected from Patratu were moderately acidic in soil reaction. Soil reaction in case of Bokaro and Jamshedpur ranged from acidic to neutral or alkaline. The electrical conductivity was within the safe limit, while the organic carbon content was medium to high. The soils were low in available N and P, while low to medium in available K status. Available micronutrients were above the critical value. DTPA-Cd was detected in 50 per cent soil samples of Patratu, 45 per cent of Bokaro and 80 per cent of Jamshedpur. All soil samples from Patratu and nearly 50 per cent samples of Bokaro and Jamshedpur contained high DTPA extractable Pb, Ni and Co. The mean value of total Cd, Pb, Ni and Co in soils were 7.76, 40.41, 238.95 and 109.27 mg kg-1 in Patratu, 8.70, 158.60, 242.45 and 218.40 mg kg-1 in soils of Bokaro and 17.50, 126.40, 143.05 and 333.10 mg kg-1 in soils of Jamshedpur. Increasing trend in soil pH with depth was observed while EC, OC, available N, P, K, micronutrients, Pb and Ni decreased with depth in each pedon. High Cd content in subsurface horizon compared to surface horizon was noticed in all pedons. Total trace metal content in soil profile collected from Patratu, Bokaro and Jamshedpur indicated that surface horizon contained comparatively high Zn and Cu, however, no definite trend for Mn and Fe was noticed. Higher Cd and Ni were recorded in soils of Jamshedpur while higher Pb and Co in soils were detected in Patratu. The plant samples collected from farmers field of Patratu had Cd ranging from traces to 34.50 mg kg-1 (guava leaves), Pb from traces to 11.45 mg kg-1 (palash leaves), Ni from 4.20 (maize and akwan leaves) to 36.00 mg kg-1 (palash leaves) and Co from traces to 39.85 mg kg-1 (palash leaves). Vegetable crops contained higher amount of trace metals particularly Cd, Pb, Ni and Co, which were nearer or above the tolerance level. Cadmium content of 75 per cent plant samples, Pb content of 58 per cent samples and Co content of all samples found to be above the MTL (Cd – 3, Pb – 10, Ni – 50 and Co – 5 mg kg-1).
Description:	TRACE METAL ACCUMULATION BY DIFFERENT PLANTS GROWN IN INDUSTRIAL AREA OF JHARKHAND: EFFECT OF AMENDMENTS AND BIOINOCULANTS
Subject:	Soil Science and Agriculture Chemistry
Theme:	TRACE METAL ACCUMULATION BY DIFFERENT PLANTS GROWN IN INDUSTRIAL AREA OF JHARKHAND: EFFECT OF AMENDMENTS AND BIOINOCULANTS
These Type:	Ph.D
Issue Date:	2011
Appears in Collections:	Thesis (/handle/1/93550)

Files in This Item:

File	Description	Size	Format

1347 Dr Amrit Kumar Jha.pdf	5.73 MB	Adobe PDF

View/Open (/displaybitstream?handle=1/5810024578)

Show full item record (/handle/1/5810024578?mode=full)

(/handle/1/5810024578/statistics)