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Abstract:	Dumka is one of the oldest districts of Jharkhand state under Santhal Parganas. This homeland of tribals is full of stunning landscapes, majestic mountains, verdant valleys and serpentine rivers. The district of Dumka enjoys the status of sub-capital of Jharkhand since 2000. It is located at the Central and Northeastern plateau zone of Jharkhand. It is bounded by Godda and Banka district in the north, Pakur in the east, West Bengal in the south and Jamtara and Deoghar in the west. To study the impact of micro and secondary nutrients in soil, water, plant and human continuum, 251 soil, 22 water and 50 plant samples were collected in and around Dumka district at Latitude (2403.0'-24035.9' N) and Longitude (8701.0'-87°31.9' E) and Altitude 74–211 (Meter). About 25.5% of total soil samples were found strongly acidic having pH <5.0, 33.5% in the range of 5.0-5.5 and remaining 41% were having pH 5.5- 6.0. Overall 58.97% soil showed <5.5 pH. Organic carbon status was medium (5.0 – 7.5 g kg-1) in 35% soil samples. Cationic micronutrients Fe, Mn, Cu and Zn were found above their critical limits 4.5, 2.0, 0.2 and 0.5 mg kg-1 respectively. Zn deficiency started to emerge especially in low land paddy soils of the district. Boron and Sulphur availability in soil found to be lesser than their critical limits <0.5 mg kg-1 and <10mg kg- 1 respectively in 64.54% of soil samples. 63.35, 19.92 and 16.73 per cmol(p+) kg-1 came in the Ca rating <2.0, 2.0-3.0 and >3.0 cmol(p+) kg-1 respectively, where as Mg availability was >0.2 cmol(p+) kg-1 in 83.67 per cent soil samples. Among all the sources of water, canal water has pH 7.38, river- pH 7.70 and dam water- pH 7.15. Electrical conductivity (EC) were varied from 0.340 (Bore well) to 1.090 (Well) dS m-1 while variation in mean value of EC in water samples of different sources did not show much variation among each others. Similar to pH, EC value found to be higher in canal, river and dam water than that of other sources of irrigation in the district. Zn, Cu, Fe, Mn and B content in water samples were found in the range of 0.051-0.105, 0.012-0.023, 0.013-4.850, 0.051-0.340 and 0.006-0.550 mg L-1 with their mean values 0.03, 0.051, 1.05, 0.08, and 0.15 mg L-1 respectively. Mean value of Pb, Ni, and Co content in water were found 0.36, 0.33 and 0.09 mg L-1 respectively with the narrow variation of its content in different water resources of the district. Highest mean S content 0.74 mg L-1 was found in well water followed by canal (0.57 mg L-1) and dam (0.33 mg L-1). Lower S content 0.17 mg L-1 was observed in river water. On the other hand Ca content in different sources of water ranged from 1.930 to 14.925 mg L-1. Pond water has maximum Ca content (10.55 mg L-1) followed by river (7.52 mg L-1) and well (7.00 mg L-1). Variation of Mg content in water samples was comparatively in narrow range 1.188 to 3.500 mg L-1 as compared to Ca content in water. Among the different sources of irrigation water in Dumka district, well water showed higher Mg (2.55 mgL-1) content, while 1.65 mg L-1 Mg content was found in river water. Trace metal content in irrigation water and its comparative study with the recommended concentration for its suitability of irrigation purpose (Siddiqui, 1995), it can be observed that except Ni and Co concentration (found slightly in higher range) all the tested trace metals in water were found below the permissible limit. On the basis of analyzed data trace metal content in edible part of vegetables that grown in farmers' field, if farmers use 200g fresh vegetables per day in their diet, even then it does not fullfil the recommended nutrition. A wide gap in recommended and available amount of supplements Zn, Cu, Mn, Fe was found in plant samples.
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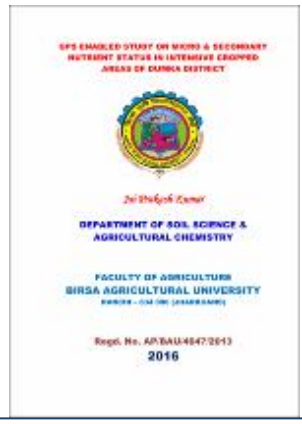
1567 Jai Prakash Kumar.pdf		4.72 MB	Adobe PDF	

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