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Title: GPS ENABLED STUDY ON MICRO AND SECONDARY NUTRIENT STATUS IN INTENSIVELY VEGETABLES GROWING AREAS OF RANCHI DISTRICT

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**Abstract:** To study the impact of micro and secondary nutrients in soil, water, plant and human continuum, 116 soil, 29 water and 63 plant samples were collected from Kanke, Burmu Ratu, Mander, Ormanji, Angara, Piska Nagri and Tamar blocks of Ranchi district. [Lat. N 23o01.838' – N 23o32.529', Long . E 85o05.580' – E 85o43.155', Alt. 231 – 716 (Meter)]. Soil of Ranchi district was acidic in nature and found 78% soil < 5.5 pH. Organic carbon status (5.0-7.5 g kg-1) were found medium in 52% soil samples. DTPA extractable Fe, Cu and Mn were observed more than its critical limit 4.5. 0.2, 2.0 mg kg-1 respectively in 100% soil samples, while Zn availability was found 1.72% < 0.5 mg kg-1, 35% in between 0.5 to 1.0 mg kg-1 and 65% > 1.0 mg kg-1. It was found that 78% soil samples of study area were found low in 0.1 M salicylic acid extractable Boron. Among all three secondary nutrients (Ca, Mg and S), Sulphur status in soil is at alarming stage with 77.59% soil under low (<10.0 mg kg-1) category, where as 22.41% soil in medium category (10.0-20.0 mg kg-1). Calcium and magnesium status was also found in low to medium status. Lead (Pb), Nickel (Ni) and Cobalt (Co) content in soil of Ranchi district were found 1.52, 2.22 and 1.46 mg kg-1 (mean value) respectively. Borewell water observed low in pH (5.95) as well as low in EC (0.365 dS m-1). Mean Iron (Fe) content in river water was found higher 0.225 mg L-1 than that of Mn (0.061 mg L-1), Cu (0.095 mg L-1) and Zn (0.046 mg L-1), while B content was found 0.323 mg L-1 and is safe for irrigation purpose (<1.0 mg L-1). Calcium (6.40 mg L-1) and Magnesium (2.20 mg L-1) content in well water were found higher than others sources of water. Calculated Mg ratio Ca also found <1.0 in all water resources indicates its suitability for irrigation. As per maximum recommended concentration of Zn, Cu, Fe, Mn, and Pb in irrigation water found suitable for irrigation purpose (Siddiqui, 1995). Nickel and Cobalt content in water were found slightly in higher range to its permissible limits. Interestingly among analyzed edible part of plants S, Ca, Mg, B, Zn, Cu, Fe, Mn, Pb, Ni and Co content were found maximum in mustard (Brassica juncea) than other crops. As per maximum permissible concentration of heavy metals in different food material given by (Sastry, 2000), most of the analyzed heavy metal were found below the permissible limit in edible part of crops. On the basis of Fe, Zn, Cu and Mn analysis mean value in edible part of vegetables and spices, It was calculated that if farmers of study areas intake 200 g fresh mixed vegetable and spices in their diet per day, that not fulfill the requirement as per prescribed for a healthy human.

**Description:** GPS ENABLED STUDY ON MICRO AND SECONDARY NUTRIENT STATUS IN INTENSIVELY VEGETABLES GROWING AREAS OF RANCHI DISTRICT

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