Studies on soil separates of district Unnao (Uttar Pradesh) and status of certain micro nutrients

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ABSTRACT

Five soil association of Unnao viz., clay loam, clay loam (Halomorphic), sandy clay loam, sandy loam and sandy loam (Calcimorphic) showed the texture of silt + clay with a range of 43.20 to 48.80, 51.10 to 56.25, 55.29 to 61.78, 40.30 to 46.27 and 40.57 to 45.95 per cent, respectively. Available zinc in Unnao soils varied from 0.20 to 2.0 ppm with a mean of 0.92 ppm. It was maximum in clay loam (Halomorphic). The iron status ranged from 4.00 to 20.19 with a mean of 10.84 ppm. Its highest availability was under clay loam (12.07 ppm) and lowest being in sandy clay loam (9.16 ppm). Available copper and manganese varied from 0.15 to 8.20 and 1.50 to 14.20 ppm with the mean of 2.57 and 5.1 ppm, respectively. Clay loam and sandy loam (Calcimorphic) exhibited maximum values in respective micro nutrients.

RESULTS AND DISCUSSION

The texture of clay loam had silt + clay content between 43.20-48.80 per cent with a mean of 45.14 per cent. pH, CaCO₃ and organic carbon ranged from 7.2-8.3, 1.1-2.1 per cent and 0.25 to 0.51, respectively, with the corresponding mean values being 7.45, 2.86 and 0.51.

Since the crops are utilizing micro elements year after year and generations after generations without adding traces of them, therefore, it becomes imperative to determine their existing status in the soil so that a balanced nutritional programme may be chalked out.

MATERIALS AND METHODS

District Unnao is a part of lower doab lying by the side of river Ganga. Based on top sequence regime and relevant properties five soil associations viz., clay loam, clay loam (Halomorphic), sandy clay loam, sandy loam and sandy loam (Calcimorphic) have been identified. Soil samples were collected randomly from different villages of extension blocks of district Unnao from cultivators’ field and analysed chemically.

Available Zinc, Iron, Copper and Manganese were extracted with DTPA (Diethylene Triamine Penta Acetic Acid) solution and were determined by the method of Lindsay and Norvell (1978). The pH of soil samples was measured in 1:2.5 soil: distilled water suspension by Bechman pH meter using glass electrode. Organic matter was determined by Walkley and Black’s rapid titration method (Piper, 1966). Mechanical separates were estimated by routine method.