

MICRONUTRIENTS ZINC, MANGANESE, IRON AND COPPER STATUS OF SUNFLOWER CULTIVATED SOIL UNDER TEXTILE AND DYE EFFLUENT AND SLUDGE APPLICATION WITH AMENDMENTS

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ABSTRACT

Gypsum, pressmud, farm yard manure, ETP sludge were tried to ameliorate the textile and dye effluent polluted soil habitat, using sunflower (CO4) as a test crop. The sludge along with effluent irrigation added considerable quantities of cations (calcium, magnesium and sodium) to the soil system. Application of pressmud @ 5 t ha⁻¹ along with 100 per cent GR + NPK reduced the soil ESP by 44.96 per cent. The heavy metal content was also reduced due to addition of pressmud. Higher microbial population was also observed under effluent irrigation than well water. Application of 100 per cent GR + pressmud @ 5 t ha⁻¹ + NPK under effluent irrigation increased the crop growth, yield attributes (head diameter, head weight, seed test weight) and yield of sunflower in effluent polluted soil habitat. The yield under pressmud amended plots was 36 per cent higher over control. Reclamation and restoration of textile dye effluent polluted soil habitat is possible by leaching the soil with 100 per cent GR followed by application of pressmud @ 5 t ha⁻¹ and recommended NPK.

KEYWORDS: N- Nitrogen, P- Phosphorus, K- Potassium, GR Gypsum Recommendation, ESP Exchangeable Sodium Percentage