International Journal of Applied and Natural Sciences (IJANS)
ISSN(P): 2319-4014; ISSN(E): 2319-4022
Vol. 3, Issue 2, Mar 2014, 45-52

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

TEXTILE AND DYE INDUSTRY EFFLUENT, SLUDGE AND AMENDMENTS ON DEHYDROGENASE AND PHOSPHATASE ACTIVITY OF SOIL UNDER SUNFLOWER CROP

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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. Addition of amendments had a strong influence in enhancing the soil quality parameters like dehydrogenase and phosphatase activity of soil. Application of pressmud @ 5 t ha^{-1} along with 100 per cent GR + NPK reduced the soil ESP by 44.96 per cent. 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. The effluent had higher calcium and irrigating the crop with effluent for a considerable period had resulted in soil accumulation. The exchangeable cations decreased towards the harvesting stage of crop growth.

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