

Combinated Effect of Cadmium and Municipal Solid Waste Compost Addition on Physicochemical and Biochemical Proprieties of Soil and Lolium Perenne Production

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Abstract : Monitoring the effect addition bio-amendment as compost to an agricultural soil for growing plant lolium perenne irrigated with a CdCl₂ solution at 50 µM on physicochemical soils characteristics and plant production in laboratory condition. Even microbial activity indexes (acid phosphatase, β-glucosidase, urease, and dehydrogenase) was determined. Basal respiration was the most affected index, while enzymatic activities and microbial biomass showed a decrease due to the cadmium treatments. We noticed that this clay soil with higher pH showed inhibition of basal respiration. Our results provide evidence for the importance of ameliorating effect compost on plant growth even when soil was added with cadmium solution at 50 µmol.l⁻¹. Soil heavy metal concentrations depended on heavy metals types, increased substantially with cadmium increase and with compost addition, but the recorded values were below the toxicity limits in soils and plants except for cadmium.

Keywords : compost, enzymatic activity, lolium perenne, bioremediation

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