World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:11, No:06, 2017

Influence of Agricultural Utilization of Sewage Sludge Vermicompost on Plant Growth

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Abstract : Impacts of excess sludge vermicompost on the germination and early growth of plant were tested. The better effect of cow dung vermicompost (CV) on seed germination and seedling growth proved that cow dung was indeed the preferred additive in sludge vermicomposting as reported by plentiful researchers worldwide. The effects and the best amount of application of CV were further discussed. Results demonstrated that seed germination and seedling growth (seedlings number, plant height, stem diameter) were the best and heavy metal (Zn, Pb, Cr and As) contents of plant were the lowest when soil amended with CV by 15%. Additionally, CV fostered higher contents of chlorophyll a and chlorophyll b compared to the control when concentration ranged from 5 to 15%, thereafter a slight increase in chlorophyll content was observed form 15% to 25%. Thus, CV at the optimum proportion of 15% could serve as a feasible and satisfactory way of sludge agricultural utilization of sewage sludge. In summary, sewage sludge can be gainfully utilized in producing organic fertilizer via vermicomposting, thereby not only providing a means of sewage sludge treatment and disposal, but also stimulating the growth of plant and the ability to resist disease.

Keywords : cow dung vermicompost, seed germination, seedling growth, sludge utilization
Conference Title : ICEET 2017 : International Conference on Ecological Engineering and Technology
Conference Location : London, United Kingdom
Conference Dates : June 28-29, 2017