

عنوان مقاله:

Bioconversion of organic solid wastes into biofortified compost using a microbial consortium

محل انتشار:

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خلاصه مقاله:

Purpose Urban municipal solid waste in India are 75–85%organic. Uncontrolled dumping of this waste is a majorhealth concern. Degradation of organic waste by use of amicrobial consortium is safe, efficient and economic.Therefore, this study was taken up to recycle the organicsolid waste into effective compost using a microbialconsortium.Methods Bacterial consortia were developed using antagonismassay. Concomitant enzyme production by theconsortia was determined. The best consortium was furtheremployed for degradation of 30 kg of organic solid waste.Compost analysis of 30 kg of wastes was done to determinethe level of C, N, K, P and S.Results In this study, of the four consortia proposed,consortia no. 2 had the highest degrading capability. Itexhibited consistent degrading capabilities of 30 kgwaste. The volume of the waste was reduced to 82%,with a reduction in mass and moisture content to 65 and42%, respectively, after 30 days of degradation study.The compost produced after 30 days had a dark colourand grainy texture without any crustacean populationand lacked foul smell. Compost analysis of 30kg wastesinoculated with consortium 2 showed C:N ratio of 22:1compared to 32:1 in control, and increased percentage ofK, P and S which are required for enhancement of soilfertility.Conclusion Therefore, we can conclude that consortium 2can serve as a biological tool for the removal of organicsolid wastes from the environment, and the .compost generatedfrom the degradation can be applied to increase thefertility of the soil

کلمات کلیدی:

Municipal solid waste Microbial consortium Compost Soil fertility

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