عنوان مقاله:

Effect of aeration rate on elimination of coliforms during composting of vegetable–fruit wastes

محل انتشار:

مجله بین المللی بازیافت مواد آلی در کشاورزی, دوره 5, شماره 3 (سال: 1395)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Purpose In waters and wastes, direct pathogen detection isdifficult and time consuming. Therefore, coliforms are usedas indicators to measure the presence of pathogens. Compostsoriginated from extrements, sewage sludges and plantwastes those contact with manures may have potentialhealth hazard to human. Therefore, the detection of coliformsboth during composting and in the obtained compostsis used to investigate the presence of pathogens fordetermination of the potential health risk.Methods In this study, the effect of six different aerationrates on elimination of total and faecal coliform bacteriawas investigated during in-vessel aerobic composting ofvegetable–fruit wastes. Total coliform and faecal coliformnumbers in the samples were measured by the most probablenumber method.Results Coliforms significantly increased before the thermophilicstage except the faecal coliforms in the reactorwhich operated with the lowest aeration. The coliformssuddenly decreased after thermophilic stage in all reactors.Total coliforms reduced within the range of 78.2–99.9 %while faecal coliforms reduced within the range of72.5–99.9 % after the thermophilic stage. At the end of thecomposting period (day 18), total coliforms and faecalcoliforms reduced within the range of 99.9–100 %.Conclusions Although all the aeration rates used in thepresent study were effective for the elimination ofcoliforms, the lowest faecal coliform number was seen inthe reactor that had the lowest aeration rate. At the end ofthe study, the faecal coliform numbers in all reactorsconfirmed .some limits for the application activities ofcomposts

کلمات کلیدی:

Total coliform Faecal coliform Aeration Elimination Composting Waste Vegetable–fruit

لینک ثابت مقاله در پایگاه سیویلیکا: