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SYNERGISTIC EFFECT OF FLY ASH IN IN-VESSEL COMPOSTING OF BIOMASS AND KITCHEN WASTE

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Abstract

The present study aims to utilize coal fly ash for its property to adsorb heavy metals and thus reducing the bioavailability of the metals for plant uptake. Fly ash was incorporated into the in-vessel composting system along with organic waste. The in-vessel composting experiments were conducted in ten plastic vessels of 15 L capacity comprising varying proportions of biomass waste, kitchen waste and fly ash. In this study, maximum degradation of organic matter was observed in Vessel 3 having k value of 0.550 d⁻¹. In vessel 10, 20% fly ash with a combination of 50% biomass waste and 30% kitchen waste along with the addition of 5% jaggery as an additive produced the best outcome with least organic matter (%C) loss and lowest value of rate constant (k).

Keywords: *Organic waste; in-vessel composting; fly ash; heavy metals; bioavailability*

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