

Accepted Manuscript

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PII: S0960-8524(17)31209-9
DOI: <http://dx.doi.org/10.1016/j.biortech.2017.07.093>
Reference: BITE 18513

To appear in: *Bioresource Technology*

Received Date: 15 June 2017
Revised Date: 15 July 2017
Accepted Date: 17 July 2017

Please cite this article as: Ahmad Bhat, S., Singh, J., Pal Vig, A., Amelioration and Degradation of Pressmud and Bagasse Wastes using Vermitechnology, *Bioresource Technology* (2017), doi: <http://dx.doi.org/10.1016/j.biortech.2017.07.093>

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Amelioration and Degradation of Pressmud and Bagasse Wastes using Vermitechnology

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ABSTRACT

This study evaluated the amelioration of pressmud (PM) and bagasse (BG) wastes by the vermiremediation process. The wastes were spiked with cattle dung (CD) in different concentrations to find out the best proportion supporting maximum earthworm growth and nutrients availability. The highest growth rate was observed in PMBG₅₀ (282.2 mg/d/worm) feed mixture. Response surface design of earthworm growth parameters enumerated best concentration of wastes in CD with maximum value of 21.81% for earthworm number, 30.86% for earthworm weight, 27.09% for cocoons, 29.71% for hatchlings and 34.0% for hatchlings weight. Vermicomposting enhanced nutrient parameters like pH (6-8%), total kjeldahl nitrogen (19-48%), total phosphorus (9-67%), total calcium (13-111%), while decrease in total organic carbon (14-32%), electrical conductivity (21-30%), C:N ratio (36-51%), total potassium (9-19%) and total sodium (3-21%). Heavy metals in the final products found to be under safe limits. SEM micrographs were more fragmented which indicated maturity and stability.

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