

Co-composting of pineapple leaves and chicken manure slurry

ABSTRACT

Background: The common practice of clearing pineapple (*Ananas comosus*) residues for land preparation for cultivation is by burning, an unsustainable agricultural practice that causes environmental pollution. Chicken manure produced from the poultry industry is also increasing. Inappropriate disposal or treatment can pose harm to the environment and humans. In order to reduce environmental pollution, pineapple leaves and chicken manure slurry were co-composted to obtain high-quality organic fertilizer. The shredded pineapple leaves were thoroughly mixed with chicken manure slurry, chicken feed and molasses in polystyrene boxes. Co-compost temperature readings were taken three times daily. Results: Nitrogen and P concentrations increased whereas C content was reduced throughout the co-composting. The CEC increased from 32.5 to 65.6 cmol kg⁻¹ indicating humified organic material. Humic acid and ash contents also increased from 11.3% to 24.0% and 6.7% to 15.8%, respectively. The pH of the co-compost increased from 6.14 to 7.89. The final co-compost had no foul odour, low heavy metal content and comparable amount of nutrients. Seed germination indices of phytotoxicity test were above 80% of final co-compost. This suggests that the co-compost produced was phytotoxic-free and matured. Conclusion: High-quality co-compost can be produced by co-composting pineapple leaves and chicken manure slurry and thus have potential to reduce environmental pollution that could result from poorly managed agricultural wastes

Keyword: Co-composting; *Ananas comosus*; Pineapple leaves; Chicken manure; Phytotoxicity test; Humic acid