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Quality and fertility assessments of compost produced from cleaner development mechanism projects: a case of Uganda

JULIET KABASIITA¹, EMMANUEL OPOLOT², GEOFFREY MAXWELL MALINGA³

¹*Gulu University, Juliet K Kabasiita, Uganda*

²*Makerere University, Agricultural Production,*

³*Gulu University, Department of Biology,*

Abstract

Despite the fact that compost projects under the Cleaner Development Mechanism (CDM) have been implemented in Sub-Saharan Africa in recent years, there is a paucity of information on the quality of compost produced from the compost plants. This study fills this gap by evaluating the properties of MSWC produced from 12 CDM plants in Uganda based on quality and fertilising indices. pH, Pb N, K, P, Mn, Cd, Ca, Mg, Cu, Fe, Cr, Zn, OC, and CN levels differed significantly between locations. MSWC’s Fertility Indices (FI) ranged from 1.9 to 2.9, with Mbarara having the highest (2.9) and Soroti having the lowest (1.9). Fort Portal, Mbarara, Kasese, and Masindi have Clean Indices (CI) ranging from 3.8 to 4.9. According to the results of the fertility and Clean Indices analysis, all MSW composts generated at CDM facilities have low fertilising capacity and poor quality and are classified as Class RU⁻¹, which does not meet international and national compost criteria. As a result, these composts cannot be utilised as fertilisers and can only be used as soil conditioners under certain conditions. Windrow composting has been proven to be a viable method for lowering huge amounts of organic municipal solid waste in urban areas, and it can be scaled up to other parts of the world according to this study. Authorities must, however, engage urban citizens in waste separation at the source and MSWC enrichment with organic sources. This will aid in improving its quality and fertilising capacity, as well as in ensuring that the MSWC produced is uniform and suited for use in agriculture and the market.

Keywords: Clean Index, composting, Fertility Index, organic wastes, soil conditioners