

A review on the empty fruit bunch composting: life cycle analysis and the effect of amendment(s)

Abstract

This chapter reviews the Life Cycle Assessment (LCA) and the effect of amendment(s) for empty fruit bunches composting. A Life Cycle Assessment (LCA) of empty fruit bunches EFB composting as a solid waste processing is presented. The LCA study by various investigators confirmed that composting is more really environmentally friendly based on the greenhouse gas reduction measurement. Successful composting of empty fruit bunches (EFB) and suitable amendment(s) and obtaining a product of horticultural value may increase the viability of this recycling approach. The EFB composting with suitable amendments has shown acceptable quality of compost and simultaneously accelerates the process to less than 60 days. Finally, a case study on utilization of banana skins as amendments is discussed. In the case study, the addition of banana skin could enhance rapid EFB decomposition and increase nutrients such as P and K. A 45 days experiment was conducted at a 100kg scale to observe decomposition processes in empty fruit bunch (EFB) amended with two different percentages of banana skins (BS) (H5 and H10, 5% and 10% of BS by weight, respectively) in comparison with the control (unamended EFB, i.e. H0). The temperature in the three points of the piles was recorded throughout the experiment. By day 3, the temperature in the substrates H10 exceeded 45°C while the highest temperature recorded in the control during the experiment was 39°C (day 22). In conclusion, banana skins have potential as amendment for enhancing EFB composting.