IOP Conference Series: Earth and Environmental Science*Open Access*Volume 616, Issue 129 December 2020 Article number 0120552nd International Conference on Green Environmental Engineering and Technology 2020, IConGEET 2020Seoul, Virtual23 July 2020through 24 July 2020Code 166632

Effect of organic matter on pathogen population during composting of municipal sludge

Abstract

Population growth in Malaysia is expected to increase rapidly. Every sector of industry is expected to have a revolution including in agriculture sector. The utilization of organic fertilizer in agriculture as a green movement is to replace the chemical fertilizer subsequently, reduce the municipal sludge waste. Hence enhancing the growth and supply of nutrient to plant. However, the pathogenic growth in the final product is the greatest concerns. Thus, this study aims to evaluate the pathogen population in the compost of municipal sludge mixed with landscape waste for 90 days. The pathogen dynamic and its correlation with organic matter in 3 different ratios were analysed and recorded. The result showed that the pathogenic trends was uniformly increased at the early stage of composting and decreased gradually after reached the peak. R4 which comprises of equal ratio between municipal sludge and seed compost showed positive correlation with organic matter. R3 and R4 showed better removal of pathogen at maturity stage. Pseudomonas aeruginosa and Salmonella were failed to comply with the standard for R3 and only Salmonella failed for R4. This study supports the achievement of the Sustainability Development Goal (SDG) as an alternative way to combat the environmental issue by leveraging the usage of the waste produced for the purpose of the waste reduction and sustain the environment.