



MUNICIPAL SOLID WASTE COMPOST QUALITY ENHANCEMENT BY ADDING SAW DUST AS A BULKING AGENT

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Generation of municipal solid waste (MSW) has been increasing exponentially as consequences of population growth, urbanization and industrialization. This rate becomes a considerable issue mainly in urban areas because there may be number of environmental, social and health problems due to MSW. Composting is a method of managing and reducing organic waste to produce organic fertilizer for food production systems. When considering the properties such as low apparent specific gravity, high porosity, high water retention, moderate water drainage and the availability of material was reasoned to select saw dust for study. The main objective of this study was to improve the quality of composting by using saw dust as a bulking agent. The study also focused in determining the optimum saw dust ratio. Research was conducted under four treatments with three replicates. The four treatments were mixing saw dust and municipal solid waste at the ratios of T1-10:1, T2-10:2, T3-10:3 and T4 only MSW treatment on wet basis respectively. The different parameters that affects on compost process were measured daily (temperature) and weekly (EC, pH). Physical properties (moisture content (MC), bulk density, particle size analysis, coarseness index (CI)) and chemical properties (organic carbon, nitrogen, phosphorous, potassium and C: N ratio) of the final compost was measured. Observed data was compared with the standards to determine the effectiveness of the treatments. Treatment with 10:1 saw dust: municipal solid waste showed the best possible combination ratio which enhanced physical and chemical properties of the final compost. There were no significant changes of pH and EC during the process by adding bulking agent. Measured parameters of pH, EC, moisture content, organic carbon, bulk density, particle size analysis, coarseness index, nitrogen, phosphorous, potassium and C: N ratio for T1 were 8.15, 1.77 dS/m, 26.63 %, 37.87%, 525 kg/m³, 33.98 %, 1.45 %, 0.668 %, 1.14,26 respectively.

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