Abstract

Kitchen waste is generated in very large quantity and it is considered the most neglected part of solid waste and it produced in 1.2 billion tons throughout the year. The production rate of household waste per day includes 1.9-4.5 kg and its rate is going to be increased day by day. In order to manage all the kitchen waste, aerobic composting of kitchen waste is the best way because it is a very viable, economic, cheap and low-priced method. Tea waste is the second-most common drink throughout the world, and because it includes milk, most of it is considered as waste in underdeveloped countries. Bones which contain organic nutrients, provides necessary micro and macro nutrients for composting. Eggshell waste which contains calcium carbonate which improves soil fertility and growth of plant. A combined effect of fruits and vegetable waste, with tea waste and bones as bulking agent and egg shell waste as additives creating a nutrient rich compost. Ten treatments were arranged as (C1= KWf, C2= KWf+TW+ESW 5%, C3= KWf+B+ESW 5%, C4= KWf +TW+ESW 10%, C5= KWf +B+ESW 10%, C6= KWv, C7= KWv+TW+ESW 5%, C8= KWv+B+ESW 5% , C9= KWv+TW+ESW 10%, C10= KWv+B+ESW 10%) and composted for 36 days. Many tests were performed in order to check the maturity of compost. The results determined that best treatments were C3, C5, C8 and in C10 as it showed higher moisture loss 72-75%, higher Organic matter degradation 49-55% ,electrical conductivity of final compost was 3.8-4.0 Ms/cm, the C/N ratio was 15-17, cellulose degradation 60-62%, lignin degradation 70- 72%, Water holding capacity (WHC) 4.0-4.7g, porosity 70-74%, TN by 1.30-1.35%, TP by 1.8-1.9, TK by 1.0-2%, GI 130-137%, germination percentage by 95-100%, SVI by 1231-1242%, MLVI by 210-245% and bulk density 1.9-2.7g/cm3, following C10>C8>C5>C3>C9>C7>C4>C2. To test final maturity of compost pot experiment was conducted by taking tomato seeds and results showed that P3, P5, P8 and P10 treatments showed higher number of leaves root length, shoot length and stem's height. Composting with tea waste, bones and eggshell waste as bulking agents and additives determines the feasibility of composting and aims to create nutrient rich compost in order to enhance the crop yield. This study helpful in determining sustainable waste management strategies, developing home composting, solving food security issues and lowers the environmental impacts.