Abstract

Kitchen waste is the most neglected part of the solid waste stream and its production is 1.2 billion tons per year, globally. The household waste generation rate in Pakistan is 1.9-4.3 kg/day and waste generation rate is increasing by 2.4% every year. Tea is the second most consumed drink in the world and most of it is considered merely waste in developing countries because of the milk content present in it and is used in composting mostly after washing it with water. Application of biochar can significantly increase the growth of plants, despite all the positive impacts of biochar it has been noted that direct applications of biochar has the tendency to immobilize available nitrogen which ultimately will cease plant growth. Kitchen waste composting can be accelerated using tea waste and biochar as bulking agents and the resultant compost can prove to be very beneficial in plant growth. This study is aimed to reduce toxicity of kitchen waste and produce cocompost using tea waste and biochar as bulking agents and assess maturity of final compost for its application on *Solanum lycopersicum* (tomato) plant. Four compost treatments were conducted under aerobic composting conditions and composting period lasted 30 days. Several compost maturity tests were performed. Final compost has electrical conductivity 2 - 4.5 mS/cm, C/N 15-22, Organic matter content 41-54 %, moisture content 15-32 %, cellulose content 18-48 %, lignin content 8-28 %, germination index 66-133 %, germination percentage 59-100 %, water holding capacity 2.2-4.8 g wet/g dry sample, porosity 57-73 %, Munoo-Liisa vitality index 79-235 %, seed vigor index 213-1238 %, total nitrogen 0.7-1.4 %, total phosphorus 0.27-2 %, total potassium 0.35-2.1 %, and bulk density 1.2-2.6 g/cm3, following T4>T3>T2>T1 from highest to lowest. Composting with tea waste and biochar have accelerated maturity rate and have the potential to produce high crop yield so, further studies must be carried out to study the long term impact of organic compost on plants.