Abstract

A significant amount of food waste generation from cafeterias and hostels of university campuses has become inevitable due to large population and consumption behaviors of students. Therefore, it is a challenge to develop and implement an efficient food waste management plan at university campuses for sustainable waste management practices. The aim of this study was to quantify and characterize food waste and compost formation for efficient food waste management at Main campus of Government College University (GCU), Lahore. For this purpose, food waste of GCU main campus was quantified and physiochemical properties of waste were analyzed and subsequently it was converted into compost using aerobic windrow system. Various parameters were analyzed during composting process including total carbon, total nitrogen, organic matter, pH and moisture content. Maturity of compost was analyzed through seed germination test. The result of study showed that the amount of food waste generated was 1247.30 kg/week and 178.18 kg/day. Analysis of physiochemical properties of the waste revealed the moisture content 70.3±1.3%, ash content 5.5±0.43%and pH 4.8±1.5. During composting process, temperature and moisture content was 39-53oC and 57.8-75%, respectively. The final analysis of compost revealed a pH of 7.8, moisture content 29.8%, C/N ratio 14.65, Cu 0.905 mg/kg, Cr 1.255 mg/kg, Cd 0.53 mg/kg, Ni 0.315 mg/kg and Pb 0.0175 mg/kg. Results of germination test showed that germination rate of tomato, radish, spinach and onion was 249.9±0.23, 216.6±0.88, 109.32±1.09 and 152.9±1.88 respectively. Germination index was higher in compost formed from organic waste of GCU than locally available compost and can be used as organic fertilizer for plants.