

Physical and Chemical Properties during Home Composting of Municipal Organic Solid Waste in Jordan and Production of Organic Fertilizer

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Abstract : Municipal waste management (MWM) represents a cornerstone in the effort to preserve the environment, which guarantees a healthy living environment for communities. MWM is directly affected by population growth and population density, urbanization, and tourism. In Jordan, MWM is currently managed by transferring and dumping waste into landfills. Landfills are mostly saturated and cannot receive any more waste. Besides, the organic waste, which accounts for 50% of municipal waste, will be naturally fermented in the landfills creating an unpleasant odor and emits greenhouse gases as well as generate organic leachates that are harmful to the environment. Organic waste can be aerobically composted and generate organic fertilizer called compost. Compost is very beneficial to soil and plant growth and, in general, to the ecosystem. Home composting is very common in most developed countries, but unfortunately, in developing countries such as Jordan, such an approach is not practiced and is not even socially well acceptable. The objective of this study was to evaluate the physical and chemical properties of home composting materials and to produce compost for further use as a soil amendment. The effect of compost soil application on the soil-plant system was evaluated. The soil application of the compost resulted in enhancing soil organic matter and soil N, P, and K content. The plant growth was also improved quantitatively and qualitatively. It was concluded that composting of municipal organic solid waste and soil application of the compost has a significant positive impact on the environment and soil-plant productivity.

Keywords : composting, organic solid waste, soil, plant

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