

## **QUALITY PARAMETERS OF COMPOST MADE FROM MUNICIPAL SOLID WASTE (MSW) IN THE INCLINED STEP GRATE (ISG) UNIT AT MEWATHURA FARM**

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Problem of waste becomes a more important issue that has to be addressed immediately. Population increases rapidly while the land extent remains unchanged. Composting of wastes gives a better solution to the problem of how to handle waste with minimum damage to the environment. Inclined Step Grated (ISG) composting reactor is one recently developed method (In the Faculty of Agriculture of University of Peradeniya) among different ways of making compost in Sri Lanka. Although there different products of composts available in the market the standards on the quality of them has been paid less attention and seems to be neglected. Therefore the objectives of this study were to develop parameters and standards to assure the quality of compost produced at the ISG composting unit in Meewathura University Farm and to increase the system capacity and efficiency through the studies on the particle size and their distribution.

The parameters Moisture content, Organic Matter content, C content, N content, CEC, pH, Temperature, Phyto toxicity, Particle distribution were measured weekly basis and the final product after maturity was tested for P, K, Mg, Ca, Na, Fe, Cu, Pb and Zn. A study on particle separation and debagging of waste was done to understand the potential for further improvement of the process. Microscopic views of the finer fraction of compost were observed to understand the changes with maturity.

Compost takes 7-8 weeks to reach the optimum maturity where no toxic effects were found on the plants. BOD<sub>5</sub> of water extracts of compost seems a good parameter for the maturity of the compost. A better relationship could be obtained when C/N ratio, BOD, particle distribution and temperature of the material were combined. Heavy metal concentration of the compost was very low and far below the European standards. Elemental composition of the compost shows that certain nutrients like P, K, Ca, and Mg contents were comparatively low to the other products.