**Special Organic Fertilizer Formulation from Municipal Solid Waste as the Major Feedstock**

**KGA Arunoda1\*, AMCL Andadola2, PI Yapa1**

*1Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka*

*2Waste Management and Training Center, Balangoda, Bankiyawatta, Sri Lanka*

*\**[*anurangiarunoda@gmail.com*](mailto:anurangiarunoda@gmail.com)

This study attempts to upgrade the quality of organic fertilizer made from municipal waste. Windrow composting was used to compare the treatments. They were: T1 municipal organic solid waste(MOSW) + old compost; T2 MOSW+gliricidia+ERP(Eppawala rockphosphate)+sawdust with biofertilizer; T3 MOSW+ gliricidia+ ERP+ banana waste+ sawdust with biofertilizer and bio charcoal as additives. Biofertilizer was used to introduce beneficial microorganisms and bio charcoal was used to enhance the microbial activity and to neutralize possible contaminants. Pine soil and natural forest soil were used to make the effective microbial culture. After twenty-one days, samples were analysed for chemical properties in particular. The pH of the compost was slightly alkaline in T2 and T3 compared to the control. Treatments with saw dust and biochar showed significantly higher pH values (p<0.01). Among all the treatments, T3 showed the highest pH value (8.04±0.003). The EC (electrical conductivity) was significantly higher in the control than that in the other treatments (p < 0.02). In the control, 95% of the feedstock was MOSW. Compared to T2, T3 showed the highest EC value. Available phosphorus concentration was significantly higher in T2 and T3 than that of control (p<0.04). It appears that the addition of ERP with the microbial culture has led to increased content of soluble phosphorus. The treatment with biochar, T3 displayed the highest phosphorus content. However, the available potassium content was the same in the control and T3 (P<0.002).When compared to the T2, T3 revealed a higher potassium content because, T3 was prepared with banana waste as an additional potassium source. Based on results, it can be concluded that MOSW can be used as a feedstock to produce high-quality organic fertilizers for high yielding crops. Microbes used have been effective in increasing phosphorus content of the fertilizer. Banana waste appears to be an effective potassium source.

**Key words:** *biofertilizer, biocharcoal, improved highyielding crops, municipal solid waste, special organic fertilizer formulation*