**SPECIAL ORGANIC FERTILIZER FORMULATION FOR IMPROVED HIGH YIELDING CROPS: MUNICIPAL SOLID WASTE AS THE MAJOR FEEDSTOCK**

K.G.A. Arunoda¹, A.M.C.L Andadola² and P.I Yapa ¹\*

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

*² Waste Management and Training center, Balangoda, Bankiyawatta.*

*piyapa@agri.sab.ac.lk*

Targeting high yielding crops, special organic fertilizer formulations made from municipal solid waste were studied at the waste management facility at Balangoda Municipality. Nine static windrows were used to compare two treatments with a control which were replicated three times. They were: (i) municipal organic solid waste(MOSW) + old compost; (ii) MOSW+gliricidia+ERP(Eppawala rockphosphate)+sawdust with biofertilizer; (iii) MOSW+ gliricidia+ ERP+ banana waste+ sawdust with biofertilizer and biocharcoal as additives. Biofertilizer was used to introduce beneficial microorganisms and biocharcoal 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 21 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 higher pH values. Among all the treatments, T3 showed the highest pH value (8.04±0.003). The EC (electrical conductivity) was high in control than other treatments. In the control, 95% of the feedstock was MOSW. Compared to T2, T3 showed the highest EC value. Available phosphorous concentration was higher in T2 and T3 than that of control. Addition of ERP and microbial culture has led to increase phosphorous solubility. The treatment with biochar, T3 showed the highest phosphorous content. However, the available potassium content was the same in control and T3. When compared to the T2, T3 show higher potassium content because T3 was prepared with banana waste as additional potassium source. Thus, it can be concluded that MOSW can be used as a feedstock to produce high quality organic fertilizers for high yielding crops. Microbial inoculum produced has been effective in increasing phosphorous fertility status of the fertilizer. Addition of bio charcoal in to the compost has significantly improved the phosphorous nutrient status of the organic fertilizer. Banana waste appears to be an effective potassium source.

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