

EM as a Pathway to Improve Urban Garbage Re-cycling in Sri Lanka

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Abstract : *Urbanization in Sri Lanka takes place at a slow pace. Nevertheless, waste generation by the general households has kept increasing from 0.75 in 1986 to approximately 1 kg/person/day as of 2000. Total solid waste generation in Greater Colombo Area (Capital of Sri Lanka) is estimated to be 1170 tons / day. Due to the absence of proper disposal mechanisms it leads to many problems. Almost 90% of the waste collected in Colombo, can be classified as bio-degradable, which has the high potential to be recycled. On the other hand, there is a good demand for quality compost in the country, especially in the tea estate sector. Despite the abundance of organic waste, only 15% of the commercial compost makers use urban waste as the major raw material. The high moisture content of organic waste (60 - 75%), bad odor and low quality of the final product, remains as the discouraging factors.*

A study was done to explore the potential of using EM to answer these problems. Abundant waste material such as saw dust and chopped rice paddy straw was selected as optional material to identify the best mix for composting. Kitchen waste and food left over were mixed together with soft wood saw dust and chopped paddy straw. Before mixing, paddy straw has been activated using EM stock solution and sugar cane blackstrap molasses in a dilution of 1:1:50. The mixed material was placed on a cemented floor under semi-anaerobic condition for 7 - 10 days. The resultant compost was sieved through a 2 mm mesh and sealed in polythene bags.

Analytical studies disclosed the high C:N ratio (organic carbon 12.5% and N 2.6%), pH at 7.2 and high CEC (58 m.eq) which is considered to be highly desirable to improve the soil conditions of the majority of tea plantations in Sri Lanka where average pH is 3.8, organic carbon 1%, N 0.15% and CEC estimated to be 7 m.eq. Additionally, the time taken for decomposition was significantly reduced (2 weeks compared to > 6 weeks for conventional composting under similar conditions). Odour of the raw garbage could be effectively controlled with the use of EM. Pot trials to ascertain the effectiveness of the EM compost proved healthy plant growth. Accordingly, results prove the potential of EM to increase the recycling capacity of urban garbage, hence to solve associated garbage problems in Colombo city.
