

PRODUCTION OF LIQUID ORGANIC FERTILIZER FROM KITCHEN WASTES UNDER ANAEROBIC CONDITION

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Handling and disposing of kitchen waste a major part of the municipal garbage collection have become a serious problem in Sri Lanka, particularly in urban areas as the population increases. However, the handling and disposing problem can be resolved to some extent by educating people to manage the kitchen waste at household level. One of the major disposal systems of municipal garbage to tackle the problem would be the composting under aerobic or anaerobic conditions. Anaerobic composting may be a good solution to dispose municipal garbage, since aerobic composting has the problems of emitting gases with bad odour and attracting flies. Therefore, present study was conducted with anaerobic composting of kitchen waste to evaluate leachates produced as an organic liquid fertilizer.

Fresh kitchen wastes collected from several canteens in the university were mixed and about 1.5 kg of the waste mixture was placed in 9 plastic buckets fitted with a tap at the base and 500 ml distilled water was added to each bucket. Buckets were closed tightly with lids. The experiment comprised 3 treatments; namely, the control (only kitchen waste), kitchen waste +15 g urea, and kitchen waste + 200 ml molasses, which were tested in 3 replicates in a Completely Randomized Design. Buckets were maintained at room temperature. Leachates (100 ml) were collected for a period of 12 weeks at 2 weeks interval. The leachates were analyzed for pH, electrical conductivity, total nitrogen, phosphorous and potassium contents using standard procedures.

Molasses and urea treatments released greater quantities of nitrogen and phosphorous when compared to the control treatment within 2 – 5 weeks of incubation time. Potassium content did not vary widely and remained almost constant throughout the experiment. It can be concluded that the adding of molasses to kitchen waste substantially enhances the nutrients (nitrogen and phosphorous) in leachates. Therefore, anaerobic incubation may be a good solution for the disposal of household wastes (especially kitchen wastes). The produced leachate may be used as a valuable liquid organic fertilizer for crops.