

Residual Effect of Municipal Solid Waste and Dewatered Fecal Sludge Co-compost Supplemented with Biochar on Growth and Yield of *Ipomoea aquatica*

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Due to the intensification of agricultural lands, soil fertility has declined to result in decreased land productivity. Hence, farmers excessively use expensive chemical fertilizers that have reported deleterious effects on the environment and human health. Co-compost of municipal solid wastes and dewatered fecal sludge has a high potential as an agricultural resource in Sri Lanka. Biochar, a soil amendment that has been proven to have many positive effects in improving long-term soil quality and increasing crop yield especially with soil conditioner and organic fertilizer. This study was focused on the residual fertilizer effect of municipal solid wastes co-compost with dewatered fecal sludge supplemented with biochar in sandy loam soil using *Ipomoea aquatica*. The field experiment was carried out at the Centre of Excellence for Organic Agriculture, Makandura. To assess the residual fertilizer effect, *Ipomea aquatica* was cultivated as a follow-up crop in a previously maize cultivated field fertilized with pelletized forms of different co-composts combinations with biochar and mineral fertilizer. Department of agriculture recommended chemical fertilizer was used as a control treatment. Randomized completely block design with four blocks and eight treatments was used. Plant survival rate, leaf area index, and plant height were measured as plant growth and yield data and were recorded 3 times until 15 weeks. Significantly ($p = 0.05$) higher residual fertilizer effect on yield could be obtained with biochar mixed municipal solid waste-dewatered fecal sludge co-compost pellets treatments (0.86 kg m^{-2}) compared to the mineral fertilizer treatments recommended by the department of agriculture (1.45 kg m^{-2}). It can be concluded that municipal solid wastes with dewatered fecal sludge supplemented with biochar can provide a significant amount of residual nutrients in long term and the residual benefits depend on the initial nutrient composition of applied manure.

Keywords: Biochar, Co-compost, *Ipomoea aquatica*, Municipal solid waste, Residual effect