

Growth of Ornamental Plants in Constructed Wetlands - Kuching City – Ecological Sanitation

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Abstract. Two common ornamental plant species *Syzygium campanulatum* and *Ficus microcarpa* were planted into small-scale constructed wetlands receiving grey water. Partially treated black water from septic tanks and grey water are discharged into storm water drains and subsequently into the rivers in Kuching, and discharge from households were the main pollution source of the Sarawak River. The option of urban ecological sanitation was explored by the Sarawak Government which involves separating wastewater at the source and recycling of nutrients. Grey water from selected households were channeled to a grease trap and then pumped to biofilters before flowing through a constructed wetland with two species of ornamental plants before discharge. The results indicated no major limitations to the use of municipal wastewater as an irrigation source in urban tree growth. The high photosynthetic rates of both species grown in the constructed wetland compared to the control plants indicated that the plants were able to utilize the available nutrient in the constructed wetland and perform normal physiological processes necessary for plant growth compared to the control plants. Height and dbh of both species were relatively higher than the control plants indicating that the wastewater serve as a source of fertilizer for the plants to grow. The growth performance of *S. campanulatum* was better compared to *F. microcarpa* in the constructed wetland and both species exhibited better growth performance compared to the control plants.

Keywords: constructed wetlands, ecological sanitation, urban tree, *Syzygium campanulatum*, *Ficus microcarpa*