

Title of Article: Water Hyacinth Based Wastewater Treatment System and its Derivable Bye-Products.

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Abstract: The public health consequences of poor management of wastewater treatment systems are becoming enormous while on the other hand the need to minimize wastages and to make most valuable use of nutrients in wastewater is receiving global interest. This paper analyses the bye products from a water hyacinth (*Eichhornia crassipes*) based wastewater treatment system. A combination of empirical and analytical methods was adopted. The empirical method involved the pilot plant study on water hyacinth grown on domestic wastewater while analytical method is the laboratory analysis of the bye products. The results indicated that the harvested water hyacinth biomass has appreciable moisture content of 93% and the dry matter was 7%. On dry matter basis, the inorganic components in parts per million (ppm) are 24 of copper, 20 of iron, 20 of zinc, and 18 of Manganese. Crude ash represents 19.25% of dry matter while fibre and protein represent 18.08% and 10.13% of dry matter respectively. The chemical composition in g/kg of sludge ash are 10.00 of Calcium, 1.25 of Sulphur, 0.83 of Magnesium, 0.77 of Aluminium, 0.70 of Sodium, 0.58 of Silicon, 0.55 of Potassium, 0.41 of Copper, 0.38 of Iron, 0.37 of Zinc, 0.36 of Manganese, 0.29 of Nickel and 0.1 of lead. The average pH value of the sludge ash was 7.32 and the average bulk density was 275 kg/m³. Based on the nutrient resources contained in the biomass, it could be converted into products such as animal feed, fertilizer, compost, mulch, paper, fibre and biogas.