

ABSTRACT

The biological invasion of the waterhyacinth (*Eichhornia crassipes* (Mart.) Solms) into lakes and rivers of East Africa forced the implementation of mechanical harvesting around key harbours and dams, resulting in subsequent difficulties of waste disposal. Utilising these wastes assists in minimising the costs of waste management. Estimates of waterhyacinth biomass were made by randomly deploying 1 m² buoyant sampling frames across four sites on the Ugandan shores of Lake Victoria and determining the weight within the frame. Single plants ranging from 0.3 - 0.9 kg were placed within similar buoyant frames and their productivity monitored over a period of 16 weeks in a sheltered bay at Bugiri and a pond at Kajjansi. Nutrient contents and mineralisation patterns of harvested waterhyacinth wastes were characterised. Whole chopped plants and tissues were separated into leaves, petioles and roots, placed into litter bags, deployed as surface mulch and recovered over 16 weeks. Fresh biomass at the four sites was between 300 to 610 t ha⁻¹. Productivity ranged from 58 to 228 t ha⁻¹ yr⁻¹ resulting from rapid production of daughter plants (108 to 237 plants m⁻² yr⁻¹). Decomposition of the waterhyacinth was rapid but with significant differences between plant tissues. Time to 50% decomposition of whole plants, leaves and roots was 21, 31 and 45 days, respectively. Waterhyacinth applied as surface mulch to fields may offer opportunity as an organic input to soils because of the relatively rich nutrient contents and rapid decay pattern but the large bulk of fresh plants (92% water) may offset these advantages.

Key Words: Aquatic systems, decomposition, *Eichhornia crassipes*, productivity, surface mulch