

## **Environmentally friendly Methods to Control *Eichhornia crassipes***

S.Sharaniya, S.Sivarajah, and P.Loganathan

*Department of Bio-science, Vavuniya Campus, University of Jaffna, Vavuniya*

The water hyacinth (*Eichhornia crassipes*) is a free-floats aquatic plant that has invaded the waterways and reservoirs in the Dry Zone of Sri Lanka. The study focused on preparing a compost using water hyacinth using the barrel-composting method, and to assess the nutritional value of prepared compost, and the heavy metal contamination of fresh water hyacinth, water and water hyacinth-compost. Primary data on the distribution and abundance of *E. crassipes* in the Vavuniya district in the Northern Province were collected by field visit. Water hyacinth samples were collected from the reservoirs in the district, which were heavily infested with this invasive alien plant. The compost was prepared using water hyacinth and paddy straw in different proportions such as 1:0 (C1), 1:0.5 (C2), 1:0.75 (C3), 1:1 (C4), 1:1.5 (C5) and 1:2 (C6) respectively. The pH, EC, Carbon:Nitrogen (C/N) ratio, primary macro nutrients (N, P and K) were analyzed. The analysis of heavy metals (Cr, As, and Cd) was carried out by the atomic absorption spectrophotometer. Data were analyzed using descriptive statistics in Minitab. The different composts C1-C6 showed a pH of 8.4 to 8.6, EC 3.2 to 3.5, Nitrogen 1.4 to 2.2%, Potassium 1.1 to 1.7% and Phosphorous 0.6 to 0.75% were within the reference limits set by the Sri Lanka Standard 1246:2003. Arsenic (As) and Chromium (Cr) contamination has been detected in C1- C6 type compost such as 0.73 – 0.18 mg/kg and 9.3-4.3 mg/kg, respectively, however, these values varied within the compost heavy metal permissible limits (SLS 1246-2003). And in fresh water hyacinth, As and Cr contamination has been detected at 0.73 mg/kg and 11.8 mg/kg respectively but these values also varied within the permissible limits (WHO, 1999) and there was no As, Cr and Cd contamination in water sample which was collected from the study location. The C1 (1:0) compost, which only contains water hyacinth had a high C/N ratio (12.0) than other composts. This study recommend to control water hyacinth, by using it as only raw material to prepare composts to be used in crop production but heavy metal contamination test should be carried out before the application of this compost.

**Key words:** *Eichhornia crassipes*, heavy metals, nutrition Value, organic Compost