Nutritional Composition of Aquatic Plants and Their Potential for Use as Animal Feed: A Case Study of the Lower Volta Basin

Wemegah, Joshua Etse

2015

ABSTRACT

An investigation was carried out to determine the nutritional composition of some selected dominant aquatic plants and their significant effect on chemical and physical characteristics of the water. Four aquatic plants namely *Nymphaea lotus, Ipomoea aquatica, Typha ausralis.* and *Scirpus cubensis* were sampled, identified and authenticated at the Ghana Herbarium. The proximate nutritional compositions of the plants were determined using standard procedure outlined in Association of Official Analytical Chemist (AOAC 2002). Water and sediment quality analyses of some physico-chemical variables were also carried out using processes outlined in the standard methods for the examination of water and wastewater. The results indicated that nutrient composition such as the crude protein, ether extracts, ash content and nitrogen free extracts were significantly higher than the corresponding constituents in *Panicum maximum* used as control for the study ($p<0.05$). The results also indicated that levels of heavy metals in the plants were all within the WHO/FAO standards for metals in vegetables and in food. The results of the physicochemical parameter of water also revealed that pH, turbidity, nitrate, DO and BOD levels were found to differ significantly from the control site. The heavy metal concentrations in the sediment samples revealed significant variations in the distribution of the metals, with Zn showing the greatest variation and Pb the least with a mean concentration of 7.5±O.86 mg/l and 0.4±0.03 mg/l respectively.

The results indicate that these plant species have high nutritive potential and it is an indication of possible use as ingredients in animal feed. Exploitation of these aquatic plants for animal feed

would be a step towards better utilization of these plants and subsequently help in management of aquatic plants within the basin.

SUPERVISORS

Dr. Annang, Ted
Dr. Ayivor, Jesse S.