J. Trop. For Resources Vol. 12 (1996) pp. 43 – 53

INFLUENCE OF ENVIRONMENTAL DEGRADATION ON THE CONENTRATIONS OF COPPER, LEAD and ZINC IN TISSUES OF GRASSCUTTER (Thryonomys Swinderianus Temminck, 1827)

O. Bamgbose, Onadeko S. A. And Jinadu, K. A.

College of Environmental Resources Management University of Agriculture,

Abeokuta, Nigeria.

Abstract

The distribution of Copper (Cu), Lead (Pb), and Zinc (Zn) was determined in the tissues of domestreated and wild captured grasscutter. The tissues were analyzed by the wet digestion process involving Ole use of II mixture of concentration nitric acid and sulphuric acid. The digested samples were then determined quantitatively using the Atomic absorption spectrophotometric method.

Tissue metal concentrations conformed to a consistent pattern viz: Kidney> Liver> Heart > Muscles; exemplified by the following mean tissue Zn concentrations in Adult grasscutter X = 206.27 ± 21.89, 138.51 ± 9.35, 121.25 ± 12.15 and 81.98 ± 4.82 (mg kg^{-1}) respectively. Generally the metal concentrations (Cu, Pb and Zn) in the organs of wild captured grasscutter were significantly ($P < 0.01$) higher than the values from domesticated grasscutters. Lead and zinc concentrations were significantly ($P < 0.01$) higher in tissues of adult. The grasscutter then in the subadult/juvenile. In the organs of adult grasscutter heavy metal concentrations range from 14.01 mg kg^{-1} for Cu in the muscles to 235.15 mg kg^{-1} for Zn in the kidney. While the range in subadult/juvenile grasscutter was 13.28 mg kg^{-1} for cu in the muscle tissue to 214.72 mg kg^{-1} for Zn in the Kidney. On the overall for age classes and sites, the concentration of Zn was the higher followed by Pb and Cu in that order. These concentrations are lower than the toxic levels recommended by World Health Standards (WHO), they are nonetheless high enough for consumers to be cautioned. Consequently, dietary sources of grasscutter need monitoring to enhance sub lethal concentration of heavy metals in their tissues.