

## **Nutritional value of grain and leafy Amaranth varieties grown in Tanzania**

D. Nicodemas<sup>1</sup>\*, G. E. Rwabona<sup>2</sup>

<sup>1</sup> Department of Food Science and Technology, Mbeya University of Science and Technology, P.O. Box 131, Mbeya, Tanzania,

<sup>2</sup> Department of Mathematics and Statistics, Mbeya University of Science and Technology, P.O. Box 131, Mbeya, Tanzania

### **ABSTRACT**

Amaranth leaves and seeds are highly nutritious, but less is clearly known for the varieties grown in Tanzania. Grains, leaves (dry and fresh) and flower part of amaranth were analyzed for minerals (iron, zinc, copper and manganese), proximate (crude protein, crude fat, crude fibre and carbohydrate) and anti-nutrients (nitrate and oxalate) content. Minerals were significantly higher ( $p < 0.05$ ) and Crude Fat (9.273%) in Bwasi jekundu. Total Carbohydrate (78.743%) is significantly higher in dried Bwasi kijani. Anti-nutrient contents were significantly higher in dried compared to fresh leaf varieties, grain and amaranth flowers. Oxalate ranging from 378.5 to 360.3 mg/100 g and are not significantly different ( $p > 0.05$ ) within varieties, nitrate (137.06  $\mu\text{g/g}$ ) is significantly higher in *A. hybridus* (Lishe nyeupe) of dried leaves compared to fresh, grains and amaranth flower. Bwasi jekundu appears to be the best variety as dried leaves have the highest iron, since micronutrients are of more significance in leaves of vegetables than macro nutrients.

**Key words:** Amaranths varieties, Nutrients content, Anti-nutrients content, Amaranth leaves, Amaranth grains