

Iron and Protein Content of Priority African Indigenous Vegetables in the Lake Victoria Basin

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Abstract: African indigenous vegetables have many nutritional and health benefits that have not been well researched and fully exploited. The objective of this study was to determine iron and protein contents of seven priority African indigenous vegetables found in Eastern Africa. The vegetables were planted at two sites, Maseno University, Maseno in western Kenya and Jomo Kenyatta University of Agriculture and Technology (JKUAT), Juja in Central Kenya between 2006 and 2008. These vegetables were organically grown and edible parts of each of the vegetable harvested during vegetative growth stages just before onset of flowering and analysed for iron and protein contents. Nightshade and cowpea had high levels of both iron and protein. Pumpkin leaves and amaranths had high iron content while spiderplant and slenderleaf had high protein levels. Both iron and protein levels differed significantly between the seven vegetables at both sites. Nightshade and cowpea contained iron and protein levels that would provide 100% of the recommended daily allowance (RDA) iron and 50% of recommended daily allowance protein for optimal human growth and health. These results help to demonstrate the nutritional value of African indigenous vegetables and their potential use in nutrition intervention programs.

Key words: Hidden hunger, nutrition security, vegetables.

1. Introduction

Over 60% of the populace of the Lake Victoria region live below the poverty line, with serious food insecurity problems resulting in malnutrition, poor health and inadequate basic necessities (African Institute for Capacity Building in African Development) [1, 2]. Eighty percent are food poor and 20-30% of the children under five years of age are malnourished. Malnutrition is normally manifested in various forms in children, such as their being underweight or stunted, or suffering from iron-deficiency anaemia, normally. The most serious malnutrition problems are a result of inadequate consumption of micronutrients normally referred to as hidden hunger [3]. These malnutrition problems are prevalent despite the fact that the Lake Victoria basin is endowed with agro-biodiversity

African indigenous vegetables (AIVs) [4]. African indigenous vegetables have several advantages and potentials that are yet to be exploited [5]. These vegetables have been documented to be micro nutrient dense, have high content of anti-oxidants and they are adapted to the tropical environment. One of the major constraints that hinder optimal production and utilization of AIVs include lack of technical production and utilization packages, inadequate information on the micronutrient and protein contents [5]. Priority African indigenous vegetables identified and selected for their nutrition and economic potential in a study conducted between 2004 and 2006 in Kenya, Uganda and Tanzania included African nightshade (*Solanum scabrum*), vegetable amaranths (*Amaranthus blitum*), vegetable cowpeas (*Vigna unguiculata*), spiderplant (*Cleome gynandra*), pumpkin leaves (*Cucurbita moschata*), slenderleaf (*Crotalaria ochroleuca*) and jute mallow (*Corchorus olitorius*) and African kale

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