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Can Traditional Leafy Vegetables Reduce Protein and Micronutrient Malnutrition? A Look at the Nutritional Quality of Cowpea Leaves for two Landraces Grown in Uganda

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Abstract

Although there are many causes of malnutrition in Uganda, adequate consumption of green leafy vegetables like cowpea (*Vigna unguiculata*) leaves, which are rich not only in protein but also mineral elements, offers a chance to reduce this prevalence especially for the resource-poor subsistence farmers. However, the nutritional contents of cowpea leaves for the two landraces (“Icirikukwai” and “Ebelat”) most widely grown in Uganda had never been documented.

This study was carried out in eastern Uganda during the first cropping season of 2008. It involved planting the two landraces in intercrop with maize at three sites in the villages of Serere, Kikota and Kogili. The trials were laid out in a complete randomized block design with three replications for each treatment. Tender vegetable leaves were regularly harvested starting at four weeks after planting and continued after every two weeks until flowering. Near Infrared Reflectance Spectroscopy (NIRS) was used to determine the crude protein content and iron concentration of sun-dried leaf samples from the second leaf-harvest of each trial.

ANOVA for the leaf crude protein content and iron concentration data was carried out using the SYSTAT procedure GLM. Mean leaf crude protein content (%) for “Icirikukwai” and “Ebelat” were 32.4 and 29.0 at Kikota, 32.8 and 31.8 at Kogili and 33.9 and 33.0 at Serere respectively. Mean iron concentrations ($\mu\text{g/g}$) were 222.7 and 203.1 at Kikota, 475.0 and 428.2 at Kogili and 300.8 and 306.8 at Serere for “Icirikukwai” and “Ebelat” respectively. The absence of phytic acid in cowpea leaves increases the bioavailability of nutrients like calcium and iron, which are usually bound to phytic acid. Though not analysed in this study, Towett (2008, unpublished data) found that β -carotene values of young cowpea leaves of “Icirikukwai” collected from Serere ranged from 8.2 to 30.5 mg per 100 g DM.

Cowpea leaves are available as food, throughout the cropping season and thus, help to improve food security. Its nutritional benefits, thereby, make cowpea leaves an indispensable tool, when targeting to improve the nutritional health of the resource-poor subsistence farmers in Uganda.

Keywords: Cowpea, crude protein, dietary diversification, iron, leafy vegetables