

## ABSTRACT

A range of plant biodiversity species, produced for household food and nutrition security, characterize women small - holder farms of the Lake Victoria Basin. The usefulness of nutraceutical - implied grades computed from micro - nutrient mineral concentrations of plant germplasm in eliciting plant biodiversity is presented. Plant foods were sampled from women small - holder farms in Iganga (Uganda) and Vihiga (Kenya) districts. Mineral concentrations were measured using Energy dispersive X - ray fluorescence spectroscopy (XRF), converted to nutraceutical scores (1 - 10) and grades (low, medium and high). Six minerals were consistently found in a decreasing concentration order ( $p > 0.05$ ) viz.: potassium, calcium, iron, Zinc, manganese and strontium and used to elicit plant biodiversity variation on the farms. The nutraceutical grades computed using the If logic function have been coined as units of biodiversity. A single mineral exhibited a wide plant biodiversity on the farms. Similarly, a combination of the six minerals exhibited wide plant biodiversity. Plant foods were from Acanthaceae, Amaranthaceae, Asteraceae, Basellaceae, Cucurbitaceae, Dioscoreaceae, Moraceae, Musaceae and Solanaceae families. The plant foods captured on these farms with medium to high nutraceutical grades have been identified for phyto - chemical profiling to further qualify their nutraceutical value in order to conserve the seed and share among farmers.