

Nutritional Analysis of Quality Protein Maize Varieties Selected for Agronomic Characteristics in a Breeding Program

[Nutritional Analysis of Quality Protein Maize Varieties Selected for Agronomic Characteristics in a Breeding Program](#) [1]

Nutritional characteristics of QPM genotypes that have been released are limited. A breeding program has been initiated in 2008 in DR-Congo using varieties selected from several agro-ecological regions. The objective of the present study was to establish a nutritional profile including amino acid and carotenoid content of selected QPM from the DR-Congo breeding program. Six Quality Protein Maize (QPM) and seven normal maize varieties were evaluated for agronomic characteristics and disease reaction. The grain amino acid and carotenoid concentrations were evaluated. The impact of QPM diet on chick's weight was also determined. QPM Longe 5 produced the highest grain yield in several trials in farmer's fields. Lysine content of QPM-SR-SYNTH and QPM Longe 5 showed significant increase of 33 and 37%, respectively, over the other maize varieties. There was a 50% increase in tryptophan in QPM Longe 5 compared to normal maize varieties. More importantly, the two QPM varieties provide proteins with a better amino acid balance than the normal maize varieties. The level of the carotenoids analyzed was significantly higher in the maize MUS-1 variety with yellow endosperm compared to all the genotypes with white endosperm. The total carotenoid content in MUS-1 was over 250 fold compared to QPM and other maize varieties. The use of QPM in poultry resulted in a 50% increase in body weight compared to normal maize over a 9 week-period. A breeding program combining the benefits of QPM and the high level of carotenoid of yellow maize endosperm should produce superior QPM varieties for human and animal nutrition.

Mbuya K, Nkongo K, Kalonji M;
International Journal of Plant Breeding and Genetics 5 (4): 317- 327, 2011

Source URL: <https://www.asareca.org/publication/nutritional-analysis-quality-protein-maize-varieties-selected-agronomic-characteristics>

Links

[1] <http://socialert.net/abstract/?doi=ijpbg.2011.317.327>