Asiwe J A N, Agrotechnology 2017, 6:4(Suppl)
DOI: 10.4172/2168-9881-C1-027

Determination of nutrient and mineral contents of some selected cowpea lines for better quality trait improvement

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Statement of the Problem: Cowpea is an important grain legume. It is cultivated because it is rich in protein (20-24%), minerals and vitamins which are important for human and animal nutrition. One of the major cowpea production constraints in South Africa is lack of improved varieties. To fast track the development of improved cowpea varieties to meet the needs of farmers, improved varieties were introduced and multiplied to increase seeds for further field assessments.

Aim: The objective of this study was to determine the nutrient, mineral contents and other quality traits of 32 cowpea lines obtained from GeneBank collections of University of Limpopo. This will assist the breeder in ascertaining their usefulness and plan on how to deploy their quality traits in breeding programme.

Materials & Methods: Dry seeds of varieties obtained from the seed multiplication programme were milled to fine powder, arranged in complete randomized design and analysed in three replications. Nutrient and mineral contents determined included (crude protein (CP), Ca, Na, Mg, Fe, Cu, Zn, P, K and moisture.

Findings: Results showed that the varieties exhibited significant ($P<0.05$) variations for the nutrients and mineral determined except for P, Cu and moisture. 10 lines performed better than two local control varieties (Glenda (24%) and Bechuana white (20%) in crude protein content with a range of 25-30%. Similarly, many varieties exhibited higher mineral content than the two local controls. Quality of grains of the varieties in terms of seed coat color, texture, eye-color and size also varied significantly.

Conclusions & Significance: The study not only demonstrated that many of the improved cowpea lines are better than local checks in nutrient contents and other quality traits, but has provided data base for utilizing the promising lines in breeding programme for the development of new cowpea germplasm with better quality traits and consumer preference.

Biography

Asiwe J A N is currently a Plant Breeder and an Integrated Pest Management Specialist at University of Limpopo, South Africa. He has several years of experience with successful track record in different aspects of commercial agriculture, food security, research and development in sub Saharan Africa (SSA) with significant impacts on legumes (cowpea, Bambara groundnut and soybeans), root and tuber crops (cassava and yam), cereals (maize, wheat and barley), intercropping systems (legumes with maize, sorghum/millet) in cross-setting professional areas (plant breeding, entomology and pest management, biotechnology and technology dissemination). He also possesses strong management and leadership skills in the following areas: strategic planning and implementation for distinctive competitive advantage and project management. Others include training and human capital development, financial management, sourcing funds for projects.

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