SEED MORPHOLOGY AND NUTRITION COMPOSITION OF SELECTED COWPEA GENOTYPES

(*Vigna unguiculata*)

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ABSTRACT

This research undertook the determination of seed morphology and nutrition composition of selected cowpea (*Vigna unguiculata* L. Walp) genotypes sourced from the from Grain Legumes Oil crops Research and Development Center. Agunakolapelessa, Department of Agriculture, Sri Lanka. Twenty-two cowpea genotypes (*CP* 32, *ANKCM* 20-4, *CP* 169, *ANKCM* 20-1, *CP* 104, *ANKCM* 14-2, CP 177, *CP* 16, *CP* 50, CP 95, *CP* 173, *ANKCM* 20-3, *CP* 21, CP 247, *ANKCM* 20-2, *CP* 246, *ANKCM* 14-1, *CP* 158, *CP* 39, *ANKCM* 13-4, *Dhawala*, and *Waruni*) were planted in a Randomized Complete Block Design (RCBD) with three replicates.

Morphological characterization was analyzed using Minitab 17 version. It demonstrated highly significant genotypic effects ($p \leq 0.05$) across all measured quantitative dimensions such as seed size (seed length, width, thickness), seed sphericity and seed hardness. Distinct morphological diversity was observed in seed color, texture, eye pattern, eye color, splitting of testa and attachment of testa was evaluated among genotypes. These all traits are indicating strong genetic diversity influencing seed appearance and consumer preference.

There is a significant variation among tested genotypes relation to nutrition content; protein (22.48%-31.42%), moisture content (5.26%-16.27%), ash content (3.2%-6.5%), crude fiber (1%-5%), fat (1%-3.1%) and carbohydrate content (50.72%-61.30%). Genotypes *ANKCM* 20-3, *ANKCM* 13-4 and *CP* 39 recorder superior nutritional compositions due to high protein content, while CP 32 CP 158% have high amount of carbohydrate content. *ANKCM* 14-2 and *waruni* exhibited favorable seed morphological attributes such as large seed size and smooth coat texture. The identified genotypes with superior nutrient composition and desirable seed traits can be effectively utilized in breeding programs aimed at improving the nutritional quality and market potential of cowpea in Sri Lanka.

Keywords – Genetic variation, Nutritional composition, Seed morphology, Sphericity

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