

**EVALUATION OF MORPHOLOGICAL DIVERSITY IN
VEGETATIVE GROWTH PARAMETERS OF SELECTED
COWPEA GENOTYPES**

(Vigna unguiculata)



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ABSTRACT

Cowpea genotype selection with appropriate vegetative growth traits is a basic necessity for the breeding of improved cowpea varieties. The main objective of this research was to evaluate the morphological diversity in vegetative growth parameters of selected cowpea genotypes. 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 195*, *CP 173*, *ANKCM 20-3*, *CP 21*, *CP 247*, *ANKCM 20-2*, *CP 246*, *ANKCM 14-1*, *CP 158*, *CP 39*, *ANKCM 13-4* and improved genotypes *Dhawala* and *Waruni*) were planted in a Randomized Complete Block Design (RCBD) with three replicates. Morphological traits including plant height (PH), number of primary branches (PB), number of leaves (NL), leaf area (LA) and canopy width (CW) were recorded at four weeks after planting (4 WAP) and six weeks after planting (6 WAP). Hierarchical cluster analysis was conducted and a dendrogram was constructed using Minitab version 17 to visualize the genetic relationships among the genotypes. Results revealed significant differences ($P < 0.05$) among the genotypes screened for all the measured traits. The tallest plants were found in genotype *Dhawala* (20.94 ± 0.45 cm), while the shortest was recorded in *CP 50* (8.18 ± 0.55 cm). The highest number of primary branches was found in *Dhawala* (3.70 ± 0.21) and *Waruni* (3.33 ± 0.12) while most of the other genotypes were less branched. Leaf area was quite variable with *ANKCM 14-2* (134.57 ± 1.31 cm²) and *ANKCM 14-1* (131.8 ± 30.4 cm²) recording the highest values, indicating robust vegetative growth. Cluster analysis of morphological traits had distinct grouping tendencies. Genotypes *CP 16*, *CP 195*, *CP 39*, *CP 173*, *CP 177* and *ANKCM 41-1* formed a compact cluster, indicating close morphological similarity and potential genetic relatedness. These findings exhibit significant diversity among the evaluated cowpea genotypes and identify promising lines with desirable vegetative growth characteristics for use in future breeding and crop improvement programs in Sri Lanka.

Keywords: Cowpea genotypes, Morphological Diversity, Vegetative growth traits

TABLE OF CONTENTS

DECLARATION	iii
DEDICATION	iv
ACKNOWLEDGEMENT	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
ABBREVIATIONS	xiii
CHAPTER 1	1
INTRODUCTION	1
1.1 Objectives of Study	4
CHAPTER 2	5
LITERATURE REVIEW	5
2.1 Cowpea	5
2.1.1 Origin, Domestication and Diversity	5
2.1.2 Taxonomy and Botanical Description	5
2.1.2.1 Taxonomy of Cowpea	5
2.1.2.2 Botanical Description	6
2.1.3 Uses of Cowpea	6
2.1.4 Importance of Cowpea	7
2.1.5 Nutritional Value & Health benefits of Cowpea	8
2.1.6 Morphological Characterization of Cowpea	9
2.1.7 Germplasm Characterization of Cowpea	11

2.1.8 Vegetative Growth Parameters of Cowpea	11
2.1.9 Postharvest Handling of Cowpea	12
2.1.10 Cowpea Breeding Programs	14
2.1.11 Agro Ecological Adaptation of Cowpea	15
2.1.12 Integrated pest management of Cowpea	17
2.1.13 Cowpea production in the world	19
2.1.14 Cowpea Production in the Sri Lanka	21
2.1.14.1 Recommended Cowpea Varieties in Sri Lanka	21
CHAPTER 3	22
MATERIALS AND METHOD	22
3.1 Introduction	22
3.2 Location	22
3.3 Soil Condition	22
3.4 Experimental Materials	22
3.5 Experimental Design	24
3.6 Agronomic Practices	25
3.6.1 Land Selection and Preparation	25
3.6.2 Soil Sample Testing	25
3.6.3 Basal Organic Manure Application	25
3.6.4 Seed Germination	25
3.6.5 Basal Application	25
3.6.6 Seeds Planting	26
3.6.7 Watering	26

3.6.8 Weeding.....	26
3.7 Data Collection.....	26
3.7.1 Growth Parameters	26
3.7.1.1 Plant Height	26
3.7.1.2 Number of Leaves.....	27
3.7.1.3 Number of Primary Branches	27
3.7.1.4 Leaf Area	27
3.7.1.5 Leaf Shape	27
3.7.1.6 Leaf Color	27
3.7.1.7 Growth Habit	27
3.7.1.8 Canopy Width	27
3.7.1.9 Stem Hairiness	28
3.7.1.10 Twinning Tendency	28
3.8 Data Analysis	28
CHAPTER 4	29
RESULT AND DISCUSSION	29
4.1 Meteorological Data.....	29
4.2 Evaluation of Vegetative Growth Parameters of Selected Cowpea Genotypes.....	30
4.3 Evaluation of Morphological Diversity of Selected Cowpea Genotypes	33
4.3.1 Leaf Shape	33
4.3.2 Leaf Color.....	33
4.3.3 Growth Habit	34
4.3.4 Twinning Tendency	34

4.3.5 Stem Hairiness	35
4.4 Morphological Diversity of Selected Cowpea Genotypes	37
4.5 Cluster Analysis of Selected Cowpea Genotypes Using Dendrogram	39
CHAPTER 5	44
CONCLUSION	44
Future Recommendations	45
REFERENCES	46
ANNEXES	57