DETERMINATION OF VARIATION OF DAYS TO FLOWERING AMONG SELECTED SRI LANKAN TRADITIONAL RICE ACCESSIONS (*Oryza sativa* L.) DURING YALA SEASON 2024 IN BATTICALOA

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ABSTRACT

Screening for rice varieties with desirable plant architectural traits is a crucial step in successful rice breeding. Main objective of this research was to determine variation of morphological characters at fifth leaf stage and flowering time of selected Sri Lankan traditional rice accessions during *yala* season 2024 in Batticaloa district, Sri Lanka. Two weeks old rice accessions (4132, 5530, 4387, 4237, 4290, 4145, 4772, 4731, and 6412) along with new improved variety Bg 300 were planted in Completely Randomize Design with five replicates. Days to fifth leaf (DFL), Plant Height (PH), Number of leaves per plant (NL), Flag leaf length (FLL), Flag leaf width (FLW) and Number of culm (NC) at fifth leaf stage and Days to Flowering (DF) were collected. One way ANOVA and Principal Component Analysis (PCA) followed by hierarchical cluster Analysis (HCA) were performed by using Minitab 17 version. There is a significant difference in DFL, with accession 4145 reported minimum DFL (23.60 ± 1.40 days), while Bg 300 maximum DFL (39.40 ± 1.91 days) of tested rice accessions ($P< 0.05$). There is a significant variation in plant height at DFL was noted, with accession 4145 being the highest (47.42 ± 3.05 cm) and Bg 300 the shortest (29.52 ± 2.37 cm) ($P< 0.05$). Significant differences were reported in flag leaf length, with accession 5530 having the longest flag leaves (40.30 ± 1.87 cm) and Bg300 the shortest (20.30 ± 2.18 cm). Among tested ten accessions, only two accessions, 4237 and Bg300 flowered within the experimental period of 105 days. Accession 4237 flowered at (56 ± 3.30 days), while Bg300 flowered at (91 ± 2.36 days). In analyzing the clustering of rice accessions based on morphological characters using PCA and HCA, distinct patterns of similarity have emerged within the different clusters. Accessions 4731 and 6412 formed a closely related cluster, indicating a high degree of similarity in PH, NL, FLL, FLW and CN. Similarly, accessions 4132, 4387, and 5530 grouped together, reporting shared phenotypic traits that suggest common genetic or environmental effects. The accessions 4237, 4290, 4145, 4772, and Bg 300 exhibited broader phenotypic variation but still formed a larger, more diverse cluster. The similarities that have been noted within these clusters highlight possible directions for focused breeding initiatives that aim to improve desired features among related accessions.

Key words: Flowering time, Morphological Variation, Sri Lankan Traditional Rice

TABLE OF CONTENT

ACKNOWLEDGEMENT i

ABSTRACT ii

TABLE OF CONTENT iii

LIST OF FIGURES v

CHAPTER 1 1

INTRODUCTION 1

1.2 Problem identification 4

1.3 Problem justification 4

1.4 Objectives 5

1.5 Activity plan 5

CHAPTER 2 6

LITERATURE REVIEW 6

2.1 Rice 6

2.2 Origin of rice 6

2.3 Taxonomy and morphology 8

2.5 Importance of rice 15

2.6 World Rice Cultivation and Production 16

2.7 Nutritional Requirement of Rice 18

2.8 Nutritional Composition of Rice 20

2.9 Role of agriculture in Sri Lanka 22

2.10 Rice cultivation and production in Sri Lanka 23

2.11 Fertilizer application of the rice 24

2.12 Nutrition deficiency symptoms of rice 25

CHAPTER 3 ..... **27**

MATERIALS AND METHODOLOGY **27**

3.1 Introduction 27

3.2 Experimental site 27

3.3 Climate and soil 27

3.4 Experimental design 27

3.5 Materials 29

3.6 Agronomic practices 29

3.7 Growth parameters 33

3.8 Yield parameters 34

3.9 Data analysis 34

CHAPTER 4 ..... **35**

RESULTS AND DISCUSSION **35**

4.1 Soil properties 35

4.2 Determination of vegetative characters of selected Sri Lankan Traditional Rice (*Oryza sativa* L.). 35

4.3 Evaluation of morphological traits at Days to fifth leaf 36

4.4 Analysis of Number of Culms 51

4.5 Principal Component and cluster Analysis 52

4.6 Days to flowering 58

4.7 Evaluation of yield variation of selected rice accessions 59

CHAPTER 5 ..... **60**

CONCLUSION **60**

REFERENCES **61**