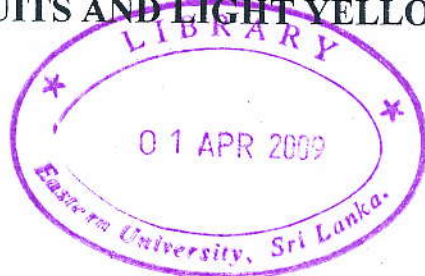


**VARIABILITY STUDIES AND SELECTION IN TWO LOCAL
CHILLI (*Capsicum annum* L.) PC-1 POPULATIONS WITH DARK
GREEN LONG FRUITS AND LIGHT YELLOW ROUND FRUITS**



**BY
ANUSHA SIVAKUMARAN**

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ABSTRACT

To perform the variability studies and selection in local chilli PC-1 populations, the field research was conducted during the period of April 28, 2008 to December 13, 2008 at the Agronomy Farm in Eastern University, SriLanka, Vantharumoolai, Chenkalady.

Two types of population namely Dark Green Long Fruits (B) and Light Yellow Round Fruits (W) were planted separately in the Agronomy Farm and 16 (B) and 21 (W) plants were selected randomly in the populations. Hence, a total number of 37 plants were randomly selected and tagged to evaluate the quantitative and qualitative characters that were observed from transplanting of chilli seedling up to last harvest in the two types of population. Recorded data were analyzed in this study.

The data on canopy height and number of primary branches at different growth stages, leaf length and leaf width, fruit width and fruit length, fruit weight, number of fruits per plant and yield per plant were collected in this experiment and were statistically analyzed to determine the level of significance.

The mean values and standard deviations indicated that the plants tested in this study showed differences among the population in growth parameters such as canopy height and number of primary branches at different stages, length and width of leaves and in yield component such as length and width of fruits and fruit weight, number of fruits per plant and yield per plant. The range value indicated that the variation occurred in these characters within the population.

The correlation studies revealed that some characters were positively correlated. They were canopy height at 100% flowering and canopy height at last harvest; canopy height at 100% flowering and yield per plant; canopy height at last harvest and fruit weight; canopy height at last harvest and fruit length; number of primary

branches at 100% flowering and number of primary branches at last harvest; leaf length and leaf width; leaf length and number of fruits per plant; leaf length and yield per plant; leaf width and fruit width; fruit length and fruit weight; fruit width and fruit weight; number of fruits per plant and yield per plant. Negative correlated characters were not found. Rest of the characters did not show any significant correlation.

Out of twenty six tested qualitative characters, the variation existed in eighteen qualitative traits of locally cultivated chilli. This study showed that the population of the PC-1 variety in the plots deviated from the characters of original PC-1 identity.

By and large; it is clearly seen that selected plant of PC-1 variety showed a wider variation in several traits of agronomic importance and hence, selection would be positively approached for particular characters and these specific measures use in chilli improvement programme, although yield and adaptability are the first and foremost criteria.

Considering the results in general, it can be suggested that a genotype similar to PC-1 variety is suitable for Batticaloa district. Farmers faced problem in marketing due to variation in fruit quality with respect to colour, shape, size, etc. Crop improvement programme in present variety is a need to rectify the defects in order to encourage production, productivity and market potential.

CONTENTS

Subjects	Page No
ABSTRACT	I
ACKNOWLEDGEMENT	III
ABBREVIATIONS	IV
CONTENTS	V
LIST OF TABLES	XII
LIST OF FIGURES	XIII
LIST OF PLATES	XVI
CHAPTER 1	1
1.0 INTRODUCTION	1
1.1 General description of Chilli (<i>Capsicum annum</i>)	1
1.2 Chilli (<i>Capsicum annum</i>) cultivation in Sri Lanka	2
1.3 Chilli cultivation in Batticaloa district	3
1.4 Economic importance	3
1.4.1 Nutritional importance	3
1.4.2 Medicinal importance	5
1.5 Chilli cultivar Pant C	6
1.6 Production constrains and quality aspects of PC chilli in Batticaloa	6
1.7 Objectives of the study	7
CHAPTER 2	9
2.0 REVIEW OF LITERATURE	9
2.1 Origin and distribution of Chilli	9
2.2 Taxonomy of Crop	9
2.2.1 Binominal classification	10

2.2.2 Characteristics of the genus	10
2.2.3 Types of Chilli varieties	12
2.2.4 Recommended varieties in Sri Lanka	15
2.3 Botany of the Crop	17
2.4 Pollination	18
2.5 Groth stages of the crop	19
2.5.1 Vegetative phase	19
2.5.2 Reproductive phase	19
2.6 Genetics of Capsicum	20
2.7 Uses of Crop	20
2.8 Production pattern of Chilli	21
2.8.1 Global production	21
2.8.2 Chilli cultivation in Sri Lanka	21
2.8.2.1 Total Extent and Production of Chilli cultivation in Sri Lanka	22
2.8.2.2 Extent and Production of Chilli cultivation in Batticaloa	24
2.9 Ecological Adaptation of Crop	24
2.10 Recommend Management practices of Chilli	25
2.10.1 Nursery Management	25
2.10.2 Land Preparation	26
2.10.3 Time of Planting	26
2.10.4 Planting and Spacing	26
2.10.5 Field planting	27
2.10.6 Fertilizer application	27
2.10.7 Irrigation	27
2.10.8 Weed control	27

2.10.9 Harvesting	28
2.10.10 Post-Harvest	28
2.11 Constrains for the expansion of Chilli Cultivation	28
2.11.1 Unavailability of suitable varieties	28
2.11.2 Pests and diseases in chilli plant	28
2.11.2.1 Chilli leaf curl complex	29
2.11.2.2 Diseases of parasitic origin	31
2.11.2.3 Physiological Disease	32
2.11.2.4 Pests	32
2.12 Crop Improvement Programmes	32
2.12.1 Crop Improvement Programme in World wide	32
2.12.2 Crop Improvement Programme in Sri Lanka	33
2.12.2.1 Germplasm collection and Evaluation	34
2.12.2.2 Hybridization and Selection	37
2.12.2.3 Pure line Selection	39
2.12.2.4 Diallel Crossing	39
2.12.2.5 Mutation Breeding	40
2.12.3 Research in the East of Sri Lanka	41
2.13 Breeder seed production	42
2.13.1 Breeder seed production in Sri Lanka	43
CHAPTER 3	45
3.0 MATERIALS AND METHODS	45
3.1 Location of this experiment	45
3.2 Experimental variety of chilli	47
3.3 Experimental Design and Planting	47

3.3.1 Experimental design	47
3.3.2 Plot size	47
3.3.3 Spacing	48
3.4 Agronomic practices	48
3.4.1 Land preparation	48
3.4.2 Nursery management	49
3.4.3 Transplanting	49
3.4.4 Shading	49
3.4.5 Gap filling and Earthing up	49
3.4.6 Watering	49
3.4.7 Manuring and Fertilizer Application	49
3.4.7.1 Manuring	49
3.4.7.2 Fertilizer application	50
3.4.8 Pest and disease control	50
3.4.9 Weed control	50
3.5 Chilli plants selection for data collection	50
3.6 Measurement and Observation	51
3.6.1 Canopy height (cm)	51
3.6.2 Number of Primary Branches	51
3.6.3 Mature leaf length	51
3.6.4 Mature leaf width	51
3.6.5 Yield estimation	51
3.6.6 Fruits per plant	51
3.6.7 Fruit length	52
3.6.8 Fruit width	52

3.6.9 Fruit weight	52
3.6.10 Number of seeds per fruit	52
3.7 Qualitative characters	52
3.7.1 Plant growth habit	52
3.7.2 Branching habit	52
3.7.3 Stem pubescence	52
3.7.4 Canopy height	52
3.7.5 Leaf colour	53
3.7.6 Leaf shape	53
3.7.7 Leaf pubescence	53
3.7.8 Stigma exsertion	53
3.7.9 Number of flowers per axil	53
3.7.10 Flower position	53
3.7.11 Corolla colour	53
3.7.12 Anther colour	53
3.7.13 Calyx margin	53
3.7.14 Calyx annular constriction	53
3.7.15 Fruit colour at intermediate stage	53
3.7.16 Fruit set	54
3.7.17 Fruit colour at mature stage	54
3.7.18 Fruit shape	54
3.7.19 Fruit shape at pedicel attachment	54
3.7.20 Neck at base of fruit	54
3.7.21 Fruit shape at blossom end	54
3.7.22 Fruit blossom end appendages	54

3.7.23 Fruit cross-sectional corrugation	54
3.7.24 Fruit surface	54
3.7.25 Seed colour	54
3.7.26 Number of seeds per fruit	54
3.8 Seed collection	54
3.9 Statistical Analysis	55
CHAPTER 4	56
4.0 RESULTS AND DISCUSSION	56
4.1 Analysis of quantitative characters	57
4.1.1 Canopy height	60
4.1.1.1 Canopy height at 100% flowering	61
4.1.1.2 Canopy height at last harvest	62
4.1.2 Number of primary branches	62
4.1.2.1 Number of primary branches at 100% flowering and at last harvest	64
4.1.3 Leaf length and leaf width	64
4.1.4 Fruit length	65
4.1.5 Fruit width	66
4.1.6 Fruit weight	68
4.1.7 Number of fruits per plant	69
4.1.8 Total yield per plant	71
4.2 Analysis of qualitative characters	74
4.2.1 Plant growth habit	75
4.2.2 Branching habit	77
4.2.3 Canopy height	79
4.2.4 Stem pubescence	80

4.2.5 Leaf colour	81
4.2.6 Leaf shape	83
4.2.7 Leaf pubescence	84
4.2.8 Flower position	85
4.2.9 Stigma Exsertion	87
4.2.10 Fruit colour at intermediate stage	88
4.2.11 Fruit shape	89
4.2.12 Fruit shape at pedicel attachment	90
4.2.13 Neck at base of fruit	92
4.2.14 Fruit shape at blossom end	93
4.2.15 Fruit cross-sectional corrugation	95
4.2.16 Fruit surface	96
4.2.17 Fruit set	97
4.2.18 Number of seeds per fruit	98
4.3 Disease incidence	100
CHAPTER 5	101
5.0 CONCLUSIONS	101
LITERATURE CITED	106
WEB SITE REFERENCES	114
APPENDICES	