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

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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.

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