ABSTRACTS

Characterization of Onion Germplasm for Various Traits

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Key Words: *Allium cepa*, Onion, Characterization, Germplasm

Onion, an important vegetable, has always registered its significance in the socio-economic and political system of India. After the enactment of the PPVFR Act a need has arisen to characterize the available germplasm on the basis of morphological and distinct features for registration of variety. This is more important in crops like onion, which is earning more than 75 percent foreign exchange in terms of value, of the total fresh vegetable export from India. Therefore, present investigation was conducted to characterize and evaluate onion germplasm for various traits. Seedlings of 36 genotypes (indigenous and exotic) were raised during *rabi* season of year 2004-05. The observations were recorded on yield, bulb weight, bulb diameter (equator and polar), neck thickness, plant height, number of leaves, leaf length, leaf width, days to maturity, bolting, shelf life, bulb colour, leaf colour, and leaf erectness. The yield ranged between 117-380 q/ha, average fruit weight 40-67 g, equator dia 4.35-5.95 cm, polar diameter 358-4.73 cm, neck thickness 0.79-1.37 cm, plant height 48-70.60 cm, number of leaves 10.50-14.80 cm, leaf length 30.5-56.20 cm, leaf width 1-1.72 cm, maturity 131-154 days, bolting 0-12.2 percent and shelf life 30-150 days.

Hierarchical Cluster Analysis in Exotic Introductions of Chilli (*Capsicum annuum* L)

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Among the five cultivated species of Capsicum, *Capsicum annuum* L is most widely cultivated throughout the world for pungent (chilli/hot pepper) and non pungent (sweet pepper) traits. In India, chilli is an important commercial crop grown for various market types. The knowledge on the nature and extent of genetic variability for desirable characters was pre requisite for their proper utilization in breeding programme. Hence this study of fifty-seven exotic genotypes of chilli was conducted during 2003-04. The observations on nine morphological characters were recorded and data were analysed. The variance analysis showed that genotypes differ significantly among themselves for all the characters under study. The phenotypic coefficients of variation (PCV) were invariably slightly higher than their corresponding genotypic coefficient of variation (GCV) due to environmental influence. The higher estimates of heritability coupled with the higher genetic advance for average fruit weight and yield per plant indicated that heritability of the trait is mainly due to additive effects and selection may be effective. High heritability accompanied with low genetic advance for fruit width and fruit length is indicative of non-additive gene action and the high heritability is being exhibited due to favourable influence of the environment rather than genotypes. Correlation studies showed that for most character pairs, genotypic and phenotypic associations were in the same direction and genotypic estimates were higher than the phenotypic ones, indicating an inherited association between the characters. Yield per plant the most important economic trait, exhibited positive association with number of fruits per plant and average

fruit weight. The negative correlation observed for number of fruits per plant with fruit width, fruit length and average fruit weight.

Hierarchical cluster analysis was conducted for different sources for six quantitative characters. Distance between all pairs of genotypes was calculated using squared Euclidean distance method and genotypes were clustered based on Ward's method. Cluster analysis showed four clusters. It can be concluded that the genotypes were mainly divided at the first node into 2 clusters with 55 and 2 genotypes in different groups. Cluster with 55 genotypes was again divided into 2 groups with 38 and 17 genotypes. Since these clusters are group of individuals possessing similar characters mathematically gathered into the same cluster, these individuals are supposed to exhibit higher external heterogeneity. Hence hybridization involving the inter cluster representatives of clusters would be more useful in chilli breeding programme.