Genetic Divergence in Cotton (*Gossypium hirsutum* L.) for Yield and Yield Components

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ABSTRACT

Genetic divergence in cotton was carried out in 40 genotypes based on 15 characters using Mabalonobis D^2 statistic and principal component analysis**.** The pattern of grouping of genotypes revealed the presence of considerable diversity in the material studied for 15 characters *viz.,* plant height (cm), days to 50% flowering, number of monopodia/ plant, number of sympodia/plant, number of bolls/plant, boll weight (g), ginning out-turn (%), seed index (g), lint index (g), 2.5% span length (mm), micronaire (10^{-6}g/in), bundle strength (g/tex), uniformity ratio, seed cotton yield/plant (g) and lint yield/plant (g). The D^2 statistic indicated more percent contribution to divergence by 2.5% span length followed by bundle strength, micronaire , uniformity ratio, number of monopodia/plant and lint yield/plant. Principal component analysis identified six principal components (PCs), which contributed 86.76 per cent of cumulative variance. In both Tocher's and Ward's minimum variance methods the genotype were grouped into seven clusters but vary in clustering pattern. Divergence studies indicated scope of F-2522, TCH-1716, ARBH-1501, HS-296, CPD-1502 and GJHV-517 in the development of heterotic hybrids.

Keywords: *Clusters, Genetic divergence, Mahalanobis D² statistic, Tocher's method, Ward's minimum variance method.*