Multivariate Analysis in 1% EMS Treated Tomato (*Lycopersicon esculentum* M.) *cv.* Arka vikas.

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ABSTRACT

An experiment was conducted to analyze the genetic diversity among 1.00 % EMS mutagen treated seeds of variety Arka vikas for 17 morphological and biochemical characters in tomato at Agricultural College Farm, Bapatla, Andhra Pradesh in 109 M_3 families along with control (untreated). The 109 M_3 families along with control with an optimum stand of 45-50 plants per family (unreplicated), were grouped into 11 clusters based on hierarchial cluster analysis. Among all the clusters, cluster II was the largest with 21 families followed by cluster I (with control Arka vikas) and X each with 14 families, cluster VIII with 11 families, cluster III with 10 families, cluster IX with 9 families, cluster IV and XI each with 8 families, cluster V and VII each with 6 families and cluster VI with 4 families. This random distribution of mutant families indicated that genetic diversity is existed not only from parent but also among themselves due to chromosomal anomalies for the seventeen characters studied. In the principal component analysis the first seven principal components with eigen values more than one contributed 74.53 per cent towards the total variability. It was therefore inferred that the essential features of data set had been represented in the first seven principal components. The first principal component contributed maximum towards variability (15.57 %).

Key words: *Ethyl methane sulfonate, Genetic divergence, Hierarchial cluster analysis and Principal component*