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Genetic diversity evaluation through principal component analysis in potato (*Solanum tuberosum* L.) germplasm

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ABSTRACT : Genetic diversity assessment based on Principal Component analysis and Non-hierarchical Euclidean distances for the identification of genetically diverse and agronomically superior accessions, which may generate heterotic transgressive segregants on hybridization was performed in which forty-four germplasms were evaluated for eleven morphological and agronomical traits in Augumented Block Design. Based on first seven principle components, namely emergence per cent, plant height, number of shoots per plant, number of tuber per plant, average tuber weight and tuber yield per plant, which accounted for 95.58 per cent of the variation, 44 potato germplasms were grouped into twelve well distinct clusters. The maximum intra cluster distance was noted in cluster VII and maximum inter cluster distance was noticed between cluster X and XI. Genotypes belonging to cluster IV, VIII, X and XI were found best in all respects.

Key Words: Cluster Analysis, genetic diversity, potato and Principal component analysis (PCA).