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Genetic Diversity for Yield and Its Attributes in Barley (*Hordeum vulgare* L.) under Irrigated Condition

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Abstract: Genetic diversity among 87 barley genotypes comprised of two and six row types was carried out for 10 characters using Mahalanobis D^2 statistics. All the genotypes were assigned into eight distinct clusters depending upon the similarity in the expression of their genetic divergence. Maximum number of genotypes were grouped in cluster VI (20) followed by cluster VII (15), IV (13), III (12), VIII (10), II (8) and clusters V and I had six and three genotypes, respectively. Highest intra- cluster distance was observed for cluster V (3.360) followed by cluster VI (3.312) and cluster VII (3.304) whereas it was recorded minimum for cluster VIII (2.553).The average inter-cluster distance was found to be highest between the cluster I and VII (6.722) followed by between cluster I and VIII (5.534) while the lowest inter-cluster distance was observed between clusters III and IV. The contribution of number of grains per spike was maximum (32.24%) towards divergence out of 10 characters studied, followed by 1000-grain weight (24.73%), plant height (13.79%), days to heading (8.26%) and number of tillers per meter row (7.38%), whereas the remaining characters contributed very little to diversity. The improvement in six rowed barley could be achieved through the use genotypes assigned in clusters I and II, whereas the genotypes which contained in cluster VI might be considered as potential parents for two rowed barley to obtain high heterotic response and consequently better segregants for grain yield.

Keywords: Genetic diversity, Barley, Cluster