Gene Action and Combining Ability Studies in Quality Protein Maize (QPM) (*Zea mays* L.) Genotypes *

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ABSTRACT

Forty-five QPM single cross hybrids along with 10 parents and two checks *viz*., DHM-105 and Shaktiman-2 were evaluated for combining ability at two locations (Hyderabad and Allahabad) and in two seasons (*Kharif* 2003 and *Kharif* 2004) for 26 different yield, quality and yield contributing quantitative characters. From this study it is inferred that, both additive and non-additive gene effects were present in the material under study. However, the ratio of additive and non-additive genetic variance revealed that there was preponderance of non-additive gene action in the expression of all the traits under study. Based on *per se* performance and combining ability studies, the parents P_3 and P_1were adjudged as best parents followed by P_{10} for possessing maximum number of favourable genes for grain yield and also yield contributing characters while parents P_4, P_7 and P_2 recorded highest favourable genes for protein, oil and tryptophan content. The cross combinations P_2 x P_6, P_4 x P_7 and P_5 x P_{10} exhibited highest magnitude of positive significant *sca* effects along with highest *per se* performance for yield, quality and yield contributing characters.

Key words : Combining ability, Diallel, Grain yield, Quality parameters, QPM, *Zea mays* L.