

COMBINING ABILITY FOR SOME IMPORTANT TRAITS IN RED MAIZE USING GRIFFING'S METHODS 2 AND 4

By

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ABSTRACT

A half diallel cross among 9 inbred lines of maize (*Zea mays* L.) was evaluated under two locations (Fac. Agric. Moshtohor and Quesna Menofiya Governorate) for some quantitative characters; i.e. days to 50 % tasseling, days to 50 % silking, plant height, ear height, ear leaf area, ear length, ear diameter, no of rows/ ear, No of kernels/row, 100-kernel weight, grain yield/plant and shelling%. General and specific combining ability were estimated according to Griffings (1956) diallel cross analysis designated as method 2 and 4 model 1 for each location as well as the combined over them. The correlation coefficient between General (\hat{g}_i) and specific (\hat{s}_{ij}) combining ability effects in two methods (Griffing's M2 and M4) was highly significant for all traits. In significant F test were detected for additive gene effects, additive x location interaction, non-additive x location interaction and error insignificant between the two methods used in this concern for most traits. On the other hand, Significant F test were detected between the two methods used in this study for non-additive for all traits except ear diameter and shelling%. The correlation coefficient of additive, non-additive, additive x location, non-additive x location effects, GCA/SCA, GCAXL/GCA, SCA xL/SCA and error in the two methods for most traits was highly significant between the two methods i.e. Griffing's method-2 and 4.

Key Words: Combining Ability, Diallel Analysis, Maize, Correlation, Additive, Non additive Genetic Components.