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GENETIC STUDIES AND DIVERSITY ANALYSIS OF MAIZE (ZEA MAYS L.) INBRED LINES FOR THE DEVELOPMENT OF HIGH FE AND ZN GENOTYPES

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Fe and Zn deficiencies are most prevalent especially in children and females and is directly correlated with food insecurity. The aim of current study was to screen maize germplasm for micronutrient's level. Sixty-eight maize inbred lines were sown during autumn season-2017 and spring season-2018 in soil having optimal level of Fe and Zn. All agronomic practices were performed accordingly and well in time. Data was collected for plant height, no. of cobs per plant, cob length, no. of rows per cob, no. of seeds per row, no. of seeds per cob, 100 seed weight, grain yield, phytic acid, Fe and Zn contents. Results of genotypic variance, phenotypic variance and heritability suggested that Zn had higher values 262.49, 284.43 and 92.29 respectively than Fe 39.05, 62.06 and 62.93. Correlation estimates showed that Fe and Zn had positive correlation with each other, plant height and 100 seed weight, while had negative association with grain yield and phytic acid. Genotypes were grouped into 5 clusters on basis of genetic diversity. Cluster-4 showed highest values of Fe and Zn while Cluster-3 had lowest. High variability for Zn (12.99-81.31) and Fe (15.99-52.75) among Inbred lines and good heritability provide a basis for development of improved genotypes with good Zn and Fe levels. Positive association of Fe and Zn suggests that both can be improved simultaneously, as biofortication is the most feasible way to provide micronutrient rich food to consumers.

Biography

Maria Kausar is a PhD scholar in Department of Plant Breeding and Genetics, College of Agriculture, University of Sargodha, currently working on "genetic studies of maize for micronutrient biofortification" as her research with 3.97 CGPA. She is the MPhil leading to PhD scholarship holder from Higher Education Commission of Pakistan. She has four publications in impacted journals, and has good knowledge of Microsoft Office. She has the research interest of breeding field crops.

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