

Molecular Characterization of Maize (*Zea mays* L.) Genotypes for Iron Content

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ABSTRACT

The present study was conceptualized and executed for screening maize genotypes for iron content and identification of SSR markers closely associated with micronutrient content in maize genotypes. Fourteen maize genotypes were obtained from the Maize Research Centre, ARI, ANGRAU, Hyderabad. The samples analyzed for grain iron content by Atomic Absorption Spectrophotometry, were grouped under high, medium and low categories. The iron content of the maize genotypes ranged from 9.81 to 80.47 mg / kg of grain and four genotypes had high iron content, six genotypes possessed medium iron content and four genotypes exhibited low iron content. A total of eighty SSR markers distributed over the ten chromosomes of maize were used for identifying the primers closely linked with the genomic regions associated with micronutrient content. Among the eighty markers used, only fifty markers showed amplified bands, out of which, the markers UMC1982, UMC1353, UMC1008 and UMC1349 showed polymorphism between four maize genotypes having high iron and the three genotypes with low iron content. These four markers were used to confirm whether polymorphism between fourteen maize genotypes was due to iron content. Definite trend of polymorphism that could be attributable to high and low iron content in the grains was exhibited by the SSR marker, UMC1008, located on chromosome 4.

Key words : Iron content, Maize, Molecular markers, Polymorphism.