

MAIZE STORAGE PROTEINS OF QPM VARIETIES, OPAQUE AND A WILD-TYPE

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Quality protein maize (QPM) varieties have been produced by the introduction of opaque-2 modifier genes. Three QPM varieties (BR451, BR473 and QPM161), a wild-type, and an opaque-type variety (QPM161) have been used to study storage proteins in maize endosperm, as well as amino acid content. Results from the current study show that storage proteins in the opaque-type and QPM varieties exhibited a significantly reduced zein fraction and an increased glutelin fraction when compared to the wild-type genotype, which exhibited a high concentration of zein. Because maize with high zein fractions are poor in lysine, alterations that result in lower zein fractions could lead to increased lysine concentration in QPM varieties. Amino acid analysis confirmed such a result and also showed an increase in the total pool of amino acids. These findings suggest that the production of QPM varieties can increase the nutritional quality of maize seeds in regards to protein and amino acid concentration.

Keywords: QPM maize, storage protein, zein, amino acids