Association of High Molecular Weight Glutenin Subunits of Wheat with some Important Quality Traits. (C07-abdmishani224857-Oral)

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Abstract:

In order to find a relationship between the high molecular weight glutenin subunits and bread making quality of wheat, 45 advanced breeding lines of wheat were studied using SDS PAGE procedure. Bread making quality of the lines was determined indirectly by farinograph test, protein content, loaf volume, seed hardiness, Zeleny, and SDS sedimentation tests. In order to attribute quality traits to HMWG subunits diversity, the cluster analysis was used to investigate the coincidence of clustering by two groups of variables. Results showed that the HMWG subunits based clustering did not coincide well with quality traits based clustering and HMWG subunits had somewhat different dendrogram than that of quality characters. Therefore the HMWG subunits may not account for the total variation in quality attributes. The principal component analysis was used for the total variation in quality attributes and grouping the genotypes. The results indicated that this is a useful tool for grouping and can serve as a complementary procedure for cluster analysis. Canonical correlation analysis was used to determine the relationship between the quality traits of wheat kernel and HMWG subunits. The results of this analysis revealed that the presence of 2, 7+8 and 5+10 subunits and the absence of 7, 7+9, 1, and 2+12 subunits in bread wheat could increase valorimeter value, SDS sedimentation value, dough stability, dough water absorption and decrease the degree of softening.

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