عنوان مقاله:

Classification of high and low molecular weight glutenin subunits and related genes in tetra-hexaploid wheat landraces

محل انتشار:

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خلاصه مقاله:

Wheat is the first and the most important grain of the world and its bakery property depends on gluten quality. Gluten is a part of endosperm hard proteins that causes increased stickiness quality. Wheat glutenin is divided into two groups according to their molecular weight, glutenin subunits with high molecular weight (HMW-GS) and glutenin subunits with low molecular weight (LMW-GS). In the present study, 97 Iranian wheat landraces were analyzed for diversity in high and low molecular weight glutenin subunits. In hexaploids, 11 different high molecular weight subunits were identified, three of which were related to Glu-A1, five for Glu-B1 and three were related to Glu-D1. Interestingly, the subunit 2.1+10* was observed in three landraces.In tetraploids, nine subunits were identified, of which two were related to Glu-A1 and seven were related to Glu-B1. Low molecular weight glutenin subunit encoding genes were investigated using seven DNA primer pairs for Glu-A3, Glu-B3 and Glu-D3 loci. Five alleles were identified for Glu3-A.2 with frequencies ranging from 3.092 to 96.907.Two alleles were identified by Glu3-A3 with relative frequencies of 0.412 and 0.608%.For Glu3-B.1, 10 alleles were identified, with frequencies ranging from 1.030 to 92.783. However, three alleles a, b and c were identified by Glu3-B.2 with frequencies of 0.01, 0.78 and 0.20, respectively. Three specific primers were used for Glu-D3 locus and because durum wheat lacks DD genome, it was not estimated in this genetic block. Using PCR amplification, nine alleles were identified for Glu3-D1 with frequencies ranging from 5.34 to 86.67. Also two and three alleles were identified using Glu3-D.3 and Glu3-D.4, respectively.

کلمات کلیدی:

Classification, Glutenin, HMW-GS, LMW-GS