HMW Glutenin Composition in Wheat Doubled Haploid Populations

M. Rębarz, M. Moczulski, M. Surma and T. Adamski

Institute of Plant Genetics, Polish Academy of Sciences, 60-479 Poznań, Poland, e-mail: mreb@igr.poznan.pl

Abstract: The composition of HMW glutenin subunits analysed in five doubled haploid (DH) populations of common spring and winter wheat (Sandrine × Jasna – 20 lines, Melon × Nawra – 20 lines, Quattro × Lavett – 34 lines, Melon × Jasna – 20 lines and Rysa × Pegassos – 38 lines). DH lines were derived by crossing of F₁ wheat hybrids with maize and in vitro culture of immature embryos. Allelic variation of Glu-1 loci was determined by using SDS-PAGE in 132 lines. The most interesting variants of HMW glutenin subunits in SDS-PAGE patterns was observed in two crosses: Quattro × Lavett and Melon × Nawra. For Quattro × Lavett the following glutenins was distinguished: six lines (17.6%) with 1/7+9/2+12 (Quattro type pattern), two lines (5.9%) with 2*/14+15/5+10 (Lavett type pattern), eight lines (23.5%) with 2*/7+9/5+10, one line (2.9%) with 2*/14+15/2+12, seven lines (20.6%) with 1/7+9/5+10, two (5.9%) lines with 2*/7+9/2+12, two lines (5%) with null/7+8/2+12 and one line (5%) with null/7+8/2+12. Observed segregation was not in agreement with the expected one. It can be explained by the influence of wheat genotype on the effectiveness of doubled haploid production.