

Diversity of HMW-Glu Alleles in Landraces and Cultars of Winter Wheat (*Triticum aestivum*), Spelt (*Triticum spelta*) and Emmer (*Triticum dicoccoides*)

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Abstract: Among 120 winter wheat landraces and cultivars, 224 Glu-lines were identified. Thirty-six emmer landraces exhibited 66 lines; a bit lower heterogeneity was recorded in spelt cultivars (17 lines in 10 cultivars). At chromosome 1A the allele 2* was rare in wheat (7%) absent in spelt and frequent in emmer (36 % lines). Allele 1 was prevailing in all species (49% in wheat, 82% in spelt and 55% in emmer). Chromosome 1B showed high heterogeneity of Glu-alleles in all species. Ten different alleles and/or allelic combinations were found in wheat, most common were 7+9 (40%), 7+8 (22%), 6+8 (16%) and 20 (12%). Combination 6+8 was common also in spelt (76%) and emmer (18%), where alleles 7+8 (41%) and 21 (21%) were more frequent. Several alleles were found only in emmer. Allelic combination 2+ 12 at 1D was common in winter wheat (63% lines) and spelt (71%), followed by 5+10 pattern. Rare combination 3+12 (4%) was observed only in wheat. The composition of LMW glutenins was also studied on the molecular level. Three primer pairs published by Ciaffi et al. (1999) were used. The first set of primers amplified the whole N-terminus and repeat domain and a part of the C-terminal region. The second set amplified a part of the N- and C-terminal regions and the whole repeat domain. The third set amplified the most variable region of the C-terminus. A high level of length polymorphism among PCR products of individual genotypes was observed. Data were processed into a colormap that clearly show the distribution of each allele. 7 of them are specific to *T. spelta* and *T. aestivum* and 4 of them are specific to *T. dicoccum*.