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Czech J. Genet. Plant Breed.

**Galuszka P.,
Ohnoutková L.,
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**Characterisation of a
novel high-molecular-
weight glutenin
subunit 1Dy12.3 from
hexaploid wheat
(*Triticum aestivum* L.)**

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157-168

A novel high-molecular-weight glutenin subunit encoded by the *Glu-1D* locus was identified in hexaploid wheat (*Triticum aestivum* L.) cultivar Noe and was designated as 1Dy12.3. This subunit differed in SDS-PAGE mobility from the

well-known 1Dy10 and 1Dy12 subunits that are also encoded by this locus. An analysis of the gene sequences confirmed the uniqueness of 1Dy12.3 and revealed that it is most closely related to the 1Dy12 subunit. The size of the deduced protein was calculated to be 67 884 Da, which is different from the 1Dy10 and 1Dy12 subunits (67 475 Da and 68 713 Da, respectively). The 1Dy12.3 protein consists of 652 residues, with a highly conserved signal sequence and N- and C-terminal domains, although the central repetitive domain comprising motifs of hexapeptide (PGQGQQ) and nonapeptide (GYPTSLQQ) repeats was less conserved. The 1Dy12.3 subunit demonstrates fewer QHPEQG hexapeptide motifs and exhibits an increased number of methionine residues in comparison to the other characterised high-molecular-weight glutenin subunits. The 1Dy12.3 subunit was cloned and expressed in *Escherichia coli* and was detected with a prolamin-specific antibody. The size of the detected immunocomplex corresponded to the native 1Dy12.3 protein isolated from grains. The existence and characterisation of this novel high-

molecular-weight glutenin subunit increases the diversity of the glutenins encoded by the *Glu-1D* locus.

Keywords:

1Dy12.3; *Glu-1Dy* locus; high-molecular-weight glutenin subunit; *Triticum aestivum* L.

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