УДК 575.174.015.3:664.641.12

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POLYMORPHISM OF γ-GLIADIN LOCI *Gli-A1, Gli-B1* and *Gli-D1* IN BREAD WHEAT VARIETIES THAT HAVE DIFFERENT ELECTROPHORETIC VARIANTS OF GLIADINS

Collection of 44 bread wheat varieties (*Triticum aestivum* L.) from different countries that have been characterized by different electrophoretic specters of allelic variants of gliadins by E. Metakovsky [2018] were analyzed by using PCR with allele-specific primers, which were recommended Zhang et al. [2003] for *Gli-A1*, *Gli-B1*, *Gli-D1* loci.

We have revealed – three different amplification fragments with primers to *Gli-B1.1* allele and five fragments with primers to *Gli-B1.2* allele among tested varieties.

For wheat varieties with allelic variant of gliadins − *Gli-B1b* and *Gli-B1n* the amplification fragment 369 bp was detected with the primers to *Gli-B1.1* allele; the *Gli-B1q* allelic variant of gliadin was corresponded to amplification fragment − 375 bp. For wheat varieties with *Gli-B1i, Gli-B1j, Gli-B1m, Gli-B1o, Gli-B1r* electrophoretic allelic variants of gliadins we have detected 400 bp amplification fragment with primers to *Gli-B1.1* allele. Wheat varieties that have *Gli-B1f* allelic variant of gliadins also have fragment of amplification 397 bp according to PCR with allele-specific primers to *Gli-B1.2* allele. In our experiment the *Gli-B1d* allelic variant of gliadins was corresponded to fragment of amplification 409 bp that have been developed with primers to *Gli-B1.2* allele, but Polischuk et al. [2010] have shown that *Gli-B1d* corresponded to *Gli-B1.1* allele. The *Gli-Ba* and *Gli-B1p* allelic variants of gliadins correspond to 21 bp and *Gli-B1e* allelic variant of gliadins match to 391 bp PCR-fragment, which have been developed in allele-specific PCR with primers to *Gli-B1.2* allele. For wheat varieties with *Gli-B1c* allelic variant of gliadins amplification fragments 400 bp or 397 bp were detected and similar for varieties with *Gli-B1h* we detected fragments − 400 or 409 bp with primers to *Gli-B1.2* allele. In some varieties *Gli-B1g* matches 400 bp fragments of *Gli-B1.1* allele and for other varieties with *Gli-B1g* fragment 397 bp was amplified with primers to *Gli-B1.2* allele. Similar situation was with *Gli-B1k* allelic variant of gliadins, which for number wheat varieties was corresponded to amplification fragments 400 bp of *Gli-B1.1* or 397 bp of *Gli-B1.2* alleles for some other wheat varieties.

We did not reveal clear correspondence between allelic variants of gliadins and

amplification fragments that have been developed by allele-specific PCR for *Gli-A1* and *Gli-D1* loci among tested varieties. For the loci we have observed six heterogeneous varieties and seven varieties with two alleles *Gli-A1.1* and *Gli-A1.2* together and 12 varieties with *Gli-D1.1* and *Gli-D1.2* alleles together in each studied genotype of the variety. In this case we have used BLAST service to find sequences which were used by Zhang et al. [2003] for primer developing and compared that sequences with another in the database. We have searched the same sequences with different alleles of *Gli-A1* and *Gli-D1* loci and plenty of the similar sequences with some different mutations. But the most interesting results we have got for *Gli-A1* locus. We have found a big sequence MG560140.1 (5335195 bp) published by Huo et al. [2018], which include two copies of *Gli-A1.1* allele sequence, that amplified in PCR and EF426565.1 (157918 bp) published by Gao et al. [2007] containing *Gli-A1.1* and *Gli-A1.2* sequences together. It could be the reason why we have observed two alleles together in some varieties. But for *Gli-D1* locus we did not found analogous big sequences.

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