

PHD program “Biology and Biodiversity”

**Molecular Genetic Mechanisms of Freezing Tolerance in Wheat Genome  
Substitution Form Aurotica**

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Low freezing temperatures is one of the most important abiotic stresses which cause severe injury and yield reduction in agronomically important plants, including common wheat. Theoretically, wheat wild relatives' genes controlling higher freezing tolerance could be transferred into common wheat cultivars for the improvement of their tolerance to freezing stress. Genome substitution form Aurotica, which combines in its genome tetraploid component from common wheat cultivar Aurora (AABB) and TT genome of wheat wild relative *Aegilops mutica*, is characterized by increased freezing tolerance, compared to Aurora. In our study common wheat introgressive lines with genetic material from *Aegilops mutica* have been developed, and chromosome numbers of the developed introgressive lines have been determined cytogenetically. The presence of *Aegilops mutica* genetic material in the genomes of the lines has been determined by the method of dot-blot hybridization (*Aegilops mutica* DNA as zond). Chromosomal and intrachromosomal localization of the introgressions (from *Aegilops mutica*) are conducted via polymorphism analysis of the chromosome group 5 specific SSR loci.

**Key words:** wheat, freezing tolerance, *Aegilops mutica*, SSRs