

The introgression peculiarities of the wheatgrass 6Ai chromosome in various varieties of common wheat

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Wheatgrass *Thinopyrum intermedium* (Host) is a source of agronomically valuable traits in wheat breeding. Using wheat-wheatgrass substituted line *Agis* 1 varieties of spring wheat Tulaykovskaya 5 and Tulaykovskaya 10 were produced. In the genome of the cultivar Tulaikovskaya 10, chromosome of wheat 6D is replaced by the wheatgrass 6Ai chromosome, which carries the genes for resistance to fungal diseases, providing immunity to plants in various ecological-geographical zones. In this work the hybridization of wheat varieties Saratovskaya 29 (C29), Novosibirskaya 15 (H15), Novosibirskaya 31 (H31) and Novosibirskaya 67 (H67) with the variety Tulaikovskaya 10 (T10) was carried out with the aim of obtaining plants with centromere breaks of the wheatgrass chromosome in F₂, and in the longer term – plants with centric wheat-wheatgrass translocations. The meiosis of F₁ hybrids was analyzed. In meiosis, centromere breaks of chromosomes 6Ai and 6D occurred, on the basis of which a prediction was made about the presence of 6Ai telocentrics in the F₂ generation. F₂ plants were analyzed using MF2/MR1r2 primers to the long arm of chromosome 6AiL *Th. intermedium*, Te6HS476 to the short arm of the chromosome 6AiS *Th. intermedium* and MF2/MR4 to the long arm of chromosome 6DL. According to PCR analysis of genomic DNA, the frequencies and transmission patterns of chromosome 6Ai are influenced by both the genotype of the recipient variety and the use of T10 as the maternal form. Among the studied plants, those (66) were selected for further analysis, in which primers were only amplified from the long or short arms of the wheatgrass chromosome. Plants F₃ T10 × C29 with 6AiS telocentric were grown under field conditions, they were characterized by resistance to powdery mildew and leaf rust.

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