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RESISTANCE OF (*AE. TAUSCHII* × *S. CEREALE*) × TRITICOSECALE HYBRIDS TO LEAF RUST (*PUCCINIA TRITICINA*)

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Leaf rust caused by the *Puccinia triticina* Eriks is one of the most dangerous diseases of cereals. Genetic manipulation of host resistance is both cost-effective and safe for environment method of controlling leaf rust. Wild *Aegilops* species, characterized by a high genetic variability, constitute the rich source of genetic resources especially resistance to fungal diseases. The main goal of this work was to examine the resistance of (*Ae. tauschii* × *S. cereale*) × *Triticosecale* hybrids to leaf rust in inoculation tests with isolates of *P. triticina* with different virulence patterns. Hybrid plants were selected for the presence of 2D chromosomes in triticale background using fluorescent and genomic in situ hybridization. Presence of Leaf rust (*Lr*) resistance genes was confirmed with associated molecular markers. Resistance was determined at macroscopic and microscopic level at two stages of development: seedlings and adult plants (flag leaf). Our results revealed the decreased reaction of hybrid plants at the seedling stage followed by the increase of resistance in further stages of development, what indicates that obtained hybrid plants may especially exhibit Adult Plant Resistance

(APR) resistance conferred by *Lr22a* introgressed from *Ae. tauschii*. On the basis of the macroscopic and microscopic analysis, this resistance can be determined as additive and race-specific. We selected Monosomic 2D Addition (M2DA) triticale genotypes highly resistant to *P. triticina* infection from which, we obtained double haploid lines that can be used for further breeding work to increase the agronomic value of cultivated triticale.

Biography

Maciej Majka is working in the Cereal Genomics Team in the Institute of Plant Genetics in Poznan, Poland. He has completed his MSc in Molecular Cytogenetics at the University of Silesia in Katowice, Poland. He is a Principal Investigator of his three years long scientific project financed by the National Science Centre (Poland): Genetic improvement of triticale by distant crosses with *Aegilops tauschii* × *Secale cereale* amphiploid forms in order to transfer the leaf rust resistance genes. He is an Executor in four other scientific projects. He is an author/co-author of 14 papers in reputed journals from the JCR list.

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