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Analysis of powdery mildew virulence on wheat in Yugoslavia

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Powdery mildew induced by the fungus *Blumeria graminis tritici* is a regular and economically important wheat disease in Yugoslavia. It has spread across all of the regions of growing, significantly reducing wheat yields in our country.

A successful wheat breeding for resistance to the causal agent of powdery mildew is based on the identification of virulence and changes in a population of this pathogen. Sexual and asexual populations *Blumeria graminis tritici* were analysed using wheat samples that contained the fungus, spore trap, and mobile nurseries.

The sexual part of the population was studied for five years. Wheat samples containing cleistothecia of the fungus were collected in 198 sites. The 1096 isolates analyzed rendered 700 virulence formulae, which illustrates the high variability of the parasite.

Complex genotypes are formed by sexual reproduction. Most of the genotypes possessed 8 to 11 virulent genes. Most efficient in the sexual population of the parasite were: Pm 4a, Pm 4b, and Mld, the gene combination Pm 5+6 and the genes from the line C-39.

The asexual population was studied in six locations in the vicinity Novi Sad. In the asexual population of *Blumeria graminis tritici* involved 9 virulence genes, among which V5 and V6 were the most frequent. The gene Vd was the least frequent, while the gene combination V5+6 was not registered.

Mobile nurseries were established in two locations - Novi Sad and Kragujevac. In each of the two locations there were two mobile nurseries, which were located at a safe distance. The mobile nurseries were used from March till the end of May.

In the mobile nurseries alleles for virulence V1, V2+, V5, V6, and V7 had the highest frequency in the population, whereas V36, V4a, and V17 had the lowest.