CHARACTERISTICS OF THE PHYTOPHthora INFEStANS POPULATION IN RUSSIA

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Phytophthora infestans strains, collected in 2007-2009 in different regions of the European part of Russia, were analyzed for several genotypic and phenotypic characteristics, such as mtDNA haplotype, Pep1 and Pep2 loci, mating type, virulence, and sensitivity to metalaxyl.

Allozyme analysis. The results of the allozyme analysis for Pep1 and Pep2 loci are shown on Fig. 3. In all populations the predominant genotype of the Pep1 locus was 100/100; all “tomato” populations were represented by only this genotype. The presence of all possible variants (92/100, 92/100, and 100/100) was revealed only in the Moscow “potato” population. For Pep2 loci, the diversity was higher. All three possible variants were revealed in 4 populations at different proportions. The most frequent genotype was 100/100, excepting 3 populations. This genotype was predominant for all tomato populations.

Mitochondrial DNA haplotype. The results of the mtDNA analysis are shown on Fig. 4. We revealed only two mtDNA haplotypes (a and b). The a genotype was predominant for all populations, excepting the Mariy El “tomato” population; two populations (Leningrad and Astrakhan) were presented by the only this genotype.

Virulence. The results of the virulence study are shown in Fig. 5. According to our data, populations from the Kostroma and Leningrad regions were similar to each other. The most frequent races in both populations included 8-10 virulence genes.

In the case of the Astrakhan population, we revealed a higher virulence gene frequency (9-11 genes) as compared to the above-mentioned populations (7-9 genes).

Metalaxyl resistance. The results of the analysis of the studied P. infestans populations for metalaxyl resistance are shown in Fig. 6. The most of the studied populations were represented by susceptible or moderately resistant isolates, excepting the Nizhnii Novgorod population, where the number of metalaxyl-resistant isolates was 73%.

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References