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**SUSCEPTIBILITY ALTERNARIA SOLANI (ELL. ET MART)  
NEERG, PH. INFESTANS ON TOMATOES IN KIEV REGION**

*The results of susceptibility studies selection samples of tomato against the pathogen Alternaria blight and leased lines, which characterized by relative stability and the field that will be used in the selection process when creating new varieties and hybrids.*

**Keywords:** tomato, pathogen Alternaria, late blight, a grade

**Introduction.** Drastic changes in climatic conditions of Ukraine promotes intensive development and increased severity blight and late blight on tomatoes. The disease is recognized early blight on tomatoes fungus genus *Alternaria solani* (Ell. et Mart) Neerg [1]. This pathogen is the most common form of leaf blight on tomatoes but also causes disease and other plant organs: cotyledons and true leaves, petioles, stems, and fruit.

Crop losses from the disease is 20-30%, and 40-50 years epifitoticheskie% [2]. On the development of early blight is largely affected by weather conditions. Optimal conditions for the development of the pathogen *Alternaria* temperature is 24-28 ° C and the humidity in the range of 70-100%. During the growing period, the pathogen forms several generations of conidia, which contributes to the rapid spread of the disease [7]. Environmental classification of infectious diseases related to blight aerogenic-certified (by Chulkina VA, 1991).

According E.A. Vlasova and other scholars (1979) pathogen weakly affects low-yielding , sterile , medium and late- type samples with indeterminate bush. In the context of Ukraine's genetic resistance to *Alternaria* tomato poorly studied. This is explained by the fact that the disease in the territory of Ukraine , though it was the case, but did not cause significant damage to tomato producers and little attracted the attention of plant pathologists . Resistance to *Alternaria* is controlled by one pair of genes with partial dominance of susceptibility. Resistant varieties against this pathogen to date virtually none.

**Materials and methods research.** The aim of our research was to study the varieties of tomato in relation to late blight and *Alternaria* , to evaluate samples in the field and highlight the relatively stable in order to use them in the selection process . Studies carried out in conditions of the Kiev region in the 2008-2014 period on the tomato plants in the field. The study involved the varieties and hybrids of the collection , competitive , preliminary , F1 hybrids and other nurseries. The main techniques that have

been used in our selection process were : the study sample selection on the main economically valuable traits [4] , the state variety trials [5] , evaluation of disease resistance [2]. Statistical analysis of the data was carried out by BA Description Dosphevim [3]. The evaluation for resistance breeding material was carried out in the field under natural infection.

**Results.** Over the period 2008-2014 in the field rated more than six thousand tomato varieties and hybrids of different ecological and geographical origin in order to create a collection of sources of resistance to *Alternaria solani* (Ell. et Mart) Neerg and late blight . During the period of research for seven years weather conditions for plant growth and development and yield formation of tomato fruits were quite colorful . [6] The studies breeding material for the resistance to *Alternaria* was distributed in the following groups of samples: relatively stable ( with the degree of development of the disease up to 25% ) - accounted for 0.1% of the analyzed ; weakly susceptible ( amount of disease from 25.1 % to 37.5%) -0.2 % ; moderately susceptible ( from 37.6 to 50.0 % ) -2.2% ; susceptible ( from 50.1 to 75%) -22.0 % ; highly susceptible ( from 75.1 % or more) -75.4 % . As seen from the above data evaluation of plant susceptibility to the pathogen *Alternaria* resistant samples were found. According to the results of phenological observations established that marked varieties and hybrids are relatively stable and slightly susceptible to *Alternaria* included in the group of early and medium ripe varieties during their growing season ranges from 98-115 days, and yields were 51,2-84,0 t \ ha ( Table 1).

Study of late blight severity on 480 samples of tomato presentation in Table 2 Vstanovleno that Ph. Infestans consists of two races, T0 and T1, differential reagiruyuchi with varieties of tomato. For selection characteristics onnogo material for resistance to late blight assessed at the artificial poraazhenii on detached leaf.

To study the nature of inheritance of resistance to the pathogen *Alternaria solani* (Ell. et Mart) Neerg and selection of resistant forms held a series of crosses. Selected in the collection nursery relatively resistant varieties were crossed with varieties evolved complex agronomic traits . In the studied combinations of pathogen resistance is inherited as a dominant , intermediate or recessive trait. Obtained a new source material is stable and low susceptibility against *Alternaria* , which is the study in breeding nurseries .

### 1. Economically valuable signs of the finest examples of tomato, evolved on the basis of resistance to blight (average 2008 – 2014)

Name varieties and hybrids	The development of the disease, %	yields		Average fruit weight, g	The vegetation of the period days
		t / ha	± to St		
Lagidny-standard	32,0	6,9		85	107
Syayvo x Mayak	28,0	7,4	0,5	95	110
Zakazniy 280 x Mikolka	23,0	7,5	0,6	115	104
Rio Fuego x Sarevo	26,0	7,8	0,9	103	102
Mobile x Flora	27,0	6,6	-0,3	125	100
BB510 x Lagidny	48,5	8,1	1,2	99	98
Ont 811 x Bojan	44,5	8,3	1,4	85	106
Bojan x Svitank	39,5	7,8	0,9	88	107
Zolote ryno x line 16	44,5	7,8	0,9	132	116
Amiko x Zakazniy 280	31,0	5,1	-1,8	144	114
Uragan	44,5	6,5	-0,4	136	115
Nema Mech xDolya	43,5	6,8	0,1	105	114
Zakazniy 280 x Danilo	27,0	8,1	1,2	77	111
Bojan x Mirolybovskoy	28,0	7,8	0,9	88	109
Suziriya x L.pimpenefolium	22,0	6,8	0,1	86	113
SSD 0,5			0,4		

### 2. Rating sample studied tomato to major diseases in Ukrainian conditions (average) 2008-2014

The degree of resistance lines	The development of disease, %	Sensitive lines, pcs.	
		early dry spot (natural conditions)	phytophthora (infection)
Are relatively resistant	<25	46	18
Mild sensitive	25,1 – 37,5	57	27
Average sensitive	37,6 – 50,0	155	242
Sensitive	50,1 – 75,0	94	98
Highly sensitive	75,1 >	25	35

**Conclusions.** In the 2008-2014 period is estimated more than 7000 varieties and hybrids for resistance to tomato blight under natural infection. Resistant to the studied samples of tomato pathogen have been identified, but the analysis has allowed prototypes split into groups and select the stability tolerance, which can later be used in the selection process as donors.

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#### **Оценка вредоносности *Alternaria solani* [Ell et Mart] Neerg и фитофтороза на томатах в Киевской области**

Изложены результаты исследований устойчивости селекционных образцов томата к возбудителям ранней сухой пятнистости, выделены линии, которым свойственна относительно полевая устойчивость и которые будут использованы в селекционном процессе при создании гибридов и сортов.

**Ключевые слова:** томат, возбудитель, альтернариоз, сорт.