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Resistance and virulence variability in wheat-*Zymoseptoria tritici* interactions

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Supplementary Material table S1. Disease severity data that are based on percentage of wheat leaf area covered by lesions bearing pycnidia of *Zymoseptoria tritici* isolates

No.	Genotypes	Origin	Isolates ^a										No. of resistance reaction	Mean Disease Severity
			IP02166	IP099031	RM230	RM22	RM6	RM183	IP098022	IP092034	IP086013	IP0323		
1	Bulgaria 88	Bulgaria	60	70	68	60	53	65	48	5	75	0	2	50
2	Veranoplis	Brazil	60	8	13	5	33	30	33	0	33	0	4	21
3	Israeal 493	Israel	22	36	28	24	23	30	30	45	41	5	1	28
4	Tadinia	USA	75	55	13	21	18	18	13	5	15	8	2	24
5	CS-synthetic	China/USA	28	5	70	68	65	58	60	30	53	8	2	44
6	Shafir	Israel	55	46	42	46	58	58	55	30	48	0	1	44
7	Es-Federal	Uruguay	75	35	58	42	35	35	28	28	24	36	0	40
8	M6	USA	61	55	60	63	65	55	58	48	30	0	1	49
9	Courtot	France	75	65	60	60	58	53	44	53	7	53	1	53
10	Kavkaz-K4500	CIMMYT	5	1	8	8	1	3	3	3	3	3	10	4
11	TE9111	Portugal	0	39	42	28	13	13	8	8	5	8	5	16
12	Salamoni	Canada	65	5	5	8	5	5	10	10	13	5	8	13
13	Arina	Switzerland	3	8	5	3	3	1	5	5	5	5	10	4
14	Riband	England	3	5	5	5	5	5	5	5	3	3	10	4
15	M3 Synthetic	USA	0	0	0	0	0	0	0	0	0	0	10	0
16	Balance	France	70	36	53	33	18	35	5	46	33	5	2	33
17	Obelisk	Netherlands	65	60	60	35	33	33	28	39	39	33	0	42
18	Taichung 29	Japan	65	70	55	42	63	58	55	58	55	50	0	57
19	Aflak	Iran	60	60	68	53	60	60	55	55	53	46	0	57
20	Alamut	Iran	65	65	58	60	36	50	41	41	44	33	0	49
21	Alborz	Iran	65	46	53	60	58	60	58	58	58	53	0	57
22	Arvand	Iran	65	8	33	13	36	30	39	33	28	24	1	31
23	Atrak	Iran	70	65	63	60	63	60	50	33	38	48	0	55
24	Azadi	Iran	65	58	46	53	80	53	58	28	58	50	0	55
25	Naaz	Iran	28	15	68	5	0	0	24	33	24	21	3	22
26	Baharan	Iran	65	55	50	49	53	65	23	13	50	58	0	48
27	Bam	Iran	80	60	58	60	63	65	65	58	56	53	0	62
28	Barat	Iran	8	5	40	38	39	40	50	58	63	58	2	40
29	Bezostaya	Iran	53	55	53	46	50	46	53	50	50	55	0	51
30	Chamran	Iran	60	33	33	39	33	33	21	13	18	28	0	31
31	Chenab	Iran	75	73	68	60	75	70	50	43	33	43	0	59
32	Dez	Iran	75	75	50	55	60	55	48	48	53	48	0	57
33	Gascogen	Iran	29	60	60	15	63	13	10	5	13	5	3	27
34	Gaspard	Iran	40	70	60	3	3	18	5	5	8	5	6	22
35	Gonbad	Iran	75	43	25	15	39	13	8	13	13	39	1	28
36	Heydari	Iran	75	75	35	33	65	58	33	28	60	48	0	51
37	Hirmand	Iran	48	50	13	8	5	5	8	5	8	5	7	15
38	Karaj1	Iran	48	55	60	58	53	53	58	48	48	48	0	53
39	Karaj2	Iran	43	33	33	39	39	55	33	30	28	28	0	36
40	Karaj3	Iran	80	70	58	53	70	60	68	60	53	45	0	62
41	Kaveh	Iran	55	60	41	53	28	45	28	33	53	49	0	44
42	Kavir	Iran	75	33	60	33	33	35	24	33	43	28	0	39
43	Khazar	Iran	75	58	36	42	58	60	58	41	35	58	0	52
44	Marun	Iran	40	55	63	50	80	68	60	53	44	46	0	56
45	Mehregan	Iran	50	55	53	50	33	55	53	48	53	53	0	50
46	Morvarid	Iran	80	55	28	33	33	40	28	48	48	33	0	42
47	MV-17	Iran	70	46	50	53	78	80	53	36	53	50	0	57
48	Narin	Iran	65	60	60	42	42	60	53	53	58	44	0	54
49	Navid	Iran	70	55	53	42	46	42	48	48	44	39	0	48
50	Niknejad	Iran	65	51	60	42	63	55	55	33	50	33	0	51
51	Parsi	Iran	75	60	73	70	63	60	50	60	58	53	0	62

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Table 3. (continued)

52	Pishgam	Iran	80	45	60	35	20	36	28	21	13	13	0	35
53	Pishtaz	Iran	75	70	41	35	13	45	28	24	19	18	0	37
54	Rakhshan	Iran	46	53	35	35	20	39	48	50	44	33	0	40
55	Rasul	Iran	55	70	46	50	65	75	68	55	48	53	0	58
56	Roshan	Iran	60	55	50	50	73	50	65	53	60	46	0	56
57	Sayson	Iran	55	65	5	5	3	5	3	8	5	3	8	16
58	Sefidak	Iran	75	65	51	63	65	80	60	35	44	48	0	58
59	Shahi	Iran	34	36	30	19	30	30	28	58	33	33	0	33
60	Shahriyar	Iran	80	60	60	63	53	60	55	58	58	53	0	60
61	Shirudi	Iran	70	63	36	46	42	60	58	58	53	39	0	52
62	Shoush	Iran	34	29	58	33	33	58	35	33	75	53	0	44
63	Sivand	Iran	75	51	30	63	78	65	68	50	53	39	0	57
64	Sorkh Tokhm	Iran	70	60	68	50	33	35	33	30	55	39	0	47
65	Sorkhak	Iran	80	65	51	50	58	63	33	24	24	26	0	47
66	Tabasi	Iran	60	65	65	41	75	60	53	60	53	48	0	58
67	Tajan	Iran	80	38	33	50	48	50	48	55	58	39	0	50
68	Taynson	Iran	70	65	68	53	70	78	65	55	48	49	0	62
69	Urum	Iran	60	70	63	58	80	58	58	48	48	55	0	60
70	Vee/Nac	Iran	55	60	68	63	60	60	60	30	33	30	0	52
71	Zare	Iran	75	8	8	39	42	42	48	53	53	43	2	41
72	AR-N-94-41	Iran	3	3	19	15	3	3	1	5	3	1	8	5
73	ER-MS-92-5	Iran	70	70	58	58	60	60	60	75	58	50	0	62
74	ER-C-93-14	Iran	80	55	46	58	60	60	53	44	53	39	0	55
75	ER-M-93-13	Iran	80	60	58	60	63	60	33	28	33	21	0	49
76	ER-N-94-15	Iran	75	70	33	70	55	33	33	21	33	28	0	45
77	ER-S-93-2	Iran	70	65	58	50	42	36	28	13	13	5	1	38
78	ER-S-93-19	Iran	20	65	42	68	68	65	48	58	53	50	0	53
79	ER-S-94-15	Iran	75	68	19	33	15	15	13	10	13	8	2	27
80	ER-N-93-12	Iran	28	41	58	42	39	42	39	33	25	15	0	36
81	ER-S-92-13	Iran	65	70	55	53	53	53	53	53	53	33	0	54
82	ER-M-92-20	Iran	1	0	8	3	3	8	0	0	0	0	10	2
83	IPK45227	Spain	40	1	8	1	0	0	0	0	0	0	9	5
84	IPK46116	Japan	40	5	5	5	10	5	1	3	5	3	9	8
85	IPK40600	China	80	8	10	13	15	15	5	5	8	5	6	16
86	IPK40740	France	0	3	5	0	0	0	0	1	0	1	10	1
87	IPK40961	Japan	55	55	53	3	3	3	1	0	0	0	7	17
88	IPK40848	China	55	65	65	48	46	53	53	53	58	39	0	53
89	IPK40778	England	41	60	49	36	42	50	55	35	33	24	0	42
90	KC304	Iran-Maraghe	75	20	58	28	75	75	65	58	68	55	0	58
91	IPK40561	India	75	42	56	33	33	33	33	24	58	58	0	44
92	IPK47695	Australia	80	30	20	15	13	13	8	8	13	13	2	21
93	IPK40571	Australia	60	46	39	35	33	30	28	28	48	24	0	37
94	IPK46266	England	63	53	70	42	42	42	53	50	33	24	0	47
95	KC4804	Iran-Sabzevar	60	51	75	53	33	30	30	33	30	33	0	43
96	KC4400	Iran-Mashhad	70	18	10	33	35	35	33	30	30	30	1	32
97	KC257	Iran-Miandab	75	39	58	63	58	60	60	33	53	53	0	55
98	IPK40841	Russia	55	65	50	53	50	53	53	28	55	39	0	50
99	IPK40598	-	70	75	75	70	68	70	43	45	33	29	0	58
100	IPK40744	United States	70	58	63	60	50	55	53	48	50	35	0	54
101	IPK41043	Russia	70	60	58	53	42	50	53	58	48	50	0	54
102	KC373	Iran-Moghan	40	3	35	33	33	30	48	41	39	33	1	33
103	KC2687	Iran-Ahvaz	60	10	13	13	20	13	21	28	38	30	1	24
104	KC3	Iran-Tabriz	70	39	38	50	60	60	55	46	48	29	0	49
105	IPK41722	England	70	55	53	30	33	33	28	58	53	45	0	46

Table 3. (continued)

106	IPK47109	Spain	70	36	60	50	53	53	53	41	33	29	0	48
107	IPK40529	France	5	10	19	25	13	13	10	33	33	33	3	19
108	KC546	Iran-Dezful	70	30	58	39	55	60	58	41	41	39	0	49
109	IPK40501	Australia	70	53	35	33	53	53	48	58	48	45	0	49
110	IPK44670	India	60	23	15	30	33	15	8	21	13	10	2	23
111	IPK40470	Romania	13	8	8	3	1	3	40	58	48	40	5	22
112	IPK40793	Japan	38	3	5	1	1	0	0	0	0	0	9	5
113	KC4942	Iran-Shirvan	70	65	10	53	60	60	53	44	53	40	1	51
114	IPK46276	France	70	40	39	41	13	35	24	21	13	20	0	31
115	IPK47589	Australia	75	60	53	42	33	42	33	39	30	30	0	44
116	KC336	Iran-Ardebil	75	65	48	24	33	33	33	28	30	26	0	39
117	KC4840	Iran-Sarakhs	60	46	46	46	60	50	39	41	30	34	0	45
118	KC4935	Iran-Ghuchan	80	61	53	70	78	65	53	60	48	55	0	62
119	IPK40593	United States	65	80	33	63	60	58	55	60	58	50	0	58
120	IPK40471	Romania	65	60	53	80	58	50	50	65	68	60	0	61
121	IPK41094	England	55	65	60	60	55	53	44	53	55	48	0	55
122	IPKv46279	France	30	60	49	53	53	55	30	41	50	41	0	46
123	IPK40528	Russia	65	55	60	50	42	50	5	5	18	8	3	36
124	IPK41079	Romania	13	10	8	5	3	3	1	3	4	10	9	6
125	IPK40964	Japan	70	43	65	58	58	58	28	48	58	38	0	52
126	IPK46278	France	5	43	60	41	35	33	33	53	58	53	1	41
127	IPK40889	Russia	60	51	70	53	50	50	30	45	40	34	0	48
128	IPK40492	Romania	70	60	50	50	36	30	33	35	39	33	0	43
129	IPK40849	China	70	60	33	35	28	36	30	43	38	24	0	39
130	IPK41708	England	50	40	48	39	35	35	45	58	53	53	0	45
131	IPK40591	United States	65	60	65	55	80	75	60	53	45	53	0	61
132	IPK44674	India	65	65	65	63	78	60	53	53	49	39	0	59
133	IPK40499	Australia	75	65	80	60	58	70	55	24	50	39	0	57
134	IPK49733	India	80	51	39	42	29	33	33	33	30	24	0	39
135	KC3172	Iran-Torbat	75	70	60	70	53	53	48	53	60	48	0	59
136	IPK40745	United States	65	40	58	60	63	60	53	58	58	53	0	57
137	IPK40502	United States	75	55	33	30	56	35	30	44	53	38	0	45
138	KC3500	Iran-Bushehr	55	51	55	60	51	60	58	53	48	48	0	54
139	IPK41163	China	75	60	65	65	65	63	50	53	50	29	0	57
140	IPK44673	India	40	25	80	20	28	35	33	33	33	28	0	35
141	IPK40911	Spain	75	55	60	58	70	58	58	44	41	39	0	56
142	IPK45180	Romania	80	43	53	35	35	33	24	75	33	30	0	44
143	IPK40462	Russia	28	65	60	60	55	55	30	85	38	30	0	51
144	IPK44790	-	46	60	60	50	42	35	33	45	36	38	0	44
145	IPK45107	Spain	80	70	13	13	8	5	5	5	5	5	6	21
146	KC4821	Iran-Torbat	75	63	70	58	75	78	75	75	58	53	0	68
147	IPK7519	Argentina	75	70	33	42	60	60	53	75	55	53	0	57
148	IPK7224	Finland	80	80	65	58	58	50	60	65	49	48	0	61
149	IPK17315	Tunisia	65	78	23	50	50	58	50	44	53	44	0	51
150	IPK10336	China	70	46	42	42	35	45	33	50	45	33	0	44
151	IPK2547	Afghanistan	53	60	58	50	53	50	40	58	53	53	0	53
152	IPK18035	Libya	75	56	65	60	55	53	53	45	33	33	0	53
153	IPK9511	Azerbaijan	60	65	70	55	50	60	55	53	55	48	0	57
154	IPK595	Greece	80	75	75	70	68	60	60	55	60	53	0	66
155	IPK9518	Azerbaijan	70	55	50	60	50	50	50	35	53	40	0	51
156	IPK7571	Australia	75	70	65	70	60	58	58	53	63	53	0	62
157	IPK10974	Brazil	70	75	50	53	60	60	58	60	53	33	0	57
158	IPK3039	Portugal	8	13	13	13	8	5	5	8	5	5	7	8
159	IPK7508	Argentina	20	18	13	15	53	53	33	33	33	19	0	29

Table 3. (continued)

160	IPK10010	Chile	65	48	28	55	63	60	48	45	53	39	0	50
161	IPK17562	Tajikistan	8	8	15	35	30	33	25	42	33	39	2	27
162	KC5943	Iran	53	63	58	42	65	60	58	53	45	45	0	54
163	IPK19174	Turkey	75	75	65	53	28	50	50	35	30	24	0	48
164	IPK8173	-	75	60	53	60	75	73	55	53	53	38	0	59
165	IPK11062	Kazakhstan	80	70	68	70	60	60	53	45	50	35	0	59
166	IPK2919	Afghanistan	55	65	60	53	33	35	33	33	36	34	0	43
167	IPK2959	Brazil	68	65	58	65	75	80	60	58	49	33	0	61
168	IPK12739	Kazakhstan	75	60	33	60	65	70	50	53	45	42	0	55
169	KC9731	Iran	80	60	55	65	63	60	60	65	55	53	0	62
170	IPK12310	India	75	39	42	53	60	50	48	65	58	53	0	54
171	IPK8152	South Africa	6	3	5	5	13	5	53	53	53	38	5	23
172	IPK175	Hungary	70	65	55	53	53	53	33	42	33	33	0	49
173	IPK5260	Ireland	70	70	70	42	65	68	60	50	58	46	0	60
174	IPK8168	South Africa	65	23	15	35	33	36	33	33	25	22	0	32
175	IPK2906	China	70	80	33	60	73	65	58	63	51	43	0	59
176	IPK15012	Ethiopia	80	60	33	50	70	60	48	50	50	39	0	54
177	IPK598	Greece	70	65	49	70	46	50	60	60	53	48	0	57
178	IPK607	Greece	65	45	10	10	3	1	1	0	1	0	8	14
179	IPK2497	Afghanistan	55	46	28	30	33	33	28	33	33	26	0	34
180	IPK10431	Brazil	75	65	33	28	18	24	30	33	33	33	0	37
181	IPK3944	Nepal	80	55	46	50	56	46	53	33	55	44	0	52
182	IPK28844	Turkey	53	65	50	42	60	58	60	45	53	53	0	54
183	IPK16452	Italy	3	5	58	3	1	1	1	5	1	1	9	8
184	IPK10877	Nepal	65	65	65	28	60	58	50	60	48	53	0	55
185	KC493938/n	Iran-Torbat	46	46	50	60	58	60	58	65	58	44	0	54
Total No. of Avirulence			15	25	19	21	22	22	29	29	22	35	239	
Aggressiveness ^b			63	55	49	47	49	49	45	45	44	40		
Total No. of Virulence			170	160	166	164	163	163	156	156	163	150		

^aThe shading boxes indicate resistant responses.

^bAggressiveness was calculated based on mean disease severity by omitting the data for specific interactions.