

CHAPTER 6

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APPENDIX 1

Table A1. Probabilities of pair-wise differences between various fungal isolates and wheat and barley for percentage root growth.

Isolate ^a - Crop ^b	Isolate ^a - Crop ^b																					
	I1-C1	I1-C2	I2-C1	I2-C2	I3-C1	I3-C2	I4-C1	I4-C2	I5-C1	I5-C2	I6-C1	I6-C2	I7-C1	I7-C2	I8-C1	I8-C2	I9-C1	I9-C2	I10-C1	I10-C2	I11-C1	I11-C2
I1-C1	-																					
I1-C2	0.000*	-																				
I2-C1	0.000*	0.574	-																			
I2-C2	0.000*	0.364	0.781	-																		
I3-C1	0.842	0.000*	0.000*	0.000*	-																	
I3-C2	0.004	0.200	0.137	0.087	0.042	-																
I4-C1	0.000*	0.313	0.517	0.636	0.001	0.101	-															
I4-C2	0.000*	0.000*	0.001	0.002	0.000*	0.000*	0.037	-														
I5-C1	0.000*	0.241	0.166	0.094	0.004	0.668	0.131	0.000*	-													
I5-C2	0.000*	0.035	0.243	0.382	0.000*	0.014	0.957	0.008	0.007	-												
I6-C1	0.003	0.000*	0.000*	0.000*	0.045	0.000*	0.000*	0.000*	0.000*	0.000*	-											
I6-C2	0.026	0.000*	0.001	0.000*	0.228	0.220	0.006	0.000*	0.029	0.000*	0.000*	-										
I7-C1	0.000*	0.332	0.632	0.801	0.000*	0.089	0.800	0.008	0.108	0.659	0.000*	0.001	-									
I7-C2	0.000*	0.003	0.025	0.044	0.000*	0.001	0.321	0.156	0.001	0.167	0.000*	0.000*	0.127	-								
I8-C1	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.012	0.802	0.000*	0.000*	0.000*	0.000*	0.000*	0.063	-							
I8-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.052	0.399	0.000*	0.000*	0.000*	0.000*	0.003	0.286	0.211	-						
I9-C1	0.000*	0.000*	0.002	0.006	0.000*	0.000*	0.226	0.138	0.000*	0.045	0.000*	0.000*	0.050	0.893	0.018	0.200	-					
I9-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.015	0.786	0.000*	0.000*	0.000*	0.000*	0.000*	0.085	0.956	0.294	0.036	-				
I10-C1	0.000*	0.006	0.015	0.006	0.014	0.855	0.040	0.000*	0.356	0.000*	0.000*	0.100	0.017	0.000*	0.000*	0.000*	0.000*	0.000*	-			
I10-C2	0.000*	0.000*	0.031	0.069	0.000*	0.001	0.608	0.021	0.000*	0.376	0.000*	0.000*	0.271	0.376	0.000*	0.001	0.142	0.000*	0.000*	-		
I11-C1	0.264	0.054	0.038	0.025	0.411	0.400	0.032	0.000*	0.205	0.005	0.014	0.992	0.026	0.001	0.000*	0.000*	0.000*	0.000*	0.394	0.001	-	
I11-C2	0.000*	0.006	0.025	0.038	0.000*	0.002	0.206	0.410	0.002	0.114	0.000*	0.000*	0.087	0.640	0.397	0.799	0.674	0.428	0.000*	0.230	0.001	-

^aI1 = *Bipolaris sorokiniana*, I2 = *Fusarium equiseti*, I3 = *F. chlamydosporum*, I4 = *F. solani*, I5 = *F. oxysporum*, I6 = *F. nygamai*, I7 = *F. subglutinans*, I8 = *Phoma medicaginis*, I9 = *Periconia macrospinoso*, I10 = *Rhizoctonia solani*, I11 = *Sclerotium rolfsii*.

^bC1 = wheat, C2 = barley

* $P=0.000 \equiv P<0.0001$

Table A2. Probabilities of pair-wise differences between various fungal isolates and wheat and barley for percentage shoot growth.

Isolate ^a - Crop ^b	Isolate ^a - Crop ^b																						
	I1-C1	I1-C2	I2-C1	I2-C2	I3-C1	I3-C2	I4-C1	I4-C2	I5-C1	I5-C2	I6-C1	I6-C2	I7-C1	I7-C2	I8-C1	I8-C2	I9-C1	I9-C2	I10- C1	I10- C2	I11- C1	I11- C2	
I1-C1	-																						
I1-C2	0.000*	-																					
I2-C1	0.000*	0.216	-																				
I2-C2	0.000*	0.832	0.411	-																			
I3-C1	0.087	0.000*	0.020	0.003	-																		
I3-C2	0.000*	0.734	0.269	0.663	0.003	-																	
I4-C1	0.000*	0.068	0.021	0.072	0.000*	0.182	-																
I4-C2	0.000*	0.122	0.040	0.124	0.000*	0.273	0.836	-															
I5-C1	0.000*	0.008	0.303	0.058	0.112	0.049	0.003	0.006	-														
I5-C2	0.000*	0.502	0.118	0.484	0.000*	0.912	0.159	0.254	0.006	-													
I6-C1	0.907	0.000*	0.000*	0.000*	0.106	0.000*	0.000*	0.000*	0.000*	0.000*	-												
I6-C2	0.000*	0.131	0.898	0.320	0.021	0.212	0.015	0.030	0.339	0.073	0.000*	-											
I7-C1	0.000*	0.346	0.103	0.336	0.001	0.648	0.335	0.469	0.012	0.664	0.000*	0.073	-										
I7-C2	0.000*	0.493	0.159	0.461	0.001	0.794	0.262	0.377	0.023	0.840	0.000*	0.119	0.846	-									
I8-C1	0.000*	0.000*	0.000*	0.000*	0.000*	0.010	0.692	0.502	0.000*	0.001	0.000*	0.000*	0.044	0.024	-								
I8-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.014	0.770	0.570	0.000*	0.001	0.000*	0.000*	0.060	0.033	0.825	-							
I9-C1	0.000*	0.001	0.000*	0.006	0.000*	0.078	0.884	0.902	0.000*	0.029	0.000*	0.000*	0.222	0.146	0.311	0.411	-						
I9-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.005	0.526	0.367	0.000*	0.000*	0.000*	0.000*	0.025	0.014	0.632	0.500	0.177	-					
I10-C1	0.000*	0.000*	0.020	0.001	0.392	0.003	0.000*	0.000*	0.213	0.000*	0.000*	0.018	0.000*	0.001	0.000*	0.000*	0.000*	0.000*	-				
I10-C2	0.000*	0.359	0.067	0.402	0.000*	0.883	0.145	0.239	0.001	0.969	0.000*	0.032	0.655	0.846	0.000*	0.000*	0.012	0.000*	0.000*	-			
I11-C1	0.624	0.001	0.012	0.003	0.521	0.002	0.000*	0.000*	0.054	0.000*	0.604	0.013	0.001	0.001	0.000*	0.000*	0.000*	0.000*	0.000*	0.167	0.000*	-	
I11-C2	0.000*	0.562	0.641	0.956	0.038	0.721	0.143	0.208	0.269	0.629	0.000*	0.580	0.466	0.568	0.019	0.025	0.081	0.012	0.072	0.599	0.019	-	

^aI1 = *Bipolaris sorokiniana*, I2 = *Fusarium equiseti*, I3 = *F. chlamydosporum*, I4 = *F. solani*, I5 = *F. oxysporum*, I6 = *F. nygamai*, I7 = *F. subglutinans*, I8 = *Phoma medicaginis*, I9 = *Periconia macrospinoso*, I10 = *Rhizoctonia solani*, I11 = *Sclerotium rolfsii*.

^bC1 = wheat, C2 = barley

* $P=0.000 \equiv P<0.0001$

Table A4. F

Isolate ^a - Crop ^b	I1-C1
I1-C1	-
I1-C2	0.000*
I2-C1	0.000*
I2-C2	0.000*
I3-C1	0.361
I3-C2	0.000*
I4-C1	0.000*
I4-C2	0.000*
I5-C1	0.000*
I5-C2	0.000*
I6-C1	0.251
I6-C2	0.000*
I7-C1	0.000*
I7-C2	0.000*
I8-C1	0.000*
I8-C2	0.000*
I9-C1	0.000*
I9-C2	0.000*
I10-C1	0.002
I10-C2	0.000*
I11-C1	0.568
I11-C2	0.006

^aI1 = *Bipolaris*
 I8 = *Phoma*
^bC1 = wheat
 *P=0.000 ≡

Table A3. Probabilities of pair-wise differences between various fungal isolates and wheat and barley for percentage shoot mass.

Isolate ^a - Crop ^b	Isolate ^a - Crop ^b																						
	I1-C1	I1-C2	I2-C1	I2-C2	I3-C1	I3-C2	I4-C1	I4-C2	I5-C1	I5-C2	I6-C1	I6-C2	I7-C1	I7-C2	I8-C1	I8-C2	I9-C1	I9-C2	I10-C1	I10-C2	I11-C1	I11-C2	
I1-C1	-																						
I1-C2	0.000*	-																					
I2-C1	0.000*	0.592	-																				
I2-C2	0.000*	0.974	0.686	-																			
I3-C1	0.048	0.001	0.009	0.003	-																		
I3-C2	0.000*	0.856	0.611	0.858	0.007	-																	
I4-C1	0.000*	0.378	0.277	0.406	0.005	0.527	-																
I4-C2	0.000*	0.099	0.072	0.123	0.001	0.200	0.574	-															
I5-C1	0.000*	0.003	0.061	0.022	0.232	0.043	0.024	0.003	-														
I5-C2	0.000*	0.916	0.594	0.914	0.002	0.921	0.434	0.132	0.011	-													
I6-C1	0.901	0.000*	0.000*	0.000*	0.087	0.000*	0.000*	0.000*	0.000*	0.000*	-												
I6-C2	0.000*	0.019	0.169	0.072	0.111	0.103	0.051	0.008	0.598	0.043	0.000*	-											
I7-C1	0.000*	0.559	0.390	0.596	0.003	0.761	0.700	0.302	0.017	0.644	0.000*	0.046	-										
I7-C2	0.000*	0.168	0.120	0.221	0.000*	0.365	0.914	0.588	0.002	0.237	0.000*	0.007	0.547	-									
I8-C1	0.000*	0.000*	0.000*	0.000*	0.000*	0.011	0.239	0.667	0.000*	0.000*	0.000*	0.000*	0.030	0.158	-								
I8-C2	0.000*	0.000*	0.000*	0.002	0.000*	0.027	0.356	0.862	0.000*	0.001	0.000*	0.000*	0.067	0.284	0.589	-							
I9-C1	0.000*	0.002	0.005	0.017	0.000*	0.085	0.541	0.909	0.000*	0.016	0.000*	0.000*	0.173	0.520	0.310	0.586	-						
I9-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.006	0.163	0.502	0.000*	0.000*	0.000*	0.000*	0.017	0.095	0.625	0.334	0.173	-					
I10-C1	0.000*	0.000*	0.008	0.002	0.353	0.010	0.008	0.001	0.596	0.000*	0.000*	0.251	0.003	0.000*	0.000*	0.000*	0.000*	0.000*	-				
I10-C2	0.000*	0.697	0.802	0.811	0.002	0.702	0.306	0.075	0.009	0.695	0.000*	0.047	0.437	0.119	0.000*	0.000*	0.001	0.000*	0.000*	0.000*	-		
I11-C1	0.167	0.011	0.038	0.020	0.954	0.024	0.012	0.002	0.329	0.014	0.213	0.201	0.012	0.003	0.000*	0.000*	0.000*	0.000*	0.453	0.018	-		
I11-C2	0.000*	0.695	0.526	0.705	0.016	0.826	0.720	0.358	0.073	0.749	0.000*	0.136	0.975	0.602	0.098	0.161	0.283	0.063	0.031	0.590	0.032	-	

^aI1 = *Bipolaris sorokiniana*, I2 = *Fusarium equiseti*, I3 = *F. chlamydosporum*, I4 = *F. solani*, I5 = *F. oxysporum*, I6 = *F. nygamai*, I7 = *F. subglutinans*,
 I8 = *Phoma medicaginis*, I9 = *Periconia macrospinoso*, I10 = *Rhizoctonia solani*, I11 = *Sclerotium rolfsii*.
^bC1 = wheat, C2 = barley
 *P=0.000 ≡ P<0.0001

Table A4. Probabilities of pair-wise differences between various fungal isolates and wheat and barley for total disease score.

Isolate ^a - Crop ^b	Isolate ^a - Crop ^b																						
	I1-C1	I1-C2	I2-C1	I2-C2	I3-C1	I3-C2	I4-C1	I4-C2	I5-C1	I5-C2	I6-C1	I6-C2	I7-C1	I7-C2	I8-C1	I8-C2	I9-C1	I9-C2	I10-C1	I10-C2	I11-C1	I11-C2	
I1-C1	-																						
I1-C2	0.000*	-																					
I2-C1	0.000*	0.856	-																				
I2-C2	0.000*	0.114	0.157	-																			
I3-C1	0.361	0.000*	0.000*	0.000*	-																		
I3-C2	0.000*	0.449	0.436	0.707	0.000*	-																	
I4-C1	0.000*	0.334	0.324	0.926	0.000*	0.727	-																
I4-C2	0.000*	0.000*	0.000*	0.001	0.000*	0.001	0.014	-															
I5-C1	0.000*	0.012	0.070	0.001	0.006	0.024	0.035	0.000*	-														
I5-C2	0.000*	0.007	0.026	0.457	0.000*	0.325	0.717	0.005	0.000*	-													
I6-C1	0.251	0.000*	0.000*	0.000*	0.124	0.000*	0.000*	0.000*	0.000*	0.000*	-												
I6-C2	0.000*	0.229	0.434	0.023	0.000*	0.152	0.138	0.000*	0.275	0.001	0.000*	-											
I7-C1	0.000*	0.692	0.643	0.490	0.000*	0.784	0.567	0.001	0.054	0.190	0.000*	0.268	-										
I7-C2	0.000*	0.025	0.038	0.354	0.000*	0.259	0.567	0.023	0.000*	0.716	0.000*	0.006	0.161	-									
I8-C1	0.000*	0.000*	0.000*	0.000*	0.000*	0.001	0.031	0.262	0.000*	0.001	0.000*	0.000*	0.000*	0.044	-								
I8-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.010	0.483	0.000*	0.000*	0.000*	0.000*	0.000*	0.010	0.372	-							
I9-C1	0.000*	0.144	0.198	0.838	0.000*	0.822	0.827	0.001	0.001	0.315	0.000*	0.028	0.581	0.261	0.000*	0.000*	-						
I9-C2	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.007	0.631	0.000*	0.000*	0.000*	0.000*	0.000*	0.007	0.245	0.703	0.000*	-					
I10-C1	0.002	0.000*	0.000*	0.000*	0.485	0.000*	0.000*	0.000*	0.001	0.000*	0.001	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	-				
I10-C2	0.000*	0.025	0.171	0.002	0.000*	0.055	0.069	0.000*	0.441	0.000*	0.000*	0.610	0.118	0.001	0.000*	0.000*	0.002	0.000*	0.000*	-			
I11-C1	0.568	0.000*	0.000*	0.000*	0.295	0.000*	0.000*	0.000*	0.001	0.000*	0.991	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.082	0.000*	-		
I11-C2	0.006	0.149	0.213	0.033	0.081	0.091	0.078	0.000*	0.871	0.008	0.002	0.428	0.143	0.009	0.000*	0.000*	0.040	0.000*	0.126	0.570	0.016	-	

^aI1 = *Bipolaris sorokiniana*, I2 = *Fusarium equiseti*, I3 = *F. chlamydosporum*, I4 = *F. solani*, I5 = *F. oxysporum*, I6 = *F. nygamai*, I7 = *F. subglutinans*, I8 = *Phoma medicaginis*, I9 = *Periconia macrospinoso*, I10 = *Rhizoctonia solani*, I11 = *Sclerotium rolfsii*.

^bC1 = wheat, C2 = barley

* $P=0.000 \equiv P<0.0001$