

Virulence and race structure of *Puccinia graminis* f. sp. *tritici* in Kazakhstan

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Table S1. Passport information of the stem rust samples collected in Kazakhstan in 2015–2018

ID number	Year	Region	Districts	Cultivar	Severity (%) [*]	Host response ^{**}	Isolates derived
15KZ01	2015	Akmola	Shortandy	Akmola 2	70	S	4
15KZ02	2015		Tselinogradsky	Akmola 2	70	S	2
15KZ03	2015		Shortandy	Asyl Sapa	70	S	2
15KZ04	2015		Shortandy	Kazakhstanskaya	60	S	1
15KZ05	2015		Shortandy	Omskaya 36	70	S	2
15KZ06	2015		Shortandy	Shortandinskaya 95	60	S	2
15KZ07	2015		Shortandy	Karabalyk	Karabalykskaya 92	70	S
15KZ08	2015	Kostanay	Karabalyk	Omskaya 36	70	S	3
15KZ09	2015		Kostanay	Lutecens 32	60	S	3
15KZ10	2015		Karabalyk	Line 654	30	MS	1
15KZ11	2015		Karabalyk	Lutecens 310-00-1	50	S	5
15KZ12	2015		Glubokovsky	Altai	40	MS	2
15KZ13	2015	East Kazakhstan	Glubokovsky	Omskaya 18	40	S	2
15KZ14	2015		Glubokovsky	GVK 2227/2	30	MS	2
15KZ15	2015		Glubokovsky	GVK 2104/3	40	S	2
16KZ01	2016	Akmola	Shortandy	Akmola 2	70	S	3
16KZ02	2016		Shortandy	Asyl Sapa	60	S	2
16KZ03	2016		Shortandy	Omskaya 36	70	S	2
16KZ04	2016		Shortandy	Lutecens 310-00-1	60	S	3
16KZ05	2016		Shortandy	Shortandinskaya 2007	50	S	2
16KZ06	2016		Shortandy	Shortandinskaya 2012	50	S	2
16KZ07	2016		Shortandy	Line 654	30	MS	1
16KZ08	2016	Kostanay	Karabalyk	Karabalykskaya 92	70	S	3
16KZ09	2016		Karabalyk	Karabalykskaya 90	70	S	1
16KZ10	2016		Karabalyk	Omskaya 36	70	S	5
16KZ11	2016		Kostanay	Lutecens 32	60	S	3
16KZ12	2016		Karabalyk	Line 654	30	MS	3
16KZ13	2016	Kostanay	Karabalyk	Taymas	50	MS	1
16KZ14	2016		Karabalyk	Karabalykskaya 90	60	S	2
16KZ15	2016		Karabalyk	Karabalykskaya 92	60	S	2

16KZ16	2016		Glubokovsky	Altai	40	MS	3
16KZ17	2016		Glubokovsky	Omskaya 18	40	MS	4
16KZ18	2016		Glubokovsky	Oskemen	40	S	1
16KZ19	2016	East Kazakhstan	Glubokovsky	GVK 2227/2	40	MS	1
16KZ20	2016		Glubokovsky	GVK 2104/3	40	S	1
16KZ21	2016		Glubokovsky	Daria	30	MS	1
16KZ22	2016		Glubokovsky	Nargiz	30	MS	2
17KZ01	2017		Shortandy	Akmola 2	80	S	3
17KZ02	2017		Shortandy	Astana 2	80	S	2
17KZ03	2017		Shortandy	Line 654	40	MS	2
17KZ04	2017		Shortandy	Asyl Sapa	80	S	1
17KZ05	2017	Akmola	Shortandy	Shortandinskaya 95	70	S	1
17KZ06	2017		Tselinogradsky	Akmola 2	80	S	4
17KZ07	2017		Tselinogradsky	Asyl Sapa	70	S	3
17KZ08	2017		Tselinogradsky	Omskaya 36	70	S	3
17KZ09	2017		Astrakhan	Omskaya 36	60	S	4
17KZ10	2017		Karabalyk	Karabalykskaya 92	90	S	5
17KZ11	2017		Karabalyk	Line 654	30	MS	1
17KZ12	2017		Karabalyk	Kazakhstanskaya	80	S	2
17KZ13	2017		Karabalyk	Taymas	70	S	1
17KZ14	2017	Kostanay	Karabalyk	Zhana Kyzyl	80	S	1
17KZ15	2017		Karabalyk	Augustina	70	S	1
17KZ16	2017		Karabalyk	Lutecens 7-04-10	60	MSS	3
17KZ17	2017		Fedorovsky	Karabalykskaya 90	90	S	4
17KZ18	2017		Mendykarynsky	Omskaya 36	70	S	2
17KZ19	2017		Glubokovsky	Altai	50	S	2
17KZ20	2017		Glubokovsky	Omskaya 18	50	S	2
17KZ21	2017		Glubokovsky	GVK 2227/2	60	S	1
17KZ22	2017	East Kazakhstan	Glubokovsky	GVK 2160/1	60	S	1
17KZ23	2017		Ulansky	Omskaya 18	50	S	5
17KZ24	2017		Glubokovsky	Daria	50	MS	2
17KZ25	2017		Glubokovsky	Nargiz	50	S	2
18KZ01	2018		Shortandy	Akmola 2	80	S	2
18KZ02	2018		Shortandy	Astana	80	S	1
18KZ03	2018		Shortandy	Astana 2	70	S	3
18KZ04	2018		Shortandy	Line 654	40	S	1
18KZ05	2018	Akmola	Shortandy	Line 159106	50	S	2
18KZ06	2018		Tselinogradsky	Akmola 2	70	S	6
18KZ07	2018		Tselinogradsky	Asyl Sapa	70	S	3
18KZ08	2018		Tselinogradsky	Omskaya 36	70	S	1
18KZ09	2018		Akkolsky	Astana	60	S	3
18KZ10	2018		Karabalyk	Karabalykskaya 92	90	S	5
18KZ11	2018		Karabalyk	Omskaya 36	90	S	1
18KZ12	2018		Karabalyk	Line 654	30	MS	2
18KZ13	2018	Kostanay	Karabalyk	Kazakhstanskaya	70	S	1
18KZ14	2018		Karabalyk	Lutecens 7-04-10	60	S	3
18KZ15	2018		Karabalyk	Lamis	80	S	1
18KZ16	2018		Karabalyk	Karabalykskaya 20	60	S	1
18KZ17	2018		Kostanay	Omskaya 36	90	S	1

18KZ18	2018		Fedorovsky	Karabalykskaya 90	80	S	5
18KZ19	2018		Glubokovsky	Altai	60	S	1
18KZ20	2018		Glubokovsky	Oskemen	60	S	1
18KZ21	2018	East Kazakhstan	Ulansky	Altai	60	S	3
18KZ22	2018		Ulansky	Omskaya 18	50	S	6
18KZ23	2018		Altayskiy	Omskaya 18	50	S	7

*the severity was scored visually using a modified Cobb's Scale ; **the host response to infection was recorded as described by Roelfs et al. (1992); S – susceptible; MS – moderate susceptible; MSS – moderate susceptible to susceptible

References

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