

Supplementary Materials: Biocontrol Agents reduce progression and mycotoxin production of *Fusarium graminearum* in spikelets and straws of wheat

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Table S1. Comparative effects of BCA treatments on the external colonization and mycotoxin content of spikelets by *F. graminearum* during antagonist bioassay. Antagonist bioassays were performed on detached spikelet for 12 days at 20°C with photoperiod. N.d.: Not detected, wT: water-Tween, 0.01%.

Conditions	Day	External Colonisation (Scoring scale)			Mycotoxin Content (DON) (ug.kg ⁻¹)		
		Number of Replicate	Mean	Standard Error	Number of Replicate	Mean	Standard Error
wT (- Control)	3	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> (+ Control)	3	15	1.33	0.21	12	650.94	69.07
<i>F. graminearum</i> + Mycostop	3	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Xedavir	3	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Polyversum	3	15	0.00	0.00	12	0.00/n.d.	0.00
wT (- Control)	5	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> (+ Control)	5	15	3.67	0.21	12	3046.22	675.40
<i>F. graminearum</i> + Mycostop	5	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Xedavir	5	15	0.17	0.17	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Polyversum	5	15	0.17	0.17	12	0.00/n.d.	0.00
wT (- Control)	8	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> (+ Control)	8	15	4.00	0.00	12	4307.23	1046.60
<i>F. graminearum</i> + Mycostop	8	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Xedavir	8	15	0.83	0.17	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Polyversum	8	15	1.50	0.22	12	0.00/n.d.	0.00
wT (- Control)	10	15	0.00	0.00	12	0.00/n.d.	0.00
<i>F. graminearum</i> (+ Control)	10	15	4.50	0.22	12	1337.56	581.21
<i>F. graminearum</i> + Mycostop	10	15	0.33	0.33	12	164.10	164.10
<i>F. graminearum</i> + Xedavir	10	15	1.17	0.17	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Polyversum	10	15	1.33	0.21	12	46.04	46.04
wT (- Control)	12	15	0.33	0.21	12	0.00/n.d.	0.00
<i>F. graminearum</i> (+ Control)	12	15	5.00	0.00	12	1240.86	145.70
<i>F. graminearum</i> + Mycostop	12	15	2.00	0.37	12	543.29	230.16
<i>F. graminearum</i> + Xedavir	12	15	2.00	0.26	12	0.00/n.d.	0.00
<i>F. graminearum</i> + Polyversum	12	15	2.00	0.37	12	384.48	288.24

Table S2. Comparative quantification of *F. graminearum* and Xeda biomarkers on detached spikelet. Antagonist bioassays were performed on detached spikelet at 20°C with photoperiod, and analyzed after 8 days of co-culture. wT: water-Tween, 0.01%.

Conditions	Number of Replicate	Quantity of biomarker copy of <i>F. graminearum</i> (nbr.µl ⁻¹)		Quantity of Biomarker Copy of Xedavir (nbr.µl ⁻¹)	
		Mean	Standard Deviation	Mean	Standard Deviation
wT (- Control)	3	0.00	0.00	0.00	0.00
<i>F. graminearum</i> (+ Control)	3	31353.33	9085.75	0.00	0.00
Mycostop	3	0.00	0.00	0.00	0.00
<i>F. graminearum</i> + Mycostop	3	12.38	5.37	0.00	0.00
Xedavir	3	0.00	0.00	6826.67	4381.58
<i>F. graminearum</i> + Xedavir	3	69.15	51.83	7766.83	2612.58
Polyversum	3	0.00	0.00	0.00	0.00
<i>F. graminearum</i> + Polyversum	3	1626.33	766.12	0.00	0.00

Table S3. Comparative effect of BCAs on perithecia production by *F. graminearum* during antagonistic bioassay on wheat straw. Antagonistic bioassays were performed on wheat straw for 3 weeks at 20°C in dark.

Conditions	Number of Replicate	Quantity of Perithecia (nb. of perithecia)	
		Mean	Standard Error
<i>F. graminearum</i> (Control)	18	10.39	2.22
<i>F. graminearum</i> + Mycostop	18	1.17	0.42
<i>F. graminearum</i> + Xedavir	18	0.17	0.17
<i>F. graminearum</i> + Polyversum	18	1.06	0.78