Supplemental tables

Supplemental table 1. Experiment setting

Grapevine cane	GPGV detection	GPGV sequence	GPGV variant	other viruses[a]	hydroponic experiment	experimental condition[b]	in-field experiment	experimental condition[c]
1	+	fvg30	C	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	S
2	+	fvg88	C	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	S
3	+	fvg01	C	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	A
4	+	fvg52	C	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	A
5	+	fvg43	A	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	A
6	+	fvg50	A	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	A
7	+	fvg00	A	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	S
8	+	fvg53	A	GRSPaV; HSVd; GYSVd-1	x	+B;-B	x	S
9	+	fvg84	C	GRSPaV; HSVd; GYSVd-1			x	S
10	+	fvg18	B	GRSPaV; HSVd; GYSVd-1			x	A
11	+	fvg29	A	GRSPaV; HSVd; GYSVd-1			x	A
12	+	fvg86	A	GRSPaV; HSVd; GYSVd-1			x	S
13	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
14	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
15	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
16	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
17	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
18	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
19	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		
20	-		-	GRSPaV; HSVd; GYSVd-1	x	+B;-B		

[a] Detection for 12 viruses was carried out (GPGV, GRSPaV, HSVd, GYSVd-1-2, GVA, GVB, GFkV, GLRaV-1-2-3, GFLV, ArMV, GRVFV, GSyV-1)

[b] Each cane collected in field was divided in two cuttings, equally distributed to +B and -B conditions

[c] A= asymptomatic; S= symptomatic

Supplemental table 2. List of BOR proteins used in phylogenetic analysis. Transmembrane domains (TMD) were predicted using the Phobius program (Kall *et al.*, 2004).

Organism	Protein name and reference	NCBI protein number	Protein length (aa)	TMD
Arabidopsis thaliana	AtBOR1 (Takano *et al.*, 2002)	NP_850469.1	704	10
	AtBOR2 (Miwa *et al.*, 2013)	NP_191786.1	703	10
	AtBOR4 (Miwa *et al.*, 2007)	NP_172999.1	683	9
Brassica napus	BnBOR1;1a (Sun *et al.*, 2012)	NP_001302529.1	701	10
	BnBOR1;1c (Sun *et al.*, 2012)	ADF30188.1	701	10
	BnBOR1;2a (Sun *et al.*, 2012)	XP_022574681.1	705	10
	BnBOR1;2c (Sun *et al.*, 2012)	NP_001303160.1	704	10
	BnBOR1;3a (Sun *et al.*, 2012)	ADF30190.1	703	10
	BnBOR1;3c (Sun *et al.*, 2012)	XP_022553077.1	704	10
Citrus macrophylla	CmBOR1 (Canon *et al.*, 2013)	ABQ52428.1	714	10
Hordeum vulgare	xBOT1 (Sutton *et al.*, 2007)	ABS83563.1	666	10
Oryza sativa	OsBOR1 (Nakagawa *et al.*, 2007)	XP_015620545.1	711	10
Vitis vinifera	VvBOR1 (Perez-Castro *et al.*, 2012)	XP_002282501.1	720	12
	VvBOR2	XP_010652294.1	717	10
	VvBOR3	NP_001267820.1	721	10
Zea mays	ZmBOR1 (Chatterjee *et al.*, 2014)	NP_001151747.1	709	12

Supplemental table 3. List of NIP sequences used for the construction of the phylogenetic tree.

Organism	Protein name and reference	NCBI protein number	Protein length (aa)
Arabidopsis thaliana	AtNIP5;1 (Takano *et al.*, 2006)	NP_192776	304
	AtNIP6;1 (Tanaka *et al.*, 2008)	NP_178191.1	305
	AtNIP1;2 (Wang *et al.*, 2017)	NP_193626.1	294
	AtNIP3;1 (Xu *et al.*, 2015)	NP_174472.2	323
Brassica napus	BnaNIP5;1 (Diehn *et al.*, 2019)	XP_013684074.1	301
	BnaNIP6;1 (Diehn *et al.*, 2019)	XP_013727031.1	305
Citrus trifoliate	CiNIP5 (An *et al.*, 2012)	AFN37617.1	300
Oryza sativa	OsNIP2;1 (Ma and Yamaji, 2006)	XP_015626173.1	298
	OsNIP2;2 (Ma and Yamaji, 2006)	XP_015644134.1	298
	OsNIP3;1 (Hanaoka *et al.*, 2014)	AAG13499.1	241
Solanum lycopersicum	SlNIP5;1 (di Gioia *et al.*, 2017)	NP_001274288.1	295
Vitis vinifera	VvNIP5;1	XP_002276319.1	298
	VvNIP6;1	XP_002272988.1	354
Zea mays	ZmNIP3;1 (Leonard *et al.*, 2014)	NP_001105021.1	302
	ZmNIP2;1 (Gu *et al.*, 2012)	NP_001105637.1	295

Supplemental table 4. F-values and P-values of a two-way ANOVA for biometric parameters, such as canopy and root weight, internode lenght and leaf number, evaluating the main and interactive effects of boron (B) availability and virus (GPGV) infection. F and P values in bold are signficant differences at P < 0.05.

Biometric parameter	**Test**	**F-value**	**P-value**
Canopy weight	B	**82,684**	**<0,001**
	GPGV	0,243	0,629
	interaction	0,633	0,438
Root weight	B	**38,684**	**<0,001**
	GPGV	0,0181	0,895
	interaction	0,056	0,816
Internode lenght	B	**29,241**	**<0,001**
	GPGV	0,0406	0,843
	interaction	0,407	0,532
Leaf number	B	**46,297**	**<0,001**
	GPGV	0,883	0,361
	interaction	0,0509	0,824

Supplemental table 5. F-values and P-values of a two-way ANOVA for nutrient content in root and leaf evaluating the main and interactive effects of boron (B) availability and virus (GPGV) infection. F and P values in bold are significant differences at P < 0.05.

organ	nutrient	test	F-value	P-value	notes
root	Ca	B	**26,049**	**<0,001**	
		GPGV	3,382	0,086	
		interaction	0,0356	0,853	
	K	B	1,474	0,244	
		GPGV	2,232	0,156	
		interaction	0,0536	0,82	
	Mg	B	**17,371**	**<0,001**	
		GPGV	0,0245	0,878	
		interaction	0,275	0,607	
	P	B	0,337	0,57	
		GPGV	0,263	0,616	
		interaction	0,127	0,727	
	B	B	**248,683**	**<0,001**	
		GPGV	1,965	0,181	
		interaction	1,923	0,186	
	Cu	B	**171,598**	**<0,001**	
		GPGV	4,063	0,062	
		interaction	0,00541	0,942	
	Fe	B	0,000171	0,99	
		GPGV	3,891	0,067	
		interaction	0,258	0,619	
	Mn	B	0,171	0,685	GPGV-/-B
		GPGV	0,324	0,578	≠
		interaction	**10,9**	**0,005**	GPGV+/-B
	Na	B	3,584	0,078	
		GPGV	0,993	0,335	
		interaction	2,773	0,117	
	Zn	B	**31,73**	**<0,001**	
		GPGV	0,142	0,711	
		interaction	2,483	0,136	

organ	nutrient	test	F-value	P-value	notes
leaf	Ca	B	**29,789**	**<0,001**	
		GPGV	1,928	0,182	
		interaction	2,454	0,135	
	K	B	**10,233**	**0,005**	GPGV-/-B
		GPGV	**7,317**	**0,014**	≠
		interaction	**5,997**	**0,025**	GPGV+/-B
	Mg	B	**50,814**	**<0,001**	
		GPGV	1,711	0,207	
		interaction	0,906	0,354	
	P	B	**6,971**	**0,017**	
		GPGV	0,0031	0,956	
		interaction	3,776	0,068	
	B	B	**1277,587**	**<0,001**	
		GPGV	0,51	0,484	
		interaction	4,119	0,057	
	Cu	B	0,0508	0,824	
		GPGV	1,39	0,254	
		interaction	0,686	0,418	
	Fe	B	**38,752**	**<0,001**	
		GPGV	1,355	0,26	
		interaction	0,18	0,677	
	Mn	B	**20,308**	**<0,001**	
		GPGV	1,663	0,214	
		interaction	1,73	0,205	
	Na	B	**82,927**	**<0,001**	GPGV-/-B
		GPGV	**9,356**	**0,007**	≠
		interaction	**10,541**	**0,005**	GPGV+/-B
	Zn	B	**85,768**	**<0,001**	GPGV-/-B
		GPGV	**12,942**	**0,002**	≠
		interaction	1,719	0,206	GPGV+/-B

Supplemental table 6. F-values and P-values of a two-way ANOVA for gene expression in root and leaf evaluating the main and interactive effects of boron (B) availability and virus (GPGV) infection. F and P values in bold are significant differences at P < 0.05.

organ	gene	test	F-value	P-value	notes
root	*VvBOR1*	B	**24,872**	**<0,001**	
		GPGV	0,114	0,74	
		interaction	1,219	0,286	
	VvBOR2	B	**36,159**	**<0,001**	GPGV-/-B ≠ GPGV+/-B
		GPGV	4,113	0,062	
		interaction	3,186	0,096	
	VvBOR3	B	2,044	0,173	GPGV-/-B ≠ GPGV+/-B
		GPGV	3,423	0,084	
		interaction	**6,548**	**0,022**	
	VvNIP5	B	**593,936**	**<0,001**	
		GPGV	2,757	0,118	
		interaction	0,0906	0,768	
	VvNIP6	B	**8,552**	**0,01**	
		GPGV	0,032	0,86	
		interaction	0,049	0,828	
leaf	*VvBOR1*	B	**56,621**	**<0,001**	GPGV-/-B ≠ GPGV+/-B
		GPGV	**18,103**	**<0,001**	
		interaction	3,707	0,075	
	VvBOR2	B	**13,249**	**0,002**	GPGV-/-B ≠ GPGV+/-B
		GPGV	**11,191**	**0,004**	
		interaction	**6,321**	**0,023**	
	VvBOR3	B	1,001	0,334	
		GPGV	1,738	0,209	
		interaction	0,0616	0,808	
	VvNIP5	B	**56,504**	**<0,001**	GPGV-/-B ≠ GPGV+/-B
		GPGV	4,232	0,059	
		interaction	2,177	0,162	
	VvNIP6	B	**38,601**	**<0,001**	GPGV-/-B ≠ GPGV+/-B
		GPGV	4,019	0,065	
		interaction	3,685	0,076	

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