

Supplementary Materials

Table S1. Characteristics of the most active bacterial isolates against *Xanthomonas perforans* T4.

N	Bacterial isolate	Environmental sample	Medium	Diameter of growth inhibition zone (including well diameter) *, mm
Phylum Firmicutes, Class Bacilli, Order Bacilliales, Family Paenibacillaceae				
1	<i>Paenibacillus polymyxa</i> T1B	Soil from vegetable garden (pepper) of INRS, Laval, (Québec), 2011	TSA	29
2	<i>Paenibacillus polymyxa</i> 44	Lettuce leaves, Sherrington (Québec), 2011	R2A	25
3	<i>Paenibacillus polymyxa</i> 62	Soil of rhizosphere from lettuce, Sherrington (Québec), 2011	R2A	19
4	<i>Paenibacillus peoriae</i> 273	Soil of rhizosphere, Sherrington (Québec), 2011	Benedict	30
5	<i>Paenibacillus polymyxa</i> 329	Soil from tomato field of INRS, Laval, (Québec), 2011	TSA	30
6	<i>Paenibacillus polymyxa</i> 344	Dead lettuce plants, Sherrington (Québec), 2011	TSA	29
7	<i>Paenibacillus polymyxa</i> 390	Stems and leaves of lettuce plants, Sherrington (Québec), 2011	Benedict	32
8	<i>Paenibacillus peoriae</i> To99	Soil from onion field, Laval (Québec), 2012	TSA	30
9	<i>Paenibacillus polymyxa</i> TP12	Soil from pepper field, Laval (Québec), 2012	PCA	26
10	<i>Paenibacillus polymyxa</i> TP29		TSA	28
11	<i>Paenibacillus polymyxa</i> TP77		TSA	23
12	<i>Paenibacillus polymyxa</i> V25T	Soil from tomato field, Laval (Québec), 2012	PCA	27
13	<i>Paenibacillus polymyxa</i> TFr60	Soil from strawberry field, Laval (Québec), 2012	TSA	24
14	<i>Paenibacillus peoriae</i> TFr101	Soil from strawberry field, Laval (Québec), 2012	TSA	32
15	<i>Paenibacillus polymyxa</i> TAU1	Soil from eggplant field, Laval (Québec), 2012	TSA	25
16	<i>Paenibacillus polymyxa</i> TM54	Soil from corn field, Laval (Québec), 2012	TSA	24
Phylum Firmicutes, Class Bacilli, Order Bacilliales, Family Bacillaceae				
1	<i>Bacillus amyloliquefaciens</i> subsp. <i>plantarum</i> 16	Soil of rhizosphere from lettuce garden, Sherrington (Québec), 2011	R2A	16
2	<i>Bacillus amyloliquefaciens</i> subsp. <i>plantarum</i> 33	Stems and leaves of lettuce plants, Sherrington (Québec), 2011	R2A	19
3	<i>Bacillus velezensis</i> 71	Soil of rhizosphere from lettuce garden, Sherrington (Québec), 2011	R2A	25

4	<i>Bacillus amyloliquefaciens</i> subsp. <i>plantarum</i> 237	Mud from a river, Rivière des Prairies, Laval (Québec), 2012	R2A	21
5	<i>Bacillus amyloliquefaciens</i> subsp. <i>plantarum</i> 335	Dead lettuce plants, Sherrington (Québec), 2011	TSA	18
6	<i>Bacillus velezensis</i> VFb49	Soil from raspberry field, Laval (Québec), 2012	TSA	20

Non-selective media: R2A, Tryptic Soy Agar (TSA), Plate Count Agar (PCA). Selective media: *Burkholderia cepacia*-Selective Agar (BCSA), Benedict Agar (for *Streptomyces* species). The diameter values were obtained from experiments performed in triplicate and are expressed as the mean of three replicates. * Diameter of well was 10 mm.

Table S2. Activity of bacterial supernatants against plant pathogens.

Bacterial strains	Diameter (mm) of growth inhibition zone (including well diameter) *	
	<i>B. velezensis</i> 71	<i>P. peoriae</i> To99
<i>X. campestris</i> 901	34	31
<i>X. perforans</i> T4	31	30
<i>X. euvesicatoria</i> R4	25	26
<i>X. gardneri</i> DC00T7A	24	34

* Diameter of well was 10 mm.

Table S3. Interspecies and inter-strains antibacterial activity of cell-free supernatants.

Bacterial strains	Diameter (mm) of growth inhibition zone (including well diameter) *	
	<i>B. velezensis</i> 71	<i>P. peoriae</i> To99
<i>B. velezensis</i> 71	10*	27
<i>P. peoriae</i> To99	25	37

* Diameter of well was 10 mm.

Table S4. AntiSMASH results for *B. velezensis*. 71.

Region	Type	From	To	Most similar known cluster		Similarity
Region 1	other	9362	50,780	<u>Bacilysin</u>	other	100%
Region 2	transAT-PKS-like	50,782	109,997	<u>Bacillaene</u>	other	21%
Region 3	NRPS,transAT-PKS,betalactone	171,684	266,737	<u>Bacillomycin</u>	NRPS	100%
Region 4	PKS-like,transAT-PKS	278,660	359,310	<u>Difficidin</u>	other	46%
Region 5	NRPS	515,094	561,050	<u>Surfactin</u>	NRPS	13%
Region 6	NRPS	1,131,903	1,183,314	<u>Plipastatin</u>	NRPS	53%
Region 7	transAT-PKS-like,NRPS	1,246,395	1,316,391	<u>Difficidin</u>	other	26%
Region 8	NRPS	1,317,955	1,369,179	<u>Fengycin</u>	other-nrps	20%
Region 9	NRPS	2,218,675	2,267,383	<u>Surfactin</u>	NRPS	8%
Region 10	NRPS	2,592,538	2,637,326	<u>Bacillibactin</u>	NRPS	23%
Region 11	terpene	2,775,181	2,795,309			
Region 12	bacteriocin,NRPS,transAT-PKS	2,969,825	3,070,244	<u>Macrolactin</u>	other	100%
Region 13	transAT-PKS,NRPS,T3PKS	3,289,256	3,447,842	<u>Bacillaene</u>	other	85%
Region 14	terpene	3,537,947	3,558,687			
Region 15	transAT-PKS-like	3,637,553	3,703,170	<u>Difficidin</u>	other	53%
Region 16	LAP	3,726,271	3,748,453	<u>Plantathiazolicin / plantazolicin</u>	lap	91%
Region 17	NRPS	3,870,653	3,915,807	<u>Surfactin</u>	NRPS	43%

Table S5. AntiSMASH results for *P. peoriae*. To99.

Region	Type	From	To	Most similar known cluster		Similarity
	NRPS	48,617	91,509	<u>Glycopeptidolipid</u>	NRPS	7%
Region 2	lassopeptide,NRPS, phosphonate	93,005	175,460	<u>Paeninodin</u>	other	40%
Region 3	transAT-PKS	448,334	527,269	<u>Bacillaene</u>	other	28%
Region 4	NRPS	549,888	603,754	<u>Tridecaptin</u>	NRPS	80%
Region 5	NRPS,T1PKS	770,792	825,230	<u>Octapeptin C4</u>	NRPS	23%
Region 6	NRPS	945,907	989,595			
Region 7	NRPS,transAT- PKS,siderophore	1,071,474	1,133,644			
Region 8	NRPS	1,467,577	1,509,456	<u>Mycosubtilin</u>	nrps- transatpks	30%
Region 9	PKS-like,transAT- PKS-like,NRPS	1,763,531	1,814,509	<u>Nosperin</u>	t1pks+transa tpks	46%
Region 10	NRPS	2,016,595	2,057,199	<u>S-layer glycan</u>	saccharide	33%
Region 11	NRPS	2,201,220	2,244,306			
Region 12	NRPS	2,681,852	2,721,371			
Region 13	NRPS	2,941,495	2,990,122	<u>Polymyxin</u>	NRPS	100%
Region 14	transAT-PKS-like	3,149,043	3,190,282			
Region 15	lanthipeptide	3,628,198	3,651,308			
Region 16	transAT-PKS- like,NRPS	3,736,414	3,786,286	<u>BD-12</u>	NRPS	7%
Region 17	phosphonate	3,849,497	3,890,396			
Region 18	NRPS-like	4,031,462	4,074,699			
Region 19	NRPS	4,694,560	4,749,073	<u>Bacillomycin</u>	NRPS	20%
Region 20	NRPS	5,045,246	5,108,493	<u>Paenibacterin</u>	NRPS	60%
Region 21	NRPS	5,210,773	5,259,537			
Region 22	bacteriocin	5,353,775	5,364,011			
Region 23	NRPS,transAT-PKS	5,403,180	5,552,316	<u>Brevicidine</u>	NRPS	18%
Region 24	NRPS	5,585,963	5,626,142			
Region 25	NRPS	5,809,076	5,877,745	<u>Fusaricidin</u>	NRPS	100%
Region 26	NRPS	5,900,489	5,941,706	<u>Surfactin</u>	NRPS	8%

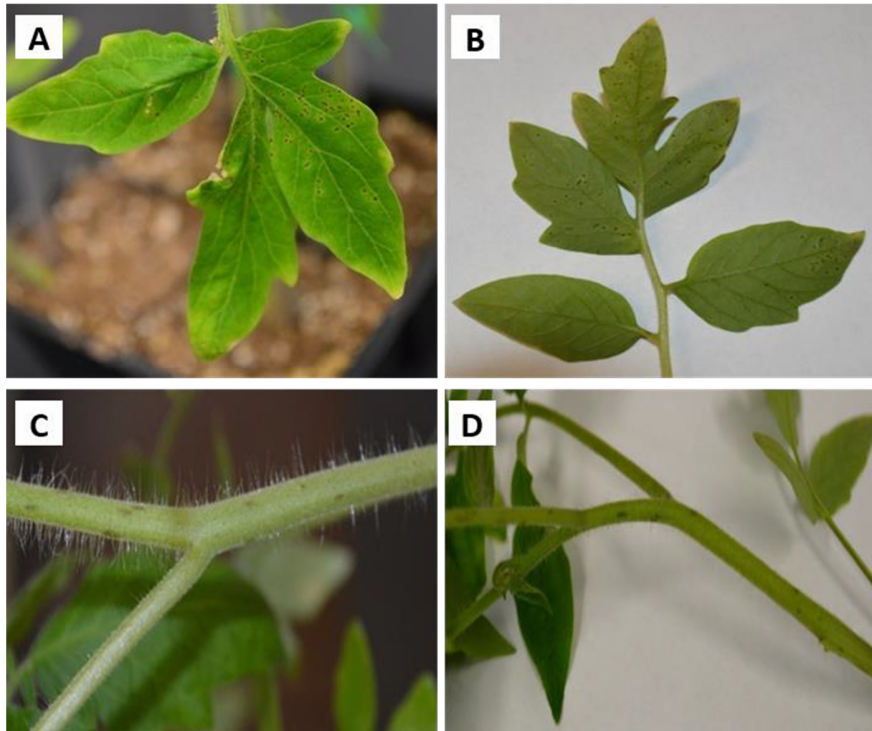


Figure S1. Symptoms caused by *X. gardneri* DC00T7A on tomato leaves surfaces, adaxial (A) and abaxial (B) and stems (C, D).

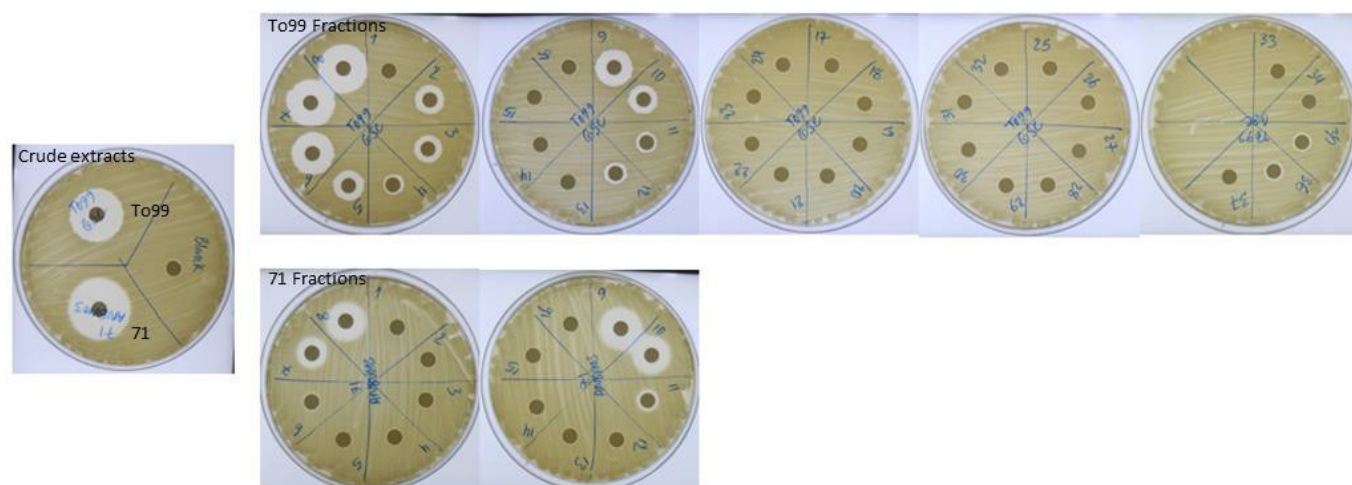


Figure S2. Testing the activity of crude extract fractions of *B. velezensis* 71 and *P. peoriae* To99 cultures obtained from Semi-preparative HPLC fractionation against *X. perforans* T4 by disk diffusion assay .