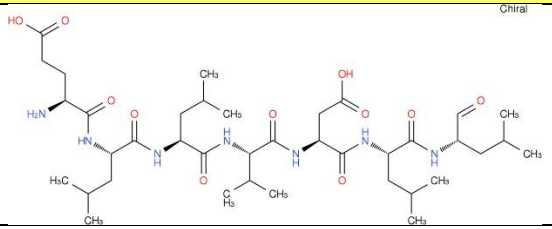
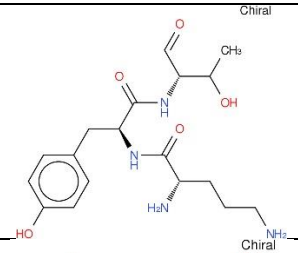
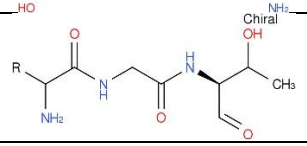
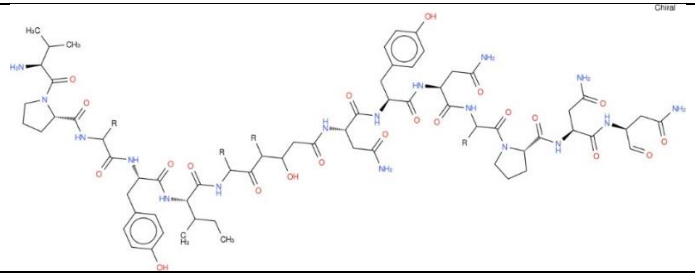
Supplementary Table S1. Details of *Bacillus halotolerans* isolates used in this study.

Species	Strain	Genome size (Mb)	Plasmid	Description	GenBank Accession
Bacillus halotolerans	FJAT-2398	4.09077	-	Isolated from agricultural soils (Germany)	LUUT00000000.1
	ATCC 25096	4.07273	-	Isolated from desert soils (Morocco)	LPVF00000000.1
	NRRL B-41617	4.09146	-	Isolated from river (Spain)	LPVD00000000.1
	III-1	4.13992	-	Isolated from roots of *Phoenix dactylifera* (Tunisia)	MBQV00000000.1
	BFOA2	4.44148	-	Isolated from roots of *Limoniastrum monopetalum* (Tunisia)	PVXB00000000.1
	BFOA4	4.13265	-	Isolated from rhizosphere of wheat plant (Algeria)	PVXD00000000.1
	BFOA1	4.09488	-	Isolated from roots of *Limoniastrum monopetalum* (Tunisia)	PVXA00000000.1
	BFOA3	4.15264	-	Isolated from roots of *Limoniastrum monopetalum* (Tunisia)	PVXC00000000.1
	NRRL B-41618	4.20528	-	Isolated from river (Spain)	LPVE00000000.1
	RSCu-8D	4.15979	-	Isolated from *Cuminum cyminum* (India)	NERK00000000.1
	LNXM37	4.08166	-	Isolated from soil (environmental sample, China)	PVQP00000000.1
	LNXM78	4.17021	-	Isolated from soil (environmental sample, China)	PVQQ00000000.1
	DGL6	3.73909	-	Isolated from a salt lake (China)	PVWC00000000.1

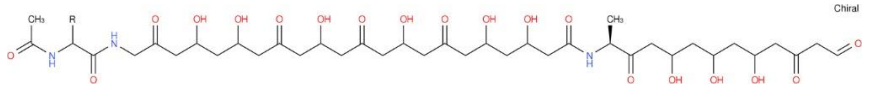
Supplementary Table S2. Details of fungal species used in this study.

	Species	Strain	Source	Country	GenBank Accession
					ITS
1	*Fusarium solani*	Fso3	*Olea europaea*	Tunisia	KU528851
2	*Fusarium solani*	Fso12	*Olea europaea*	Tunisia	KU528862
3	*Fusarium solani*	Fso11	*Olea europaea*	Tunisia	KU528861
4	*Fusarium solani*	Fso7	*Olea europaea*	Tunisia	KU528857
5	*Fusarium solani*	Fso5	*Olea europaea*	Tunisia	KU528854
6	*Fusarium solani*	Fso6	*Olea europaea*	Tunisia	KU528855
7	*Fusarium solani*	Fso8	*Olea europaea*	Tunisia	KU528858
8	*Fusarium solani*	Fso9	*Olea europaea*	Tunisia	KU528859
9	*Fusarium solani*	Fso1	*Olea europaea*	Tunisia	KU528848
10	*Fusarium solani*	Fso10	*Olea europaea*	Tunisia	KU528860
11	*Fusarium solani*	Fso13	*Olea europaea*	Tunisia	KU528863
12	*Fusarium solani*	Fso2	*Olea europaea*	Tunisia	KU528850
13	*Fusarium oxysporum*	Fox1	*Olea europaea*	Tunisia	KU528844
14	*Fusarium oxysporum* f.sp. *radices lycopersicum*	FORL	Tomato	Tunisia	-
15	*Fusarium acuminatum*	Fac	*Olea europaea*	Tunisia	KU528866
16	*Fusarium chlamydosporum*	Fch1	*Olea europaea*	Tunisia	KU528845
17	*Alternaria* sp.	KT1	*Pistacia vera*	Tunisia	-
18	*Rhizoctonia bataticola*	MAT1	*Olea europaea*	Tunisia	-
19	*Phytophthora infestans*	LMA1	Potato	Algeria	-
20	*Alternaria alternata*	LMA2	Tomato	Algeria	-
21	*Botrytis cinerea*	LMA3	Strawberry	Algeria	-
22	*Fusarium oxysporum* f.sp. *albedinis*	LMA1	*Phoenix dactylifera*	Algeria	-
23	*Fusarium oxysporum* f.sp. *albedinis*	LMA2	*Phoenix dactylifera*	Algeria	-
24	*Fusarium oxysporum* f.sp. *albedinis*	LMA3	*Phoenix dactylifera*	Algeria	-
25	*Fusarium oxysporum* f.sp. *albedinis*	LMA4	*Phoenix dactylifera*	Algeria	-
	Fusarium oxysporum f.sp. *albedinis*	LMA5	*Phoenix dactylifera*	Algeria	-
23	*Fusarium solani* var. *coeruleum*	IPP1	Potato	France	-

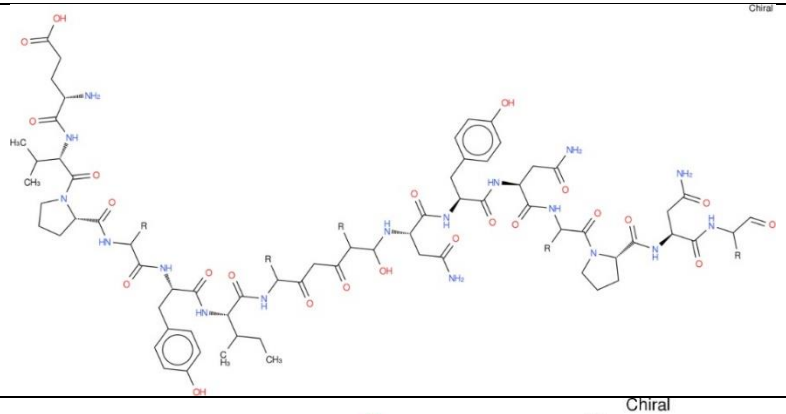
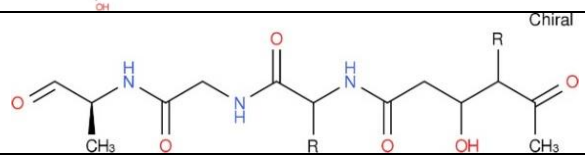
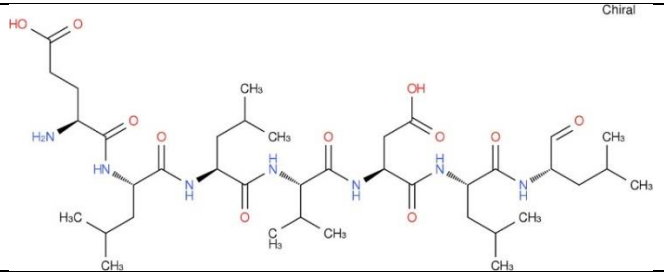
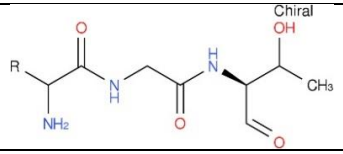
Supplementary Table S3. Secondary metabolites of *Bacillus halotolerans* isolates identified with antiSMASH program.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
ATCC 25096				
Cluster 1	Nrps	65255	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 2	Nrps	2695	-	-
Cluster 3	Nrps	12795	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	
Cluster 4	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 5	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 6	Other	41422	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 7	Nrps	90306	Fengycin biosynthetic gene cluster (80% of genes show similarity)	

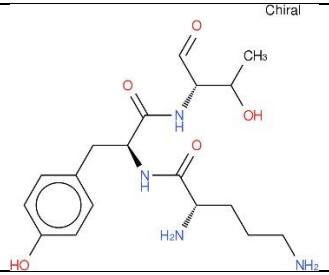
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
ATCC 25096				
Cluster 8	Transatpks-Otherks-Nrps	110097	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 9	Terpene	20806	-	-
Cluster 10	Terpene	21898	-	-
Cluster 11	T3pks	41097	-	-
Cluster 12	Lantipeptide	18699	-	-

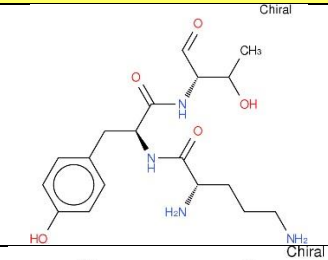
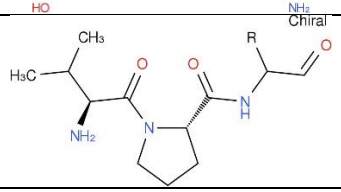
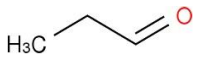
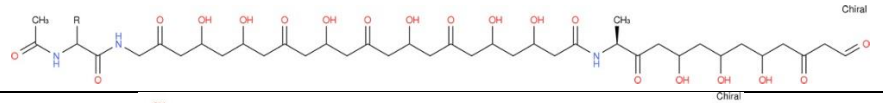
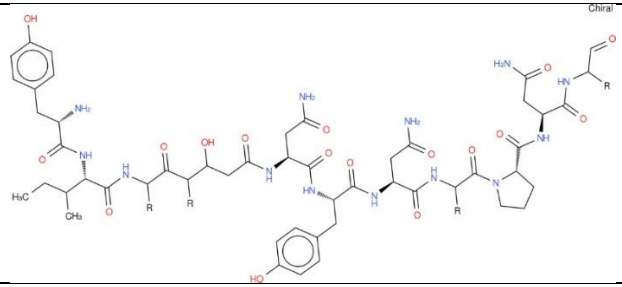
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
FJAT-2398				
Cluster 1	T3pks	41097	-	-
Cluster 2	Terpene	21898	-	-
Cluster 3	Transatpks-Nrps	114372	Fengycin biosynthetic gene cluster (93% of genes show similarity)	
Cluster 4	Transatpks-Otherks-Nrps	110096	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 5	Terpene	20806	-	-
Cluster 6	Nrps	65255	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 7	Lantipeptide	18464	-	-
Cluster 8	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	

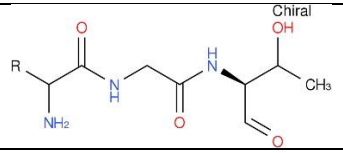
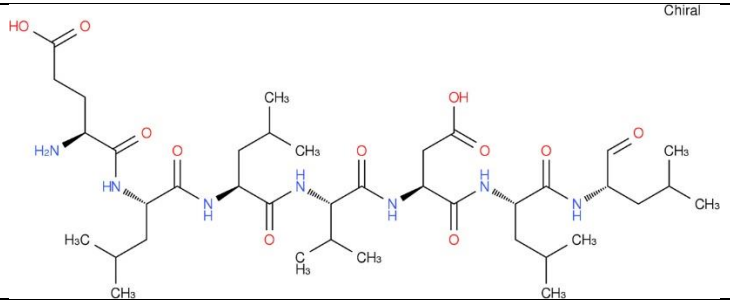
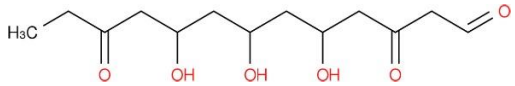
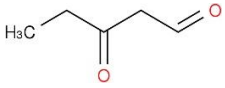
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
FJAT-2398				
Cluster 9	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 10	Other	41422	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 11	Nrps	12929	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	

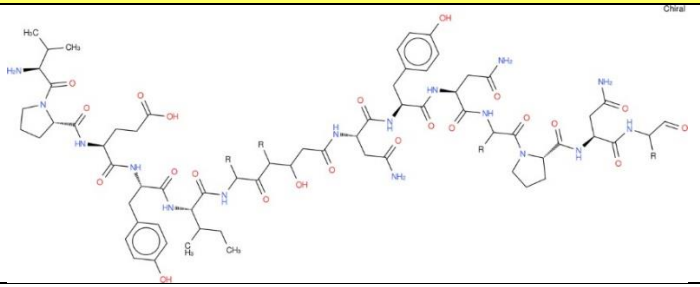
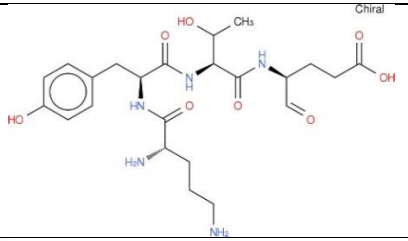
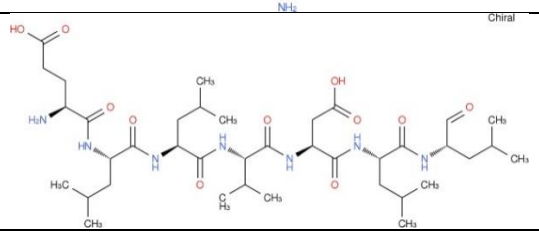
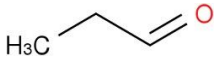
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
III-1				
Cluster 1	Nrps	14107	Fengycin biosynthetic gene cluster (26% of genes show similarity)	
Cluster 2	Nrps	10652	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 3	Transatpks	8404	Elansolid biosynthetic gene cluster (10% of genes show similarity)	
Cluster 4	Transatpks	5353	-	-
Cluster 5	Transatpks	2123	-	-
Cluster 6	Terpene	20806	-	-
Cluster 7	Nrps-Transatpks-Otherks	110082	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 8	Transatpks-Nrps	80362	Fengycin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 9	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-

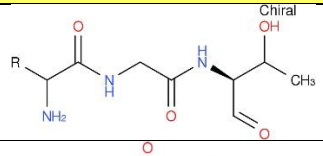
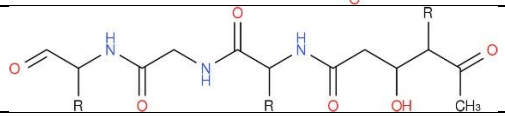
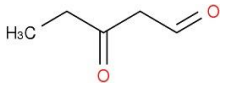
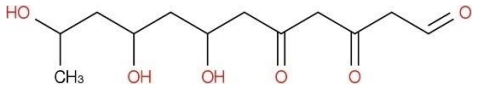
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
III-1				
Cluster 10	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 11	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 12	T3pks	41097	-	-
Cluster 13	Terpene	21898	-	-
Cluster 14	Nrps	23006	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	-
Cluster 15	Nrps	65394	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 16	Transatpks	48051	Phormidolide biosynthetic gene cluster (17% of genes show similarity)	
Cluster 17	Transatpks-T1pks-Otherks	32386	Phormidolide biosynthetic gene cluster (21% of genes show similarity)	

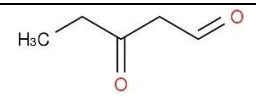
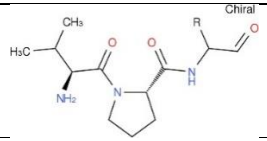
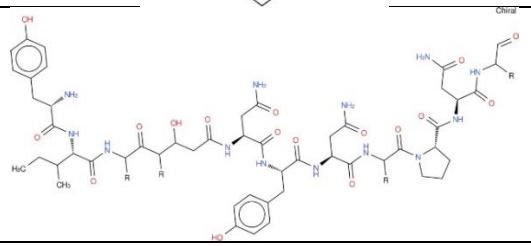
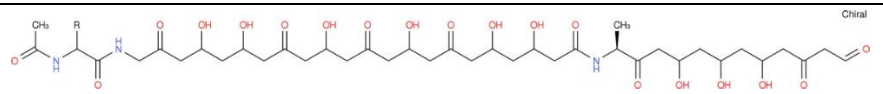
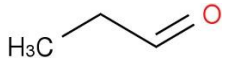
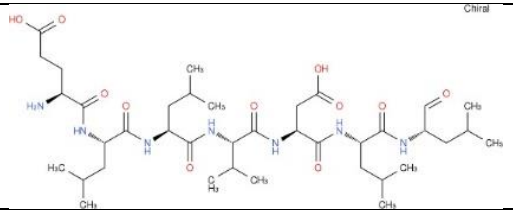
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
NRRL B-41618				
Cluster 1	Transatpks-Nrps	90713	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 2	Transatpks	5608	-	-
Cluster 3	Nrps	14364	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	
Cluster 4	Nrps	65395	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 5	Transatpks	8190	Elansolid biosynthetic gene cluster (10% of genes show similarity)	
Cluster 6	Nrps	1122	-	-
Cluster 7	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 8	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-

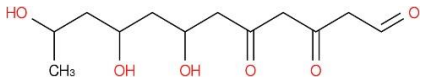
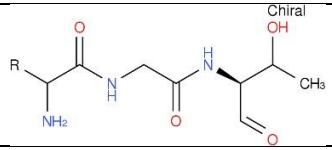
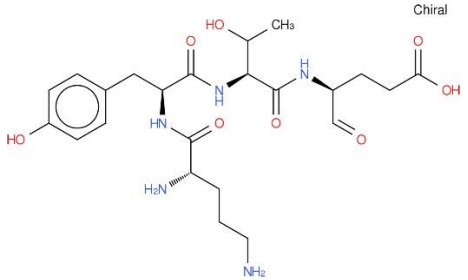
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
NRRL B-41618				
Cluster 9	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 10	Transatpks-Otherks-Nrps	110097	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 11	Terpene	20806	-	-
Cluster 12	Nrps	22596	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	-
Cluster 13	Terpene	21898	-	-
Cluster 14	Transatpks-T1pks-Otherks	32280	Thiomarinol biosynthetic gene cluster (8% of genes show similarity)	
Cluster 15	T3pks	41097	-	-
Cluster 16	Transatpks	46509	Myxovirescin biosynthetic gene cluster (13% of genes show similarity)	

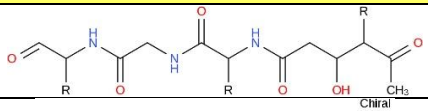
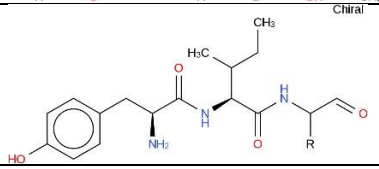
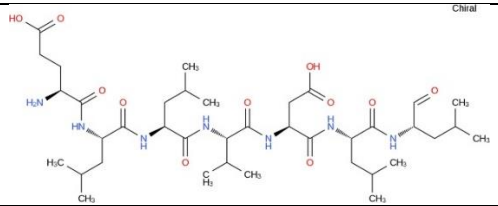
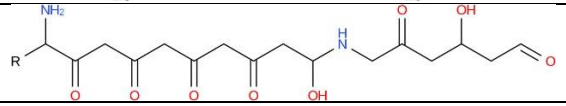
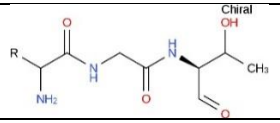
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
NRRL B-41617				
Cluster 1	T3pks	41097	-	-
Cluster 2	Terpene	21898	-	-
Cluster 3	Nrps	22905	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	-
Cluster 4	Transatpks-T1pks-Otherks	32259	Phormidolide biosynthetic gene cluster (21% of genes show similarity)	
Cluster 5	Nrps	10181	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 6	Transatpks-Nrps	63211	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 7	Terpene	20806	-	-
Cluster 8	Nrps-Transatpks-Otherks	110093	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 9	Transatpks	8405	Elansolid biosynthetic gene cluster (10% of genes show similarity)	
Cluster 10	Transatpks	2083	-	-
Cluster 11	Nrps	65394	Surfactin biosynthetic gene cluster (86% of genes show similarity)	

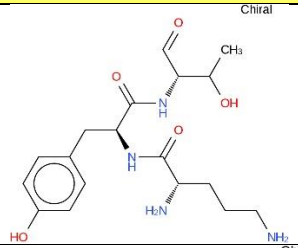
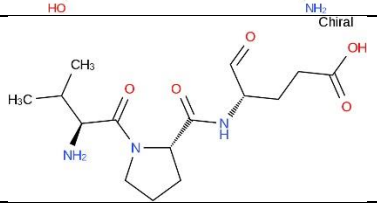
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
NRRL B-41617				
Cluster 12	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 13	Transatpks	46517	Myxovirescin biosynthetic gene cluster (13% of genes show similarity)	
Cluster 14	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 15	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 16	Nrps	15038	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	

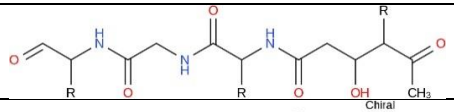
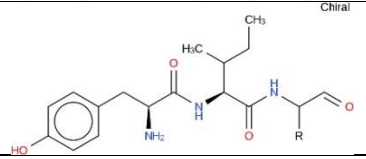
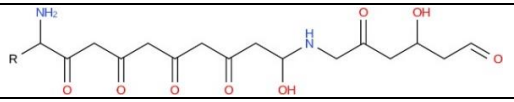
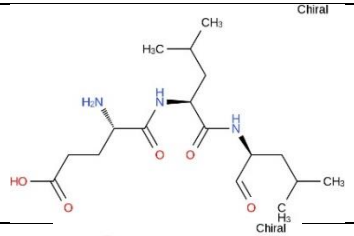
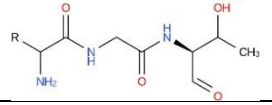
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA2 (72)				
Cluster 1	Nrps-Transatpks-Otherks	110091	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 2	Nrps	33415	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 3	Sactipeptide-Head_to_tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 4	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 5	Bacteriocin	12183	-	-
Cluster 6	T3pks	41097	-	-
Cluster 7	Terpene	21898	-	-
Cluster 8	Nrps	65395	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 9	Transatpks-Nrps	61278	Kijanimicin biosynthetic gene cluster (4% of genes show similarity)	
Cluster 10	Terpene	20806	-	-
Cluster 11	Nrps	43656	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 12	Nrps	23268	Plipastatin biosynthetic gene cluster (46% of genes show similarity)	-

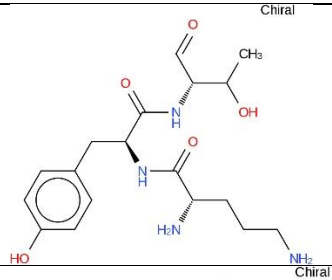
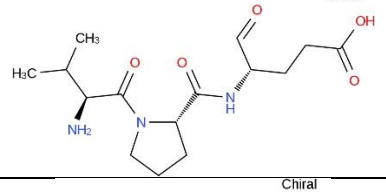
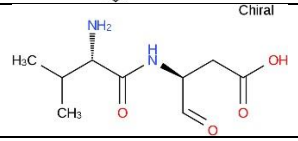
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA2 (72)				
Cluster 13	Nrps	13200	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	
Cluster 14	Nrps	10296	Plipastatin biosynthetic gene cluster (15% of genes show similarity)	

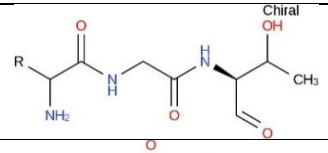
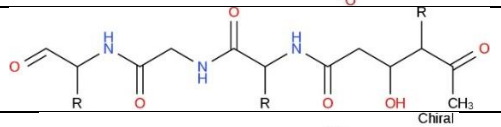
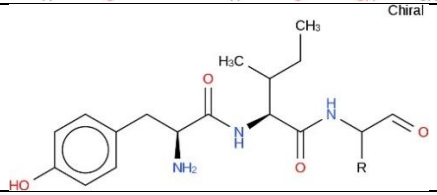
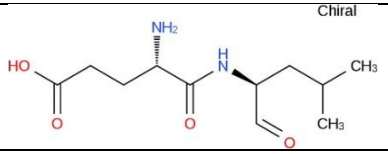
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA1 (86)				
Cluster 1	Terpene	20806	-	-
Cluster 2	Nrps-Transatpks-Otherks	110091	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 3	Nrps	33415	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 4	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 5	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 6	Bacteriocin	12183	-	-
Cluster 7	Transatpks-Nrps	61278	Kijanimicin biosynthetic gene cluster (4% of genes show similarity)	
Cluster 8	T3pks	41097	-	-
Cluster 9	Terpene	21898	-	-
Cluster 10	Nrps	25324	Surfactin biosynthetic gene cluster (43% of genes show similarity)	-
Cluster 11	Nrps	28547	Surfactin biosynthetic gene cluster (47% of genes show similarity)	
Cluster 12	Nrps	43656	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	

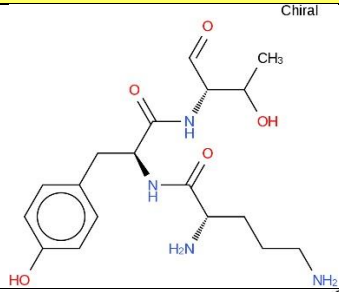
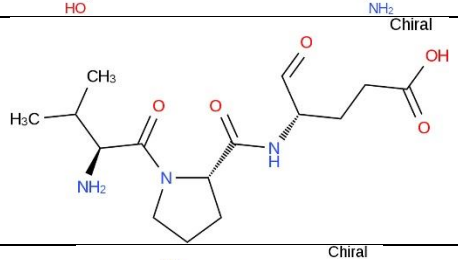
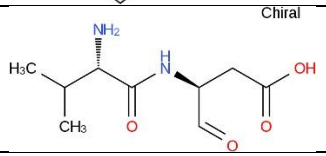
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA1 (86)				
Cluster 13	Nrps	23268	Plipastatin biosynthetic gene cluster (46% of genes show similarity)	-
Cluster 14	Nrps	13615	Fengycin biosynthetic gene cluster (26% of genes show similarity)	
Cluster 15	Nrps	10296	Plipastatin biosynthetic gene cluster (15% of genes show similarity)	
Cluster 16	Nrps	9326	Surfactin biosynthetic gene cluster (8% of genes show similarity)	
Cluster 17	Other	1009	-	-

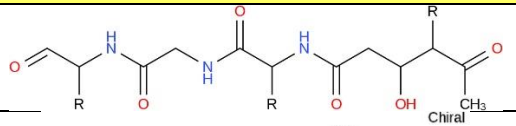
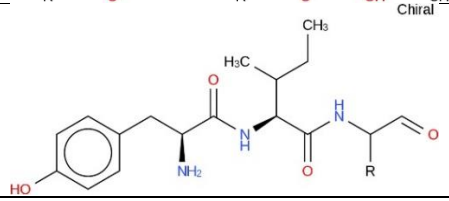
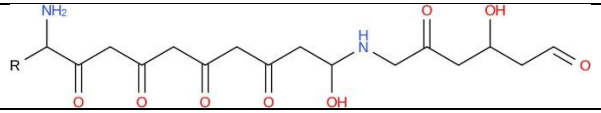
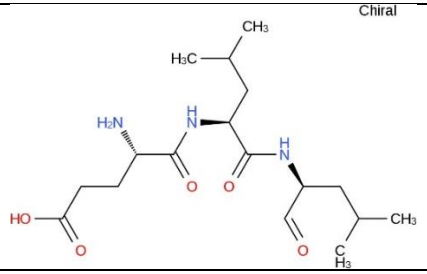
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
LNXM37				
Cluster 1	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 2	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 3	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 4	Nrps-Transatpks-Otherks	110098	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 5	Nrps	33354	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 6	T3pks	41097	-	-
Cluster 7	Terpene	21898	-	-
Cluster 8	Nrps	26072	Surfactin biosynthetic gene cluster (43% of genes show similarity)	-
Cluster 9	Terpene	20806	-	-
Cluster 10	Lantipeptide	22597	-	-
Cluster 11	Nrps	21754	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	-
Cluster 12	Nrps	28299	Surfactin biosynthetic gene cluster (47% of genes show similarity)	

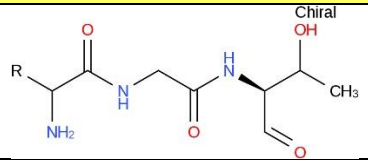
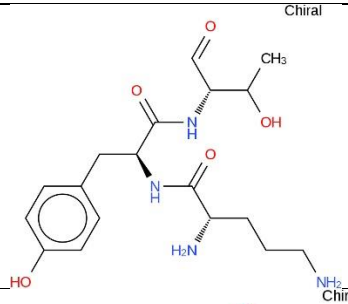
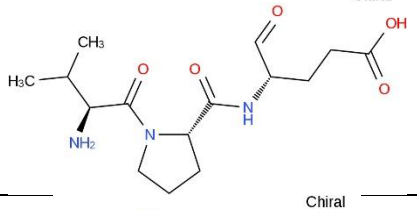
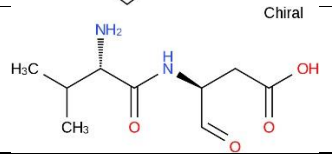
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
LNXM37				
Cluster 13	Nrps	13179	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 14	Nrps	9879	Plipastatin biosynthetic gene cluster (15% of genes show similarity)	
Cluster 15	Nrps	9291	Surfactin biosynthetic gene cluster (8% of genes show similarity)	

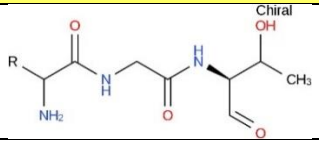
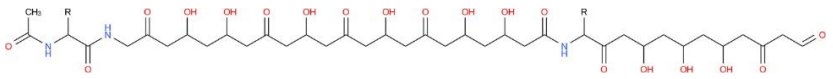
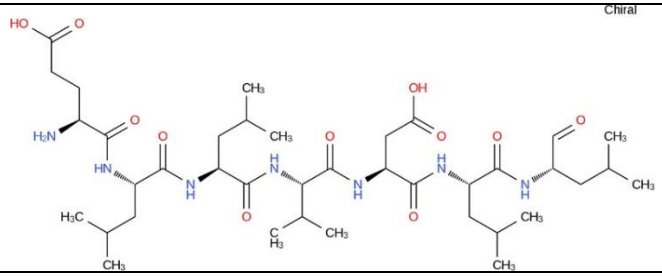
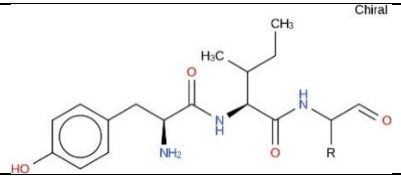
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA3 (36)				
Cluster 1	Nrps-Transatpks-Otherks	110091	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 2	Nrps	33415	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 3	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 4	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 5	Bacteriocin	12183	-	-
Cluster 6	Transatpks-Nrps	61278	Kijanimicin biosynthetic gene cluster (4% of genes show similarity)	
Cluster 7	T3pks	41097	-	-
Cluster 8	Terpene	21898	-	-
Cluster 9	Terpene	20806	-	-
Cluster 10	Nrps	25324	Surfactin biosynthetic gene cluster (43% of genes show similarity)	-
Cluster 11	Nrps	28547	Surfactin biosynthetic gene cluster (47% of genes show similarity)	

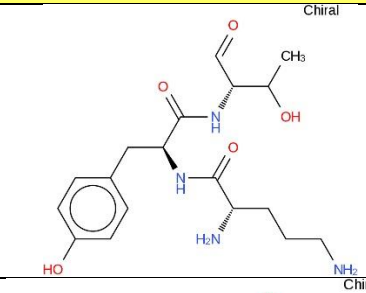
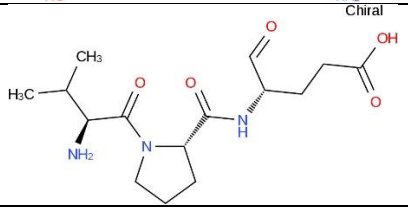
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA3 (36)				
Cluster 12	Nrps	43656	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 13	Nrps	23268	Plipastatin biosynthetic gene cluster (46% of genes show similarity)	-
Cluster 14	Nrps	13200	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	
Cluster 15	Nrps	10296	Plipastatin biosynthetic gene cluster (15% of genes show similarity)	
Cluster 16	Nrps	9326	Surfactin biosynthetic gene cluster (8% of genes show similarity)	
Cluster 17	Other	1009	-	-

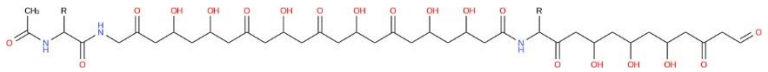
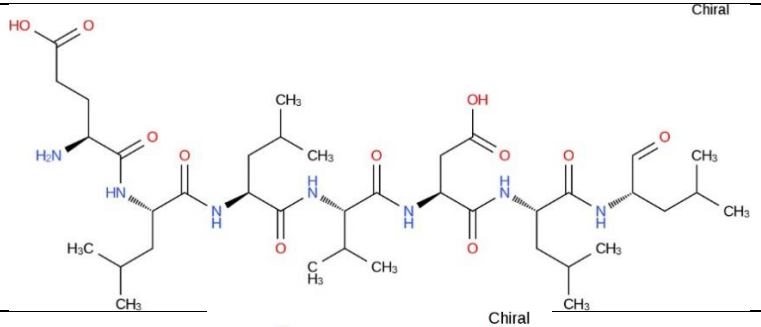
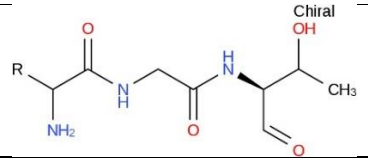
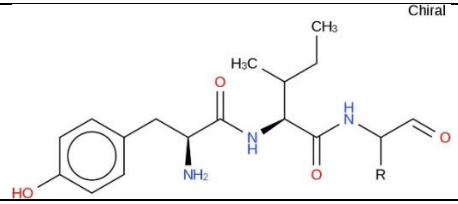
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
LNXM78				
Cluster 1	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 2	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 3	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 4	T3pks	41097	-	-
Cluster 5	Terpene	20806	-	-
Cluster 6	Nrps-Transatpks-Otherks	110098	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 7	Nrps	65395	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 8	Terpene	21898	-	-
Cluster 9	Lantipeptide	21755	-	-
Cluster 10	Nrps	33542	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 11	Nrps	21938	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	-

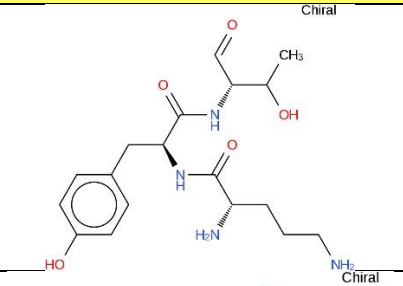
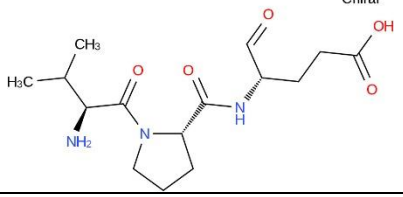
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
LNXM78				
Cluster 12	Nrps	13531	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 13	Nrps	10317	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 14	Other	1052	-	-
Cluster 15	Other	1052	-	-

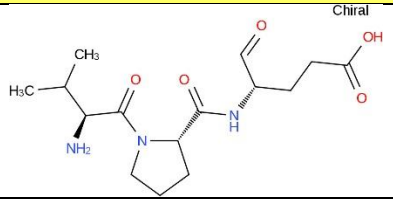
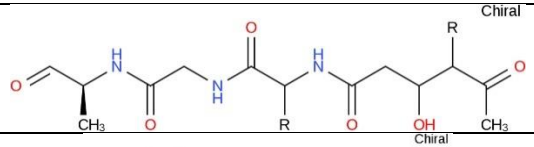
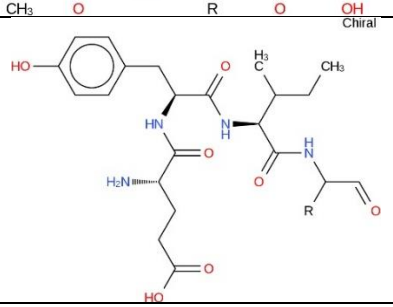
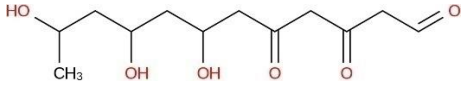
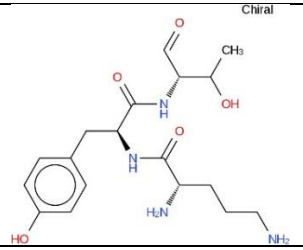
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA4 (B19)				
Cluster 1	Terpene	20806	-	-
Cluster 2	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 3	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 4	Transatpks-Otherks-Nrps	105327	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 5	Lantipeptide	22597	-	-
Cluster 6	Nrps	65395	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 7	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 8	T3pks	41097	-	-
Cluster 9	Nrps	33485	Fengycin biosynthetic gene cluster (80% of genes show similarity)	
Cluster 10	Terpene	21898	-	-

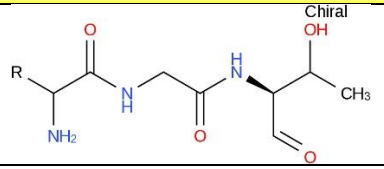
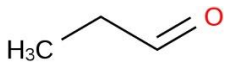
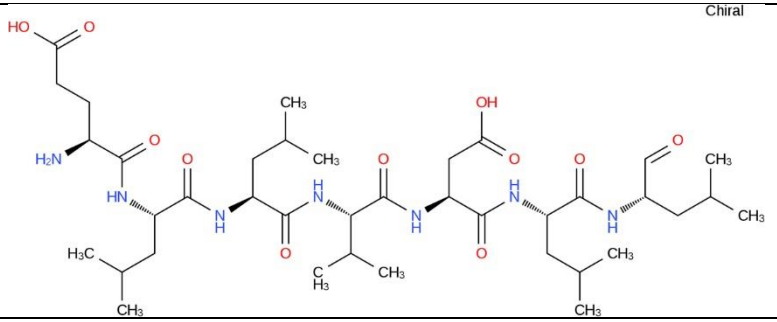
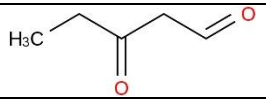
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
BFOA4 (B19)				
Cluster 11	Nrps	13174	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	
Cluster 12	Nrps	9618	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 13	Nrps	5050	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	-

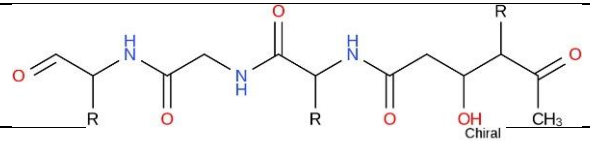
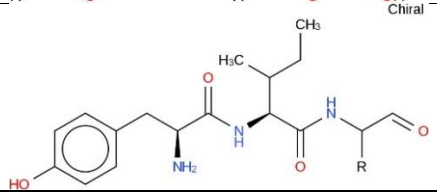
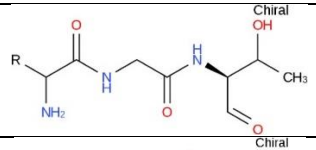
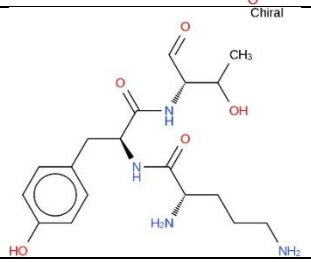
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
RSCu-8D				
Cluster 1	Nrps	9233	Plipastatin biosynthetic gene cluster (15% of genes show similarity)	
Cluster 2	Terpene	20806	-	-
Cluster 3	Nrps-Transatpks-Otherks	110097	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 4	Nrps	57204	Fengycin biosynthetic gene cluster (93% of genes show similarity)	
Cluster 5	Terpene	21898	-	-
Cluster 6	T3pks	41097	-	-
Cluster 7	Transatpks	46339	Myxovirescin biosynthetic gene cluster (13% of genes show similarity)	
Cluster 8	Transatpks	5388	-	-
Cluster 9	Nrps	12848	Plipastatin biosynthetic gene cluster (38% of genes show similarity)	

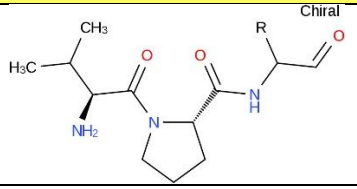
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
RSCu-8D				
Cluster 10	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 11	Transatpks	8471	Elansolid biosynthetic gene cluster (10% of genes show similarity)	
Cluster 12	Nrps	65394	Surfactin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 13	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 14	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 15	Transatpks-T1pks-Otherks	32875	Thiomarinol biosynthetic gene cluster (8% of genes show similarity)	

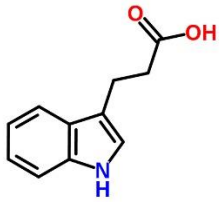
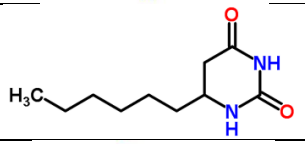
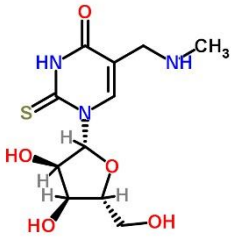
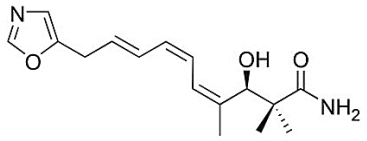
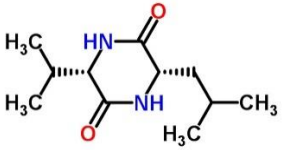
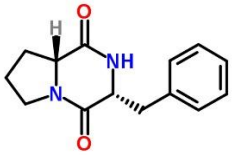
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
DGL6				
Cluster 1	T3pks	41097	-	-
Cluster 2	Terpene	21898	-	-
Cluster 3	Nrps	21680	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	-
Cluster 4	Terpene	20806	-	-
Cluster 5	Nrps-Transatpks-Otherks	110103	Bacillaene biosynthetic gene cluster (100% of genes show similarity)	
Cluster 6	Nrps	33899	Fengycin biosynthetic gene cluster (86% of genes show similarity)	
Cluster 7	Sactipeptide-Head to tail	21612	Subtilosin A biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 8	Other	41418	Bacilysin biosynthetic gene cluster (100% of genes show similarity)	-
Cluster 9	Nrps	49738	Bacillibactin biosynthetic gene cluster (100% of genes show similarity)	
Cluster 10	Nrps	14513	Plipastatin biosynthetic gene cluster (30% of genes show similarity)	

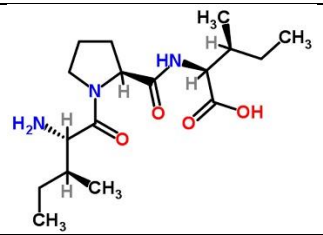
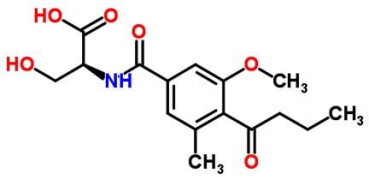
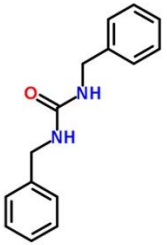
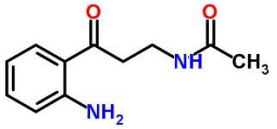
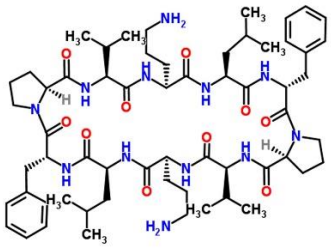
Supplementary Table S3. Continued.

Strain clusters	Type	Length (bp)	Most similar known clusters	Predicted core clusters
DGL6				
Cluster 11	Nrps	11005	Plipastatin biosynthetic gene cluster (23% of genes show similarity)	
Cluster 12	Nrps	1354	-	-

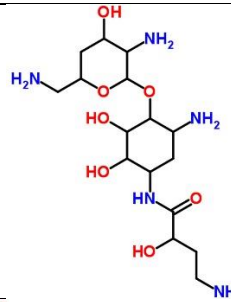
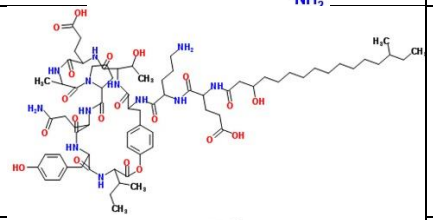
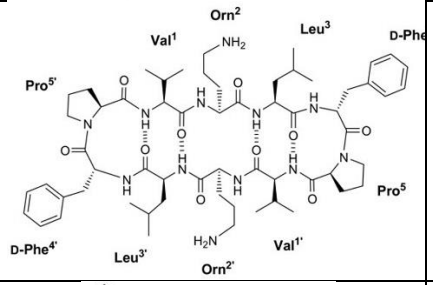
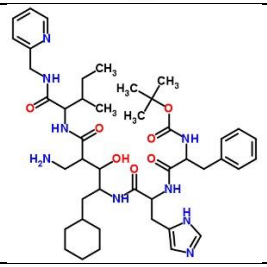
Supplementary Table S4. Compounds identified in *Bacillus halotolerans* isolates secreted fraction by LC-MS analysis.

Rt (min)	HRESIMS	Molecular formula	Tentative identification	Structure	BFOA 4	BFOA 3	BFOA 2	BFOA 1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal activity
1.39	188.0699	$C_{11}H_{11}NO_2$	Indole propionic acid		+	+	+	+	Zhang and Davies (2016)	–	–
1.71	197.1277	$C_{10}H_{18}N_2O_2$	Cyclo(L-Leu-N-methyl-L-Ala)		–	+	+	+	–	–	–
2.20	302.0819	$C_{11}H_{17}N_3O_5S$	2-thio-5(N-methylaminomethyl)uridine		–	–	+	+	–	–	–
2.62	289.1550	$C_{16}H_{22}N_2O_3$	Inthomycin-A		+	+	+	+	–	Webb et al. (2008)	Webb et al. (2008)
2.90	211.1433	$C_{11}H_{20}N_2O_2$	Cyclo(L-Val-L-Leu)		+	+	+	+	–	–	–
3.49	245.1270	$C_{14}H_{18}N_2O_2$	Cyclo(L-Val-L-Phe)		–	+	–	+	–	Guo et al. (2011)	–

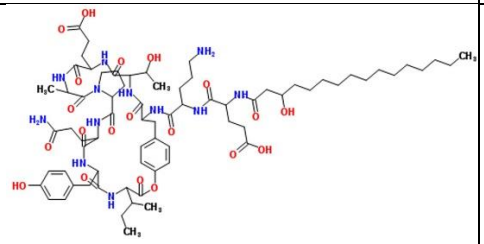
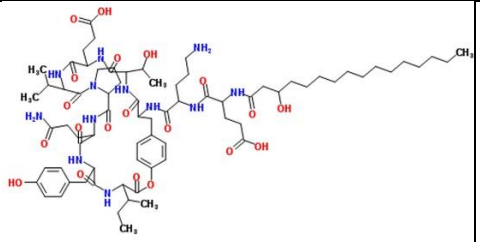
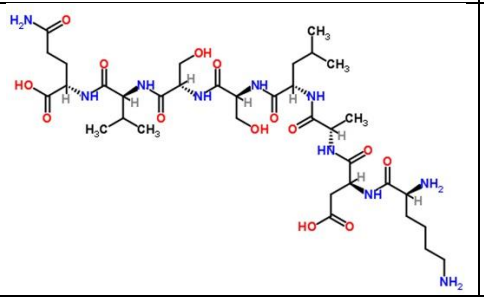
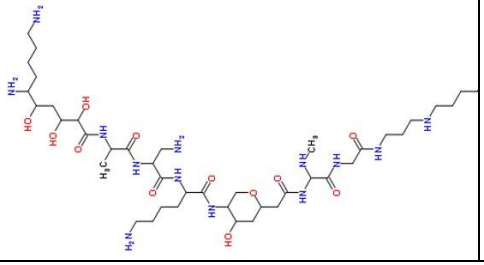
Supplementary Table 4. Continued.

Rt (min)	HRESIMS	Molecular formula	Tentative identification	Structure	BFOA 4	BFOA 3	BFOA 2	BFOA 1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal activity
4.46	340.2242	$C_{17}H_{31}N_3O_4$	Diprotin A (Isoleucyl Prolyl Isoleucine)		+	+	+	+	–	–	–
5.07	322.1295	$C_{16}H_{21}NO_6$	Methyl 3-acetamido-4,6-O-benzylidene-3-deoxy-β-D-glucopyranoside		+	–	–	–	–	–	–
5.17	239.1187	$C_{15}H_{16}N_2O$	3-(2-Butyl-5-oxazolyl)-1H-indole		+	–	–	–	–	–	–
5.97	205.0966	$C_{11}H_{14}N_2O_2$	N-Acetylkynuramine		+	–	–	–	–	–	–
6.90	1139.6985	$C_{60}H_{92}N_{12}O_{10}$	Gramicidin S		+	+	+	+	–	Gause and Brazhnikova (1944)	–

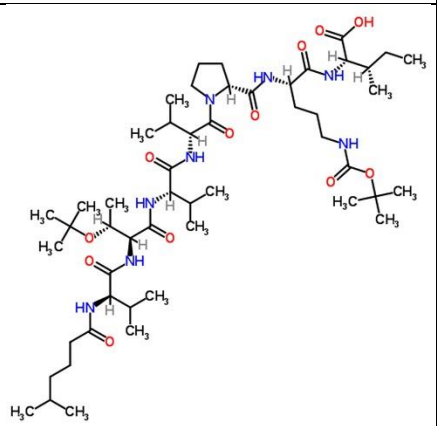
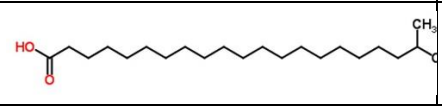
Supplementary Table 4. Continued.

Rt (min)	HRESIMS	Molecular formula	Tentative identification	Structure	BFOA 4	BFOA 3	BFOA 2	BFOA 1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal activity
7.28	406.2300	$C_{16}H_{33}N_5O_7$	5-Deoxybutirosamine		+	–	–	–	–	Taylor and Schmitz (1976)	–
7.33	1475.8043	$C_{73}H_{112}N_{12}O_{20}$	Plipastatin A2		+	+	+	+	–	Umezawa et al. (1986)	–
7.44	1125.6832	$C_{59}H_{90}N_{12}O_{10}$	Gramicidin S2		+	+	+	+	–	Solanas et al. (2009)	–
7.51	830.4935	$C_{44}H_{65}N_9O_7$	Gramicidin-J		+	+	+	+	–	Hunter and Schwartz (1967)	–

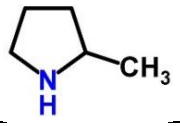
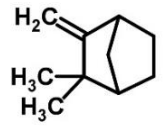
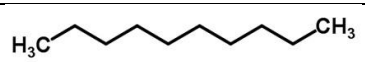
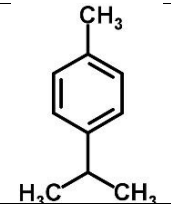
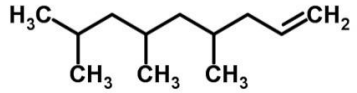
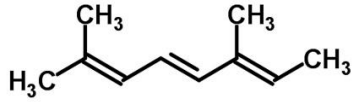
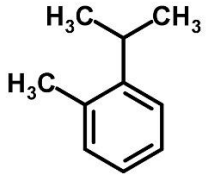
Supplementary Table 4. Continued.

Rt (min)	HRESIMS	Molecular formula	Tentative identification	Structure	BFOA 4	BFOA 3	BFOA 2	BFOA 1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal activity
7.61	1461.7884	$C_{72}H_{110}N_{12}O_{20}$	Plipastatin A1		+	–	+	+	–	Ma and Hu (2018)	–
7.66	1489.8196	$C_{74}H_{114}N_{12}O_{20}$	Plipastatin B1		+	–	+	+	–	Tsuge et al. (1996)	–
7.97	845.4376	$C_{35}H_{62}N_{10}O_{14}$	Rotihibin-B		+	–	–	–	Fukuchi et al. 1995	–	–
8.39	961.6161	$C_{41}H_{82}N_{14}O_{12}$	Galantin-I		+	–	–	–	–	Sakai and Ohfune (1992)	–

Supplementary Table 4. Continued.

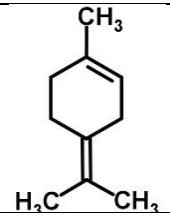
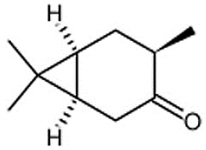
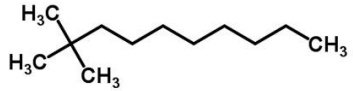
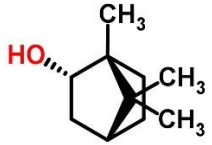
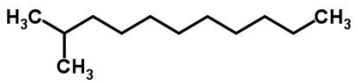
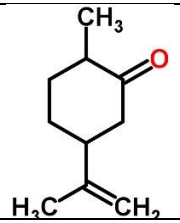
Rt (min)	HRESIMS	Molecular formula	Tentative identification	Structure	BFOA 4	BFOA 3	BFOA 2	BFOA 1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal activity
8.46	993.6427	$C_{42}H_{86}N_{14}O_{13}$	Lysinegalantin I	–	+	+	+	+	–	–	–
8.57	1007.6763	$C_{51}H_{92}N_8O_{12}$	Pseudofactin I		+	+	+	+	–	Janek et al. (2012); Biniarz et al. (2015)	–
8.62	1021.6916	$C_{52}H_{94}N_8O_{12}$	Pseudofactin II	-							
9.28	339.3266	$C_{22}H_{44}O_2$	20-methylheneicosanoic acid		–	+	+	+	–	–	–

Supplementary Table S5. Compounds identified in *Bacillus halotolerans* strains secreted fraction by GC-MS analysis.

Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
4.69	873	$C_5H_{11}N$	Ethyl-2-methylpyrrolidine		+	+	–	–	–	–	–
5.10	942	$C_{10}H_{16}$	Camphene		+	+	–	–	–	–	–
5.92	1003	$C_{10}H_{22}$	Decane		–	+	–	–	–	–	–
6.02	1011	$C_{10}H_{14}$	p-Cymene		–	+	–	–	–	–	–
6.15	1014	$C_{12}H_{24}$	Trimethyl-1-nonene		+	+	–	–	–	–	–
6.43	1018	$C_{10}H_{16}$	D-Limonene		–	–	+	+	–	–	Avenger Material Safety Data Sheet[1]
6.78	1025	$C_{10}H_{14}$	o-Cymene		+	+	–	–	–	–	–

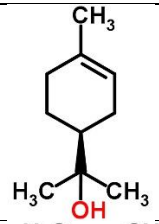
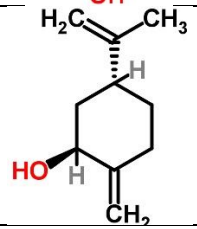
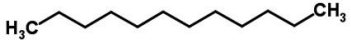
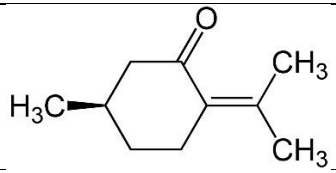
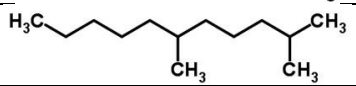
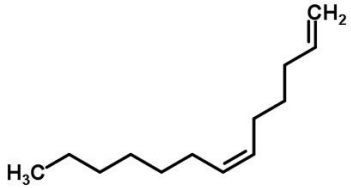
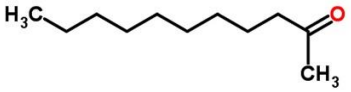
[1] http://nebula.wsimg.com/07de45c0af774ba73e06362ad1a56f06?AccessKeyId=C67FD801C8FC93742D64&disposition=0&alloworigin=1

Supplementary Table S5. Continued.

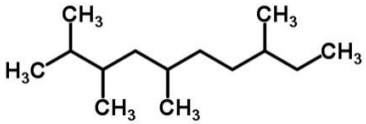
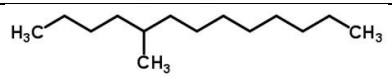
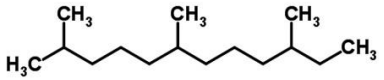
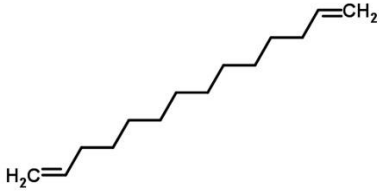
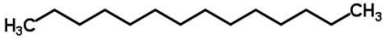
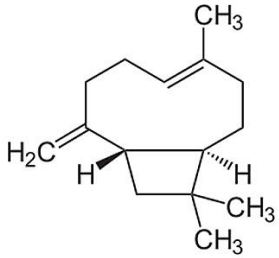
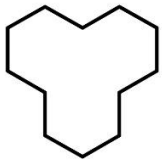
Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
6.87	1083	$C_{10}H_{16}$	α-terpinolene		+	+	+	–	–	–	–
7.51	1109	$C_{10}H_{16}O$	cis-4-Caranone		+	+	–	–	–	–	–
7.66	1115	$C_{11}H_{24}$	Undecane		+	+	–	–	–	–	–
7.88	1151	$C_{12}H_{26}$	Dimethyldecane		+	+	–	–	–	–	–
8.15	1158	$C_{10}H_{18}O$	Borneol		+	+	–	–	–	–	Chemical Information[2]
8.28	1170	$C_{12}H_{26}$	2-methyl-undecane		+	+	–	–	–	–	–
8.41	1179	$C_{10}H_{16}O$	Dihydrocarvone		+	+	–	–	–	–	–

[2] https://web.archive.org/web/20041107161247/http://sun.ars-grin.gov:8080/npgspub/xsql/duke/chemdisp.xsql?chemical=BORNEOL

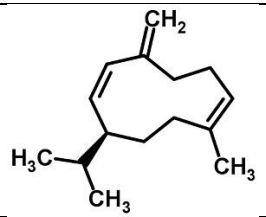
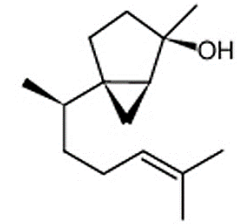
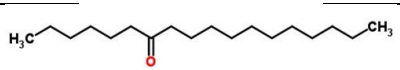
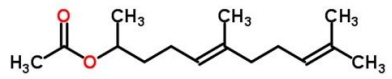
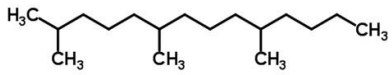
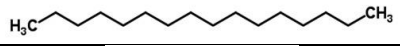
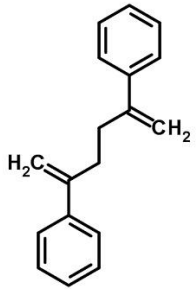
Supplementary Table S5. Continued.

Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
8.57	1185	$C_{10}H_{18}O$	α-terpineol		+	+	–	–	–	–	–
9.06	1201	$C_{10}H_{16}O$	trans-p-mentha-1(7),8-dien-2-ol		+	+	–	–	–	–	–
9.13	1209	$C_{12}H_{26}$	Dodecane		+	+	–	–	–	–	–
9.21	1216	$C_{10}H_{16}O$	Pulegone		+	+	–	–	–	–	Franzios et al. (1997)
9.34	1234	$C_{13}H_{28}$	2,3-dimethyl-undecane		+	+	+	–	–	–	–
9.64	1271	$C_{13}H_{24}$	Tridecadiene		+	+	+	–	–	–	–
9.99	1298	$C_{11}H_{22}O$	2-undecanone		+	+	–	–	–	–	Stephen et al. (2002)

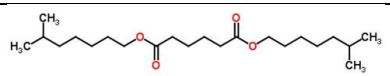
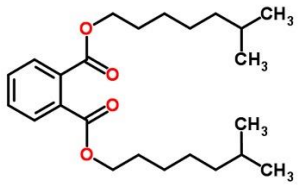
Supplementary Table S5. Continued.

Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
10.51	1313	$C_{13}H_{28}$	Tridecane		+	+	+	–	–	–	–
10.67	1319	$C_{14}H_{30}$	Tetramethyldecane		+	+	+	–	–	–	–
10.83	1349	$C_{14}H_{30}$	Methyltridecane		+	+	+	–	–	–	–
11.14	1381	$C_{15}H_{32}$	Farnesane		–	+	+	–	–	–	–
11.93	1411	$C_{14}H_{26}$	Tetradecadiene		+	+	+	–	–	–	–
12.32	1417	$C_{14}H_{30}$	Tetradecane		–	+	+	–	–	–	–
13.18	1423	$C_{15}H_{24}$	*trans*-Caryophyllene		–	+	+	–	–	–	–
13.26	1439	$C_{12}H_{24}$	Cyclododecane		–	–	+	–	–	–	–

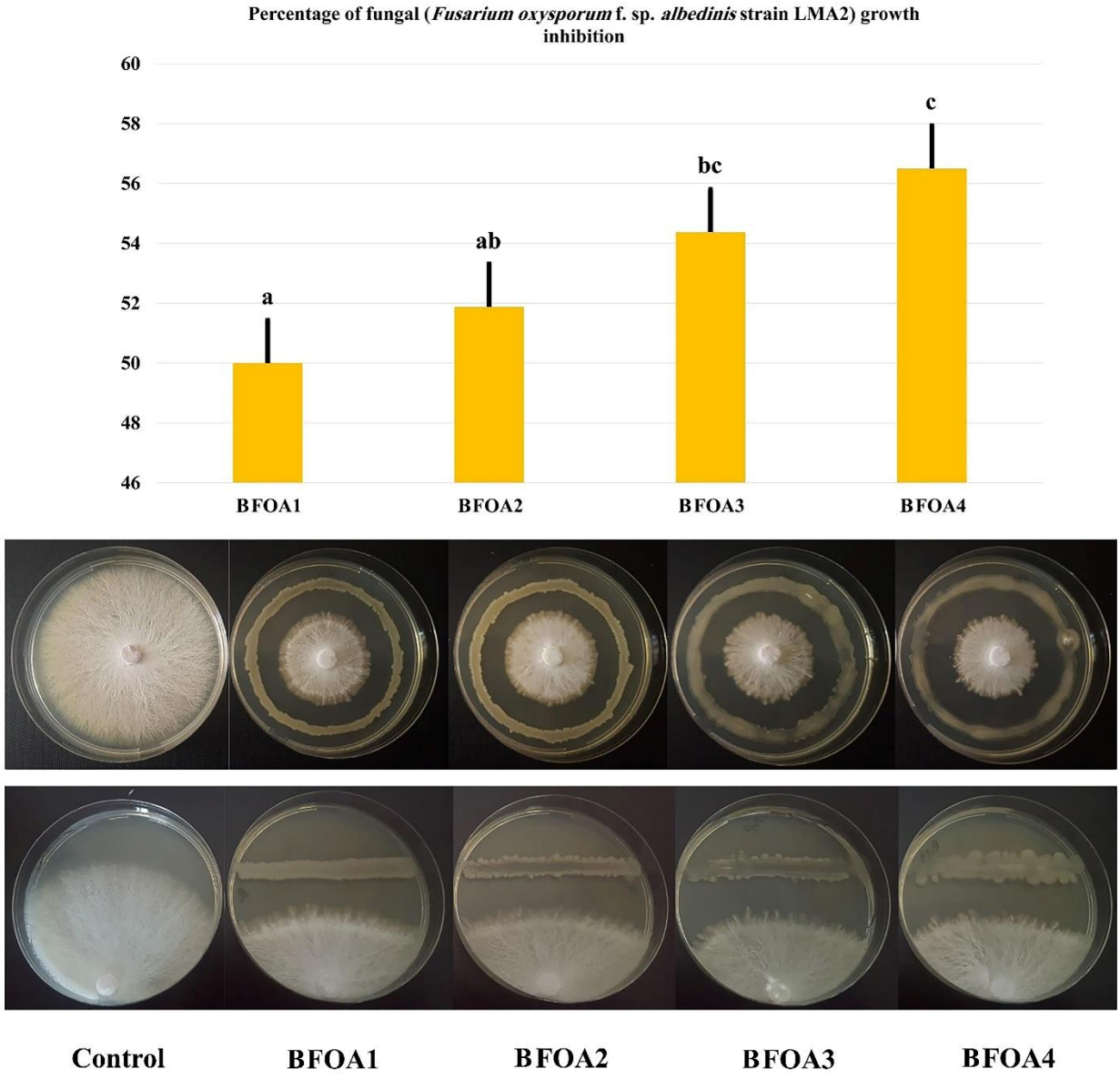
Supplementary Table S5. Continued.

Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
13.38	1477	$C_{15}H_{24}$	Germacrene D		–	–	+	–	–	Adio (2009)	Adio (2009)
13.57	1523	$C_{15}H_{26}O$	7-epi-cis-sesquisabinene		–	–	+	–	–	–	–
13.79	1563	$C_{18}H_{36}O$	Hexa-hydro-farnesyl		–	+	+	–	–	–	–
14.50	1573	$C_{15}H_{26}O_2$	Geranyl isovalerate		–	+	–	–	–	–	–
15.94	1557	$C_{17}H_{36}$	Trimethyltetradecane		–	–	+	–	–	–	–
16.96	1612	$C_{16}H_{34}$	Hexadecane		–	–	+	–	–	–	–
34.71	1939	$C_{18}H_{18}$	1,5-Diphenyl-1,5-hexadiene		–	–	+	+	–	–	–

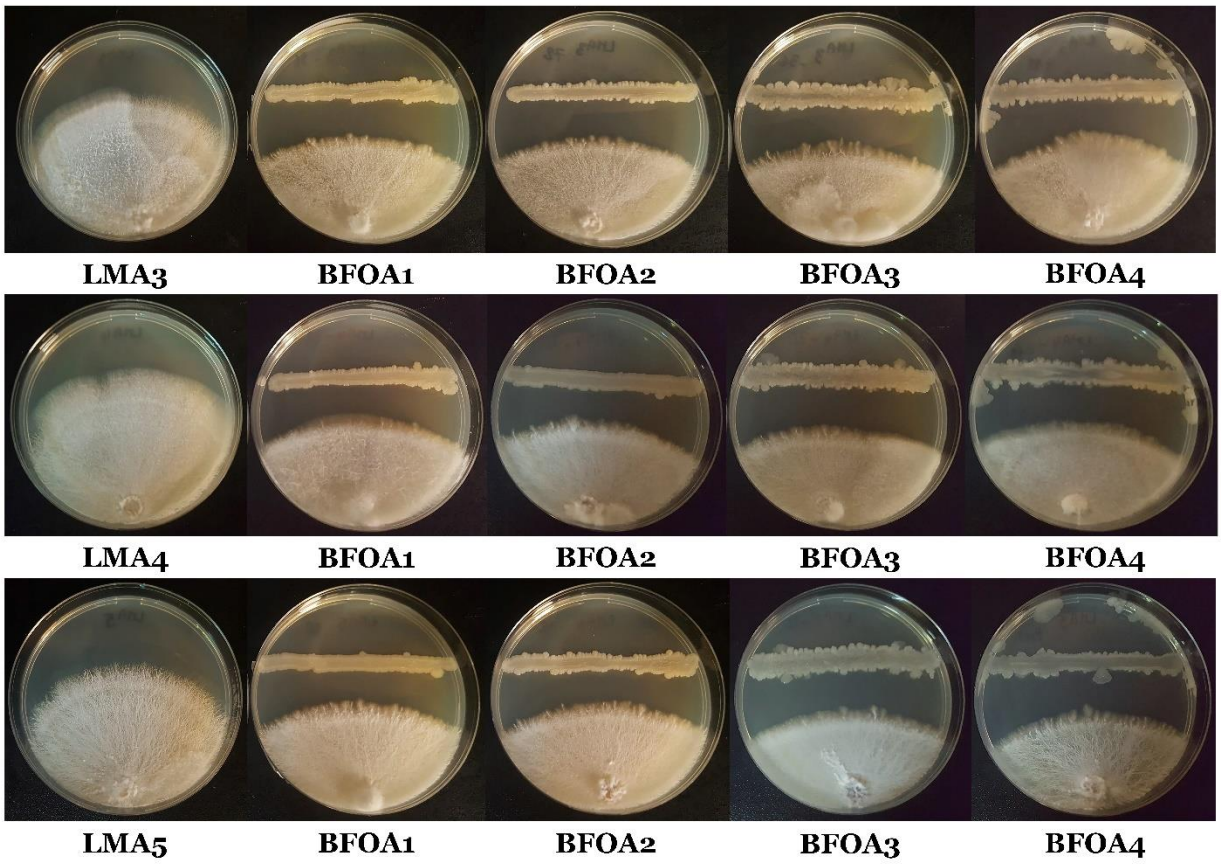
Supplementary Table S5. Continued.

Rt (min)	Kovat's Index	Molecular formula	Tentative identification	Structure	BFOA4	BFOA3	BFOA2	BFOA1	PGP activity	Biocontrol / antimicrobial activity	Herbicidal/ Insecticide activity
35.82	2244	$C_{22}H_{42}O_4$	Diisooctyl adipate		–	–	+	+	–	–	–
37.00	2704	$C_{24}H_{38}O_4$	Diisooctyl phthalate		–	–	+	–	–	–	–

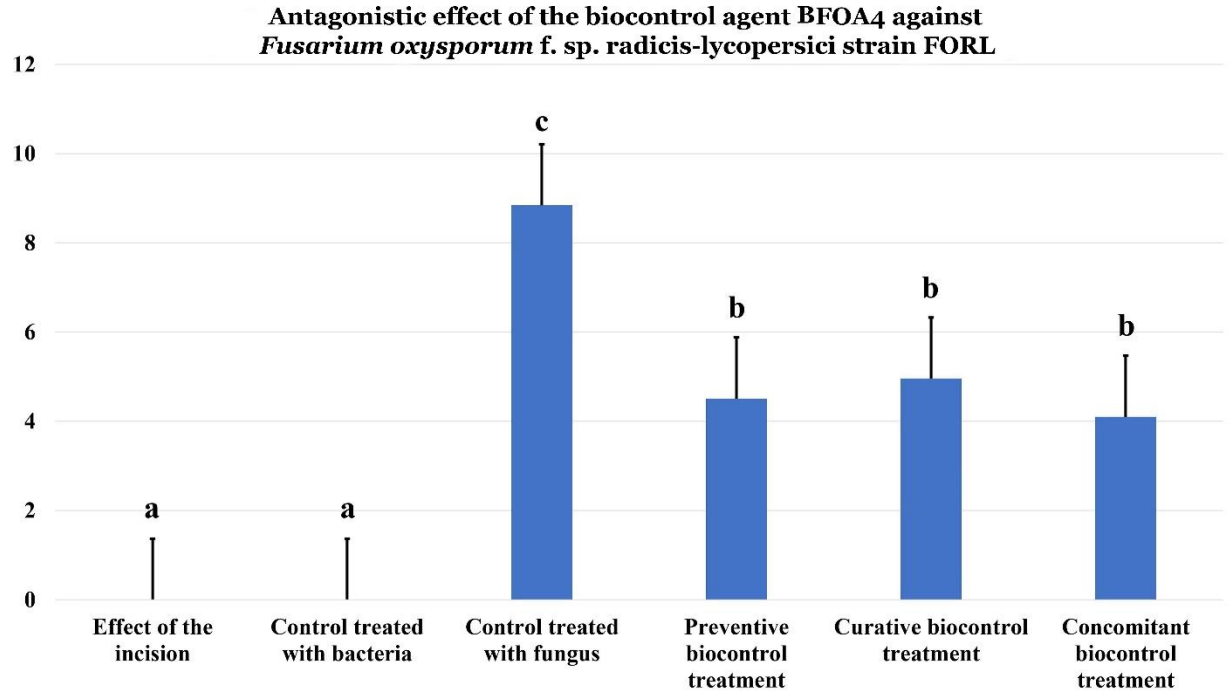
Supplementary Figure S1. Percentage of fungal (*Fusarium oxysporum* f. sp. *albedinis* strain LMA2) growth inhibition against *Bacillus halotolerans* isolates. Data presents mean ± standard error. Bars labelled with different letters are significantly different among the treatments at $p < 0.05$ using the Tukey's HSD test.



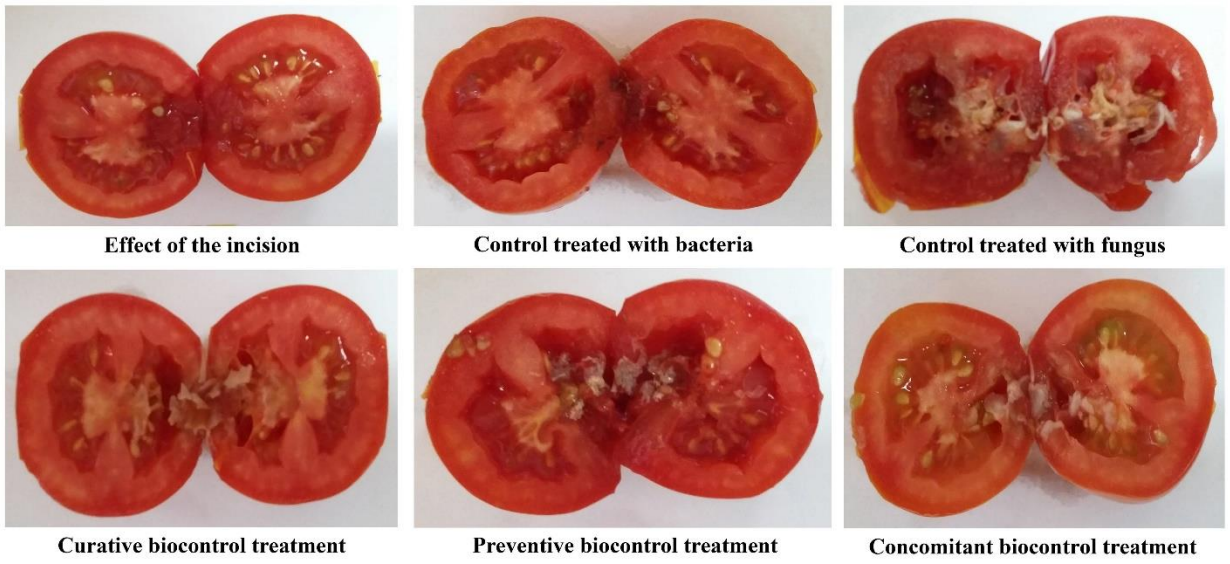
Supplementary Figure S2. *Fusarium oxysporum* f. sp. albedinis strains LMA3, LMA4 and LMA5 growth inhibition against *Bacillus halotolerans* isolates.



Supplementary Figure S3. Antagonistic effect of the biocontrol agent FOA4 against *Fusarium oxysporum* f. sp. radicis-lycopersici strain FORL. (A) Effects of FOA1-4 bacterial isolates on Fusarium oxysporum f. sp. radicis-lycopersici strain FORL tomato fruit rot severity as compared to tomato fruit controls. Data presents mean ± standard error. Bars labelled with different letters are significantly different among the treatments at $p < 0.05$ using the Tukey's HSD test. (B) Effect of preventive, concomitant, and curative biocontrol treatment on tomato fruits at 7 days post-inoculation with *Fusarium* oxysporum f. sp. radicis-lycopersici strain FORL.



A



B

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