

Supplementary Table 1. The biochemical characteristics of *Brevibacillus laterosporus* isolate XJ-24-3

Physiological or biochemical index	XJ-24-1	XJ-24-2	XJ-24-3	XJ-24-4	XJ-24-5
Anaerobic growth	+	+	+	+	+
Voges-Proskauer	—	—	—	—	—
Citrate	—	—	—	—	—
Propionate	+	+	+	+	+
D-xylose	—	—	—	—	—
L-arabinose	—	—	—	—	—
Gram staining	+	+	+	+	+
D-mannitol	+	+	+	+	+
Gelatin liquefaction	+	+	+	+	+
7% Growth of sodium chloride	—	—	—	—	—
pH5.7 growth	+	+	+	+	+
Nitrate reduction	+	+	+	+	+
Starch hydrolysis	—	—	—	—	—
Lactose fermentation	+	+	+	+	+

Supplementary Table 2. Concentrations of antimicrobials applied to sensitive paper (μg)

Antimicrobial	Concentration (μg)
Tetracycline	30
Penicillin	10
Erythromycin	15
Chloramphenicol	30
Ampicillin	10
Ciprofloxacin	5
Gentamicin	10
Cotrimoxazole	25
Ceftriaxone	30
Lincomycin	2

Supplementary Table 3. Determination of drug susceptibility of *Brevibacillus laterosporus* isolate XJ-24-3

Antimicrobial	Inhibition zone (mm)	Interpretation
Tetracycline	21 mm	Susceptible
Penicillin	22 mm	Susceptible
Erythromycin	34 mm	Susceptible
Chloramphenicol	20 mm	Susceptible
Ampicillin	23 mm	Susceptible
Ciprofloxacin	33 mm	Susceptible
Gentamicin	26 mm	Susceptible
Cotrimoxazole	19 mm	Intermediate
Ceftriaxone	25 mm	Susceptible
Lincomycin	-	Resistant

Supplementary Table 4. Inhibition diameter of the sterile supernatant of *Brevibacillus laterosporus* isolate XJ-24-3 and of the XJ-24-3 bacterium against different pathogens

Bacterial species	XJ-24-3 sterile supernatant (mm)	XJ-24-3 bacterium (mm)
Methicillin-resistant <i>Staphylococcus aureus</i>	17.3 ± 0.2	15.8 ± 0.4
<i>Staphylococcus aureus</i>	17.6 ± 0.2	16.1 ± 0.3
<i>Listeria monocytogenes</i>	17.2 ± 0.4	15.5 ± 0.5
<i>Bacillus cereus</i>	17.2 ± 0.5	16.1 ± 0.2
<i>Escherichia coli</i>	11.1 ± 0.5	14.1 ± 0.2
<i>Klebsiella pneumoniae</i>	13.1 ± 0.2	13.8 ± 0.3

Supplementary Table 5. Physiological and biochemical characteristics of *Brevibacillus laterosporus* isolate XJ-24-3

Cluster ID	Type	Most similar gene cluster	Sequence similarity (%)
Cluster 1	NRPS	obafluorin	14
Cluster 2	NRPS	zwitermicin A	44
Cluster 3	NRPS-like	N/A	N/A
Cluster 4	Saccharide	N/A	N/A
Cluster 5	NRPS	dipeptide aldehydes	11
Cluster 6	Polyketide	basiliskamide A basiliskamide B	27
Cluster 7	Polyketide	chejuenolide A chejuenolide B	7
Cluster 8	NRPS	laterocidine	5
Cluster 9	Saccharide	N/A	N/A
Cluster 10	NRPS	ulbactin F ulbactin G	85
Cluster 11	Fatty acid	N/A	N/A
Cluster 12	Saccharide	S-layer glycan	14
Cluster 13	NRPS	fengycin	26
Cluster 14	Phosphonate	N/A	N/A
Cluster 15	Saccharide	N/A	N/A
Cluster 16	Saccharide	N/A	N/A
Cluster 17	NRPS	bogorol A	100
Cluster 18	NRPS	bacillibactin bacillibactin E bacillibactin F	30
Cluster 19	NRPS	octapeptin C4	11
Cluster 20	Saccharide	N/A	N/A
Cluster 21	Polyketide	basiliskamide A basiliskamide B	68
Cluster 22	Ranthipeptide	N/A	N/A
Cluster 23	NRPS	tyrocidine	31
Cluster 24	NRPS	N/A	N/A
Cluster 25	RiPP-like	N/A	N/A
Cluster 26	NRPS	laterocidine	63
Cluster 27	NRPS	tauramamide	40
Cluster 28	Fatty acid	N/A	N/A
Cluster 29	Other	petrobactin	100
Cluster 30	RRE-containing	Pf-5 pyoverdine	1
Cluster 31	Fatty acid	N/A	N/A
Cluster 32	NRPS	N/A	N/A
Cluster 33	Fatty acid	N/A	N/A
Cluster 34	RiPP:thiopeptide	micrococcin P1	8
Cluster 35	NRPS	N/A	N/A
Cluster 36	Cyclic-lactone-autoinducer	N/A	N/A
Cluster 37	LAPs	N/A	N/A

NRPS – non-ribosomal peptide synthase; N/A – there were no homologous metabolites; RiPP-like ribosomally synthesised and post-translationally modified peptide ; RRE – RiPP-precursor-recognition element; RiPP – ribosomally synthesised and post-translationally modified peptide; LAP – linear azol(in)e-containing peptide

Supplementary Table 6. Region (area of interest (AOI)) in the genome of *Brevibacillus laterosporus* isolate XJ-24-3

	AOI	Start nucleotide	End nucleotide	Class
A	AOI_01	43,383	63,536	131.2 (laterosporulin)
B	AOI_02	38,280	58,538	223.2 (<i>UviB</i>)
C	AOI_03	26,231	46,231	224.2 (<i>UviB</i>)
D	AOI_04	70,088	90,937	Bottromycin
E	AOI_05	85,958	105,958	Sactipeptides
F	AOI_06	120,593	140,593	Class I lanthipeptide
G	AOI_07	278,099	298,099	Linear azol(in)e-containing peptides