

Supporting Information for:

Stable Isotope Analysis Confirms Substantial Changes in the Fatty Acid Composition of Bacteria Treated with Antimicrobial Random Peptide Mixtures (RPMs)

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1 Figures

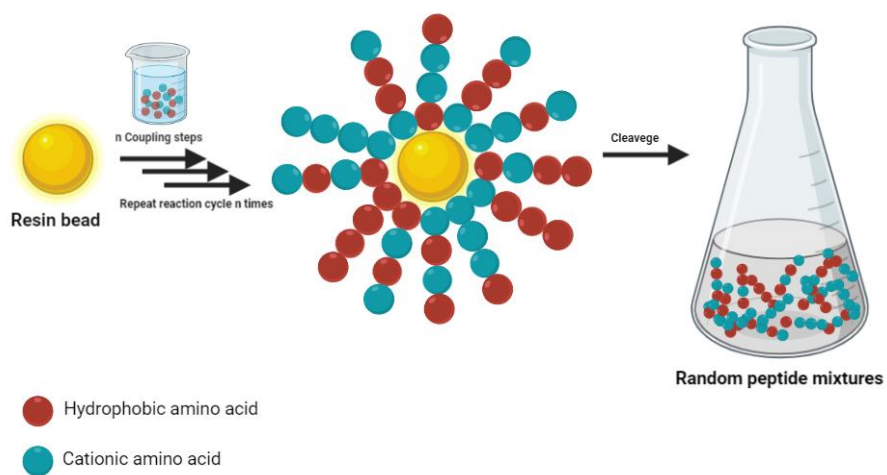


Fig. S1: A schematic representation of the solid synthesis of antimicrobial random peptide mixtures with hydrophobic and cationic amino acids.

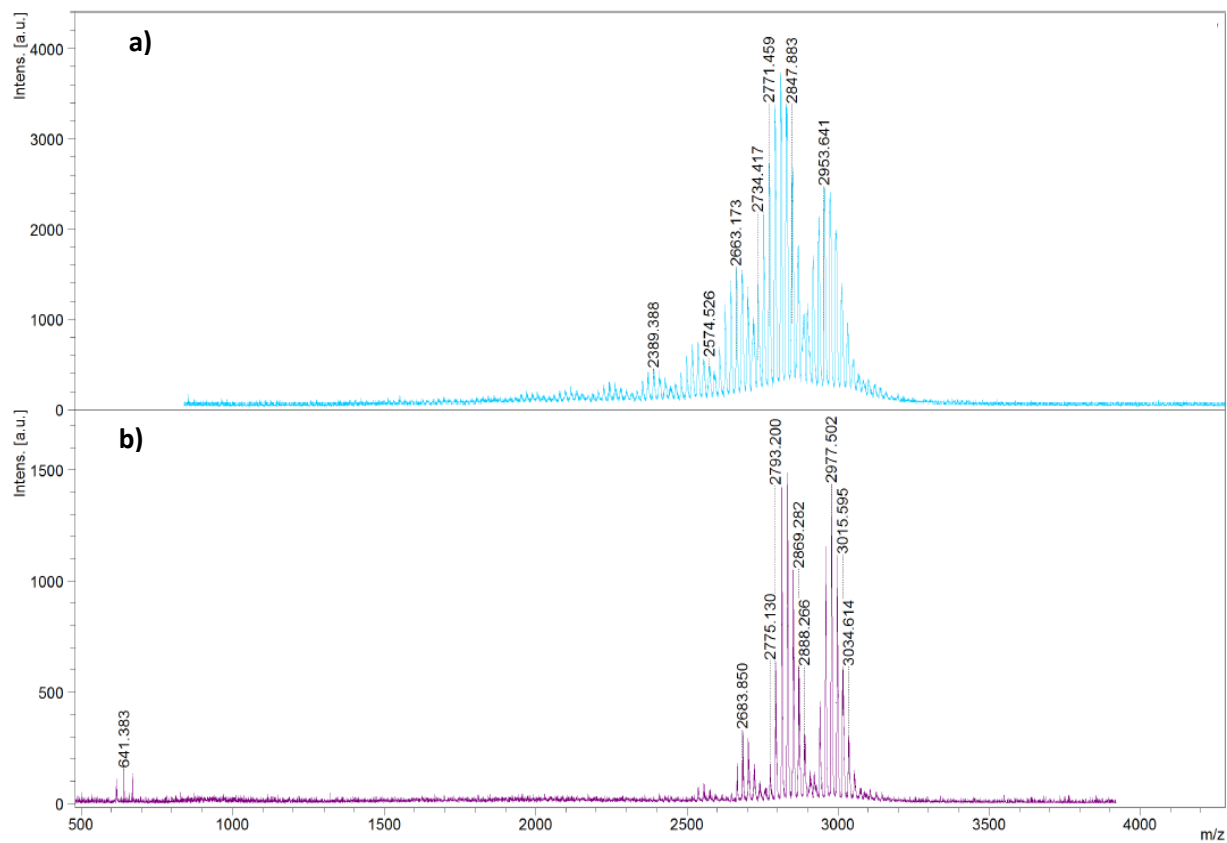


Fig. S2: MALDI-TOF spectrum of RPMs **a)** FK₂₀ and **b)** FdK₂₀ using the method according to Bauer et al..¹

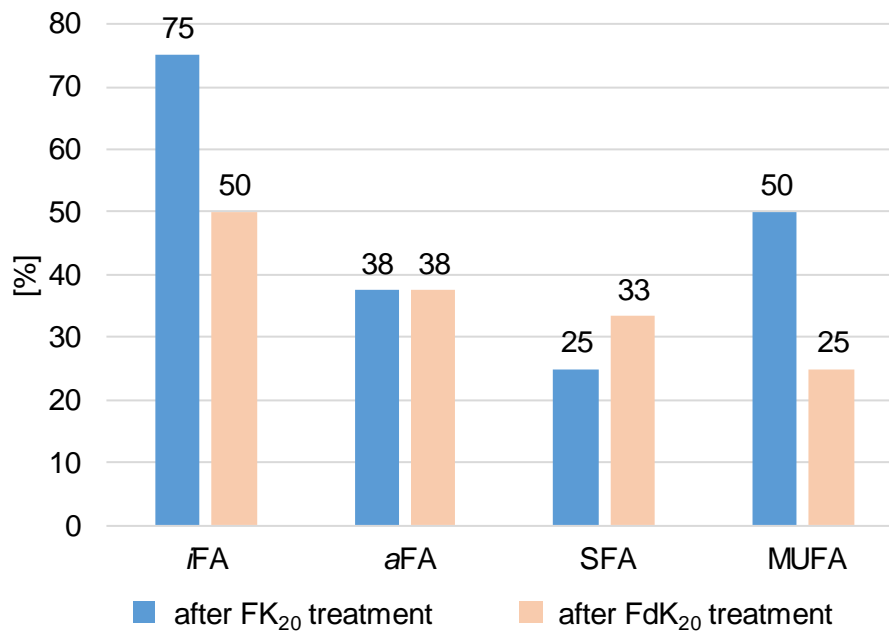


Fig. S3: Percentage distribution of the four fatty acid groups (*i*FA = *iso*-fatty acids, *a*FA = *anteiso*-fatty acids, SFA = saturated fatty acids, MUFA = monounsaturated fatty acids) of all bacteria samples where a significant effect was observed after FK₂₀ or FdK₂₀ treatment. Values that differed by more than 3% were considered to be an effect.

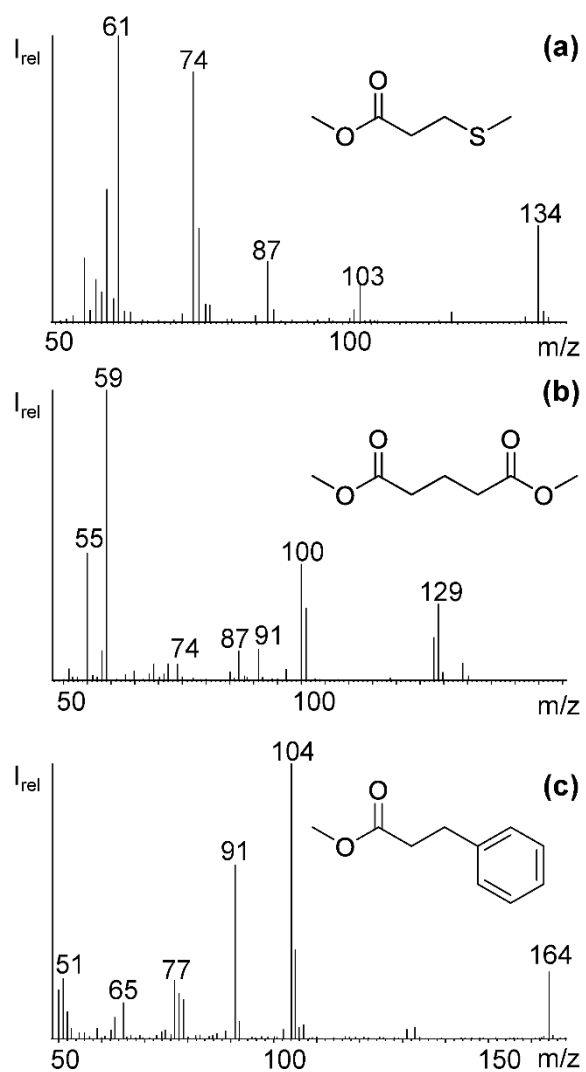


Fig. S4: GC/MS mass spectra of **(a)** 3-(methylthio)propionic acid methyl ester (3-MeS-3:0-ME), **(b)** pentanedioic acid methyl diester (Di5:0-diME), and **(c)** 3-phenylpropanoic acid methyl ester (3-Ph-3:0-ME) with corresponding structures.

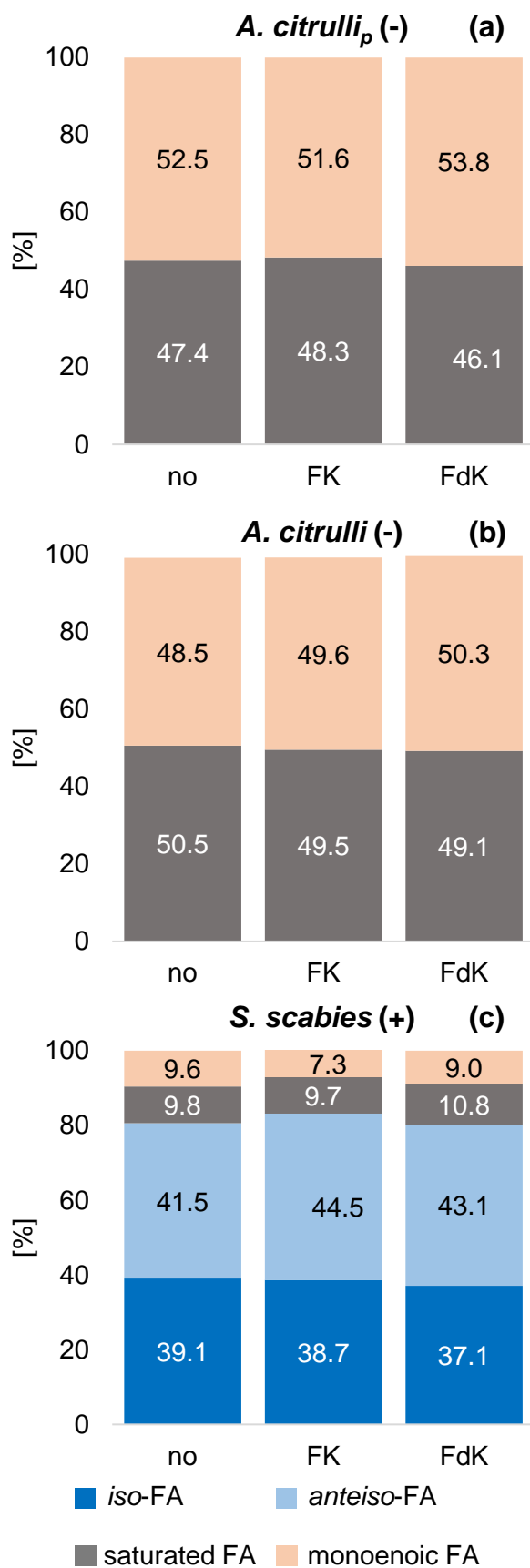


Fig. S5: Percentage distribution of fatty acid groups (Σ iso-FAs, Σ anteiso-FAs, Σ saturated FAs and Σ monoenoic FAs) of **(a)** *Acidovorax citrulli* (*A. citrulli_p*) of the first cultivation half a year before, **(b)** *Acidovorax citrulli* (*A. citrulli*) of the second cultivation, present sample and **(c)** *Streptomyces scabies* (*S. scabies*) samples without treatment and with FK₂₀ and FdK₂₀ treatment.

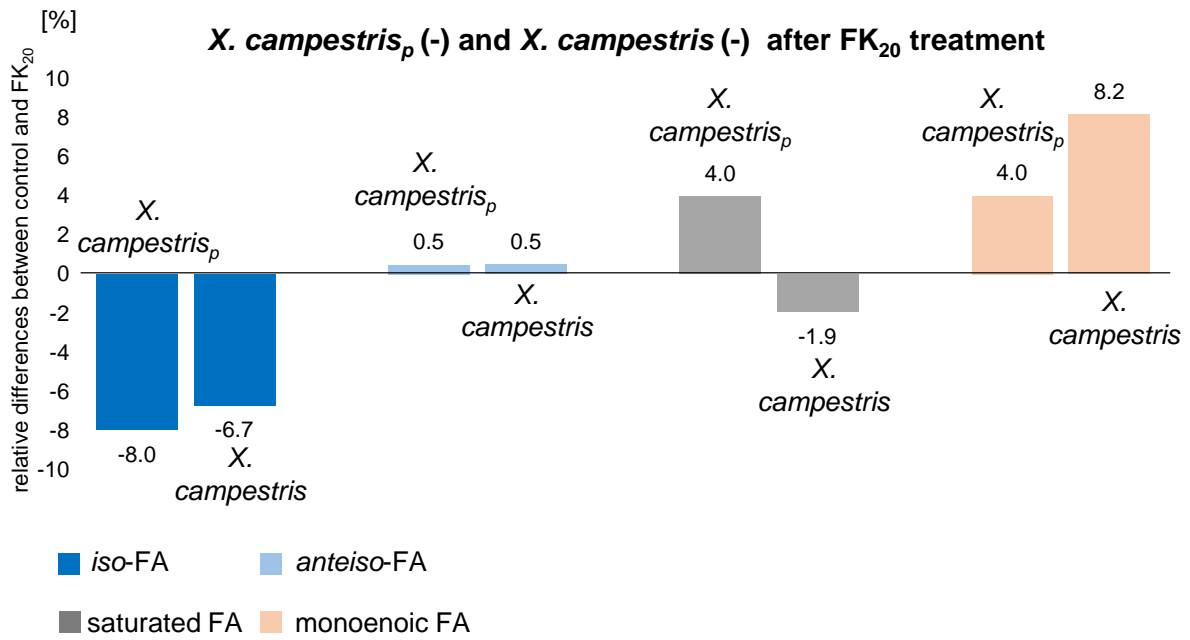


Fig. S6: Relative differences between control and FK₂₀ treatment of the four fatty acid groups (*iso*-FAs, *anteiso*-FAs, saturated FAs and monoenoic FAs) of *Xanthomonas campestris* pathovar (*pv*) *campestris* (*X. campestris*) samples, with *X. campestris_p* = sample of the preliminary treatment cultivated half a year before and *X. campestris* = present sample.

2 Tables

Table S1: Calculation of the measurement solutions for the GC-C-IRMS measurements.

		c* [$\mu\text{g/mL}$]	μL in 100 μL	c** [$\text{ng}/\mu\text{L}$]
<i>C. michiganensis</i>	Control 1	207.3	60	124.4
	Control 2	354.3	40	141.7
	FK ₂₀ 1	246.7	60	148.0
	FK ₂₀ 2	274.9	60	164.9
	FdK ₂₀ 1	404.8	40	161.9
	FdK ₂₀ 2	367.9	40	147.2
<i>S. scabies</i>	Control 1	208.9	70	146.2
	Control 2	200.0	70	140.0
	FK ₂₀ 1	930.1	20	186.0
	FK ₂₀ 2	172.1	70	120.5
	FdK ₂₀ 1	189.3	70	132.5
	FdK ₂₀ 2	200.1	70	140.1
<i>P. syringae</i>	Control 1	520.2	30	156.1
	Control 2	458.2	30	137.5
	FK ₂₀ 1	501.7	30	150.5
	FK ₂₀ 2	677.7	15	101.7
	FdK ₂₀ 1	440.9	30	132.3
	FdK ₂₀ 2	600.2	15	90.0
<i>A. citrulli</i>	Control 1	438.1	20	87.6
	Control 2	377.1	30	113.1
	FK ₂₀ 1	288.9	30	86.7
	FK ₂₀ 2	426.3	20	85.3
	FdK ₂₀ 1	500.1	30	150.0
	FdK ₂₀ 2	308.5	30	92.6
<i>X. campestris</i>	Control 1	341.4	60	204.8
	Control 2	438.5	60	263.1
	FK ₂₀ 1	300.5	80	240.4
	FK ₂₀ 2	260.7	80	208.6
	FdK ₂₀ 1	401.9	60	241.1
	FdK ₂₀ 2	428.6	60	257.2
<i>X. perforans</i>	Control 1	302.9	80	242.3
	Control 2	321.9	80	257.5
	FK ₂₀ 1	309.4	60	185.6
	FK ₂₀ 2	345.1	60	207.1
	FdK ₂₀ 1	243.8	100	243.8
	FdK ₂₀ 2	282.6	100	282.6

* concentration after transesterification

** concentration for measurements with GC-C-IRMS

Table S2: Calculation of the $\delta^{13}\text{C}$ values (‰) of all six control plant-pathogenic bacteria after GC-C-IRMS and extrapolation to 100%.

	FA group	FA	A_i	B_i	$A_i \cdot B_i$	Control $\Sigma \delta^{13}\text{C}_{\text{ind, norm}}$ [‰]	
<i>A. citrulli</i>	SFA	16:0	-22.7	0.427	-9.7	-10.8	
	MUFA	16:1	-23.4	0.393	-9.2	-11.6	
		18:1	-15.3	0.076	-1.2		
		sum			0.896	-22.4	
<i>S. scabies</i>	iFA	i14:0	-24.5	0.034	-0.8	-10.2	
		i15:0	-23.8	0.079	-1.9		
		i16:0	-22.7	0.218	-4.9		
		i17:0	-22.4	0.059	-1.3		
	aFA	a15:0	-24.2	0.257	-6.2	-11.0	
		a17:0	-22.2	0.158	-3.5		
	SFA	16:0	-21.7	0.077	-1.7	-1.9	
		sum			0.883	-23.1	
	<i>P. syringae</i>	SFA	16:0	-17.3	0.334	-5.8	-6.4
MUFA		16:1	-16.9	0.422	-7.1	-10.2	
		18:1	-14.1	0.145	-2.0		
		sum			0.901	-16.6	
<i>C. michiganensis</i>	iFA	i15:0	-21.9	0.377	-8.3	-12.3	
		i17:0	-26.5	0.049	-1.3		
	aFA	a15:0	-28.5	0.113	-3.2	-4.1	
		SFA	14:0	-26.9	0.040	-1.1	-5.9
		16:0	-21.8	0.159	-3.5		
	MUFA	17:1	-22.2	0.038	-0.8	-1.1	
			sum			0.776	-23.4
	<i>X. campestris</i>	iFA	i15:0	-21.3	0.237	-5.1	-8.3
i16:0			-21.6	0.031	-0.7		
i17:0			-20.1	0.063	-1.3		
aFA		a15:0	-21.6	0.166	-3.6	-4.3	
		SFA	14:0	-25.5	0.018	-0.5	-4.1
			15:0	-18.5	0.060	-1.1	
		16:0	-18.2	0.102	-1.8		
MUFA		16:1	-18.8	0.111	-2.1	-3.6	
		17:1	-19.4	0.049	-0.9		
		sum			0.836	-20.3	
<i>X. perforans</i>	iFA	i13:0	-30.7	0.039	-1.2	-12.0	
		i14:0	-36.5	0.017	-0.6		
		i15:0	-25.5	0.191	-4.9		
		i16:0	-29.2	0.034	-1.0		
		i17:0	-25.7	0.103	-2.7		
	aFA	a15:0	-25.5	0.112	-2.8	-3.9	
		a17:0	-25.9	0.021	-0.5		
	SFA	14:0	-28.6	0.025	-0.7	-5.9	
		15:0	-21.5	0.031	-0.7		
		16:0	-24.6	0.148	-3.6		
	MUFA	16:1n-7	-20.6	0.138	-2.8	-3.3	
	sum			0.858	-25.1		

A_i = $\delta^{13}\text{C}_{\text{ind}}$ value (‰) of individual FAs

B_i = FA [%] / 100% = share of each FA

Control $\Sigma \delta^{13}\text{C}_{\text{ind, norm}}$ [‰] = $\Sigma [A_i \cdot B_i] / (\Sigma B_i)$

Table S3: Calculation of the $\delta^{13}\text{C}$ values (‰) of all six **FK₂₀** treated plant-pathogenic bacteria after GC-C-IRMS. Extrapolation to 100% and standardization of the treated samples to the sum of the control sample.

	FA group	FA	A _i	B _i	A _i *B _i	FK ₂₀ $\Sigma\delta^{13}\text{C}_{\text{ind}}$ [‰]	f ^a	FK ₂₀ norm. ^b	
<i>A. citrulli</i>	SFA	16:0	-22.1	0.418	-9.2	-10.3		-10.6	
	MUFA	16:1	-22.6	0.403	-9.1	-11.5		-11.8	
		18:1	-15.2	0.075	-1.1				
	sum			0.896		-21.8	1.03	-22.4	
<i>S. scabies</i>	iFA	i14:0	-25.7	0.032	-0.8	-10.0		-9.8	
		i15:0	-23.7	0.083	-1.9				
		i16:0	-23.1	0.204	-4.7				
		i17:0	-23.4	0.068	-1.6				
	aFA	a15:0	-24.4	0.271	-6.6	-11.7		-11.4	
		a17:0	-22.8	0.174	-4.0				
		SFA	16:0	-22.7	0.076	-1.7	-1.9	0.98	-1.9
	sum			0.907		-23.6		-23.1	
<i>P. syringae</i>	SFA	16:0	-18.8	0.319	-6.0	-6.5		-6.1	
	MUFA	16:1	-18.2	0.435	-7.9	-11.3		-10.5	
		18:1	-15.1	0.168	-2.5				
	sum			0.922		-17.8	0.93	-16.6	
<i>C. michiganensis</i>	iFA	i15:0	-23.5	0.330	-7.8	-12.1		-11.5	
		i17:0	-28.2	0.045	-1.3				
	aFA	a15:0	-29.6	0.111	-3.3	-4.4		-4.2	
		SFA	14:0	-26.7	0.043	-1.1	-6.9		-6.5
			16:0	-23.5	0.170	-4.0			
		MUFA	17:1	-22.3	0.045	-1.0	-1.4		-1.3
		sum			0.745		-24.8	0.94	-23.4
<i>X. campestris</i>	iFA	i15:0	-23.0	0.188	-4.3	-7.5		-7.1	
		i16:0	-21.7	0.031	-0.7				
		i17:0	-22.0	0.061	-1.3				
	aFA	a15:0	-21.9	0.171	-3.7	-4.4		-4.2	
		SFA	14:0	-21.5	0.023	-0.5	-3.7		-3.5
			15:0	-18.7	0.034	-0.6			
			16:0	-20.5	0.099	-2.0			
		MUFA	16:1	-19.9	0.207	-4.1	-5.8		-5.5
		17:1	-21.4	0.036	-0.8				
	sum			0.849		-21.3	0.95	-20.3	
<i>X. perforans</i>	iFA	i13:0	-22.1	0.078	-1.7	-15.9		-16.6	
		i14:0	-29.9	0.040	-1.2				
		i15:0	-23.5	0.272	-6.4				
		i16:0	-27.4	0.050	-1.4				
	aFA	i17:0	-23.6	0.166	-3.9				
		a15:0	-25.8	0.076	-2.0	-2.8		-2.9	
			a17:0	-26.3	0.023	-0.6			
	SFA	14:0	-28.7	0.020	-0.6	-3.7		-3.8	
			15:0	-22.4	0.023	-0.5			
			16:0	-23.2	0.097	-2.3			
	MUFA	16:1n-7	-20.5	0.063	-1.3	-1.7		-1.8	
		16:1n-9	-27.6	0.009	-0.2				
	sum			0.917		-24.1	1.05	-25.1	

A_i = $\delta^{13}\text{C}_{\text{ind}}$ value (‰) of individual FAs

B_i = FA [%] / 100% = share of each FA

FK₂₀ $\Sigma\delta^{13}\text{C}_{\text{ind}}$ [‰] = $\Sigma[A_i * B_i] / (\Sigma B_i)$

^a $f = \Sigma\delta^{13}\text{C}_{\text{cont}} / \Sigma\delta^{13}\text{C}_{\text{treat}}$

^b normalized $\Sigma\delta^{13}\text{C}$ values ($\Sigma\delta^{13}\text{C}_{\text{ind, norm}}$) = $\Sigma\delta^{13}\text{C}_{\text{ind}} (\text{FA group}) * f$

Table S4: Calculation of the $\delta^{13}\text{C}$ values (‰) of all six **FdK₂₀** treated plant-pathogenic bacteria after GC-C-IRMS. Extrapolation to 100% and standardization of the treated samples to the sum of the control sample.

	FA group	FA	A _i	B _i	A _i *B _i	FdK ₂₀ $\Sigma\delta^{13}\text{C}_{\text{ind}}$ [‰]	f ^a	FdK ₂₀ norm. ^b
<i>A. citrulli</i>	SFA	16:0	-22.7	0.423	-9.6	-10.6		-10.6
	MUFA	16:1	-23.0	0.405	-9.3	-11.9		-11.8
		18:1	-18.5	0.078	-1.4			
	sum			0.907		-22.5	0.98	-22.4
<i>S. scabies</i>	iFA	i14:0	-26.9	0.034	-0.9	-9.8		-9.8
		i15:0	-23.9	0.075	-1.8			
		i16:0	-22.8	0.211	-4.8			
		i17:0	-23.3	0.051	-1.2			
	aFA	a15:0	-23.7	0.276	-6.5	-11.4		-11.3
		a17:0	-22.5	0.156	-3.5			
	SFA	16:0	-22.2	0.080	-1.8	-2.0		-2.0
		sum			0.881		-23.3	0.99
<i>P. syringae</i>	SFA	16:0	-19.2	0.338	-6.5	-7.0		-6.4
	MUFA	16:1	-18.9	0.426	-8.0	-11.2		-10.2
		18:1	-14.5	0.158	-2.3			
	sum			0.922		-18.2	0.91	-16.6
<i>C. michiganensis</i>	iFA	i15:0	-21.5	0.395	-8.5	-11.9		-12.8
		i17:0	-21.8	0.052	-1.1			
	aFA	a15:0	-24.2	0.114	-2.8	-3.4		-3.7
		SFA	14:0	-21.9	0.038	-0.8	-5.5	
		15:0	-26.3	0.014	-0.4			
		16:0	-21.0	0.156	-3.3			
	MUFA	17:1	-20.3	0.040	-0.8	-1.0		-1.1
		sum			0.808		-21.8	1.07
<i>X. campestris</i>	iFA	i15:0	-21.1	0.305	-6.4	-10.1		-10.3
		i16:0	-20.8	0.035	-0.7			
		i17:0	-19.0	0.094	-1.8			
	aFA	a15:0	-20.4	0.171	-3.5	-3.9		-4.0
		SFA	14:0	-20.5	0.008	-0.2	-1.2	
		15:0	-17.5	0.021	-0.4			
		16:0	-19.8	0.028	-0.6			
	MUFA	16:1	-18.9	0.109	-2.1	-4.8		-4.9
	17:1	-19.5	0.112	-2.2				
	sum			0.882		-20.1	1.01	-20.3
<i>X. perforans</i>	iFA	i13:0	-26.8	0.090	-2.4	-17.4		-16.5
		i14:0	-33.3	0.033	-1.1			
		i15:0	-25.7	0.247	-6.4			
		i16:0	-30.8	0.046	-1.4			
		i17:0	-25.6	0.200	-5.1			
	aFA	a15:0	-27.3	0.065	-1.8	-2.7		-2.6
		a17:0	-27.6	0.028	-0.8			
	SFA	14:0	-27.7	0.024	-0.7	-5.1		-4.8
		15:0	-24.7	0.010	-0.2			
		16:0	-27.1	0.144	-3.9			
MUFA	16:1n-7	-19.9	0.052	-1.0	-1.3		-1.2	
	16:1n-9	-30.3	0.006	-0.2				
	sum			0.943		-26.5	0.95	-25.1

A_i = $\delta^{13}\text{C}_{\text{ind}}$ value (‰) of individual FAs

B_i = FA [%]/ 100% = share of each FA

FdK₂₀ $\Sigma\delta^{13}\text{C}_{\text{ind}}$ [‰] = $\Sigma[A_i * B_i] / (\Sigma B_i)$

^a $f = \Sigma\delta^{13}\text{C}_{\text{cont}} / \Sigma\delta^{13}\text{C}_{\text{treat}}$

^b normalized $\Sigma\delta^{13}\text{C}$ values ($\Sigma\delta^{13}\text{C}_{\text{ind, norm}}$) = $\Sigma\delta^{13}\text{C}_{\text{ind}}$ (FA group) * f

Table S5: Average of percentage composition of the FAs of control sample and FK₂₀ and FdK₂₀ treated sample of *Streptomyces scabies* (*S. scabies*) (n = 2). Comparison of the present sample and of pathogenic and scab-suppressive *S. scabies* analysed by Ndowora et al.² and of two different groups of *S. scabies* analysed by Paradis et al.³.

FAME	<i>S. scabies</i> control [%]	<i>S. scabies</i> FK ₂₀ [%]	<i>S. scabies</i> FdK ₂₀ [%]	<i>S. scabies</i> pathogenic/ scab-suppressive by Ndowora et al. (1996) ² [%]	<i>S. scabies</i> group 1/ group 2 A by Paradis et al. (1994) ³ [%]
variety	18	18	18	16	13
i13:0				- / 0.3	1.33/ < 1
i14:0	3.4	3.1	3.4	11.0/ 7.6	3.13/ 2.17
14:0	0.2	0.2	0.2		4.59/ 1.03
i15:0	8.1	8.4	7.6	9.2/ 13.5	11.20/ 17.46
a15:0	26.1	27.5	27.9	11.0/ 21.5	15.30/ 23.77
15:0	1.2	1.3	1.7	5.3/ 3.9	2.55/ 1.31
i16:0	22.2	20.6	21.4	27.6/ 25.3	7.33/ 10.79
16:0	7.9	7.7	8.1	5.1/ 2.3	30.78/ 15.01
i17:0	6.0	6.9	5.1	2.0/ 2.1	2.68/ 8.18
a17:0	16.0	17.6	15.8	4.6/ 6.5	4.58/ 10.80
17:0	0.5	0.7	1.0	0.5/ -	
i18:0	0.1	0.1	0.1		
15:1				0.8/ 0.9	
i16:1				7.3/ 3.2	
16:1n-7 (#2)	0.6	0.4	2.5	6.9/ 4.2	12.28/ 3.64
9-methyl-16:0				3.7/ 3.4	
i17:1 (#2)	1.4	1.0	0.6		1.63/ 2.66
a17:1 (#3)	1.4	1.1	1.1	2.3/ 3.8	< 1/ 1.57
17:1 (#4)	0.9	0.7	1.5		
17:1 (#5)	3.4	2.4	1.5		
17:1n-8 (#6)				1.5/ 0.7	
17:1 (#8)	0.3	0.3	0.3		
18:1 (#1)	1.8	1.6	1.6		
Instrument	GC/MS			GC/FID	GC/FID
Column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column			25 m x 0.2 mm i.d. 5% phenyl methyl silicone fused silica capillary column	25 m x 0.2 mm i.d. fused silica column

Table S6: Average of percentage composition of the FAs of control sample and FK₂₀ and FdK₂₀ treated sample of *Acidovorax citrulli* (*A. citrulli*) (n = 2). Comparison of the present sample (*A. citrulli*), the sample cultivated half a year ago (*A. citrulli*_p) and exemplarily by means of two different haplotypes (A/ E) of *A. avenae* subsp. *citrulli*, which were analysed by Walcott et al..⁴

FAME	<i>A. citrulli</i> _p control [%]	<i>A. citrulli</i> _p FK ₂₀ [%]	<i>A. citrulli</i> _p FdK ₂₀ [%]	<i>A. citrulli</i> control [%]	<i>A. citrulli</i> FK ₂₀ [%]	<i>A. citrulli</i> FdK ₂₀ [%]	<i>A. citrulli</i> haplotype A/ E by Walcott et al. (1999) ⁴ [%]
variety	20	19	19	16	16	18	13
10:0				0.1	0.1	0.1	0.8/ 0.7
12:0	0.2	0.2	0.2	2.9	3.0	2.5	3.0/ 3.6
13:0						0.01	1.7/ 1.8
14:0	2.2	1.9	1.8	3.2	3.2	2.8	
i15:0				0.01	0.02	0.01	
a15:0	0.01			0.01	0.01		
15:0	0.4	0.6	0.9	1.1	1.0	1.0	2.0/ 1.7
i16:0				0.02	0.02		
16:0	44.1	44.7	42.5	42.7	41.8	42.3	31.3/ 28.4
17:0	0.2	0.2	0.3	0.2	0.2	0.2	0.3/ 2.2
18:0	0.3	0.6	0.4	0.3	0.2	0.3	
14:1	0.04	0.02	0.03			0.03	
monoenoic						0.04	
14:1 <i>n</i> -5 (#2)	0.09	0.06	0.06				
15:1 <i>n</i> -5 (#2)	0.2	0.2	0.2				- / 0.6
16:1 (#1)	1.4	1.0	1.4	1.3	1.5	1.4	
16:1 <i>n</i> -7 (#2)	42.5	41.6	43.7	39.3	40.3	40.5	43.7/ 41.5
17:1 (#4)	0.06	0.09	0.03				
17:1 (#5)	0.05	0.05	0.02				
17:1 <i>n</i> -8 (#6)	0.02	0.02	0.02				
17:1 (#7)	0.01	0.02	0.01				
monoenoic						0.2	
18:1 (#3)	0.2	0.2	0.2	0.2	0.2	0.2	
18:1 <i>n</i> -9 (#4)	0.1	0.1	0.1	0.1	0.1	0.1	
18:1 <i>n</i> -7 (#5)	7.82	8.2	7.9	7.6	7.5	7.8	8.0/ 5.4
18:1 (#6)	0.01	0.01	0.01				
3-OH-10:0 (#1)	0.5	0.3	0.4	1.0	0.9	0.5	6.7/ 8.4
3-OH-11:0							0.3/ 0.4
3-OH-12:1							2.4/ 4.2
3-OH-12:0 (#3)							1.0/ 3.2
Instrument	GC/MS						Gas-liquid chromatography
Column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column						30 m x 0.25 mm i.d. phenyl methyl silicone fused silica capillary column

Table S7: Average of percentage composition of the FAs of control sample and FK₂₀ and FdK₂₀ treated sample of *Xanthomonas campestris* pathovar (pv) *campestris* (*X. campestris*) (n = 2). Comparison of the present sample (*X. campestris*), the sample cultivated half a year ago (*X. campestris*_p) and of *X. campestris* sample analysed by Vauterin et al..⁵

FAME	<i>X. campestris</i> _p control [%]	<i>X. campestris</i> _p FK ₂₀ [%]	<i>X. campestris</i> _p FdK ₂₀ [%]	<i>X. campestris</i> control [%]	<i>X. campestris</i> FK ₂₀ [%]	<i>X. campestris</i> FdK ₂₀ [%]	<i>X. campestris</i> by Vauterin et al. (1966) ⁵ [%]
variety	32	33	32	29	29	25	26
10:0	0.02	0.04	0.04	0.7	1.1	0.3	0.6 (± 0.3)
i11:0	0.4	0.3	0.3	4.2	2.8	3.6	4.5 (± 0.7)
a11:0	0.04	0.02	0.02	0.4	0.2	0.2	
i12:0	0.02	0.01	0.01				
12:0	0.03	0.06	0.02	0.1	0.3		
i13:0	1.0	0.4	0.7	0.3	0.2	0.2	0 (± 0.3)
a13:0	0.2	0.1	0.2	0.1	0.1	0.1	
13:0	0.1	0.1	0.1	0.1	0.04	0.02	
i14:0	1.1	0.7	1.0	0.8	0.7	0.7	0.7 (± 0.5)
14:0	2.1	2.1	1.8	1.8	2.3	0.8	0.8 (± 0.4)
i15:0	34.5	24.6	36.2	23.7	18.8	30.5	26.5 (± 3.4)
a15:0	19.5	19.5	20.8	16.6	17.1	17.1	13.9 (± 2.2)
15:0	6.0	6.3	4.6	6.1	3.4	2.1	1.2 (± 0.6)
i16:0	2.2	2.7	2.6	3.1	3.1	3.5	3.2 (± 1.3)
16:0	7.2	10.5	5.9	10.2	9.9	2.8	3.6 (± 1.0)
i17:0	3.9	6.3	5.0	6.3	6.1	9.4	6.8 (± 1.4)
a17:0	0.5	1.1	0.6	0.8	1.0	1.4	0.8 (± 0.5)
17:0	0.4	0.7	0.4	0.9	0.2		
18:0	0.6	0.5	0.09	0.1	0.7	0.1	
14:1	0.04	0.05	0.05				
14:1	0.02	0.02	0.02				
i15:1							0.4 (± 0.4)
a15:1 (#1)	0.7	0.3	0.5	0.6	0.2	0.4	
15:1	0.1	0.1	0.1				0.6 (± 0.4)
16:1n-9 (#1)	1.2	1.9	1.2	2.0	2.3	0.9	0.9 (± 0.7)
16:1n-7 (#2)	11.2	13.9	12.3	11.1	20.7	10.9	12.7 (± 2.0)
i17:1 (#2)						0.3	
a17:1 (#3)	4.7	4.0	3.2	4.9	3.6	11.2	
17:1n-8 (#6)	1.7	2.4	1.4	3.3	1.7	1.5	1.4 (± 0.5)
17:1 (#7)	0.1	0.2	0.1	0.2	0.3	0.3	
18:1n-9 (#4)		0.2		0.7	1.7		0.2 (± 0.3)
18:1n-7 (#5)	0.04	0.3	0.09	0.5	0.7		
3-OH-10:0 (#1)							0.0 (± 0.1)
3-OH-i11:0 (#2)	0.2	0.2	0.1	0.5	0.4	0.9	2.8 (± 0.4)
3-OH-11:0							0.1 (± 0.2)
3-OH-i12:0							0.2 (± 0.3)
3-OH-12:0 (#3)	0.05	0.1	0.1	0.1	0.2		2.6 (± 0.5)
3-OH-i13:0 (#4)	0.3	0.2	0.2	0.1	0.1	0.2	4.7 (± 0.7)
3-OH-13:0							0.3 (± 0.3)
3-OH-i17:0							0.1 (± 0.2)
Instrument	GC/MS						Gas-liquid chromatography
column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column						25 m x 0.2 mm i.d. methyl phenyl silicone fused silica capillary column

Table S8: Average of percentage composition of the FAs of control sample and FK₂₀ and FdK₂₀ treated sample of *Xanthomonas perforans* (*X. perforans*) (n = 2) of the present study.

	<i>X. perforans</i> control [%]	<i>X. perforans</i> FK ₂₀ [%]	<i>X. perforans</i> FdK ₂₀ [%]
variety	29	29	26
10:0	0.5	0.3	0.2
<i>i</i> 11:0	2.4	1.2	0.5
<i>a</i> 11:0	0.2	0.1	
<i>i</i> 12:0	0.5	0.7	0.6
12:0	0.4	0.2	0.2
<i>i</i> 13:0	3.9	7.8	9.0
<i>a</i> 13:0	1.1	1.0	1.0
13:0	0.1	0.1	0.04
<i>i</i> 14:0	1.7	4.0	3.3
14:0	2.5	2.0	2.4
<i>i</i> 15:0	19.1	27.2	24.7
<i>a</i> 15:0	11.2	7.6	6.5
15:0	3.1	2.3	1.0
<i>i</i> 16:0	3.4	5.0	4.6
16:0	14.8	9.7	14.4
<i>i</i> 17:0	10.3	16.6	20.0
<i>a</i> 17:0	2.1	2.3	2.8
17:0	1.5	0.7	0.6
18:0	0.4	0.4	0.4
16:1 (#1)	1.4	0.9	0.6
16:1 <i>n</i> -7 (#2)	13.8	6.3	5.2
17:1 (#1)		0.8	0.3
<i>i</i> 17:1 (#2)	1.7	0.9	0.5
<i>a</i> 17:1 (#3)		0.4	
17:1 <i>n</i> -8 (#6)	1.4	0.5	0.3
17:1 (#7)	0.3	0.2	0.2
18:1 <i>n</i> -9 (#4)	0.8	0.3	0.4
18:1 <i>n</i> -7 (#5)	0.7	0.3	0.4
3-OH- <i>i</i> 11:0 (#2)	0.5	0.4	
3-OH-12:0 (#3)	0.2		
3-OH- <i>i</i> 13:0 (#4)	0.2		
Instrument	GC/MS		
Column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column		

Table S9: Average of percentage composition of the fatty acids of control sample and FK₂₀ and FdK₂₀ treated sample of *Clavibacter michiganensis* (*C. michiganensis*) (n = 2). Comparison of the present sample and of 45 reference strains analysed by Gitaitis and Beaver.⁶

FAME	<i>C. michiganensis</i> control [%]	<i>C. michiganensis</i> FK ₂₀ [%]	<i>C. michiganensis</i> FdK ₂₀ [%]	<i>C. michiganensis</i> spp. of 45 reference strains ⁶ [%]
variety	31	31	31	7
10:0	0.7	1.0	0.6	
<i>i</i> 11:0	5.4	6.0	4.5	
<i>a</i> 11:0	0.1	0.2	0.1	
12:0				1.8 (± 3.2)
saturated	0.1	0.1	0.1	
<i>i</i> 13:0	0.4	0.4	0.5	
<i>a</i> 13:0	0.1	0.1	0.1	
13:0	0.02	0.01	0.01	
<i>i</i> 14:0	0.7	0.6	0.7	
14:0	4.0	4.3	3.8	
<i>i</i> 15:0	37.8	33.1	39.5	0.9 (± 1.2)
<i>a</i> 15:0	11.3	11.2	11.2	40.9 (± 13.8)
15:0	1.7	1.5	1.3	
<i>i</i> 16:0	1.2	1.1	1.1	13.9 (± 7.0)
16:0	16.0	17.1	15.8	3.7 (± 3.5)
<i>i</i> 17:0	5.0	4.6	5.3	
<i>a</i> 17:0	0.4	0.4	0.4	21.3 (± 10.0)
17:0	0.3	0.3	0.3	
18:0	0.3	0.4	0.3	
<i>i</i> 19:0	0.2	0.2	0.3	
<i>a</i> 15:1 (#1)	1.0	1.2	0.9	8.5 (± 13.2)
16:1 (#1)	2.8	3.7	2.5	
16:1 n -7 (#2)	1.4	1.9	1.6	
<i>a</i> 17:1 (#3)	2.2	2.5	2.3	
17:1 (#5)	3.8	4.6	4.1	
17:1 (#8)	1.3	1.4	1.2	
18:1 n -9 (#4)	0.8	1.0	0.9	
18:1 n -7 (#5)	0.3	0.4	0.4	
monoenoic (#1)	0.2	0.2	0.2	
monoenoic (#2)	0.2	0.2	0.2	
3-OH- <i>i</i> 11:0 (#2)	0.5	0.8	0.3	
3-OH- <i>i</i> 13:0 (#4)	0.1	0.2	0.1	
Instrument	GC/MS			Gas-liquid chromatography
Column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column			30 m x 0.25 mm i.d. phenyl methyl silicone fused silica capillary column

Table S10: Average of percentage composition of the FAs of control sample and FK₂₀ and FdK₂₀ treated sample of *Pseudomonas syringae* pv. *tomato* (*P. syringae*) (n = 2). Comparison of the present sample and a *P. syringae* sample analysed by Stead.⁷

	<i>P. syringae</i> control [%]	<i>P. syringae</i> FK ₂₀ [%]	<i>P. syringae</i> FdK ₂₀ [%]	<i>P. syringae</i> sample by Stead ⁷ [%]
variety	14	13	11	10
10:0	0.1			trace
12:0	5.1	3.9	4.0	4.7 (± 0.3)
a13:0	0.03	0.03		
14:0	0.4	0.2	0.3	0.2 (± 0.1)
i16:0	0.02	0.04	0.05	
16:0	33.8	32.1	34.0	26.0 (± 1.4)
i17:0				trace
17:0	0.1	0.2	0.2	
18:0	2.0	2.2	2.0	
16:1 <i>n</i> -7 (#2)	42.6	43.8	42.9	40.5 (± 1.8)
18:1 (#2)	1.0	0.2	0.3	
18:1 <i>n</i> -9 (#4)	0.2	0.2		
18:1 <i>n</i> -7 (#5)	14.6	16.9	16.0	17.8 (± 1.1)
3-OH-10:0 (#1)	1.1	0.8	0.9	3.0 (± 0.4)
2-OH-12:0	0.2	0.2	0.2	2.6 (± 0.1)
3-OH-12:0 (#3)				4.0 (± 0.2)
Instrument	GC/MS			GC/FID
Column	60 m x 0.25 mm i.d. 90% biscyanopropyl, 10% cyanopropylphenyl polysiloxane capillary column			25 m methyl silicone fused silica capillary column

Table S11: Bulk $\delta^{13}\text{C}$ values of *X. campestris_p*, *X. campestris* and *X. perforans* measured with EA-IRMS and calculated after GC-C-IRMS measurements of the individual FAs. Bulk $\delta^{13}\text{C}$ values of *X. campestris_p* and *X. campestris* (control and FdK₂₀) of the lyophilisate.

		$\delta^{13}\text{C}$ [‰] (EA- IRMS)	standard deviation	FK ₂₀ - control or FdK ₂₀ - control	$\delta^{13}\text{C}$ [‰] (GC-C- IRMS)	FK ₂₀ - control or FdK ₂₀ - control
FAME	<i>X. campestris</i> Control	-22.3	0.26		-20.4	
	<i>X. campestris</i> FK ₂₀	-22.4	0.07	-0.11	-21.3	-0.97
	<i>X. campestris</i> FdK ₂₀	-20.4	0.01	1.87	-20.1	0.22
	<i>X. campestris_p</i> FK ₂₀	-21.7	0.08	0.75		
	<i>X. campestris_p</i> FdK ₂₀	-21.3	0.19	0.41		
	<i>X. campestris_p</i> FK ₂₀	-21.7	0.08	0.75		
Lyophilisate	<i>X. campestris_p</i> Control	-19.3	0.20			
	<i>X. campestris_p</i> FdK ₂₀	-19.2	0.05	0.03		
	<i>X. campestris</i> Control	-19.9	0.02			
	<i>X. campestris</i> FdK ₂₀	-19.3	0.14	0.61		
FAME	<i>X. perforans</i> Control	-24.3	0.35		-25.1	
	<i>X. perforans</i> FK ₂₀	-24.2	0.22	0.07	-24.0	1.10
	<i>X. perforans</i> FdK ₂₀	-26.3	0.03	-2.04	-26.4	-1.29

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