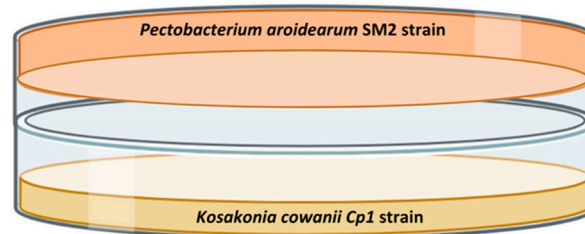
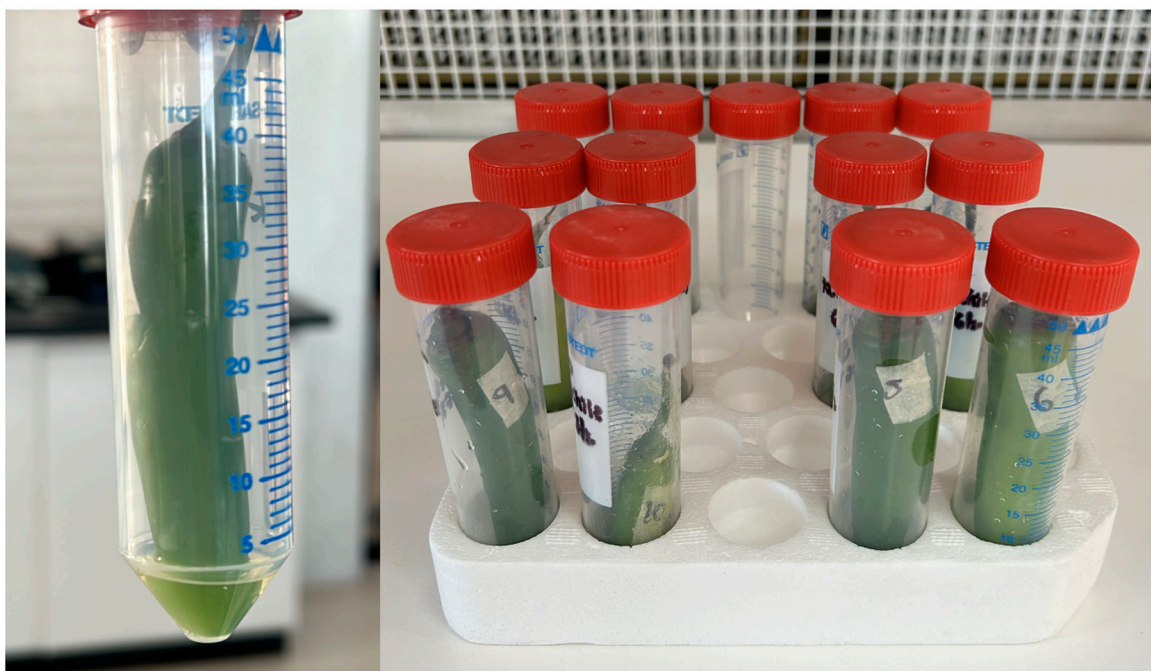




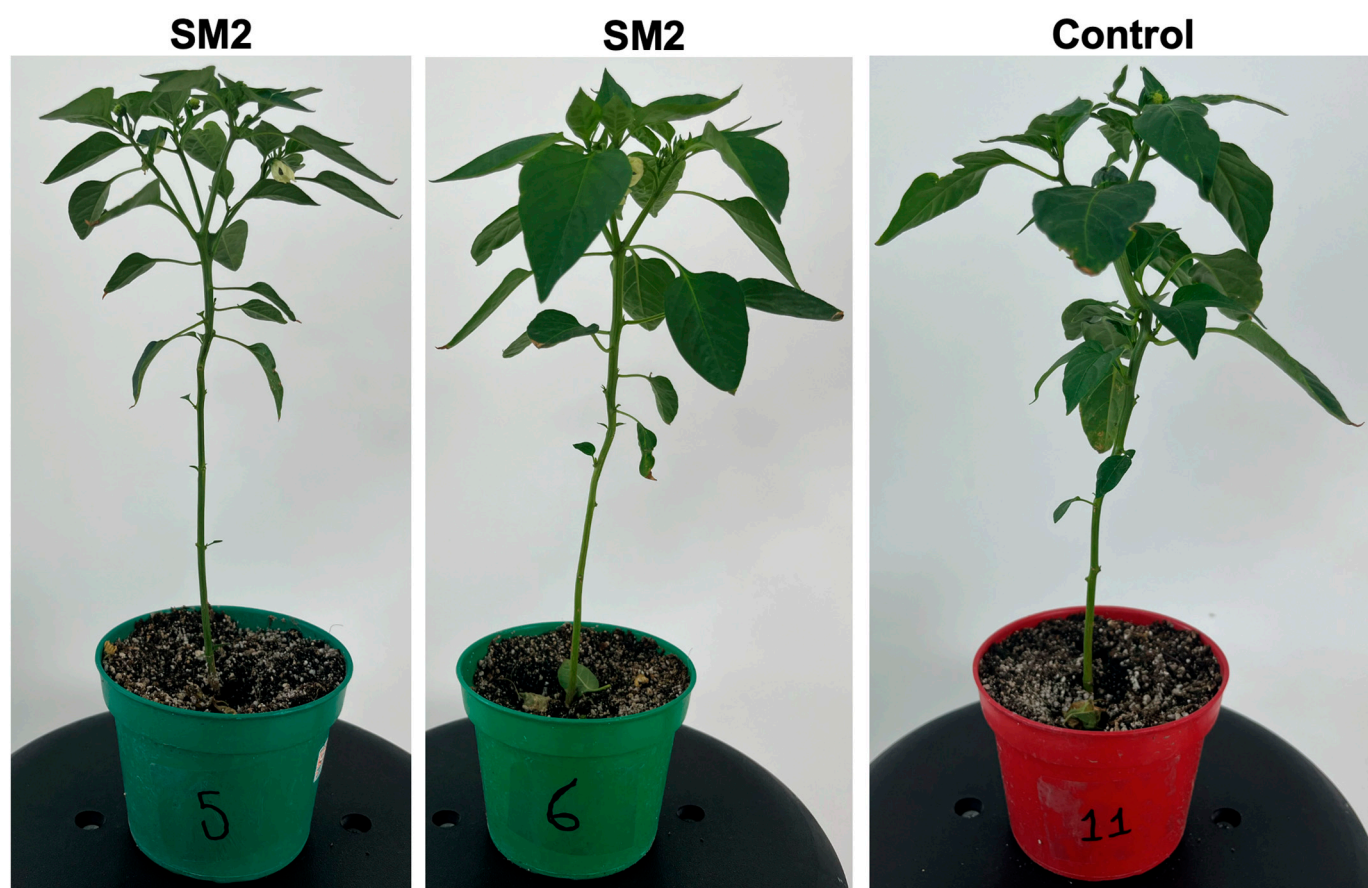
Supplementary Results



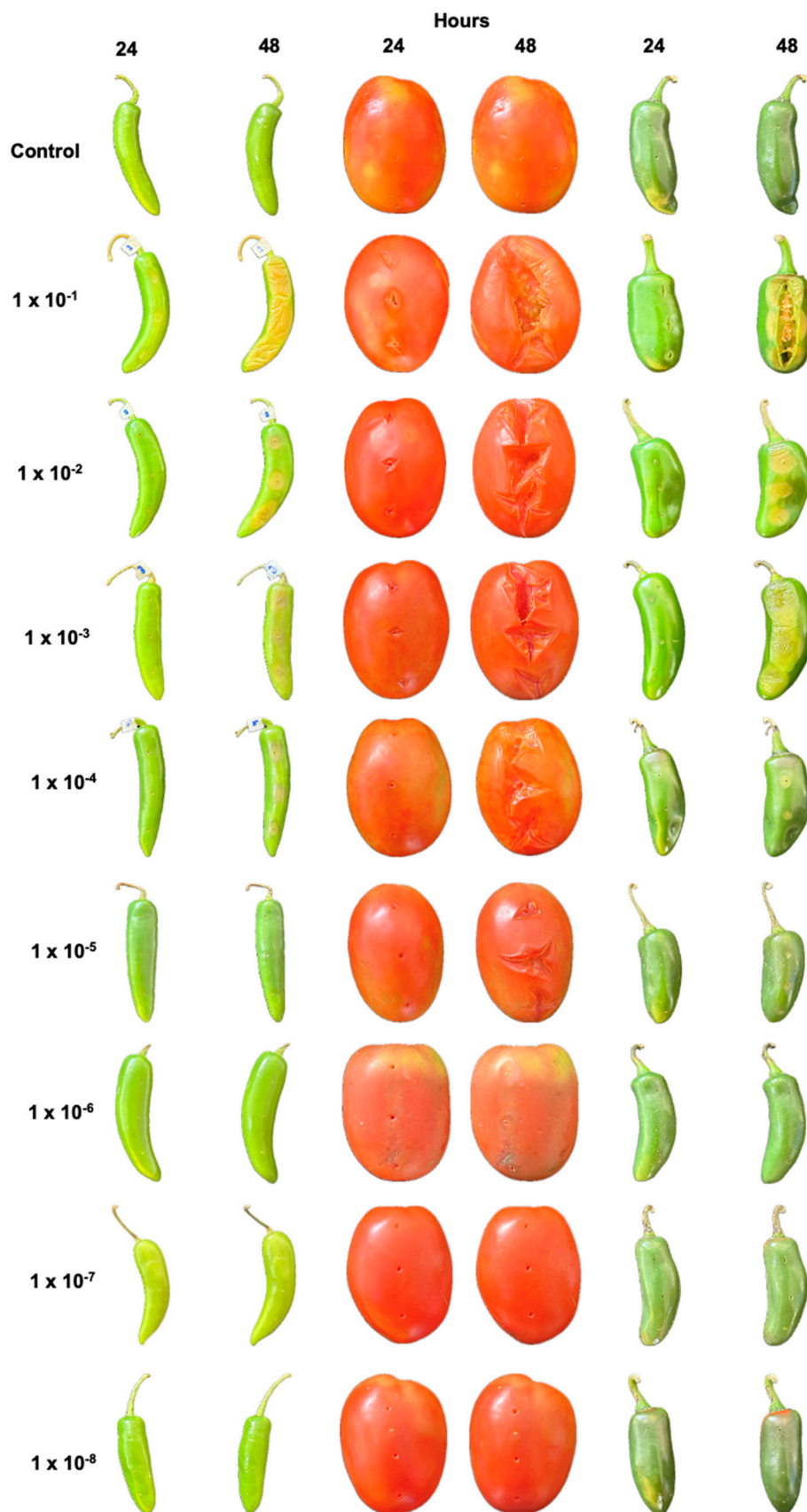
**Figure S1.** Two-compartment Petri dish plate device. On the bottom side of device *K. cowanii* Cp1 was inoculated on TSA medium and grown to produce any VOCs. *P. aroidearum* SM2 was inoculated on TSA medium (upper side) to evaluate colony growth inhibition.



**Figure S2.** Pathogenic inhibition assays using cell-free filtrate on chili fruits.




**Figure S3.** Infection test of SM2 isolates on leaves of chili plants.



**Figure S4.** Minimum inoculum of *P. aroidearum* SM2 causing soft rot symptoms. Serial dilutions were made in 0.1% peptone and 10  $\mu$ L bacterial suspensions were inoculated in each of the wounds, which were then incubated and evaluated for 48 hours.

**Table S1.** Pairwise comparison of Average Nucleotide Identity (ANI) for *Pectobacterium* species. ANI values  $\geq$  95% are colored red.

ANI VALUES $\geq$ 95% 	<i>P. aroidearum</i> SM2	<i>P. aroidearum</i> L6	<i>P. aroidearum</i> QJ002	<i>P. actinidiae</i> KKH3	<i>P. aquaticum</i> A212-S19-A16	<i>P. atrosepitum</i> NCPPB 549	<i>P. betavascularum</i> NCPPB 2795	<i>P. brasiliense</i> LMG 21371	<i>P. carotovorum</i> DSM 30168	<i>P. colocasium</i> LJ1	<i>P. fontis</i> M022	<i>P. jejuense</i> 13-115	<i>P. odoriferum</i> NCPPB 3839	<i>P. parmentieri</i> RNS 08-42-1A	<i>P. parvum</i> s0421	<i>P. peruvienne</i> IFB5232	<i>P. polaris</i> NIBIO1006	<i>P. polonicum</i> DPMP315	<i>P. punjabense</i> SS95
<i>P. aroidearum</i> SM2		97.30	97.25	89.21	89.34	88.29	88.29	90.18	89.93	90.56	87.48	92.79	92.99	88.28	92.92	88.21	93.20	89.34	88.55
<i>P. aroidearum</i> L6	97.16		97.81	89.22	89.45	88.44	88.39	90.21	89.79	90.55	87.44	90.14	89.46	88.01	88.66	88.60	89.88	88.51	88.44
<i>P. aroidearum</i> QJ002	97.26	97.98		89.25	89.58	88.59	88.29	90.25	89.93	90.56	87.47	90.31	89.58	88.01	89.74	88.66	89.92	88.53	88.48
<i>P. actinidiae</i> KKH3	88.96	89.10	88.98		91.18	88.57	88.15	90.72	92.55	89.23	87.62	91.07	92.01	87.63	90.86	88.58	91.02	88.67	87.79
<i>P. aquaticum</i> A212-S19-A16	89.52	88.56	89.70	91.58		89.04	88.77	92.80	93.67	89.48	87.79	92.79	92.99	88.28	92.92	89.21	93.20	89.34	88.55
<i>P. atrosepitum</i> NCPPB 549	88.39	88.56	88.58	88.76	89.00		91.25	89.23	89.36	88.07	87.19	89.18	88.91	89.46	89.27	93.59	89.42	89.19	89.12
<i>P. betavascularum</i> NCPPB 2795	88.40	88.50	88.32	88.35	88.74	91.39		88.73	88.97	87.79	86.85	88.90	88.54	88.53	88.86	91.69	89.07	88.67	88.64
<i>P. brasiliense</i> LMG 21371	90.05	90.27	90.18	90.89	92.54	89.11	88.54		92.68	89.67	87.58	94.17	91.34	88.32	93.08	89.15	93.46	88.91	88.67
<i>P. carotovorum</i> DSM 30168	89.88	89.87	89.80	92.70	93.47	89.28	88.81	92.77		89.85	87.83	93.30	94.81	88.30	92.87	89.39	93.10	89.84	88.60
<i>P. colocasium</i> LJ1	90.48	90.58	90.53	89.32	89.38	87.99	87.56	89.71	89.83		87.50	89.92	89.44	87.42	89.51	87.97	89.70	88.15	87.63
<i>P. fontis</i> M022	87.60	87.69	87.66	87.97	87.76	87.27	86.91	87.75	88.09	87.76		87.98	88.02	86.64	87.94	87.30	87.89	87.34	86.79
<i>P. jejuense</i> 13-115	89.98	90.17	90.18	91.16	92.45	88.92	88.70	94.02	93.20	89.88	87.68		91.95	88.24	93.82	89.03	94.63	89.14	88.40
<i>P. odoriferum</i> NCPPB 3839	89.34	89.49	89.45	92.26	92.74	89.03	88.65	91.61	94.68	89.46	87.88	92.21		88.04	92.31	89.16	92.32	89.59	88.47
<i>P. parmentieri</i> RNS 08-42-1A	87.76	88.03	87.94	87.84	88.10	89.40	88.53	88.29	88.33	87.44	86.48	88.23	88.13		88.32	89.49	88.36	90.60	91.06
<i>P. parvum</i> s0421	89.81	88.89	89.87	91.25	92.93	89.33	88.77	93.19	93.01	89.67	87.91	94.04	92.53	88.52		89.38	95.92	89.29	88.71
<i>P. peruvienne</i> IFB5232	88.35	88.61	88.59	88.67	89.05	93.55	91.51	89.08	89.29	88.03	87.01	89.13	89.13	89.44	89.17		89.24	89.16	89.20
<i>P. polaris</i> NIBIO1006	89.92	89.86	89.91	91.29	93.06	89.34	88.98	93.57	93.20	89.82	87.71	94.73	92.46	88.34	95.70	89.34		89.20	88.71
<i>P. polonicum</i> DPMP315	88.27	88.47	88.42	88.83	89.09	89.13	88.49	88.91	89.88	88.12	87.06	89.11	89.58	90.63	89.00	89.20	89.12		93.54
<i>P. punjabense</i> SS95	88.32	88.43	88.37	87.94	88.33	89.11	88.50	88.70	88.62	87.60	86.62	88.44	88.39	91.03	88.46	89.20	88.66	93.51	

**Table S2.** Identification of VOCs produced by *K. cowanii* Cp1 at 2 h by HS-SPME-GC-MS.

Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes	Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes
Carbon dioxide	4.219	1.23	Hydrocarbon	Piconol	44.999	0.09	Other compounds
Semicarbazide	4.467	0.5	Amide	2-Butyl-3-methylpyrazine	45.26	0.08	Pyrazines
n-Hexane	4.578	0.28	Hydrocarbon	Benzeneacetaldehyde	45.728	0.52	Aldehydes
Ethyl ether	4.636	0.88	Ether	2-Acetylthiazole	45.911	0.36	Ketones
Methanethiol	4.895	0.53	Tioles	Acetophenone	46.062	0.48	Ketones
Heptane	5.093	1.82	Hydrocarbons	2-Furanmethanol	46.38	1	Aromatic compounds
Acetone	6.39	0.94	Ketones	Pyrazine, 2-butyl-3,5-dimethyl-	46.729	0.62	Pyrazine
Cyclotrisiloxane, hexamethyl-	7.435	2.79	Organosilicos compounds	1,3-Oxathiolane, 2-methyl-2-phenyl-	47.133	0.08	Esters
2-Propanone, hydrazone	7.793	1.14	Ketone	Benzaldehyde, 2-hydroxy-	47.757	0.16	Aldehydes
2-Butanone	8.539	1.15	Ketone	4-Carene, (1S,3S,6R)-(-)-	48.514	0.04	Hydrocarbons
Butanal, 2-methyl-	9.059	0.42	Aldehyde	Silane, diethyldi(3-phenylpropoxy)-	48.82	0.05	Other compounds
Butanal, 3-methyl-	9.25	2.5	Aldehyde	3,4-Dihydro-1-methylpyrrolo[1,2-alpyrazine	49.067	0.12	Pyrazine
Ethanol	9.83	0.04	Alcohol	2-Furanmethanol, 5-methyl-	49.611	0.06	Alcohols
2,3-Butanedione	12.5	0.48	Ketone	Tridecanal	50.032	0.49	Aldehyde
Trichloroethylene	13.038	0.33	Hydrocarbons	Cyclopenten-4-one, 1,2,3,3-tetramethyl-	51.604	1	Hydrocarbons
Acetonitrile	13.59	0.03	Other compounds	R-Palmitoyl-(1-methyl)ethanolamide	51.851	0.04	Amide
Methyl Isobutyl Ketone	13.708	0.05	Ketone	Cyclopropane, octyl-	52.556	0.26	Hydrocarbons
Cyclotetrasiloxane, octamethyl-	14.283	2.51	Organosilicos compounds	7-Chloro-2,3-dihydro-3-(4-N,N-dimethylaminobenzylidene)-5-phenyl-1H-1,4-benzodiazepin-2-one	55.995	0.09	Other compounds
Trichloromethane	14.768	0.51	Other compounds	2-Tridecanone	56.873	0.19	Ketones
Ethyl 3-amino-4-(1,3-benzodiazol-1-yl)benzoate	15.131	0.13	Esther	Cyclodecene	58.078	0.05	Alkenes
Toluene	15.417	0.14	Hydrocarbons	Cyclononasiloxane, octadecamethyl-	58.314	0.24	Organosilicos compounds
Disulfide, dimethyl	17.138	0.42	Other compounds	Cinnoline, 3-methyl-	59.162	0.08	Aromatic compounds
N-(4-Methylbenzenesulfonyl)-2-methylazetidin-3-one	17.749	0.12	Ketones	Benzyl alcohol	60.946	1.02	Alcohols
Hexanal	18.077	0.14	Aldehydes	Butanoic acid, butyl ester	61.691	0.37	Acids
1,2-Dichloroethyl hydroperoxide	18.231	0.02	Esthers	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	62.951	0.15	Alcohols
8-Nonynoic acid	18.342	0.1	Acids	n-Decanoic acid	63.669	0.22	Acids
2-Butenal, 2-methyl-, (E)-	18.669	0.33	Aldehydes	Benzenepentanamide	64.029	0.09	Acids
Acetic acid, chloro-	18.973	0.08	Acids	Phenylethyl Alcohol	64.415	0.07	Alcohols
o-Xylene	20.23	0.04	Hydrocarbons	Diethylmalonic acid, 2,2,3,3,4,4,4-heptafluorobutyl hexyl ester	64.76	0.16	Esters
p-Xylene	20.739	0.14	Hydrocarbons	Benzene, 1-isocyano-2-methyl-	65.925	0.04	Other compounds
3-Penten-2-one, 4-methyl-	21.039	0.29	Ketones	2-Butanone, 1,1-dichloro-3,3-dimethyl-	67.385	0.09	Ketones
1-Butanol	22.042	0.28	Alcohols	S-Methyl 3-methylbutanethioate	69.092	0.11	Esters
Nonane	22.549	0.05	Hydrocarbons	Ethanone, 1-(1H-pyrrol-2-yl)-	69.372	0.04	Ketones
Pyridine	23.463	0.03	Aromatic compounds	Cyclododecane	70.558	13.44	Hydrocarbons



Cyclopentasiloxane, decamethyl-	23.812	0.6	Organosilico s compounds	Trimethylsilyl [2-(4-chlorophenyl)- 4-phenyl-1,3-thiazol-5-yl]acetate	71.595	0.22	Other compounds
Cyclopentasiloxane, decamethyl-	23.904	1.15	Organosilico s compounds	2-Pyrrolidinone	71.854	0.18	Other compounds
2-Butenal, 3-methyl-	24.775	0.1	Aldehydes	Phenol	72.061	0.36	Aromatics compounds
D-Limonene	25.187	0.07	Hydrocarbon s	1,2,3,4-Tetrahydrofluorene	72.378	0.15	Hydrocarbons
Pyrazine	25.358	2.34	Pyrazines	Heptanoic acid	72.635	0.14	Acids
Phthalic acid, 2-(2-nitrophenyl)ethyl nonyl ester	25.755	0.04	Esters	Propane, 1-isothiocyanato-	72.697	0.17	Other compounds
Thiazole	27.312	0.07	Other compounds	1H,1H,2H,2H-Perfluorooctan-1-ol	72.889	0.22	Alcohols
Aziridine, 1-(2-phenylethyl)-	27.898	0.07	Other compounds	Cyclodecasiloxane, eicosamethyl-	73.228	0.28	Organosilicos compounds
Pyrazine, methyl-	28.213	2.17	Pyrazines	2-Propenal, 3-phenyl-	73.559	0.16	Aldehydes
Ethanone, 1-cyclopentyl-	28.781	0.03	Ketones	2-Pentadecanone	74.507	0.23	Ketones
Acetic acid, methoxy-, ethyl ester	29.631	0.11	Esters	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1.alpha.,2.alpha.,5.alpha.)-	75.73	0.15	Alcohols
Octanal	29.991	0.07	Aldehydes	5-Methyl-2-phenyl-2-hexenal	76.243	0.3	Aldehydes
Carbonofluoridic acid, trifluoromethyl ester	30.094	0.05	Esters	p-Cresol	76.565	0.04	Aromatic compounds
2-Propanone, 1-hydroxy-	30.339	0.41	Ketones	2-Piperidinone	76.809	0.03	Other compounds
Pyrazine, 2,5-dimethyl-	31.125	19.06	Pyrazines	3-tert-Butyl-4-hydroxyanisole, acetate	78.349	0.05	Aromatic compounds
Pyrazine, 2,6-dimethyl-	31.442	0.7	Pyrazines	Octanoic acid	78.625	1.14	Acids
Pyrazine, ethyl-	31.781	0.13	Pyrazines	As-indacen-3-one, 1,1,8b-trimethyl- 1,4,5,8b-tetrahydro-2-oxa-3a,7,8a-triaza-	79.345	0.04	Other compounds
Cyclohexasiloxane, dodecamethyl-	32.252	0.82	Organosilico s compounds	Valeric acid, 2,4,6-trichlorophenyl ester	79.524	0.08	Esters
Pentanoic acid, 4-methyl-, ethyl ester	32.574	0.13	Esters	4-Methylphenol, isopropyl ether	79.787	0.09	Ethers
Hexyl chloroformate	32.845	0.07	Other compounds	2,6-Dihydroxybenzoic acid, 3TMS derivative	80.568	0.17	Acids
(Dimethylaminomethylene)malononitrile	33.265	0.04	Other compounds	2H-Pyran-2-one, 6-pentyl-	80.936	0.12	Esters
n-Propyl t-butyl ether	33.338	0.06	Ethers	1H-Imidazole, 2-methyl-	81.376	0.05	Other compounds
Dimethyl trisulfide	33.973	0.18	Other compounds	Cyclododecane	81.927	0.09	Hydrocarbons
Pyrazine, 2-ethyl-6-methyl-	34.329	0.11	Pyrazines	5.alpha.-Androstan-1-methylene- 3.alpha.-ol-17-one, di-trimethylsilyl	82.194	0.04	Other compounds
Pyrazine, 2-ethyl-5-methyl-	34.599	1.44	Pyrazines	5-Acetyl-2-methylpyridine	82.511	0.05	Other compounds
Benzenamine, N,N,2-trimethyl-	34.85	0.05	Amines	Cyclononasiloxane, octadecamethyl-	82.936	0.13	Organosilicos compounds
2-Nonanone	34.963	0.15	Ketones	Ethanone, 1-(4-ethylphenyl)-	83.089	0.14	Ketones
Pyrazine, trimethyl-	35.122	1.83	Pyrazines	Methyl anthranilate	83.531	3.22	Esters
Pyrazine, 2-methyl-5-(1-methylethyl)-	35.671	0.34	Pyrazines	Methanone, (7-bromo-2,3-dihydro- 1,4-benzodioxin-6-yl)2-thienyl-	84.279	0.09	Ketones
Pyridine, 2-(1-methylethyl)-	36.659	0.12	Pyrazines	Benzamide	84.559	0.38	Amides
Pyrazine, 3-ethyl-2,5-dimethyl-	37.156	1.44	Pyrazines	Sorbic Acid	85.086	0.18	Acids
Isobutyl 4-methylpentan-2-yl carbonate	37.429	0.13	Other compounds	1-(4-Nitrophenyl)pyrazole-4-carboxylic acid	85.229	0.13	Acids
Methional	37.536	0.18	Hydrocarbon s	Ethanol, 2,2-dichloro-	85.364	0.13	Alcohols
Isobutyl 2,5,8,11-tetraoxatridecan-13-yl carbonate	37.757	0.07	Other compounds	Benzonitrile, 2-hydroxy-	85.509	0.35	Other compounds

Pyrazine, 2-ethyl-3,5-dimethyl-	37.891	0.1	Pyrazines	Ethyl 5-methyl-1,3,4-oxadiazole-2-carboxylate	85.794	0.16	Aromatic compounds
Furfural	38.001	0.27	Other compounds	Cyclononasiloxane, octadecamethyl-	85.903	0.46	Organosilicos compounds
.alpha.-Terpineol	38.402	0.04	Other compounds	Sebacic acid, 2-hexyl isobutyl ester	86.487	0.3	Esters
4-Heptanol, 2,6-dimethyl-	38.586	0.16	Alcohols	Benzenemethanol, 2-hydroxy-5-methyl-	86.725	0.25	Alcohols
Pyrazine, 2-ethenyl-6-methyl-	39.055	0.09	Pyrazines	2,4-Di-tert-butylphenol	87.026	0.39	Aromatic compounds
1-Hexanol, 2-ethyl-	39.232	0.77	Alcohols	n-Decanoic acid	88.039	0.9	Acids
Cycloheptasiloxane, tetradecamethyl-	39.517	0.49	Alcohols	Diethyl Phthalate	88.843	0.15	Esters
Ethanone, 1-(2-furanyl)-	39.815	0.09	Ketones	3-Chloro-6-methyl-6,7-dihydro-9H-5-oxa-9-azabenzocyclohepten-8-one	89.48	0.08	Other compounds
2H-Pyran-2,5-diol, tetrahydro-, diacetate	40.06	0.07	Other compounds	1,3-Dioxolane, 4-ethyl-5-octyl-2,2-bis(trifluoromethyl)-, trans-	90.02	0.02	Other compounds
3-Phenylindole	40.21	0.41	Other compounds	Phenol, 4-(1,1-dimethylpropyl)-	90.378	0.04	Aromatic compounds
Benzaldehyde	40.596	5.38	Aldehydes	Tetracosamethyl-cyclododecasiloxane	91.188	0.02	Other compounds
2,4,4,6,6,8,8-heptamethyl-1,3,5,7,2,4,6,8-tetraoxatetrasilocan-2-ol	40.927	0.5	Other compounds	Benzene, 1-chloro-4-[2-nitro-1-(2-propenylthio)ethyl]-	92.854	0.05	Other compounds
Pyrazine, 2-methyl-3-(2-propenyl)-	41.242	0.6	Pyrazines	S-Methyl isopropylphosphonamidothioate	93.447	0	Other compounds
benzenamine, 3-[(tetrahydro-2H-pyran-2-yl)oxy]-	41.472	0.09	Other compounds	2-Methoxyethoxy-ethanol	93.647	0.01	Aromatic compounds
1-Octanol	42.082	0.18	Alcohols	3,5-di-tert-Butyl-4-hydroxybenzaldehyde	93.877	0.16	Aldehydes
Fluoren-9-ol, 3,6-dimethoxy-9-(2-phenylethynyl)-	42.628	0.24	Other compounds	4-Nitrophenyl trifluoromethanesulfonate	94.247	0	Aromatic compound
Phosphonoacetic Acid, 3TMS derivative	42.907	0.29	Acids	2-Trifluoromethylbenzoic acid, 4-methylpentyl ester	95.251	0.04	Esters
Pyrazine, 2-(n-propyl)-	43.167	0.17	Pyrazines	Cyclodecasiloxane, eicosamethyl-	95.392	0.03	Organosilicos compounds
Phosphonoacetic Acid, 3TMS derivative	43.547	0.14	Acids	6-Amino-2-(fluoromethylidene)-3-(2-methylphenyl)-2,3-dihydroquinazolin-4(1H)-one, mono(trimethylsilyl) derivative	95.481	0.03	Other compounds
Benzonitrile	44.114	0.05	Benzens	4-Hydroxy-2-methoxybenaldehyde	95.624	0.04	Aromatic compounds
2-Undecanone	44.293	0.21	Hydrocarbons	n-Hexadecanoic acid	95.865	0.15	Acids
Androsta-1,4-dien-3-one, 17-[(1-oxo-10-undecenyl)oxy]-, (17.beta.)-	44.413	0.07	Other compounds	Chloromethanesulfonyl chloride	96.396	0.01	Other compounds
Ethanol, 2-(2-ethoxyethoxy)-	44.529	0.11	Alcohols	Benzoic acid	96.755	0.03	Other compounds
				Phthalimide	97.679	0.14	Amide

**Table S3.** Identification of VOCs produced by *K. cowanii* Cp1 at 4 h by HS-SPME-GC-MS.

Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes	Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes
Carbon dioxide	4.2126	1.5782	Hydrocarbons	Silane, dimethyl(dimethyl(dimethyl(2-isopropylphenoxy)silyloxy)silyloxy)(2-isopropylphenoxy)-	42.9053	0.3848	Organosilicos compounds
2-Octanamine	4.3659	1.7024	Amines	2-Isoamylpyrazine	43.1543	0.3359	Pyrazines
Ethyl ether	4.6355	1.0973	Ethers	Phosphonoacetic Acid, 3TMS derivative	43.5387	0.1748	Acids
Methanethiol	4.8934	0.6788	Tioles	2-Undecanone	44.2764	0.4162	Ketones
Heptane	5.0895	3.2621	Hydrocarbons	Pyrazine, 3,5-dimethyl-2-propyl-	44.4327	0.2634	Pyrazines
Acetone	6.3956	1.2747	Ketones	2-Isoamyl-6-methylpyrazine	44.9965	0.1323	Pyrazines
Cyclotrisiloxane, hexamethyl-	7.4366	1.6261	Other compounds	Pyrazine, 2-methyl-5-propyl-	45.2461	0.1398	Pyrazines
Butanal	7.8132	0.5795	Aldehydes	Benzeneacetaldehyde	45.7213	0.5201	Aldehydes
(3-Methyl-oxiran-2-yl)-methanol	8.2514	0.2956	Alcohols	2-Acetylthiazole	45.9054	0.307	Tioles
2-Butanone	8.5563	1.0136	Ketones	Acetophenone	46.0589	0.2813	Ketones
Butanal, 2-methyl-	9.0824	0.3761	Aldehydes	N-(2-Acetylcyclohexylidene)cyclohexylamine	46.2014	0.0829	Other compounds
Butanal, 3-methyl-	9.2754	1.5231	Aldehydes	2-Furanmethanol	46.3717	0.6816	Alcohols
Isopropyl Alcohol	9.6344	7.9273	Alcohols	Pyrazine, 2,5-dimethyl-3-(3-methylbutyl)-	46.7182	1.5359	Pyrazines
Ethanol	9.8968	5.2798	Alcohols	Butanoic acid	47.1192	0.1874	Acids
2-Pentanone	12.0822	0.0405	Ketones	Propanedinitrile, (ethoxymethylene)-	47.7582	0.108	Other compounds
n-Propyl acetate	12.1995	0.0314	Esters	Benzoic acid, 4-methyl-	48.7692	0.0674	Acids
2,3-Butanedione	12.5333	0.6946	Ketones	1-Propanol, 3-(methylthio)-	49.061	0.1723	Alcohols
Trichloroethylene	13.0685	0.3244	Halocarbons	Butanoic acid, 3-methyl-	49.4532	0.0662	Acids
Acetonitrile	13.6221	0.0406	Other compounds	2-Furanmethanol, 5-methyl-	49.5847	0.0807	Alcohols
Methyl Isobutyl Ketone	13.7437	0.0564	Ketones	Tetradecanal	50.0238	0.3508	Aldehydes
Cyclotetrasiloxane, octamethyl-	14.3047	1.5744	Other compounds	Acetamide	50.7548	0.0706	Amidas
Trichloromethane	14.8041	0.2079	Other compounds	Benzene, 1,3-dimethoxy-	51.6009	0.0863	Esters
2-1-Phenyl ethylidene-hydrazono-3-methyl-2,3-dihydrobenzothiazole	15.0525	0.216	Other compounds	1-Decanol	52.5638	1.9182	Alcohols
Toluene	15.4514	0.2354	Hydrocarbons	Acetamide, N,N-dibutyl-	54.253	0.0595	Amidas
Dodecane	16.1144	0.0359	Hydrocarbons	10-Undecen-1-ol	56.403	0.2586	Alcohols
Disulfide, dimethyl S-	17.1678	1.1384	Other compounds	2-Tridecanone	56.8746	0.3131	Ketones
(Isobutoxythiocarbon yl)thiohydroxylamine	17.7703	0.0724	Other compounds	Naphthalene, decahydro-, cis-	58.0396	0.5871	Hydrocarbons
Hexanal	18.1055	0.0836	Aldehydes	Furan, 3-phenyl-	59.1475	0.1969	Other compounds
Acetamide, N-2-propynyl-	18.3532	0.0765	Other compounds	Benzyl alcohol	60.9237	0.2226	Alcohols
2-Butenal, 2-methyl-	18.6806	0.1793	Other compounds	Butanoic acid, butyl ester	61.6643	0.3129	Esters
Ethylbenzene	20.325	0.0762	Hydrocarbons	Propanoic acid, 2-methyl-, 2-methylpropyl ester	62.9301	0.1483	Esters
p-Xylene	20.779	0.1378	Hydrocarbons	5-Methylhexanoic acid	63.578	0.2454	Acids
3-Penten-2-one, 4-methyl-	21.0413	0.0793	Ketones	Methoxycarbonyl methoxythioxomethyl disulfide	64.0157	0.0527	Other compounds
Benzene, 1,3-dimethyl-	21.2047	0.1547	Other compounds	Phenylethyl Alcohol	64.4037	0.143	Other compounds
1-Butanol	21.9719	0.5005	Alcohols	Benzonitrile, 2-methyl-	65.897	0.0309	Other compounds
3-Heptanone, 2-methyl-	22.6077	0.0286	Ketones	Benzene, (1-pentylheptyl)-	66.5935	0.1485	Esters
Boron, trihydro(pyridine)-, (T-4)-	23.4265	0.0469	Other compounds	2-Butanone, 1-chloro-3,3-dimethyl-	67.3667	0.0547	Ketones



Cyclopentasiloxane, decamethyl-	23.8904	1.2733	Organosilicos compounds	2,5-Piperazinedione, 3-methyl-	69.0691	0.041	Other compounds
2-Butenal, 3-methyl-	24.7753	0.046	Aldehydes	Ethanone, 1-(1H-pyrrol-2-yl)-	69.3625	0.0305	Ketones
D-Limonene	25.1624	0.0447	Other compounds	Cyclododecane	70.5381	7.014	Other compounds
1-Butanol, 3-methyl-	25.4302	3.0905	Alcohols	3-[5-(Chloromethyl)-1,2,4-oxadiazol-3-yl]-4-nitro-1,2,5-oxadiazole	71.5533	0.0482	Oxadiazoles
Benzene, 1-isothiocyanato-4-methyl-	25.7529	0.0224	Other compounds	2-Pyrrolidinone	71.8419	0.0555	Pyrrolidinones
Thiazole	27.3075	0.0532	Tioles	Phenol	72.0613	0.1484	Other compounds
l-Phenylalanine, methyl ester	27.4226	0.0279	Esters	1,2,3,4-Tetrahydrofluorene	72.3295	0.0297	Tetrahydrofluorenes
1,3,5,7-Cyclooctatetraene	27.9687	0.0571	Other compounds	Heptanoic acid	72.7211	0.1349	Other compounds
Pyrazine, methyl-	28.2136	1.5754	Pyrazines	Bicyclo[4.1.0]heptane, 2-methyl-	72.8892	0.1597	Ketones
Silanediol, dimethyl-, diacetate	28.8063	0.012	Other compounds	Cyclodecasiloxane, eicosamethyl-	73.2191	0.1941	Organosilicos compounds
2-fluoro-1-phenylethanone	29.3166	0.0483	Ketones	9-Dodecen-1-ol, acetate, (Z)-	73.934	0.213	Acids
Acetoin	29.6334	5.4583	Ketones	2-Nonadecanone	74.3816	0.1106	Ketones
Octanal	30.0745	0.1251	Aldehydes	Z-(13,14-Epoxy)tetradec-11-en-1-ol acetate	75.704	0.2352	Other compounds
2-Propanone, 1-hydroxy-	30.3204	0.2289	Ketones	5-Methyl-2-phenyl-2-hexenal	76.2341	0.1513	Other compounds
Pyrazine, 2,5-dimethyl-	31.1206	12.5776	Pyrazines	Phenol, 3-methyl-	76.5431	0.0353	Aromatic compounds
Pyrazine, 2,6-dimethyl-	31.4411	0.6237	Pyrazines	Tris(dimethylamino)borane	76.7715	0.0155	Other compounds
Pyrazine, ethyl-	31.786	0.1253	Pyrazines	Glycerol 1,2-diacetate	76.9813	0.0116	Other compounds
Cyclohexasiloxane, dodecamethyl-	32.2545	0.5663	Organosilicos compounds	N-(6-Methoxy-1,3-benzothiazol-2-yl)acetamide	78.3256	0.0248	Amidas
Heptanoic acid, ethyl ester	32.572	0.0804	Esters	Octanoic acid	78.7092	0.8449	Acids
Formic acid, hexyl ester	32.8456	0.1912	Esters	2-Trichloroacetylpyrrolidine	79.3402	0.0322	Other compounds
Hexane, 1,2,3-trimethoxy-	33.2567	0.0188	Hydrocarbons	2(3H)-Furanone, 5-heptyldihydro-	79.5124	0.0346	Other compounds
2-Pentanone, 4-hydroxy-4-methyl-	33.3481	0.0276	Ketones	4-[4-(2-Hydroxybenzoyl)amino]anilino]-4-oxobut-2-enoic acid	79.7864	0.0477	Other compounds
Dimethyl trisulfide	34.0029	0.2624	Other compounds	Cyclodecasiloxane, eicosamethyl-	80.5595	0.0802	Organosilicos compounds
Pyrazine, 2-ethyl-6-methyl-	34.3283	0.1344	Pyrazines	2H-Pyran-2-one, 6-pentyl-	80.9195	0.0519	Ketones
Pyrazine, 2-ethyl-5-methyl-	34.6025	1.0039	Pyrazines	4,7-Methano-1H-indene, octahydro-, (3a.alpha.,4.alpha.,7.alpha.,7a.alpha.)-	81.0509	0.019	Hydrocarbons
2-Nonanone	34.9697	0.8794	Ketones	Cyclohexene, 3-(2-methylpropoxy)-	81.4896	0.1175	Hydrocarbons
Pyrazine, trimethyl-	35.1229	1.5173	Pyrazines	Cyclopentadecane	82.0705	0.2891	Ketones
Pyrazine, 2-methyl-5-(1-methylethyl)-	35.6756	0.2632	Pyrazines	Ethanone, 1-(2-aminophenyl)-	82.49	0.0432	Ketones
Benzenamine, 4-(2H-tetrazol-2-yl)-	36.665	0.064	Other compounds	2'-Amino-4'-methoxyacetanilide	82.757	0.0294	Aromatic compounds
Isopropyl phosphine	36.8612	0.0301	Other compounds	Cyclododecene	83.2184	0.209	Hydrocarbons
Pyrazine, 3-ethyl-2,5-dimethyl-	37.1609	2.0661	Pyrazines	Methyl anthranilate	83.5151	2.1134	Esters
Octanoic acid, ethyl ester	37.3431	0.2251	Esters	6-Nitro-o-tolunitrile	84.6024	0.0112	Other compounds
Butanoic acid, 4-butoxy-	37.4209	0.2527	Acids	Propanamide, N-(3-methoxyphenyl)-2,2-dimethyl-	84.665	0.008	Other compounds
1-Heptanol	37.6157	0.114	Alcohols	7-Methyl-5-thiophen-2-yl-1,3-dihydro-thieno[2,3-E]-[1,4]diazepin-2-one	85.2132	0.0307	Other compounds
Pyrazine, 2,6-diethyl-	37.889	0.112	Pyrazines	Sorbic Acid	85.4571	0.1489	Acids
Furfural	38.0053	0.1167	Other compounds	Cyclopentaneacetic acid, 3-oxo-2-pentyl-, methyl ester	85.7837	0.0727	Esters
Pyrazine, tetramethyl-	38.4023	0.045	Pyrazines	Tetracosamethyl-cyclododecasiloxane	85.888	0.1263	Organosilicos compounds
4-Heptanol, 2,6-dimethyl-	38.5891	0.1988	Alcohols	Azelaic dihydrazide	86.484	0.1283	Other compounds

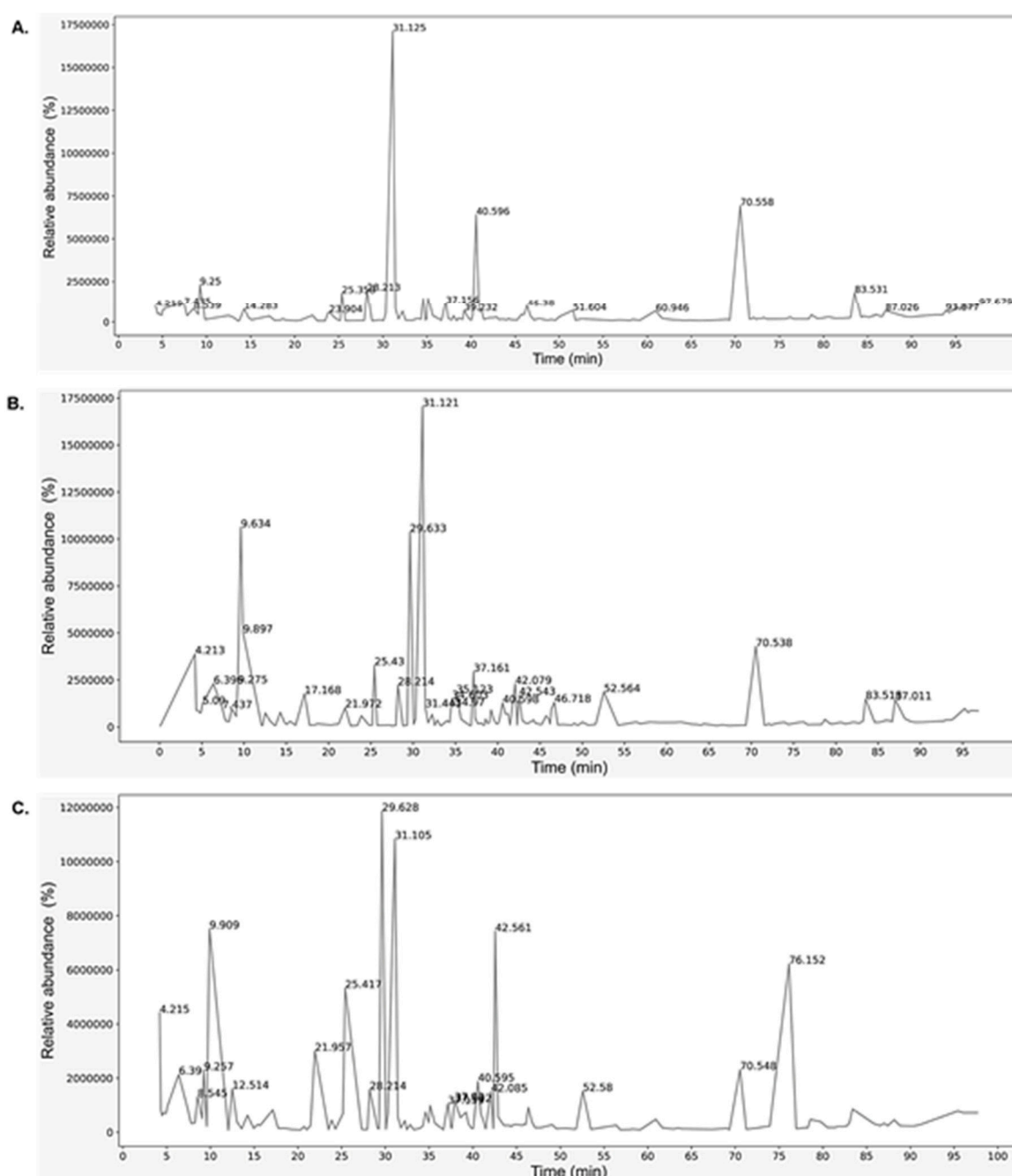
Acetic acid	38.7375	0.261	Acids	Succinic acid, but-3-yn-2-yl 2-methoxy-5-methylphenyl ester	86.672	0.0521	Esters
Pyrazine, 2-ethenyl-6-methyl-	39.0186	0.247	Pyrazines	2,4-Di-tert-butylphenol	87.0107	0.6439	Aromatic compounds
1-Hexanol, 2-ethyl-	39.2334	0.6505	Alcohols	n-Decanoic acid	88.1517	0.469	Acids
Cycloheptasiloxane, tetradecamethyl-	39.5082	0.4309	Organosilicos compounds	Diethyl Phthalate	88.8248	0.0454	Other compounds
Ethanone, 1-(2-furanyl)-	39.813	0.0901	Ketones	4-Pyridinecarbonitrile, 1-oxide	89.4087	0.0401	Heterocyclic compounds
(Z)-Tetradec-11-en-1-yl 2,2,2-trifluoroacetate	40.0622	0.1277	Acids	Hexestrol	90.3676	0.0223	Other compounds
Acridine, 9-methyl-	40.2084	0.2833	Other compounds	Cyclooctasiloxane, hexadecamethyl-	91.1672	0.0207	Organosilicos compounds
Benzaldehyde	40.5983	0.7643	Aldehydes	Homosalate	92.7891	0.0366	Other compounds
2-[(Trimethylsilyl)oxy]-2-[4-[(trimethylsilyl)oxy]phenyl]ethanamine	40.924	0.4142	Other compounds	Quinoline, 4-ethyl-	93.0055	0.0256	Other compounds
Pyrazine, 2-methyl-6-(1-propenyl)-, (E)-	41.2435	0.4803	Pyrazines	Benzamide, 2,4,6-trinitro-N,N-dimethyl-	93.6421	0.003	Amidas
Cyclohexanol, 3,3,5-trimethyl-, cis-	41.4724	0.06	Alcohols	3,5-di-tert-Butyl-4-hydroxybenzaldehyde	93.8697	0.014	Aldehydes
1-Octanol	42.0788	1.2641	Alcohols	4,6-Dichloro-5-cyanopyrimidine	95.2412	0.0692	Heterocyclic compounds
2-Thiaoctane, 4-(9-borabicyclo[3.3.1]non-9-yloxy)-	42.3112	0.0639	Other compounds	Serratinine, 8-acetate	95.6338	0.0174	Other compounds
2,3-Butanediol, [R-(R*,R*)]-	42.5427	1.3455	Other compounds	n-Hexadecanoic acid	95.9707	0.0098	Acids
				3a-(2-Oxocyclohexyl)-dihydrofuro[3,4-c]pyrrole-1,3,4,6-tetrone	96.8341	0.0133	Other compounds

**Table S4.** Identification of COVs produced by *K. cowanii* Cp1 at 6 h p1 by HS-SPME-GC-MS.

Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes	Compounds	Retention Time (min)	Relative Peak Area (%)	Chemical Classes
Carbon dioxide	4.2148	1.5834	Hydrocarbons	Benzaldehyde	40.5945	1.0877	Aldehydes
Pentane	4.355	0.3694	Hydrocarbons	4-Trimethylsilyl-9,9-dimethyl-9-silafluorene	40.9261	0.3662	Other compounds
5-Isoxazolepropanamine, N-methyl-3-(4-nitrophenyl)-	4.4769	0.4825	Other compounds	Benzaldehyde, 2,4-dimethyl-	41.2367	0.3122	Aldehydes
n-Hexane	4.5814	0.2042	Other compounds	Cyclohexanol, 3,3,5-trimethyl-	41.4746	0.0694	Alcohols
Ethyl ether	4.6383	0.7497	Ethers	1-Octanol	42.0854	0.8553	Alcohols
Propane, 2-methoxy-2-methyl-	4.9493	0.5467	Other compounds	14-Methylpentadec-9-enoic acid methyl ester	42.3522	0.0602	Esters
Heptane	5.0886	2.7363	Hydrocarbons	2,3-Butanediol	42.5605	4.1653	Other compounds
Acetone	6.3904	1.3664	Ketones	Quinoline, 4-(4-chlorophenoxy)-8-fluoro-2-trifluoromethyl-	42.9027	1.1333	Other compounds
Cyclotrisiloxane, hexamethyl-	7.4238	1.241	Other compounds	Phosphonoacetic Acid, 3TMS derivative	43.5433	0.2773	Acids
Butanal	7.8062	0.5058	Aldehydes	2-Undecanone	44.2501	0.285	Ketones
Ethyl Acetate	8.2457	0.3688	Ácidos carboxílicos	2-Amino-2-oxo-acetic acid, N-[3,4-dimethylphenyl]-, ethyl ester	44.3732	0.0927	Esters
2-Butanone	8.5454	1.4304	Ketones	Diethyl carbitol	44.5221	0.2403	Other compounds
Butanal, 2-methyl-	9.0651	0.343	Aldehydes	Butyrolactone	44.9055	0.2206	Other compounds
Butanal, 3-methyl-	9.2572	1.5338	Aldehydes	Benzeneacetaldehyde	45.7205	0.2205	Aldehydes
Ethanol, 2-methoxy-, carbonate (2:1)	9.5915	0.1549	Alcohols	2-Acetylthiazole	45.9046	0.1579	Tioles
Ethanol	9.9087	7.5719	Alcohols	Acetophenone	46.055	0.2117	Ketones
2-Butanone, 3-methyl-	12.0638	0.0199	Ketones	2-Furanmethanol	46.3652	0.578	Alcohols
2,3-Butanedione	12.5144	2.0864	Ketones	Pyrazine, 2,5-dimethyl-3-(3-methylbutyl)-	46.746	0.6693	Pyrazines
Trichloroethylene	13.0492	0.5284	Other compounds	Benzoic acid, 2-formyl-	47.097	0.2009	Acids
Methyl isocyanide	13.5895	0.0562	Other compounds	Benzaldehyde, 2-hydroxy-	47.7644	0.1597	Aldehydes
Cyclotetrasiloxane, octamethyl-	14.2547	1.0141	Other compounds	.alpha.-D-Galactopyranoside, methyl	49.0932	0.4892	Other compounds
Trichloromethane	14.7774	0.2041	Other compounds	N-Isobutyl-11-(3,4-methylenedioxyphenyl)-2E,4E,10E-undecatrienoic amide	49.5524	0.0899	Other compounds
2-Oxo-4-phenyl-6-(4-chlorophenyl)-1,2-dihydropyrimidine	14.9662	0.1407	Other compounds	5-[2-(Dimethoxyphosphonyl)acetoxy]hex-2-enoic acid	50.0029	0.131	Acids
Toluene	15.4417	0.245	Hydrocarbons	Acetamide	50.7633	0.0948	Other compounds
Butanoic acid, ethyl ester	15.694	0.1706	Esters	1,4-Benzenediol, 2,5-dimethyl-	51.6031	0.059	Alcohols
Disulfide, dimethyl	17.1472	0.6794	Other compounds	Cystine	51.8276	0.0424	Other compounds
Acetic acid, butyl ester	17.751	0.1166	Esters	1-Decanol	52.5799	1.7302	Alcohols
Hexanal	18.0959	0.1403	Aldehydes	Methyl salicylate	53.5142	0.0372	Esters
(S)-(-)-1,2,4-Butanetriol, 4-trifluoroacetate	18.3342	0.151	Alcohols	9-Decen-1-ol	56.413	0.2841	Alcohols
2-Butenal, 2-methyl-	18.6643	0.1576	Other compounds	2-Hexanone, 4-methyl-	56.8369	0.0577	Ketones
1-Propanol, 2-methyl-	19.3076	0.0609	Alcohols	1H-Indenol	57.1242	0.0466	Other compounds
Ethylbenzene	20.3083	0.059	Other compounds	9-Decen-1-yl acetate	58.0169	0.048	Esters
3-Methylheptyl acetate	20.7453	0.2274	Other compounds	Cyclononasiloxane, octadecamethyl-	58.1858	0.1251	Other compounds
Diethyl phosphite	21.0175	0.025	Other compounds	1-Naphthalenol	59.141	0.0381	Alcohols
o-Xylene	21.2181	0.1476	Hydrocarbons	Benzyl alcohol	60.9297	0.5091	Alcohols

Pentanoic acid, ethyl ester	21.4566	0.2803	Esters	Butanoic acid, butyl ester	61.6643	0.1711	Esters
1-Butanol	21.9567	1.6217	Alcohols	Propanoic acid, 2-methyl-, hexyl ester	62.9285	0.0838	Esters
Pyridine	23.5129	0.0235	Other compounds	.alpha.-d-Ribopyranoside, methyl	63.4589	0.3882	Other compounds
Cyclopentasiloxane, decamethyl-	23.866	0.79	Other compounds	Acetic acid, dichloro-, methyl ester	64.0105	0.1088	Esters
p-Xylene	24.3024	0.1304	Hydrocarbons	Phenylethyl Alcohol	64.413	0.1258	Alcohols
D-Limonene	25.1621	0.5267	Other compounds	2,2-Dimethyl-3-heptanone	67.3475	0.068	Ketones
1-Butanol, 3-methyl-	25.4166	4.9428	Alcohols	Ethyl 2-chloro-3,3,3-trifluoro-2-isovaleramidopropionate	69.0587	0.073	Other compounds
Thiazole	27.3043	0.076	Tioles	Ethanone, 1-(1H-pyrrol-2-yl)-	69.3391	0.0246	Ketones
3-Buten-1-ol, 3-methyl-	27.5937	0.047	Alcohols	Cyclododecane	70.5476	2.7441	Hydrocarbons
1,3,5,7-Cyclooctatetraene	27.9557	0.0623	Other compounds	Acetamide, 2-(4-methoxyphenyl)-N-isobutyl-	71.2623	0.0273	Other compounds
Pyrazine, methyl-	28.2139	1.3549	Pyrazines	2-Pyrrolidinone	71.8334	0.0351	Other compounds
Benzene, 4-ethyl-1,2-dimethyl-	29.1222	0.1246	Other compounds	Phenol	72.0354	0.0348	Aromatic compounds
N-[3-Isopropyl-1,2,4]triazolo[3,4-b][1,3,4]thiadiazol-6-yl]benzamide	29.2902	0.064	Other compounds	Phenol, O-(ethylsulfinyl)-	72.3273	0.0861	Aromatic compounds
Acetoin	29.6282	6.0438	Ketones	Heptanoic acid	72.8902	0.1672	Acids
Octanal	30.0686	0.0886	Aldehydes	Cyclodecasiloxane, eicosamethyl-	73.1743	0.1781	Other compounds
2-Propanone, 1-hydroxy-	30.3109	0.3178	Hydrocarbons	10-Undecen-1-ol	73.9515	0.1347	Alcohols
Pyrazine, 2,5-dimethyl-	31.1047	9.1536	Pyrazines	4,6-Dichloro-5-cyanopyrimidine	76.152	12.2595	Other compounds
Pyrazine, 2,6-dimethyl-	31.4365	0.4572	Pyrazines	1,1'-Biphenyl, 3-methyl-	76.9681	0.0315	Other compounds
Pyrazine, ethyl-	31.7829	0.1468	Pyrazines	2,6-Bis(1,1-dimethylethyl)-4-(1-oxopropyl)phenol	78.1584	0.0972	Other compounds
Cyclohexasiloxane, dodecamethyl-	32.2415	0.3424	Other compounds	3-(tert-Butyl)-4-methoxyphenyl acetate	78.2989	0.0506	Other compounds
Methyl 2,5,8,11-tetraoxatridecan-13-oate	32.4655	0.027	Other compounds	Octanoic acid	78.5868	1.2376	Acids
1-Hexanol	32.8437	0.146	Alcohols	Benzenamine, 2,5-dimethyl-	79.7828	0.0874	Other compounds
Fumaric Acid	33.2526	0.0469	Acids	Cyclooctasiloxane, hexadecamethyl-	80.5348	0.0498	Other compounds
Dimethyl trisulfide	33.9942	0.0942	Other compounds	1H-Pyrazole, 3-methyl-	81.346	0.0324	Other compounds
Undecanoic acid, 2,4,6-trimethyl-, methyl ester	34.3096	0.1454	Esters	7-Hexadecene, (Z)-	81.8691	0.0937	Other compounds
Pyrazine, 2-ethyl-6-methyl-	34.6082	0.5342	Pyrazines	Cyclononasiloxane, octadecamethyl-	82.2844	0.0924	Other compounds
2-Nonanone	34.9646	0.2318	Ketones	4-Butoxycarbonyl-4'-formylaminoazobenzene	82.4921	0.1365	Other compounds
Pyrazine, trimethyl-	35.1289	0.8557	Pyrazines	2,5-Bis(5-tert-butyl-2-benzoxazolyl)thiophene	82.725	0.0567	Other compounds
Pyrazine, 2-methyl-5-(1-methylethyl)-	35.676	0.1808	Pyrazines	1,7-Hexadecadiene	83.0452	0.2306	Other compounds
Isonicotinamide, N,N-didecyl-	36.6483	0.0586	Other compounds	Nonanoic acid	83.4135	2.3664	Acids
Pyrazine, 3-ethyl-2,5-dimethyl-	37.1587	1.1049	Pyrazines	Oxazepam, 2TMS derivative	85.8652	0.103	Other compounds
Methional	37.5356	0.0646	Other compounds	Ethanone, 1-(4,5-dihydro-2-thiazolyl)-	86.5769	0.1361	Ketones
Formic acid, heptyl ester	37.6136	0.0678	Esters	2,4-Di-tert-butylphenol	87.0063	0.1254	Aromatic compounds
Acetic acid	37.9195	0.4931	Acids	1(2H)-Naphthalenone, 3,4-dihydro-2-(phenylmethylene)-	87.447	0.0976	Other compounds
3-Furaldehyde	37.9922	2.0136	Aldehydes	n-Decanoic acid	88.1729	0.6736	Acids
4-Heptanol, 2,6-dimethyl-	38.5802	0.7236	Alcohols	Diethyl Phthalate	88.8125	0.0642	Other compounds
1-Hexanol, 2-ethyl-	39.2427	0.531	Alcohols	2-Oxadamantane-1-carboxamide, N-(1-phenylethyl)-	89.3863	0.0659	Other compounds
Cycloheptasiloxane, tetradecamethyl-	39.496	0.3015	Other compounds	Benzenesulfonamide, N-(adamantan-1-yl)methyl-4-tert-butyl-	90.3503	0.019	Other compounds

Ethanone, 1-(2-furanyl)-	39.8133	0.085	Ketones	Tetracosamethyl-cyclododecasiloxane	91.1365	0.0452	Other compounds
1H-Indene, octahydro-, cis-	40.0534	0.092	Other compounds	tert-Butyldimethylsilyl 3-chloro-5-methoxy-4-(2,2,2-trifluoroacetoxy)benzoate	95.4524	0.041	Other compounds
2-Mercapto-4-phenylthiazole	40.2064	0.3456	Tioles	Dodecanoic acid	96.0639	0.0348	Acids
				2-Propanone, 1,1,3-trichloro-	97.6867	0.0196	Ketones



**Figure S5.** Detection of VOCs produced by *K. cowanii* Cp1. The main volatile organic compounds emitted by the *K. cowanii* Cp1 strain were identified during bacterial growth phases: 2 hours, 4 hours and 6 hours.

Among the main VOCs that were detected at 2 h were pyrazine, 2,5-dimethyl-, cyclododecane, benzaldehyde, methyl anthranilate, pyrazine, methyl-, pyrazine, Butanal, 3-methyl-, pyrazine, 2-ethyl-5-methyl-, pyrazine, 3-ethyl-2,5-dimethyl- and 1-Hexanol, 2-ethyl-. **B.** The VOCs identified at 4 h were pyrazine, 2,5-dimethyl-, isopropyl alcohol, acetoin, cyclododecane, 1-Butanol, 3-methyl-, pyrazine, 3-ethyl-2,5-dimethyl-, 1-Octanol, pyrazine, methyl-, disulfide, dimethyl and 1-Butanol. **C.** Finally, the compounds that were produced at 6 h included acetoin, pyrazine, 2,5-dimethyl-, 2,3-Butanediol, ethanol, 4,6-Dichloro-5-cyanopyrimidine, 1-Butanol, 3-methyl-, 1-Butanol, cyclododecane, pyrazine, methyl- and benzaldehyde.