Table S4. The values for the centroids for each species and community type along CAP axes 1 and 2.

Species & Community Type	CAP axis 1	CAP axis 2
C. cylindrica		
Single-species communities	-1.006	0.137
Two-species communities	-0.678	0.196
Four-species communities	-0.547	-0.391
C. unguiculata		
Single-species communities	0.676	-1.212
Two-species communities	0.857	-0.061
Four-species communities	0.698	1.330

Table S5. Tukey's Honest Significant Difference post-hoc tests on the differences between *C. cylindrica* and *C. unguiculata* in the given compound or compound class at each site type. The type of data transformation (log or square root) is indicated in the trait column. Compounds and compound classes are abbreviated as follows: SES: sesquiterpenoids; GLV: "green leafy volatiles;" AROM: aromatics; 2-APE: 2-amino phenyl ethanone; α-P: α-pinene; β-P: β-pinene; γ-T: γ-terpinene; SH: sabinene hydrate; MN: methyl nicotinate; (*E*)-C A: (*E*)-cinnamic aldehyde; V: veratrole; (*Z*)-3-H A: (*Z*)-3-hexenyl acetate. For log-transformed traits, tests are performed on the log odds scale such that ratios greater than one indicate that *C. cylindrica* has a higher emission rate than *C. unguiculata*, and ratios lower than one indicate that *C. unguiculata* has a higher emission rate. For square root-transformed traits, estimates are back-transformed from the square-root scale such that positive estimates indicate that *C. cylindrica* has a higher emission rate than *C. unguiculata*. General linear hypothesis tests determine the differences between the differences at a pair of site types. Positive estimates indicate the first site type in the hypothesis has a larger difference in the trait relative to the second site type in the hypothesis. All tests were corrected for multiple comparisons.

Tukey's Honest Significant Difference tests						General linear hypothesis tests				
Testing di	Testing differences between species at each site					Testing differences of the differences				
Trait	Site	Estimate	t ratio	P		Н	Estimate	Z	P	
	Type	or ratio					± 1 SE	value		
		± 1 SE								
	One	57.430 ±	10.85	<0.001		Δ One =	2.1868 ±	4.18	< 0.001	
		21.44				ΔTwo	0.5229	4.10	< 0.001	
log	Two	$6.450 \pm$	5.090	<0.001	Δ One =	$1.0727 \pm$	2.05	0.1001		
SES		2.36			Δ Four	0.5229		0.1001		
	Four	$19.650 \pm$	8.132	< 0.001		Δ Two =	-1.1141 ± 0.5179	-2.15	0.0797	
		7.19				Δ Four				
	One	$0.070 \pm$	-4.269	0.001		Δ One =	$1.043 \pm$	1.30	0.3935	
		0.043				ΔTwo	0.802	1.30	0.3933	
log GLV	Two	$0.025 \pm$	-7.370	< 0.001		Δ One =	-3.029 ±	-3.78	< 0.001	
		0.012				Δ Four	0.802	-3.70	<0.001	
	Four	$1.439 \pm$	0.723	0.4704		Δ Two =	-4.073 ±	-5.72	< 0.001	
		0.724				Δ Four	0.712	-3.12	< 0.001	
	One	-0.004 \pm	-0.374	0.713		Δ One =	-0.041 ±	2.760	0.016	
		0.011				ΔTwo	0.015			
sqrt	Two	$0.036 \pm$	3.662	< 0.001		Δ One =	$-0.005 \pm$	-0.35	0.934	
AROM		0.010				Δ Four	0.015			
	Four	$0.001 \pm$	0.115	0.909		Δ Two =	$0.035 \pm$	-2.51	0.032	
		0.010				Δ Four	0.014			
	One	-0.009 \pm	-1.855	0.0954		Δ One =	$0.017 \pm$	2.918	0.009	
		0.005				ΔTwo	0.006			
sqrt 2-	Two	-0.026 \pm	-9.870	< 0.001		Δ One =	$0.021 \pm$	3.731	< 0.001	
APE		0.003				Δ Four	0.006			
	Four	-0.031 \pm	-11.63	< 0.001		Δ Two =	$0.005 \pm$	1.243	0.421	
		0.003				Δ Four	0.004			

log α-P	0.562 0.009 0.031 0.595 0.002 0.029
	0.031
log α-P 0.056 Four 0.580 ± -2.958 0.0034 0.107 Δ Two = -0.656 ± -2.51 0.0	0.031
Four 0.580 ± 0.0034 0.107 0.580 ± 0.107 0.107 0.261 0.261 0.261 0.051 0.049 0.049 0.0696 ± 0.063 0.064 0.069 0.072 0.069 0.072 0.069 0.069 0.072 0.069 0.072 0.069 0.0782 ± 0.082 0.002 0.055 0.069 0.0782 ± 0.082 0.069 0.0782 ± 0.082 0.069 0.0782 ± 0.082 0.069 0.0782 ± 0.082 0.0782 ± 0.082 0.096 0.096 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.066	0.595
log β-P	0.595
$log β-P One 0.627 \pm \\ 0.051 0.051 0.051 0.001 0.099 0.107 0.105 \pm \\ 0.049 0.049 0.0897 \pm \\ 0.063 0.063 0.125 0.001 0.579 \pm \\ 0.072 0.474 0.107 0.176 0.176 0.176 0.176 0.118 0.18 $	0.002
$log β-P Two 0.051 \\ log β-P Two 0.696 \pm \\ 0.049 \\ Four 0.897 \pm \\ 0.063 -1.538 0.125 \\ 0.063 \Delta Four 0.107 \\ \Delta Two = \\ -0.254 \pm \\ -2.55 \textbf{0.0} \\ \Delta Four 0.099 \\ \Delta Four 0.099 \\ \Delta Two = \\ -0.254 \pm \\ -2.55 \textbf{0.0} \\ \Delta Four 0.099 \\ \Delta Two = \\ -0.254 \pm \\ -2.55 \textbf{0.0} \\ \Delta Four 0.099 \\ \Delta Two = \\ 0.044 \pm \\ 0.248 0.99 \\ \Delta Two = \\ 0.176 \\ \Delta Two = \\ 0.176 \\ \Delta Four 0.176 \\ \Delta Four 0.176 \\ \Delta Four 0.176 \\ \Delta Two = \\ -0.538 \pm \\ -3.06 \textbf{0.0} \\ \Delta Four 0.176 \\ \Delta Two = \\ 0.055 \\ \Delta Two = \\ 0.055 \\ \Delta Two = \\ 0.096 \\ \Delta Two = \\ 0.090 \\ \Delta Two = \\ 0.090 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.090 \\ \Delta Two = \\ 0.090 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.090 \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.228 \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.246 \pm \\ -2.74 \textbf{0.0} \\ \Delta Two = \\ 0.248 \textbf{0.0} \\ \Delta Two = \\$	0.002
	.029
Four $\begin{vmatrix} 0.049 \\ 0.897 \pm \\ 0.063 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ Four} \\ 0.107 \\ \Delta \text{ Two} = \\ 0.0254 \pm \\ -0.254 \pm \\ -0.255 \end{vmatrix}$ 0.0 One $\begin{vmatrix} 0.579 \pm \\ 0.072 \\ 0.069 \end{vmatrix}$ $\begin{vmatrix} -4.390 \end{vmatrix} < 0.001 \\ 0.069 \\ 0.018 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ Four} \\ \Delta \text{ Four} \end{vmatrix}$ 0.107 $\begin{vmatrix} \Delta \text{ Four} \\ 0.099 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ Four} \\ 0.176 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ Four} \\ 0.099 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ One} = \\ -0.029 \pm \\ -0.31 \end{vmatrix}$ 0.0 One $\begin{vmatrix} \Delta \text{ Four} \\ 0.096 \end{vmatrix}$ $\begin{vmatrix} \Delta \text{ Four} \\ \Delta \text{ Four} \end{vmatrix}$ 0.090 $\begin{vmatrix} \Delta \text{ One} = \\ -0.246 \pm \\ -2.74 \end{vmatrix}$ 0.0 One $\begin{vmatrix} \Delta \text{ Four} \\ 0.090 \end{vmatrix}$ One $\begin{vmatrix} 0.783 \pm \\ 0.146 \end{vmatrix}$ $\begin{vmatrix} -1.313 \\ 0.216 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.684 \pm \\ 2.999 \end{vmatrix}$ 0.0 One $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.002 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ 2.168 \end{vmatrix}$ 0.001 $\begin{vmatrix} \Delta \text{ One} = \\ 0.0494 \pm \\ $.029
Four 0.049 0.897 ± 0.1538 0.125 0.063 0.125 0.063 0.125 0.063 0.125 0.063 0.125 0.063 0.072 0.072 0.072 0.072 0.069 0.069 0.069 0.069 0.069 0.069 0.069 0.069 0.069 0.044 ± 0.248 0.908 0.176	
$log \gamma-T $	
One $0.579 \pm -4.390 < 0.001$ 0.072 Δ Two $0.554 \pm -4.742 < 0.001$ Δ One 0.069 Four 0.949 ± -0.420 0.675 0.118 Δ One 0.759 ± -3.821 0.002 0.055 Δ Two 0.759 ± -3.821 0.002 0.055 Δ Two 0.096 Δ One $0.782 \pm -3.880 < 0.001$ Δ One $0.782 \pm -3.880 < 0.001$ Δ Four 0.096 Δ Two 0.090 Δ Two 0.090 Δ Two 0.090 Δ One 0.090 Δ Two 0.090 Δ Two 0.090 Δ Two 0.090 Δ One 0.090 Δ Two 0.090 Δ One 0.090 Δ	.967
$log \gamma-T $	1.967
Four 0.069 Four 0.949 ± 0.420 0.675 0.118 0.069 0.018 0.018 0.0759 ± 0.018 0.089 0.055 0.055 0.055 0.050 Four 0.064 0.064 0.064 0.064 0.064 0.064 0.066 0.0	
Four $0.949 \pm 0.420 = 0.675$ 0.118 0.018 0.018 0.0759 ± 0.055 0.055 0.055 0.055 0.055 0.050 Four 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.064 0.066 0	.014
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	006
One 0.759 ± 0.3821 0.002 0.055 0.782 ± 0.3880 < 0.001 0.050 Four 0.064 One 0.783 ± 0.388 0.216 0.046 0.046 0.046 0.046 0.046 0.046 0.048 0.228 0.048 0.228	.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	050
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.950
Four 0.050 Four 0.064 0.064 0.064 0.064 0.064 0.086 0.096 0.090	.011
Four 1.000 ± 0 1 $\Delta \text{ Two} = -0.246 \pm -2.74$ 0.0 $\Delta \text{ Four}$ 0.090 $\Delta \text{ One} = 0.684 \pm 2.999$ 0.1 $\Delta \text{ Two} = 0.0246 \pm -2.74$ 0.1 $\Delta \text{ One} = 0.684 \pm 2.999$ 0.1 $\Delta \text{ Two} = 0.228$.011
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$.017
One 0.783 ± -1.313 0.216 $\Delta \text{ One} = 0.684 \pm 2.999$ 0.0 $\Delta \text{ Two} = 0.228$.017
0.146 Δ Two 0.228 Δ One = 0.404 + 2.168 0.0	.008
Two 0.305 ± 0.001 $0.000 \pm 0.404 \pm 0.168$ 0.0	
1 LWO 1.0.37.7 + -7.000 S.U.U.I. 1 .71.000 + 1.0.474 + 2.108 0.1	.076
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$,
	.5603
0.063 Δ Four 0.185	
One $0.008 \pm 2.525 0.021$ $\triangle \text{ One} = -0.013 \pm -2.95 \textbf{0.0}$.009
0.003 $\Delta \text{ Two}$ 0.004	
sqrt (E)- Two $0.021 \pm 6.859 < 0.001$ $\Delta \text{ One} = -0.009 \pm -2.04 = 0.10$.1033
$oxed{C A}$ 0.003 $oxed{\Delta}$ Four 0.004	
Four $0.016 \pm 5.540 < 0.001$ $\Delta \text{ Two} = 0.004 \pm 0.932 = 0.004$	
0.003 Δ Four 0.004	.6199
	.6199
0.003 $\Delta \text{ Two}$ 0.004	0.6199 (0.001
I cort V	< 0.001
\(\sum_{0.003} \) \(\Delta \text{Four} \) 0.004	
	< 0.001 < 0.001
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	< 0.001
	0.0010.0010.001
	< 0.001 < 0.001

Two	$0.019 \pm$	-10.80	< 0.001	Δ One = Δ Four Δ Two = Δ Four	-4.520 ±	-6.48	< 0.001
	0.007			Δ Four	0.697		
Four	$1.411 \pm$	0.935	0.351	Δ Two =	-4.322 ±	-8.30	< 0.001
	0.520			Δ Four	0.521		

Table S6. Outputs of ANOVAs for the nine compounds that had significant community type x species interactions. The trait column indicates the type of data transformation applied to the compound. Compounds are abbreviated as follows: 2-APE: 2-amino phenyl ethanone; α -P: α -pinene; β -P: β -pinene; γ -T: γ -terpinene; SH: sabinene hydrate; MN: methyl nicotinate; (*E*)-C A: (*E*)-cinnamic aldehyde; V: veratrole; (*Z*)-3-H A: (*Z*)-3-hexenyl acetate. *P* values for the community type x species interactions are adjusted for performing 23 tests (e.g. univariate analyses on all compounds that were significantly correlated with one or both of the first two CAP axes).

Trait	Term	MS	NDF	DDF	F	P
	Type	0.001	2	7.287	3.450	0.088
sqrt 2-APE	Species	0.017	1	21.403	110.540	6.51 E-10
	Type x Species	0.001	2	20.725	6.960	0.022
	Туре	1.709	2	6.219	2.236	0.186
log α-P	Species	55.313	1	29.081	72.358	2.21 E-09
C	Type x Species	4.175	2	22.979	5.461	0.038
	Type	0.348	2	5.690	3.127	0.121
log β-P	Species	5.942	1	67.701	53.379	4.06 E-10
	Type x Species	0.693	2	40.299	6.225	0.022
	Type	1.270	2	264	3.640	0.028
log γ-T	Species	10.614	1	264	30.410	8.33 E-08
	Type x Species	2.011	2	264	5.761	0.022
	Type	0.385	2	7.247	4.245	0.060
log SH	Species	1.862	1	83.568	20.537	1.93 E-05
	Type x Species	0.487	2	51.073	5.374	0.029
	Type	1.262	2	6.647	3.263	0.103
log MN	Species	20.454	1	38.803	52.900	9.33E-09
	Type x Species	1.748	2	28.389	4.521	0.050
sqrt (E)-C A	Type	0.001	2	8.737	5.371	0.030
	Species	0.015	1	128.528	73.419	2.82E-14
	Type x Species	0.001	2	78.526	4.543	0.039
sqrt V	Type	0.009	2	264	43.138	< 2.2E-16
	Species	0.053	1	264	243.318	< 2.2E-16
	Type x Species	0.009	2	264	43.138	5.06 E-15
	Type	5.014	2	8.530	1.642	0.249
$\log (Z)$ -3-H A	Species	299.506	1	35.599	98.049	9.12 E-12
	Type x Species	125.399	2	29.843	41.052	3.12 E-08