

## ONE - STEP SELECTIVE SYNTHESIS OF 13-EPI-MANOYL OXIDE

Olga Morarescu<sup>a</sup>, Marionela Traistari<sup>b</sup>, Alic Barba<sup>a</sup>, Gheorghe Duca<sup>a</sup>,  
Nicon Ungur<sup>a</sup>, Veaceslav Kulcițki<sup>a\*</sup>

<sup>a</sup>Institute of Chemistry, 3 Academiei str., Chisinau, MD-2028, Republic of Moldova

<sup>b</sup>Moldova State University, 60 Mateevici str., Chisinau, MD-2009, Republic of Moldova

\*e-mail: kulcitki@yahoo.com; veaceslav.kulcitki@ichem.md; phone/fax +373 22 739775

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peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	26.370	5708	5730	5746	PV	171721	5925461	0.98%	0.579%
2	27.610	5969	5985	6019	PB 9	200897	7471358	1.23%	0.730%
3	28.614	6182	6191	6206	BV 4	144000	3366471	0.55%	0.329%
4	28.761	6206	6221	6262	PV	16116086	379444475	62.46%	37.065%
5	29.067	6262	6284	6329	VV	27165633	607525716	100.00%	59.344%
6	29.723	6390	6419	6467	PB 4	242910	7713862	1.27%	0.753%
7	30.556	6580	6590	6601	PV 5	345494	9192334	1.51%	0.898%
8	30.636	6601	6606	6628	VV 5	94861	3099253	0.51%	0.303%

Sum of corrected areas: 1023738931

FENICOL\_masa450.M Fri Feb 05 08:23:19 2021

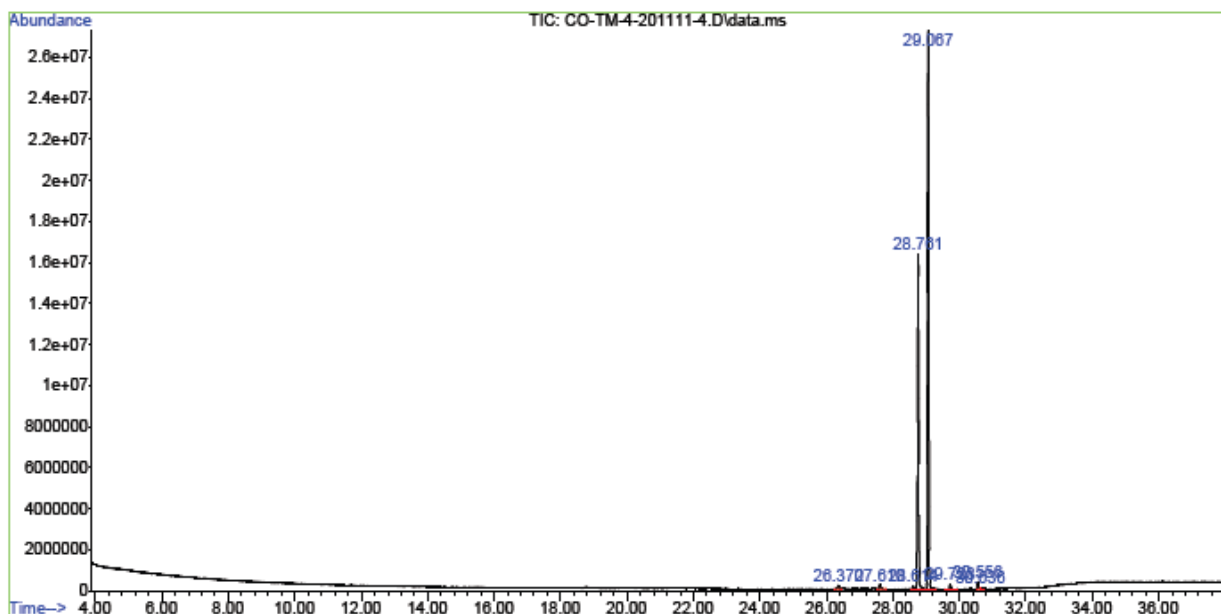


Figure S1. GC-MS data of Experiment 1.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	27.613	5972	5985	6012	BV	133841	5105655	0.89%	0.465%	
2	28.615	6119	6191	6206	BV 7	88084	3491317	0.61%	0.318%	
3	28.765	6206	6222	6267	PV	23763410	571041207	100.00%	51.990%	
4	29.067	6267	6284	6369	VB	22885365	501095333	87.75%	45.622%	
5	29.727	6408	6419	6452	BB 6	117743	3656581	0.64%	0.333%	
6	30.554	6577	6589	6600	BV 2	354408	8899031	1.56%	0.810%	
7	30.636	6600	6606	6628	VV 2	186889	5068310	0.89%	0.461%	

Sum of corrected areas: 1098357434

FENICOL\_masa450.M Fri Feb 05 08:24:09 2021

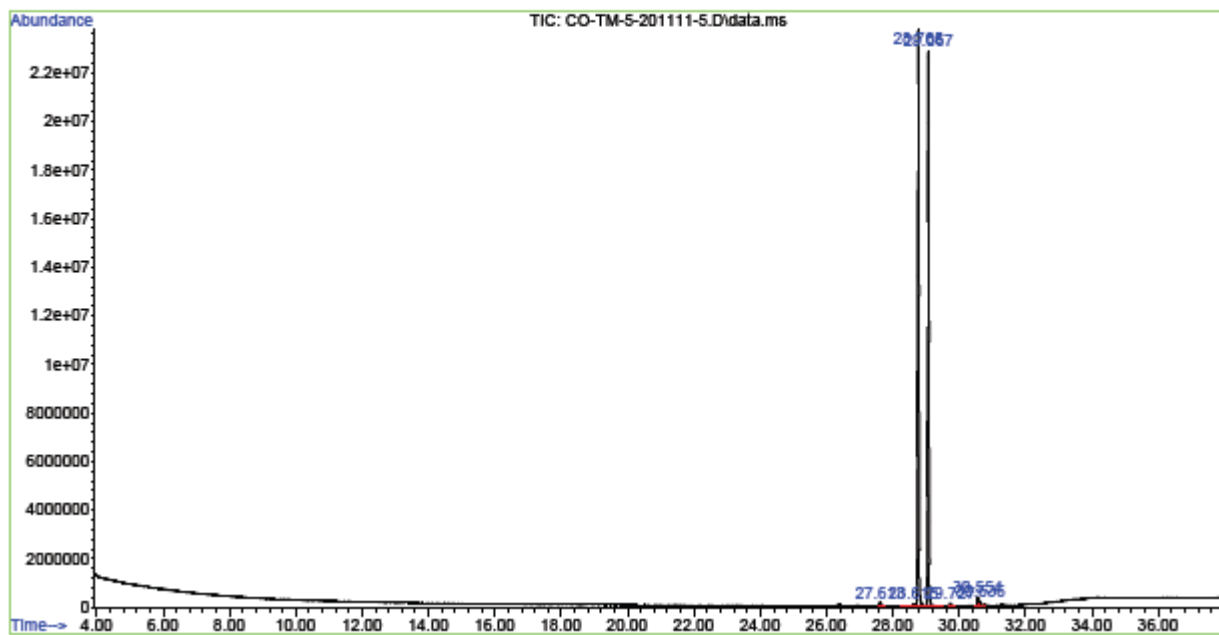


Figure S2. GC-MS data of Experiment 2.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	28.763	6203	6221	6265	PV	20222599	473763314	100.00%	41.701%	
2	29.064	6265	6283	6326	VB	14517757	312861947	66.04%	27.538%	
3	29.682	6379	6410	6454	BV 9	235282	9236914	1.95%	0.813%	
4	30.245	6514	6526	6536	PV 2	195370	3520703	0.74%	0.310%	
5	30.546	6551	6588	6598	BV 4	364501	7937075	1.68%	0.699%	
6	30.630	6598	6605	6615	VV 7	170723	3374857	0.71%	0.297%	
7	31.035	6671	6688	6737	BV	14400094	302380034	63.83%	26.616%	
8	31.317	6737	6746	6780	VB 2	318325	7497417	1.58%	0.660%	
9	32.129	6852	6913	6931	BB	283805	5756032	1.21%	0.507%	
10	32.802	6968	7051	7064	BV 2	260806	3272634	0.69%	0.288%	
11	33.409	7064	7176	7195	PBA6	232020	6490633	1.37%	0.571%	

Sum of corrected areas: 1136091559

FENICOL\_masa450.M Fri Feb 05 08:26:11 2021

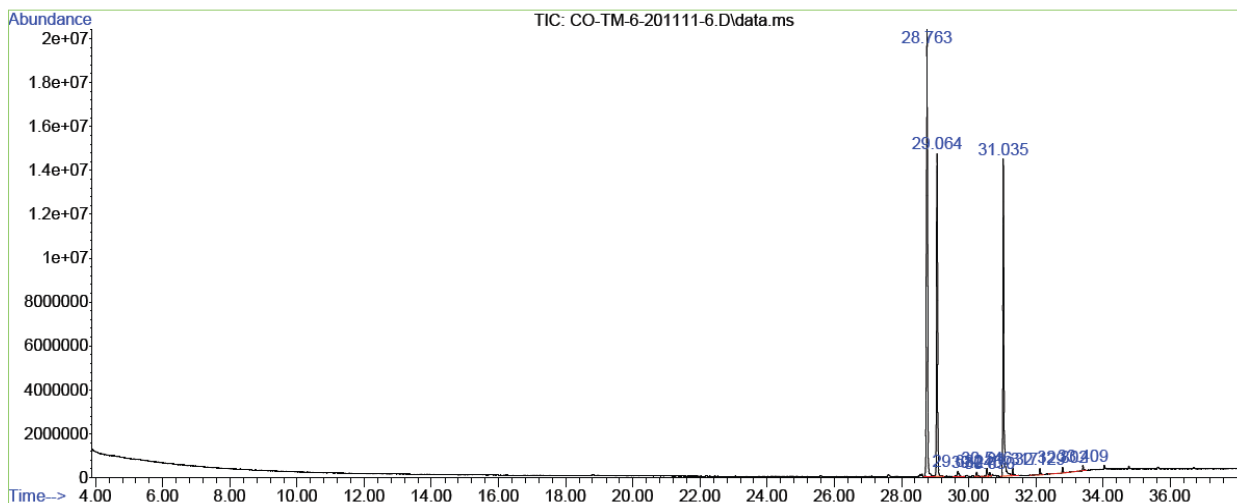
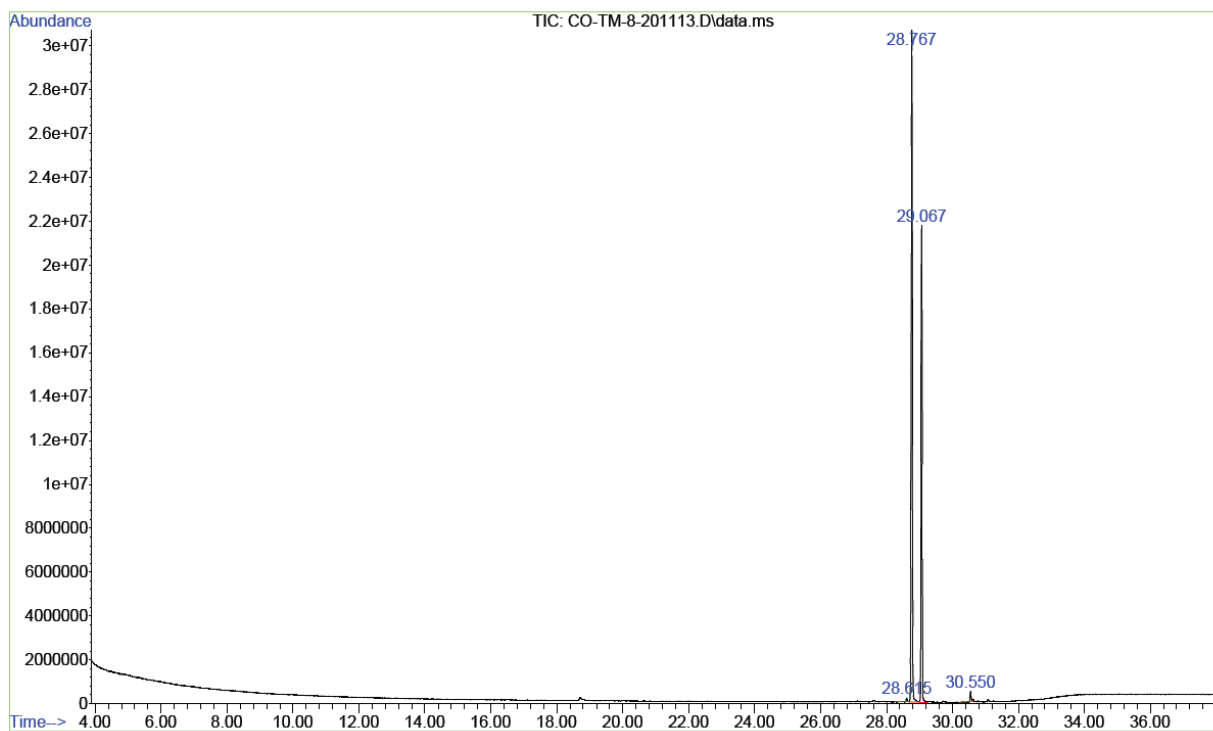


Figure S3. GC-MS data of Experiment 3.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	28.615	6119	6191	6205	BV 5	176556	4942133	0.69%		0.412%
2	28.767	6205	6222	6271	VV	30361582	711909368	100.00%		59.323%
3	29.067	6271	6284	6324	VB	21746558	477760939	67.11%		39.811%
4	30.550	6521	6589	6600	BV 3	436906	5452503	0.77%		0.454%

Sum of corrected areas: 1200064942

FENICOL\_masa450.M Fri Feb 05 08:28:18 2021



**Figure S4. GC-MS data of Experiment 4.**

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	28.765	6205	6222	6250	BB	1121893	25803042	100.00%	55.843%	
2	29.066	6262	6284	6310	BB	915256	19483882	75.51%	42.167%	
3	30.552	6557	6589	6602	BB 4	15709	295251	1.14%	0.639%	
4	31.058	6620	6693	6727	BB 8	21954	624082	2.42%	1.351%	

Sum of corrected areas: 46206256

FENICOL\_masa450.M Fri Feb 05 08:29:34 2021

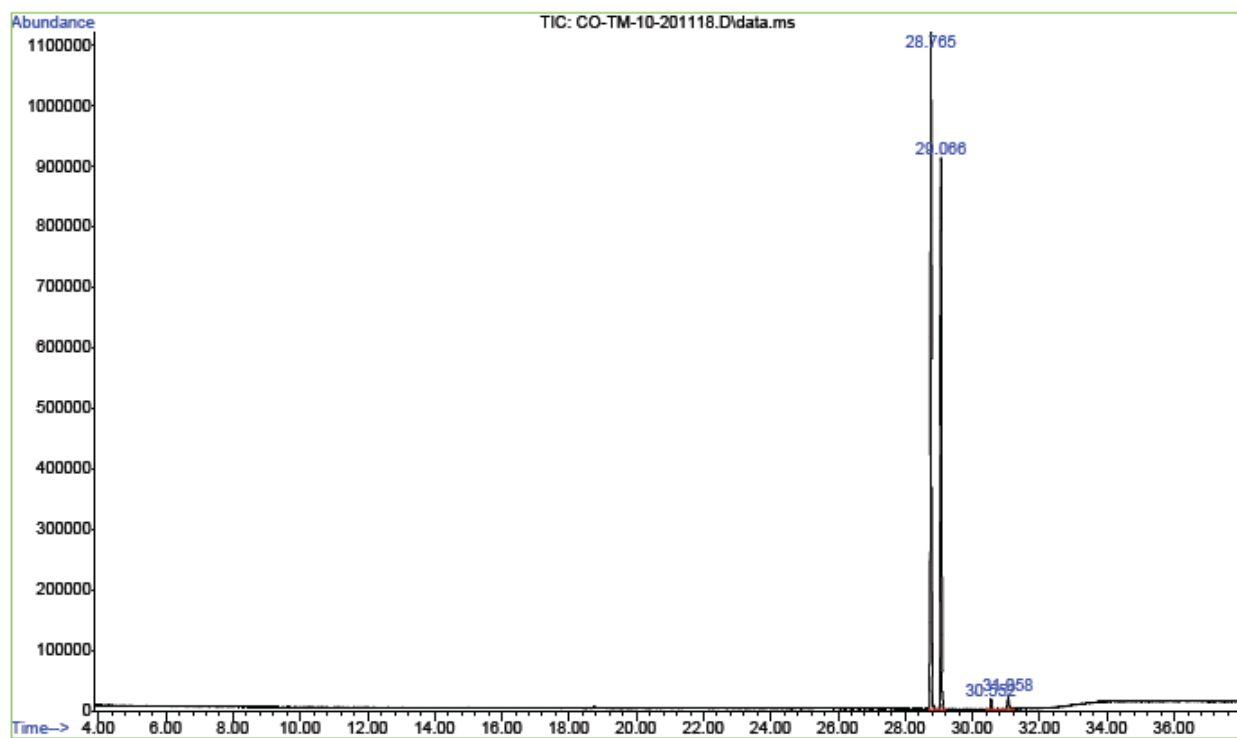


Figure S5. GC-MS data of Experiment 5.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of total
1	28.764	6202	6222	6254	BB	1085819	25052228	100.00%	55.575%
2	29.066	6257	6284	6310	BB	902937	19605834	78.26%	43.493%
3	30.550	6566	6589	6599	BV 3	22032	419780	1.68%	0.931%

Sum of corrected areas: 45077843

FENICOL\_masa450.M Fri Feb 05 08:29:04 2021

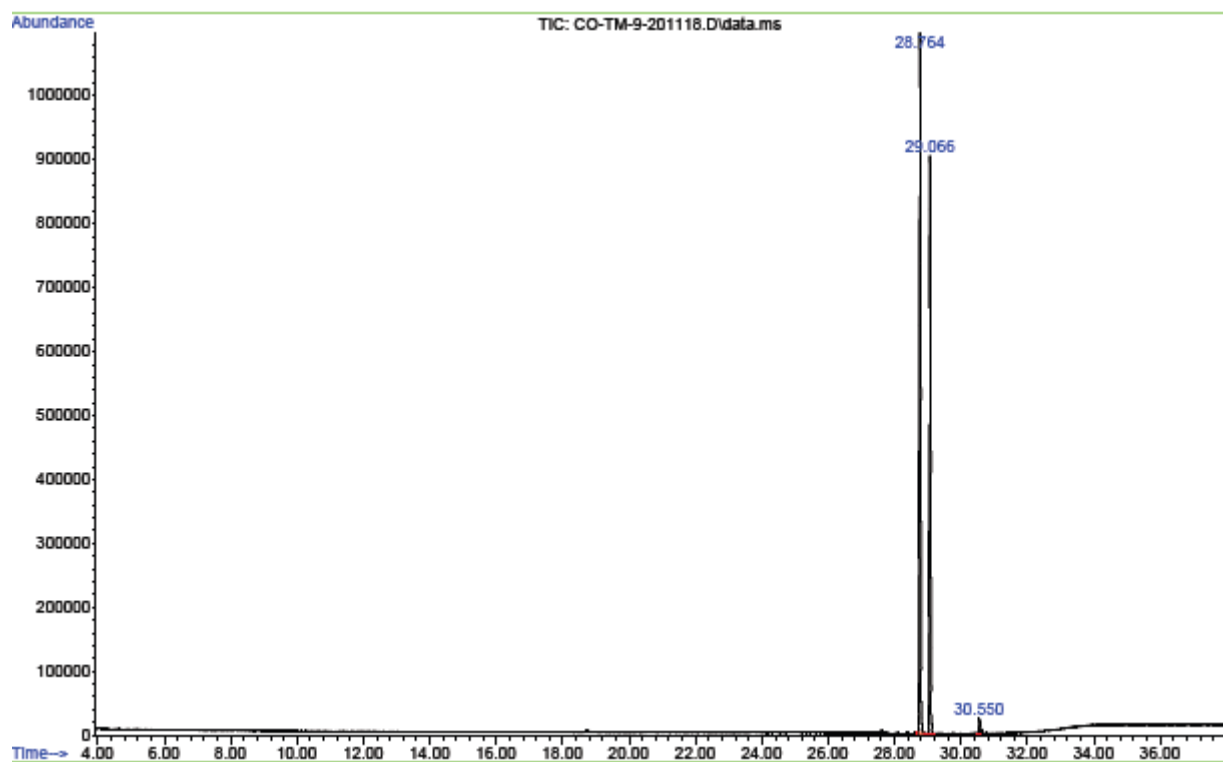


Figure S6. GC-MS data of Experiment 6.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.
1	28.767	6201	6222	6268	VV	35170819	806666436	100.00%	53.139%
2	29.068	6268	6284	6314	VB	32990943	703119313	87.16%	46.318%
3	30.546	6579	6588	6599	BV 3	400643	8242796	1.02%	0.543%

Sum of corrected areas: 1518028545

FENICOL\_masa450.M Fri Feb 05 08:27:39 2021

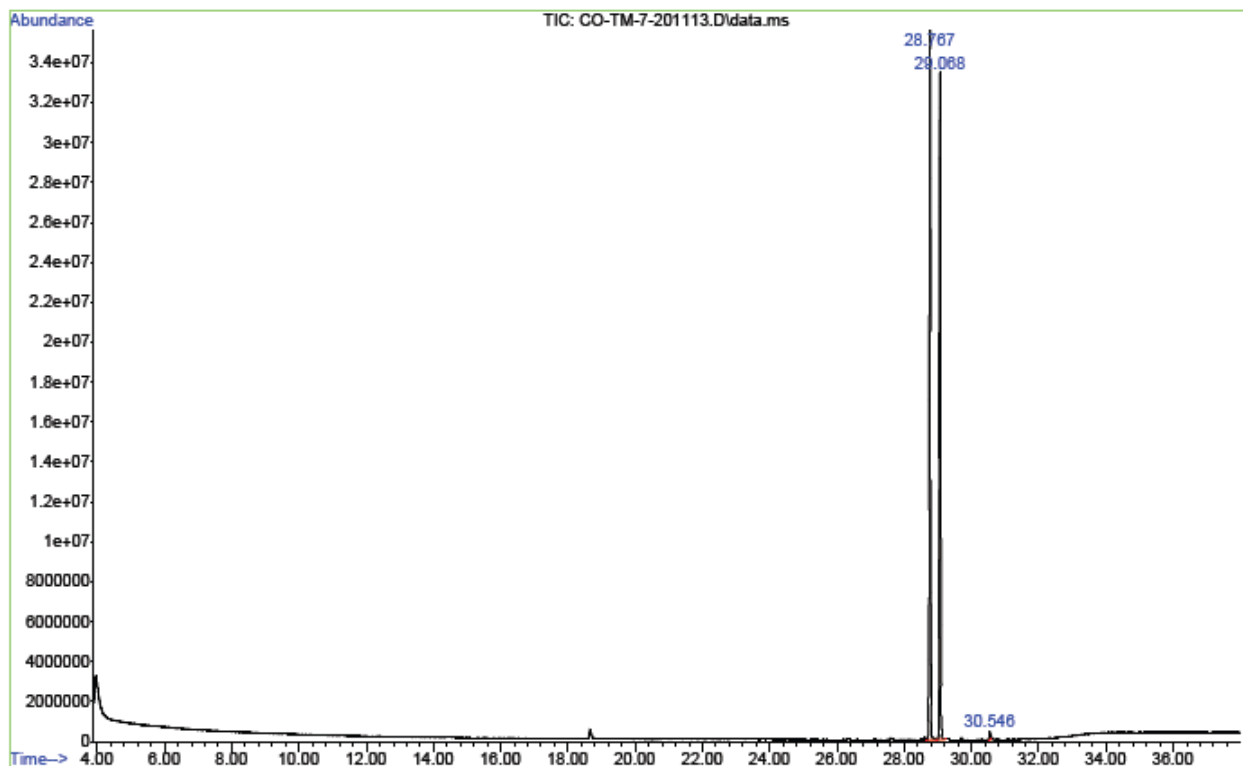


Figure S7. GC-MS data of Experiment 7.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max	% of total
1	27.616	5952	5986	6015	BB	10584	302334	0.86%	0.433%
2	28.768	6209	6223	6267	BB	1511364	35114438	100.00%	50.276%
3	29.070	6268	6285	6306	BB	1552343	33877708	96.48%	48.506%
4	30.553	6559	6589	6600	BV 3	30384	548413	1.56%	0.785%

Sum of corrected areas: 69842893

FENICOL\_masa450.M Fri Feb 05 08:30:06 2021

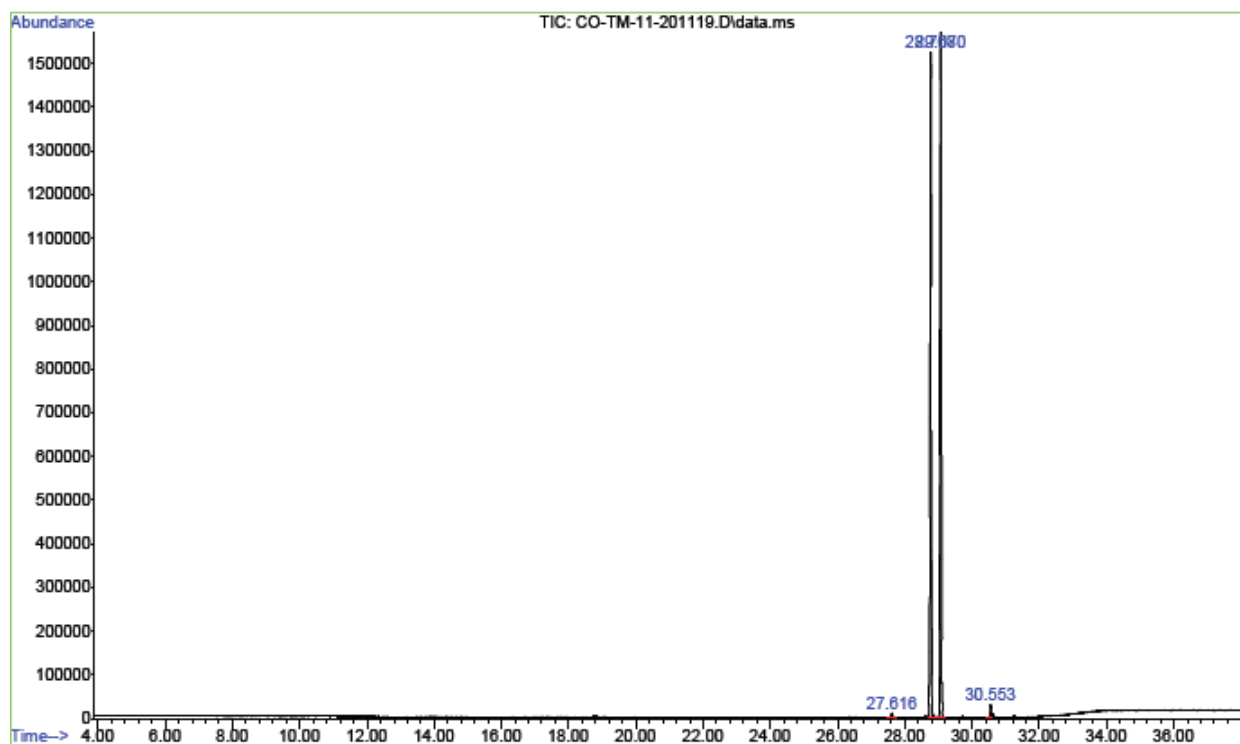


Figure S8. GC-MS data of Experiment 8.



peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of total
1	27.612	5955	5985	6005	BB 8	14571	423971	1.84%	1.102%
2	28.764	6203	6222	6254	BB	644008	14437220	62.61%	37.542%
3	29.068	6260	6284	6306	BB	1073729	23060760	100.00%	59.967%
4	30.553	6560	6589	6609	BB 2	27875	533932	2.32%	1.388%

Sum of corrected areas: 38455882

FENICOL\_masa450.M Fri Feb 05 08:44:15 2021

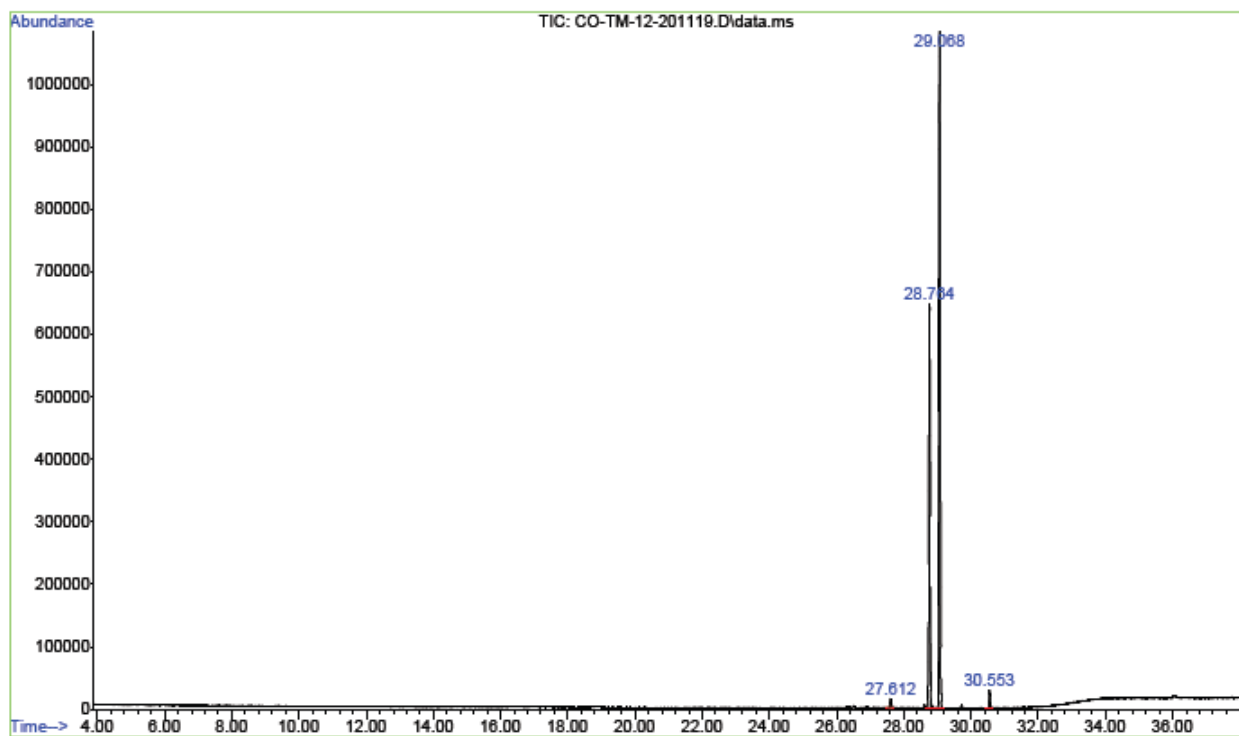


Figure S9. GC-MS data of Experiment 9.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	26.495	5739	5756	5781	VB 3	31321	931903	2.80%	2.103%	
2	27.608	5955	5984	6005	BB 6	26013	786977	2.36%	1.776%	
3	28.760	6205	6221	6252	BB	369746	8281615	24.88%	18.691%	
4	29.069	6252	6284	6308	BB	1509779	33282982	100.00%	75.117%	
5	29.712	6386	6416	6445	BB 3	23030	449841	1.35%	1.015%	
6	30.556	6561	6590	6618	BB 4	20752	574730	1.73%	1.297%	

Sum of corrected areas: 44308048

FENICOL\_masa450.M Fri Feb 05 08:32:02 2021

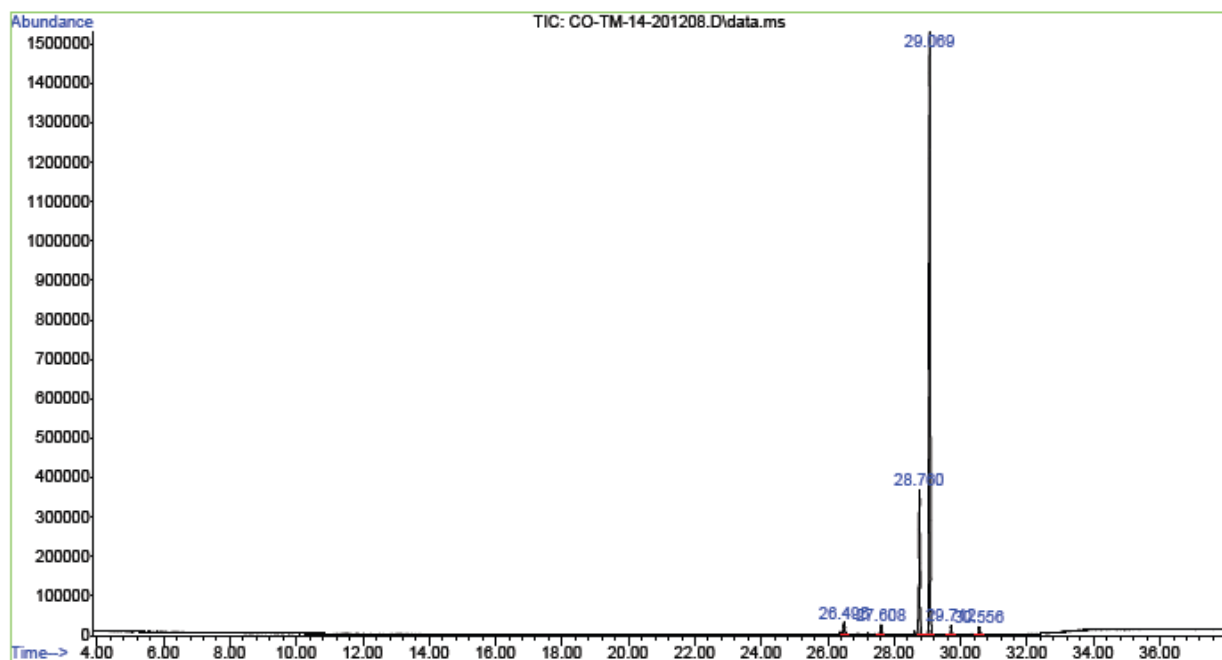


Figure S10. GC-MS data of Experiment 10.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	26.360	5693	5728	5739	BV 6	13493	382610	1.52%	1.142%	
2	26.485	5739	5754	5779	PB 3	90965	2688871	10.70%	8.027%	
3	27.605	5958	5984	6002	BV 9	31912	981196	3.90%	2.929%	
4	28.614	6167	6191	6209	BV 3	16141	326627	1.30%	0.975%	
5	28.760	6209	6221	6235	VV 2	125313	2774738	11.04%	8.283%	
6	29.067	6235	6284	6304	PV	1185203	25130754	100.00%	75.022%	
7	29.709	6393	6416	6446	BB 2	34345	690280	2.75%	2.061%	
8	30.556	6563	6590	6615	BB 2	19626	522830	2.08%	1.561%	

Sum of corrected areas: 33497907

FENICOL\_masa450.M Fri Feb 05 08:33:33 2021

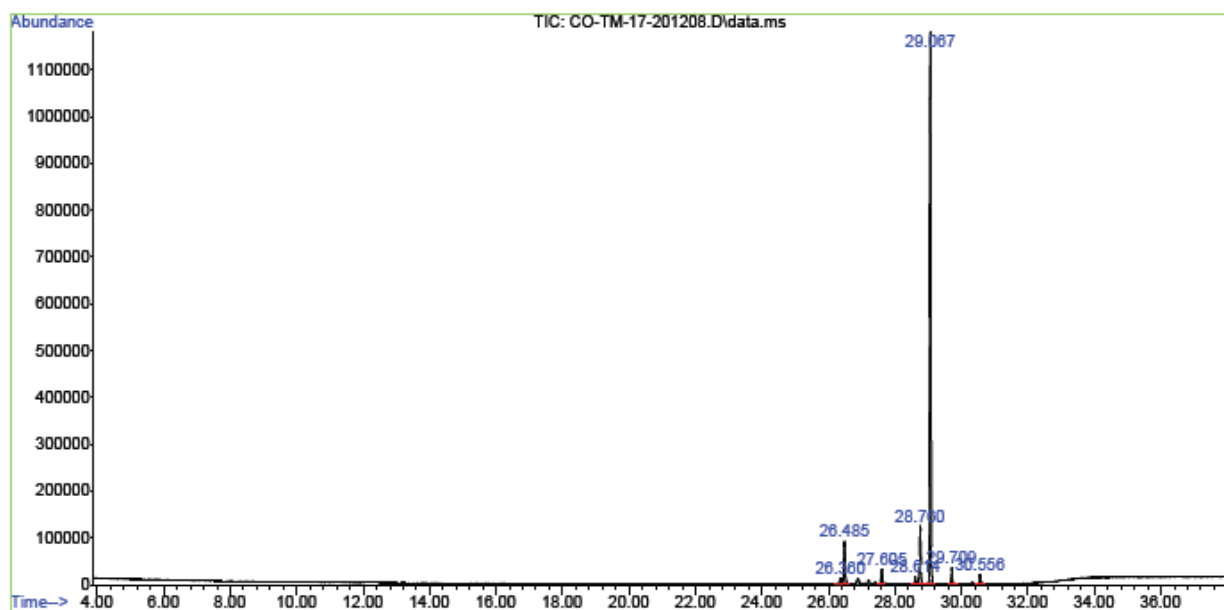


Figure S11. GC-MS data of Experiment 11.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max	% of total
1	26.350	5684	5726	5737	BV 8	13469	388470	2.52%	1.669%
2	26.476	5737	5752	5784	PB 2	90827	2786698	18.11%	11.976%
3	26.864	5801	5831	5848	BV 4	15704	681650	4.43%	2.929%
4	27.594	5956	5981	5998	BV 8	26125	850330	5.53%	3.654%
5	28.606	6160	6189	6208	BV 3	13688	283968	1.85%	1.220%
6	28.754	6208	6220	6252	PB 3	69956	1571877	10.21%	6.755%
7	29.059	6252	6282	6316	BB	704209	15388779	100.00%	66.134%
8	29.705	6385	6415	6435	BB 2	30425	598625	3.89%	2.573%
9	30.547	6561	6588	6607	BB 3	33840	718676	4.67%	3.089%

Sum of corrected areas: 23269075

FENICOL\_masa450.M Fri Feb 05 08:36:56 2021

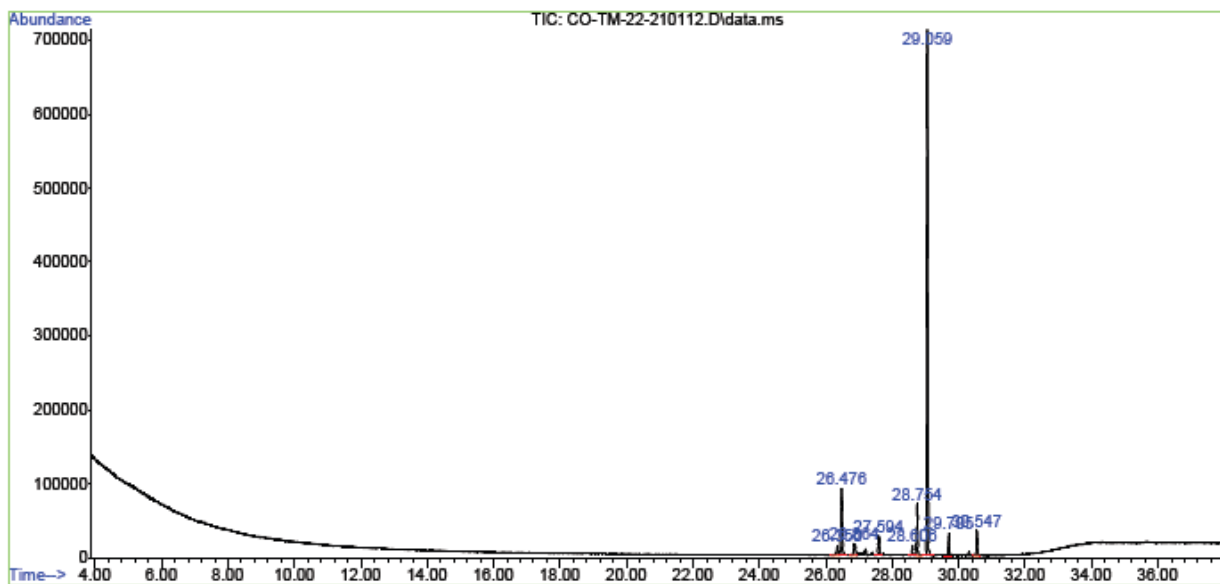


Figure S12. GC-MS data of Experiment 12.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	26.350	5709	5726	5737	BV 4	13089	325438	3.50%	2.192%	
2	26.476	5737	5752	5775	VB 2	80247	2393099	25.72%	16.116%	
3	26.855	5817	5830	5848	BV	20469	713717	7.67%	4.806%	
4	27.593	5968	5981	5992	BV 10	15965	479733	5.16%	3.231%	
5	28.755	6205	6220	6231	BB 3	37735	826003	8.88%	5.562%	
6	29.059	6268	6282	6300	BB	431662	9302655	100.00%	62.646%	
7	29.705	6403	6415	6438	BB 2	20311	373493	4.01%	2.515%	
8	30.548	6580	6588	6607	BB 3	21198	435368	4.68%	2.932%	

Sum of corrected areas: 14849507

FENICOL\_masa450.M Fri Feb 05 08:38:01 2021

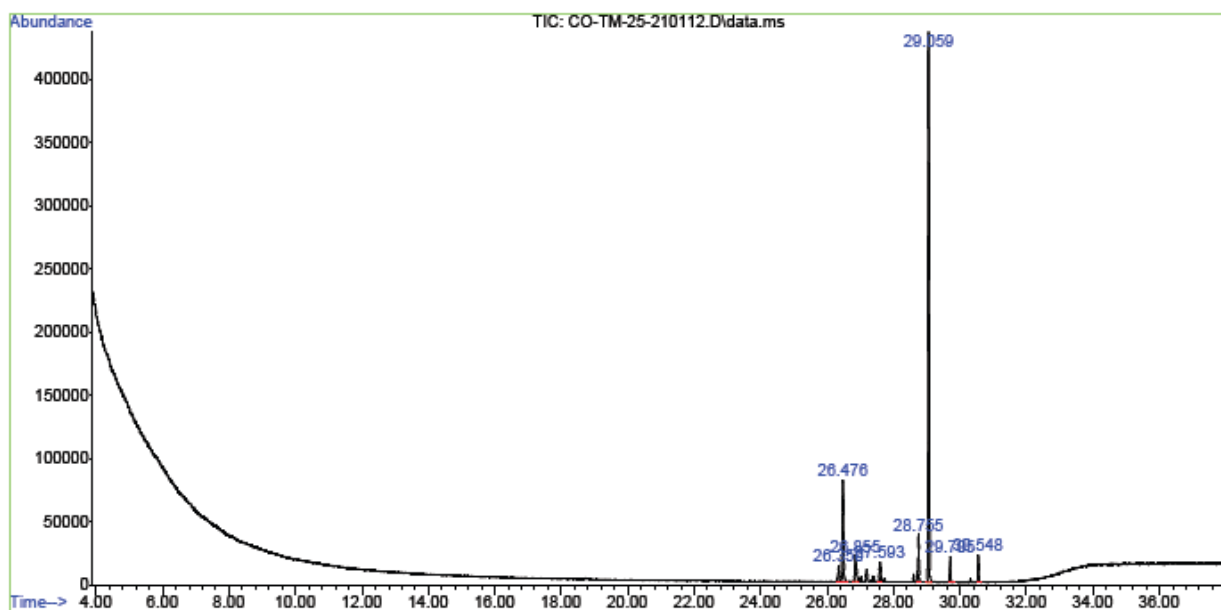


Figure S13. GC-MS data of Experiment 13.

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. %	% of max.	% of total
1	26.347	5687	5725	5737	BV 6	28817	954603	5.27%		2.588%
2	26.476	5737	5752	5784	PV 2	198026	6228242	34.36%		16.885%
3	26.864	5817	5831	5848	VV 4	36287	1820971	10.05%		4.937%
4	27.192	5886	5899	5920	VV 6	22497	661033	3.65%		1.792%
5	27.399	5920	5941	5963	VV 7	16560	478848	2.64%		1.298%
6	27.591	5963	5981	5994	PV 6	67729	2225734	12.28%		6.034%
7	28.603	6157	6189	6198	BV 3	21998	445754	2.46%		1.208%
8	28.752	6206	6219	6232	VV 2	95205	2228078	12.29%		6.041%
9	29.059	6260	6282	6297	BV	846409	18128028	100.00%		49.147%
10	29.698	6402	6413	6432	VB 2	59281	1171366	6.46%		3.176%
11	30.301	6517	6537	6570	BB	13753	270526	1.49%		0.733%
12	30.539	6570	6586	6612	BB	105435	2271984	12.53%		6.160%

Sum of corrected areas: 36885168

FENICOL\_masa450.M Fri Feb 05 08:37:38 2021

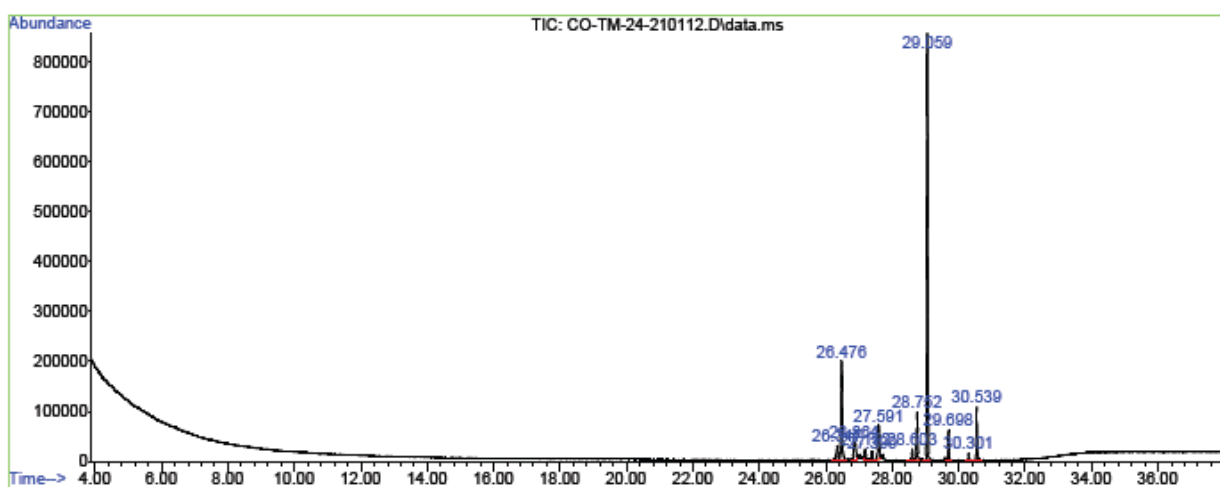
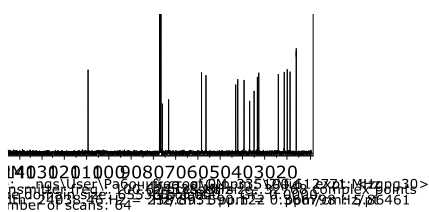
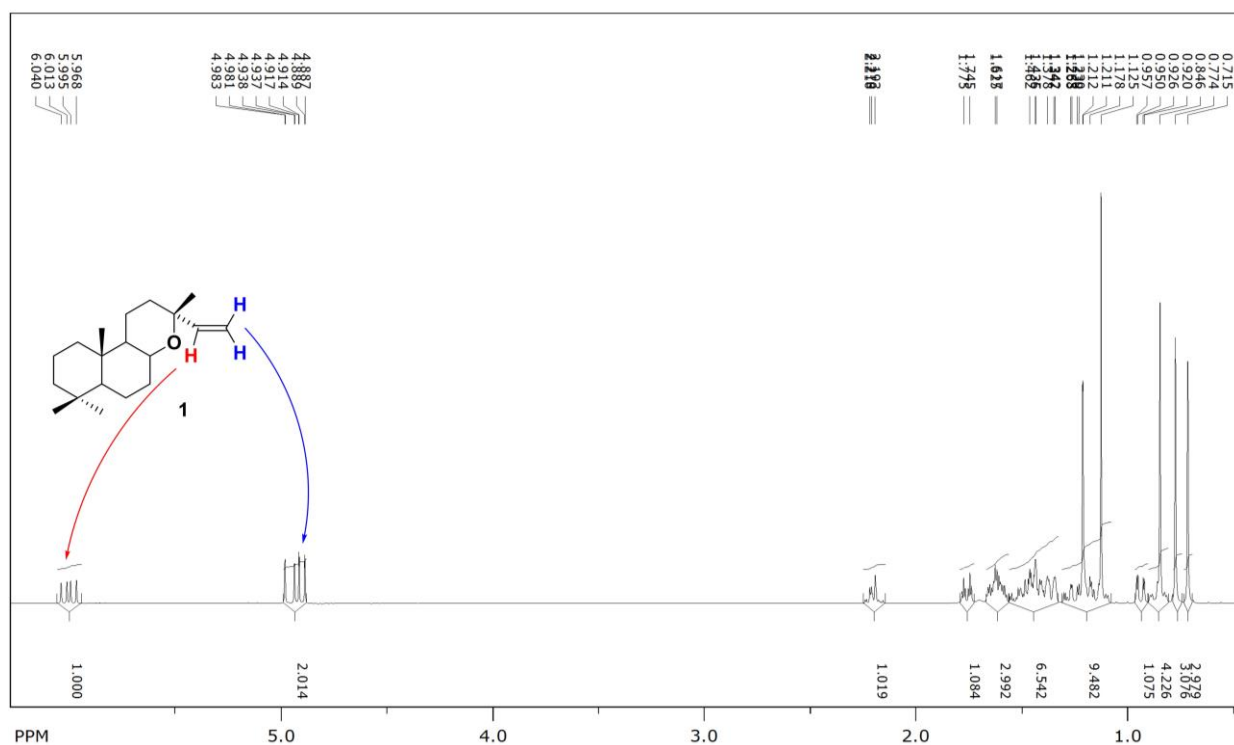


Figure S14. GC-MS data of Experiment 14.



**Figure S16.  $^{13}\text{C-NMR}$  spectrum for compound 1 ( $\text{CDCl}_3$ , 100.61 MHz).**

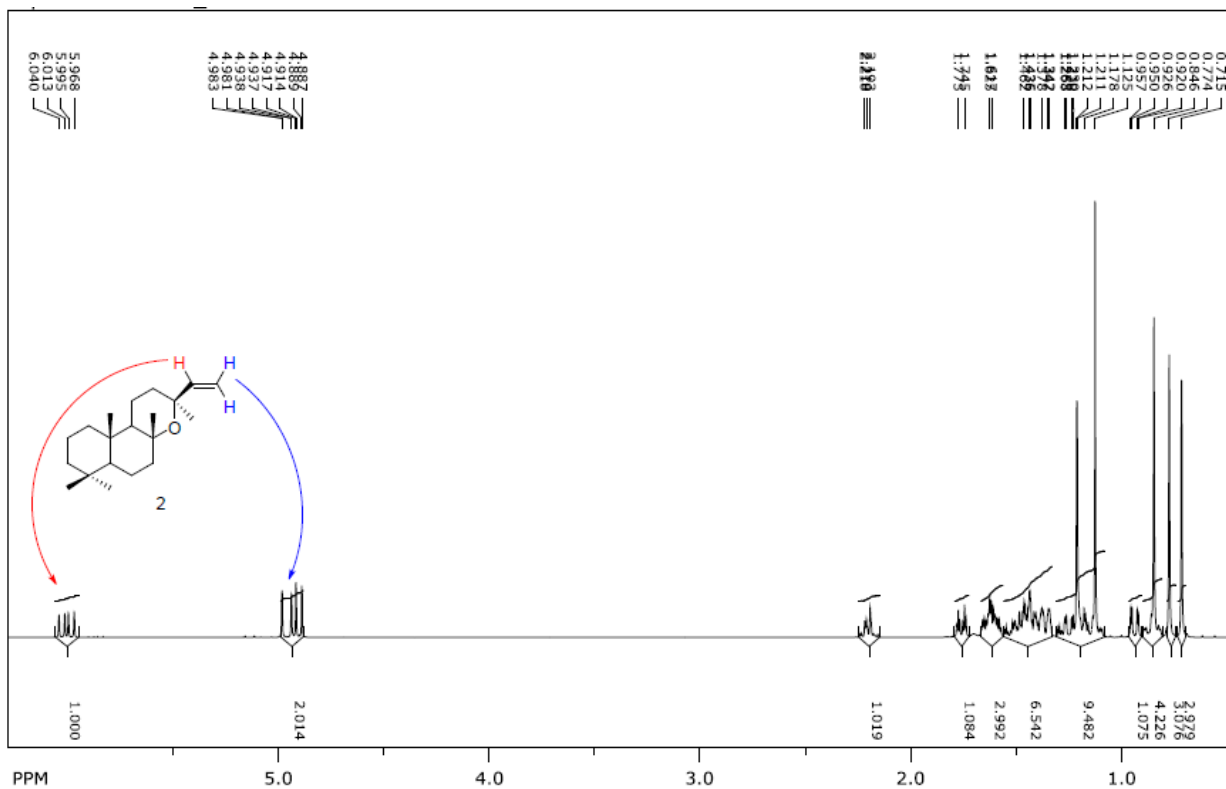


Figure S17.  $^1\text{H-NMR}$  spectrum for compound 2 ( $\text{CDCl}_3$ , 400.13 MHz).

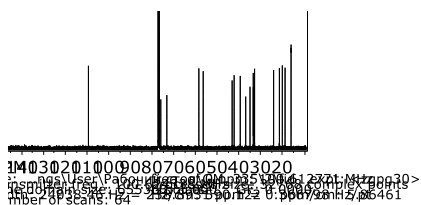


Figure S18.  $^{13}\text{C-NMR}$  spectrum for compound 2 ( $\text{CDCl}_3$ , 100.61 MHz).



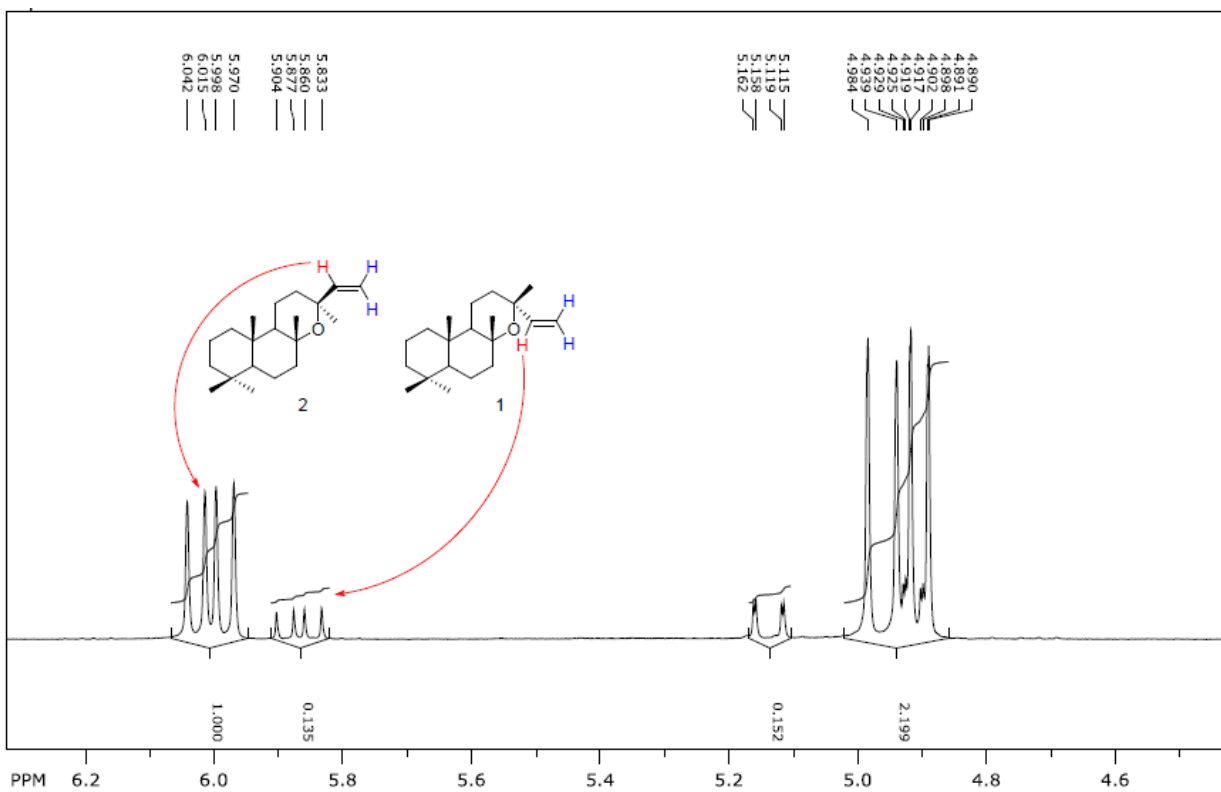
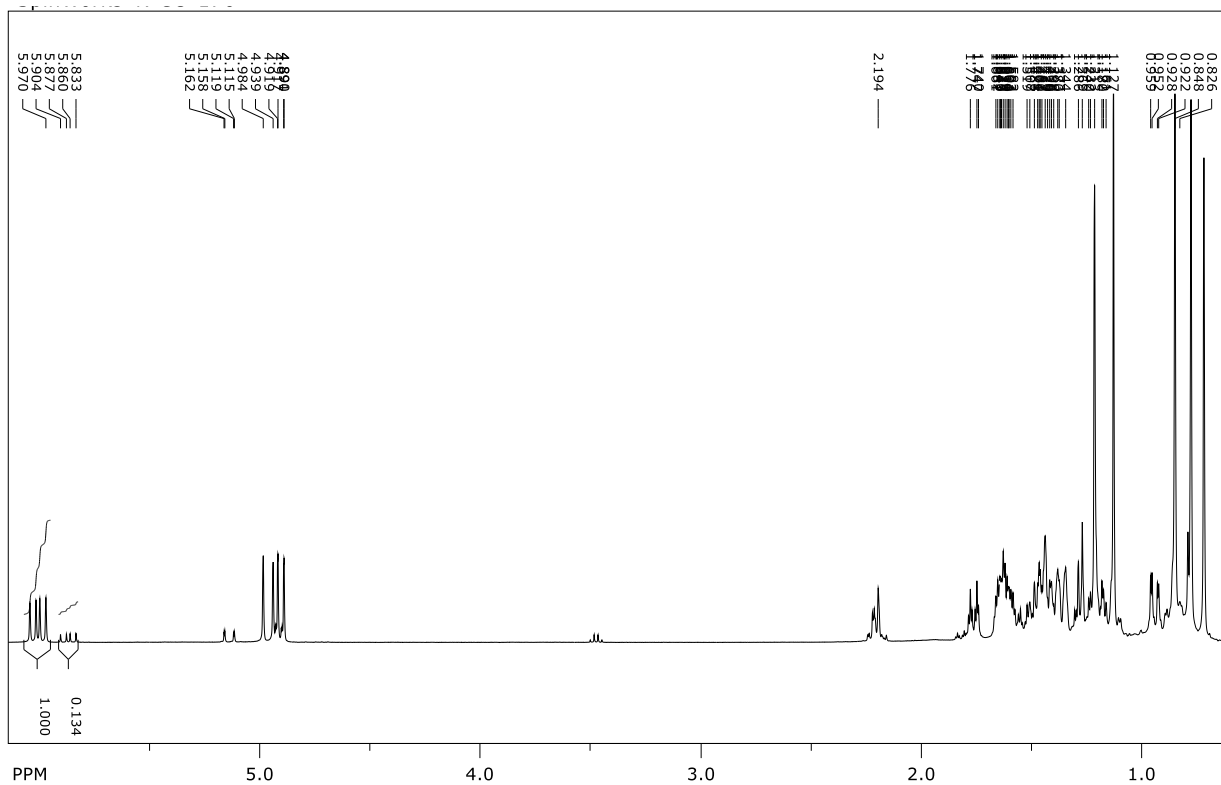
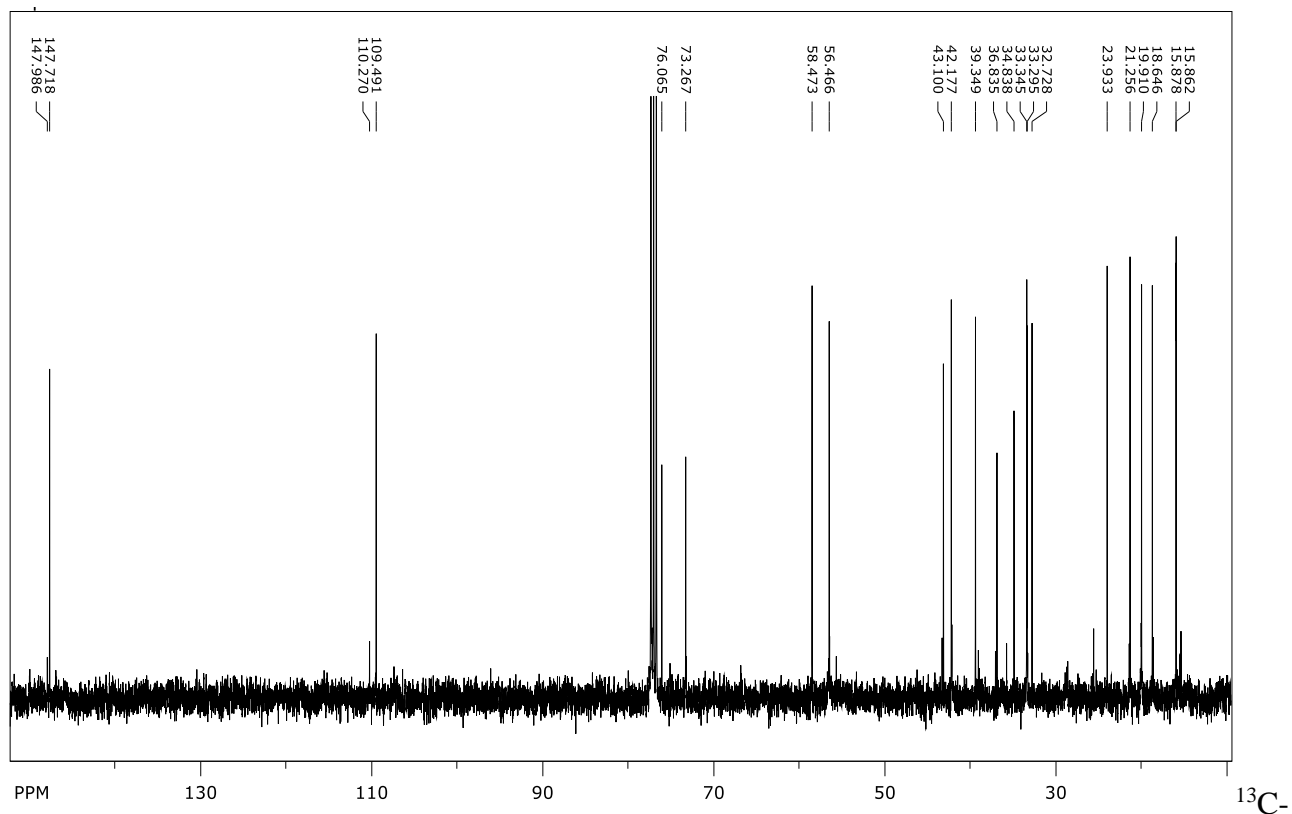


Figure S19.  $^1\text{H-NMR}$  spectrum for mixture of oxides 1 and 2 ( $\text{CDCl}_3$ , 400.13 MHz).  
(preparative experiment).



**Figure S20. NMR spectrum for mixture of oxides 1 and 2 ( $\text{CDCl}_3$ , 100.61 MHz).  
(preparative experiment).**