Supporting Information

Limonoids from *Aphanamixis polystachya* and Their Antifeedant Activity

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1. Key ROESY correlations of selected limonoids

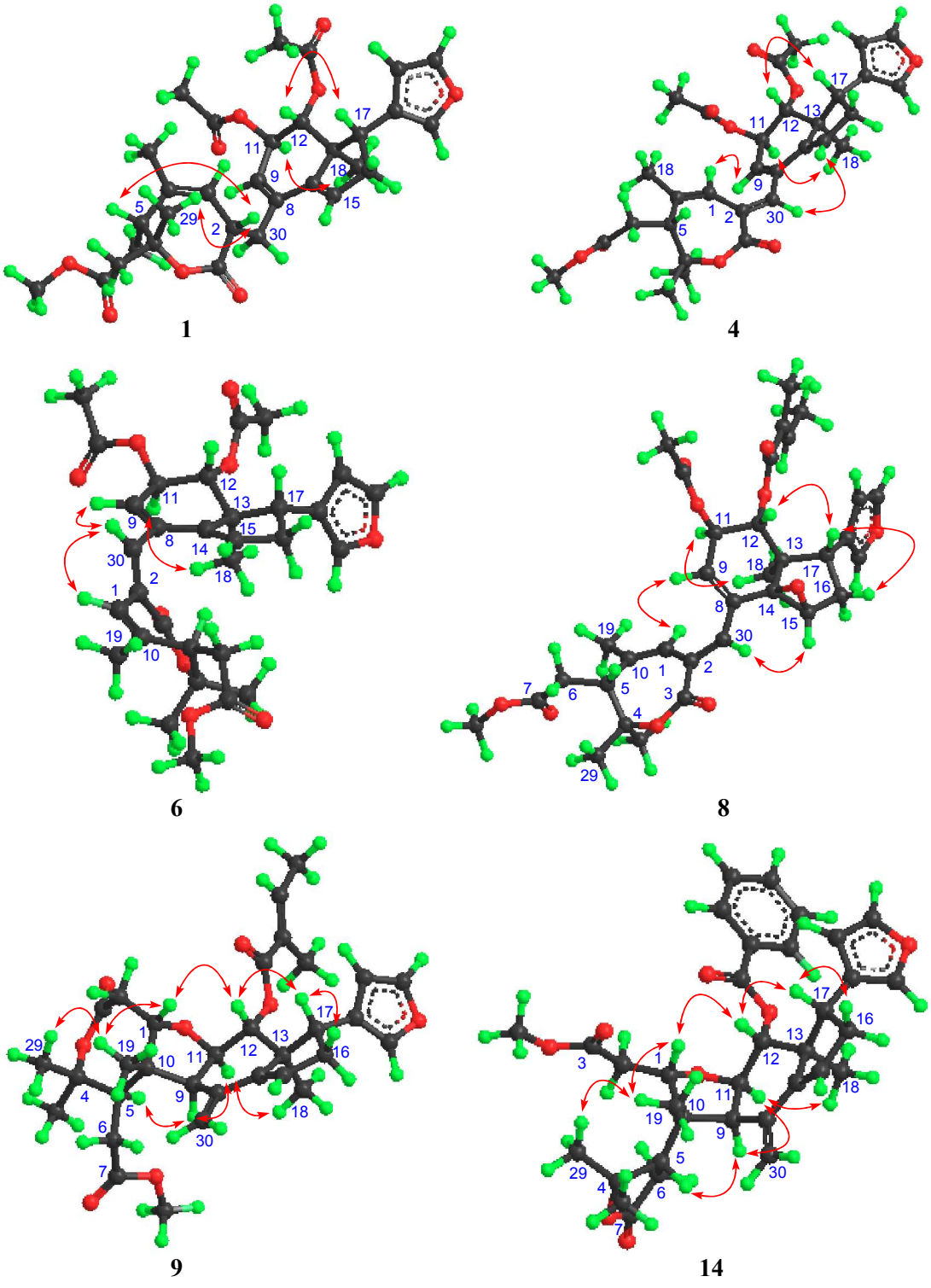


Figure S1. Key ROESY correlations (↔) of selected limonoids.

2. Antifeedant Activity Assay.

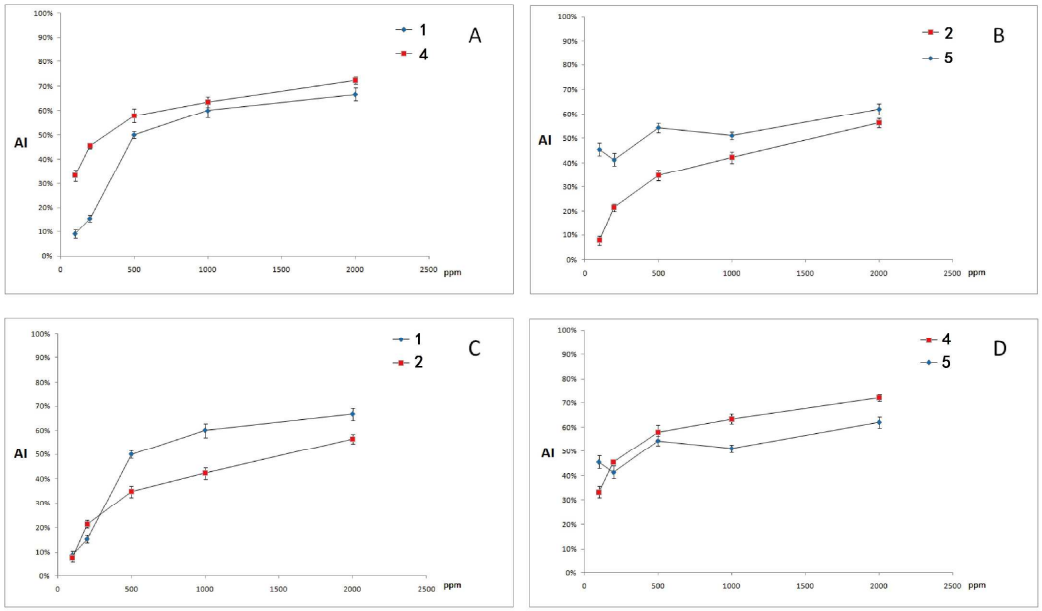


Figure S2. Comparison of antifeedant indices (AI) of selected compounds at concentrations of 100, 200, 500, 1000, and 2000 ppm.

Table S1. EC_{50} (means ± SD) of Antifeedant Activity of 1, 2, 4, 5, 7, and neem oil against *Helicoverpa armigera.*

Compound	EC_{50} ($\mu g/cm^2$)	EC_{50} ($\mu mol/cm^2$)
aphanamixoid C (**1**)	9.27 ± 0.64	0.017 ± 0.0012
aphanamixoid D (**2**)	29.24 ± 2.25	0.049 ± 0.0038
aphanamixoid F (**4**)	4.28 ± 0.78	0.008 ± 0.0014
aphanamixoid G (**5**)	6.82 ± 0.49	0.012 ± 0.0008
aphanamixoid I (**7**)	16.94 ± 1.90	0.028 ± 0.0022
commercial neem oil	2.62 ± 0.10	

Table S2. Antifeedant Index (AI) of Selected Compounds against *Helicoverpa armigera.* at 2000 ppm.

Compounds	(AI ± SD) %
aphanamixoid E (**3**)	33.88 % ± 1.12 %
aphanamixoid J (**8**)	23.42 % ± 0.72 %
aphanamixoid K (**9**)	47.31 % ± 2.02%
aphanamixoid L (**10**)	23.39 % ± 5.07 %
aphanamixoid M (**11**)	34.02 % ± 1.25 %
aphanamixoid N (**12**)	11.11 % ± 3.37 %
aphanamixoid O (**13**)	42.80 % ± 1.98 %
aphanamixoid P (**14**)	28.62 % ± 4.11 %

3. NMR, MS and IR Spectra of aphanamixoids C-P (1-14)

Figure S3. ^{1}H NMR spectrum of aphanamixoid C (**1**) in $CDCl_3$

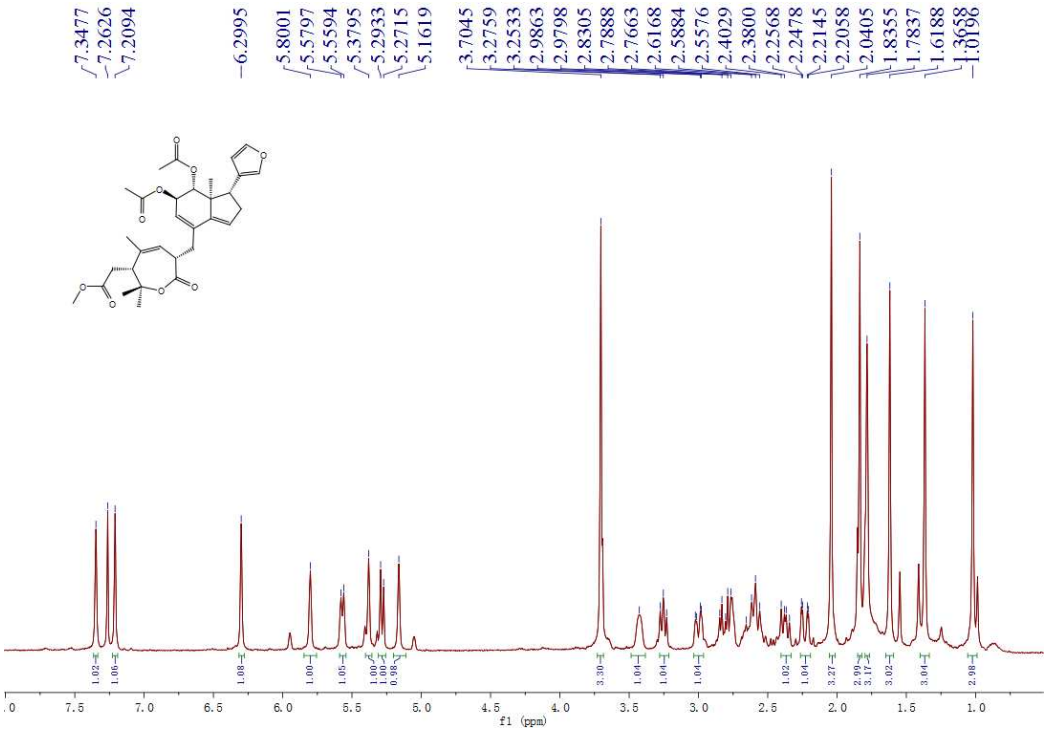


Figure S4. ^{13}C NMR spectrum of aphanamixoid C (**1**) in $CDCl_3$

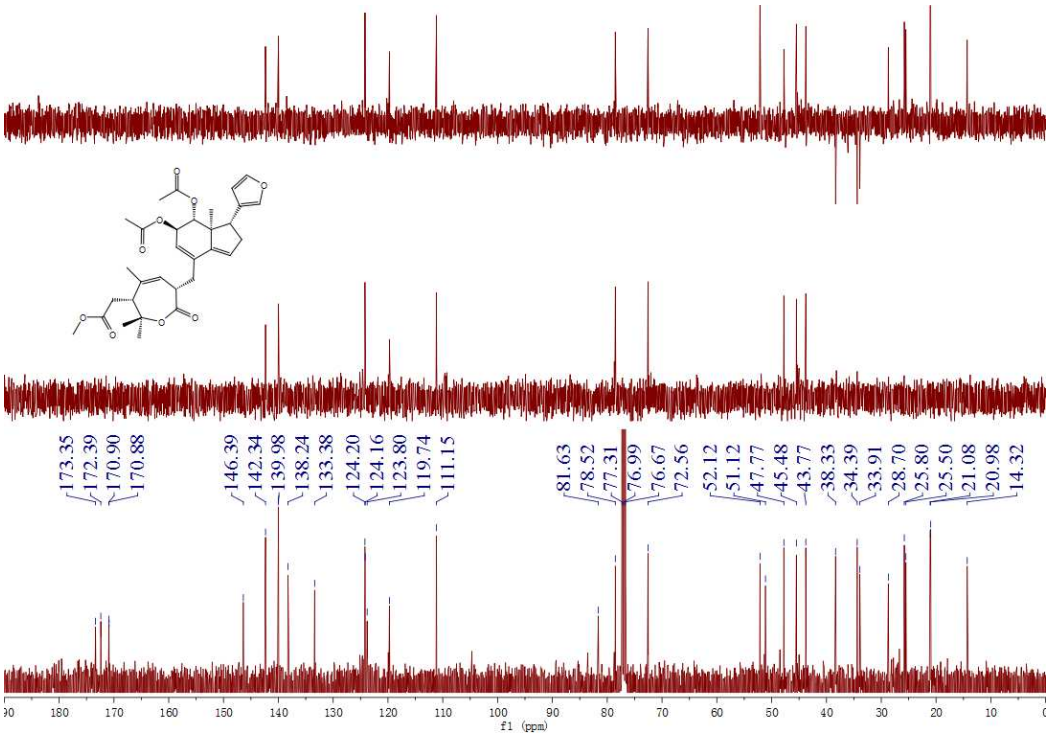


Figure S5. HSQC spectrum of aphanamixoid C (**1**) in $CDCl_3$

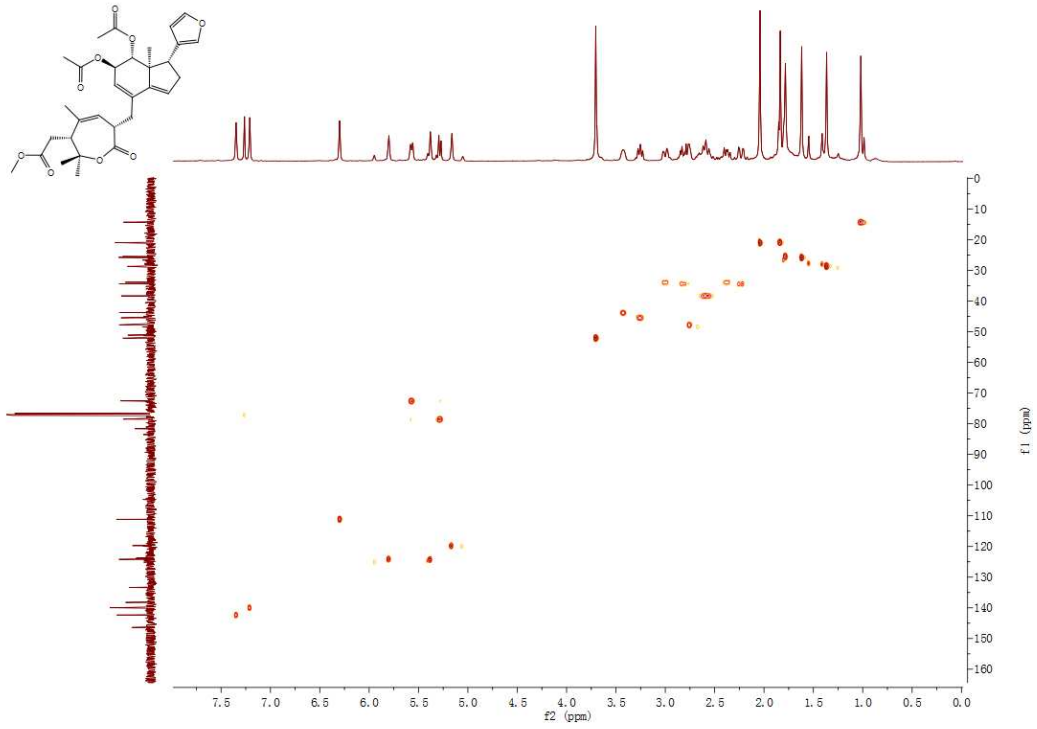


Figure S6. HMBC spectrum of aphanamixoid C (**1**) in $CDCl_3$

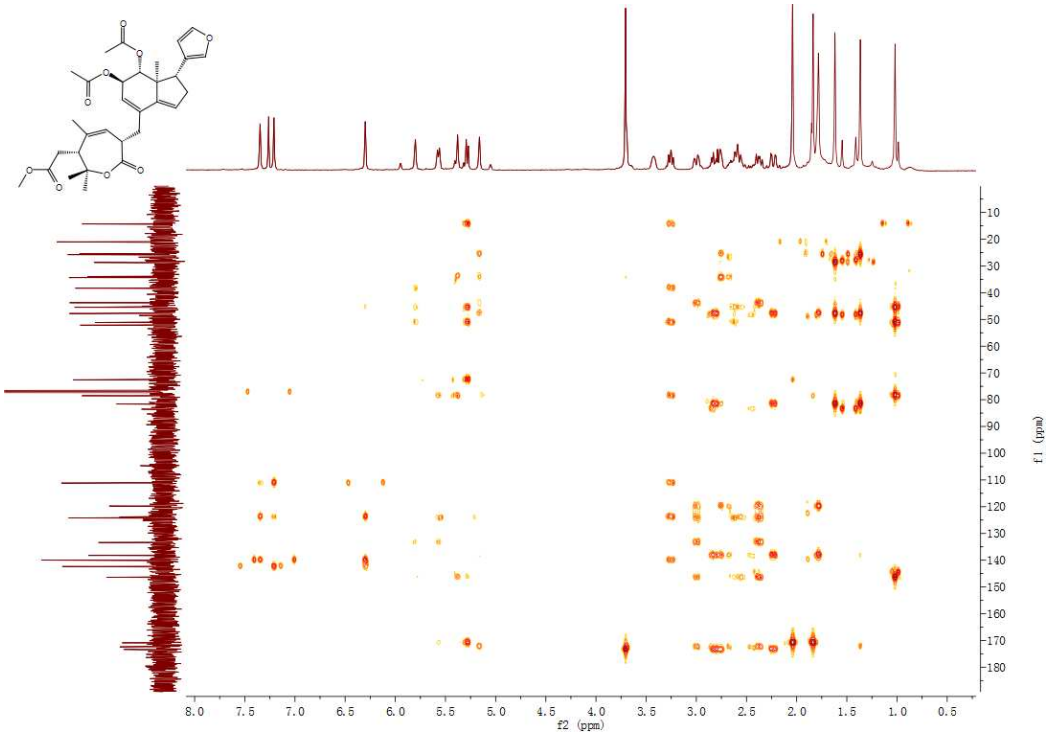


Figure S7. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid C (**1**) in $CDCl_3$

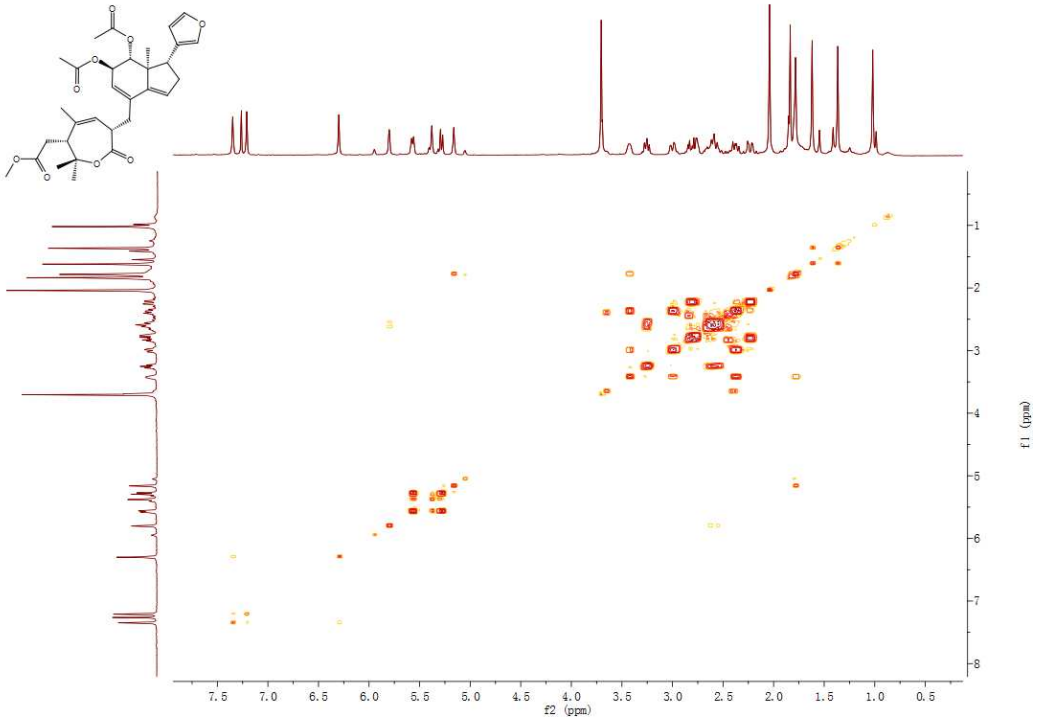


Figure S8. ROESY spectrum of aphanamixoid C (**1**) in $CDCl_3$

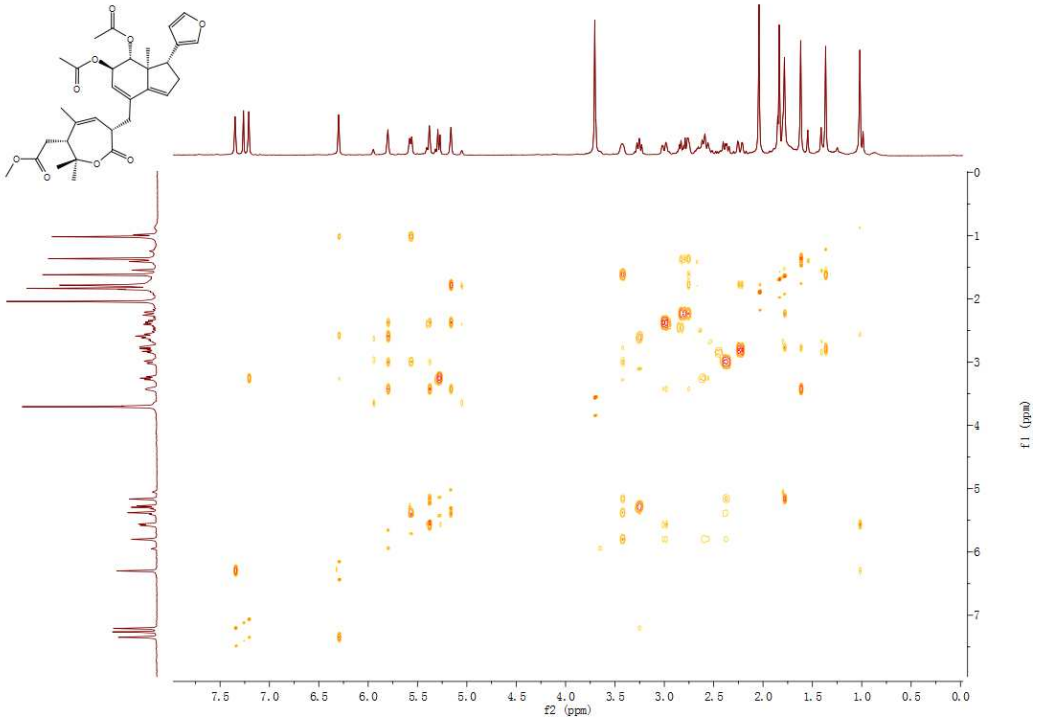


Figure S9. ESI (+) MS of aphanamixoid C (**1**)

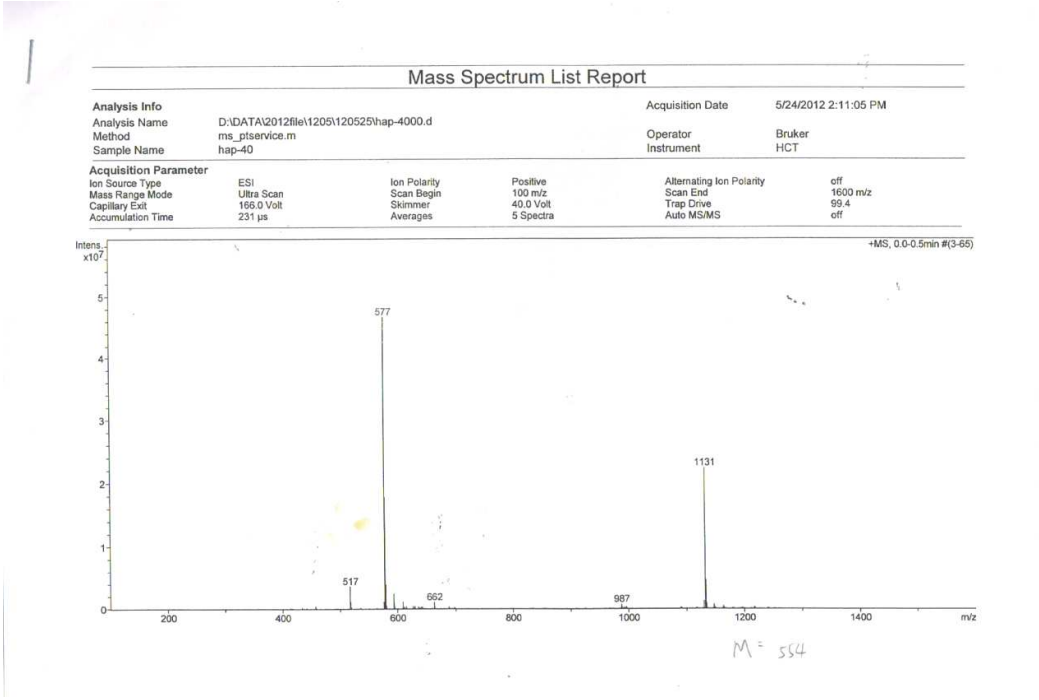


Figure S10. HR-EI (+) MS of aphanamixoid C (**1**)

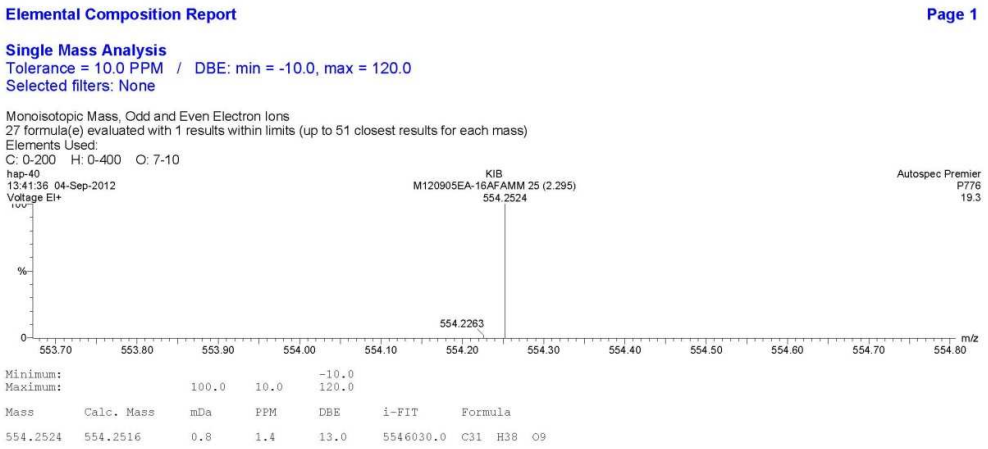
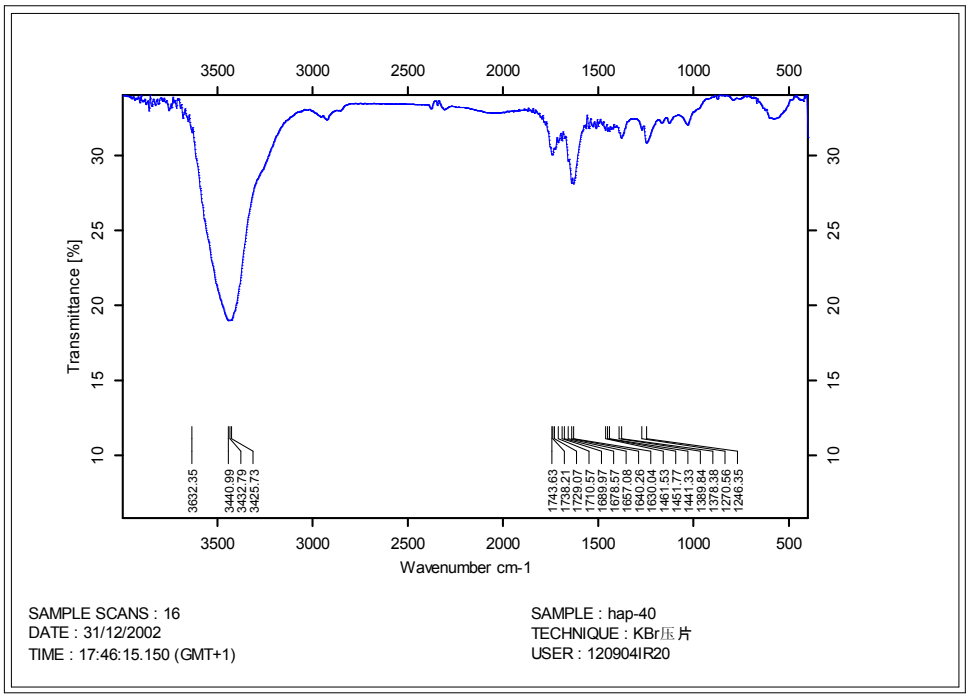


Figure S11. IR spectrum of aphanamixoid C (**1**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
571.308	0.325	0.000	10.890	0.055561	0
582.080	0.324	0.016	6.882	10.600125	0
595.647	0.325	0.000	2.866	0.027225	0
601.144	0.325	0.000	14.658	0.025282	0
1031.659	0.320	0.010	37.227	4.514119	0
1127.776	0.321	0.004	19.036	2.534488	0
1166.800	0.322	0.003	21.051	1.442146	0
1246.353	0.308	0.025	34.417	12.514580	0
1270.561	0.317	0.004	12.342	1.859111	0
1378.383	0.311	0.014	21.712	8.717895	0
1389.836	0.315	0.000	2.536	0.120045	0
1401.204	0.319	0.000	3.386	0.047054	0
1413.770	0.319	0.002	7.823	0.783524	0
1424.193	0.318	0.002	5.896	0.440601	0
1432.492	0.317	0.002	3.686	1.388746	0
1441.330	0.316	0.006	5.589	3.138639	0
1451.768	0.316	0.003	5.085	1.425767	0
1461.529	0.317	0.005	4.249	2.898410	0
1548.192	0.318	0.008	11.522	4.483424	0
1564.482	0.318	0.005	5.809	1.600342	0
1572.714	0.319	0.001	3.414	0.374828	0
1630.044	0.281	0.057	22.022	36.895111	0
1640.264	0.281	0.004	8.456	2.383668	0
1657.075	0.296	0.002	5.580	1.329953	0
1678.567	0.311	0.003	4.812	1.095019	0
1689.965	0.310	0.006	7.349	3.259378	0
1710.566	0.308	0.004	11.229	2.273934	0
1729.066	0.304	0.002	11.876	0.512838	0
1738.213	0.300	0.017	3.915	10.312168	0
1743.628	0.300	0.001	16.029	0.303920	0
1776.453	0.320	0.002	4.619	1.523663	0
3425.729	0.190	0.000	36.987	0.057266	0
3432.794	0.190	0.000	3.793	0.086663	0
3440.992	0.190	0.150	187.054	99.969803	0
3632.350	0.315	0.004	13.624	2.356106	0

Figure S12. CD spectrum of aphanamixoid C (**1**)

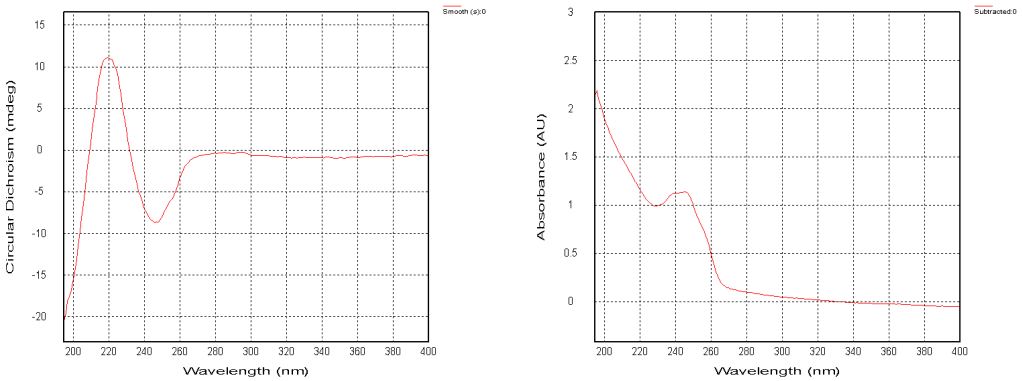


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Figure S13. ^{1}H NMR spectrum of aphanamixoid D (**2**) in $CDCl_3$

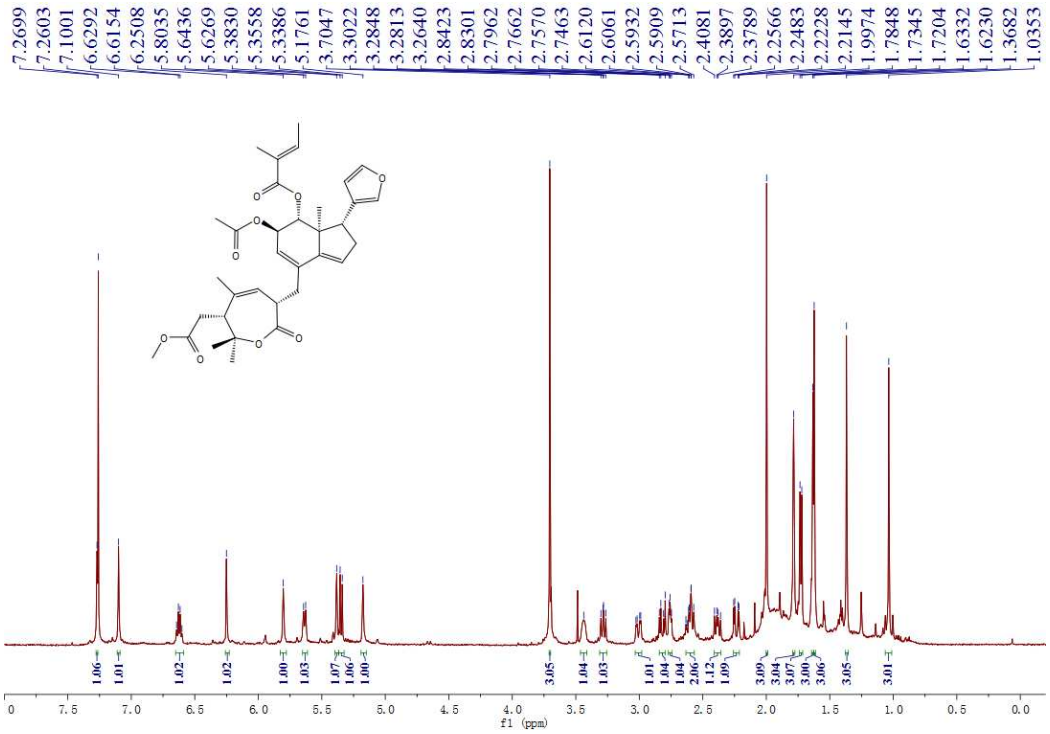


Figure S14. ^{13}C NMR spectrum of aphanamixoid D (**2**) in $CDCl_3$

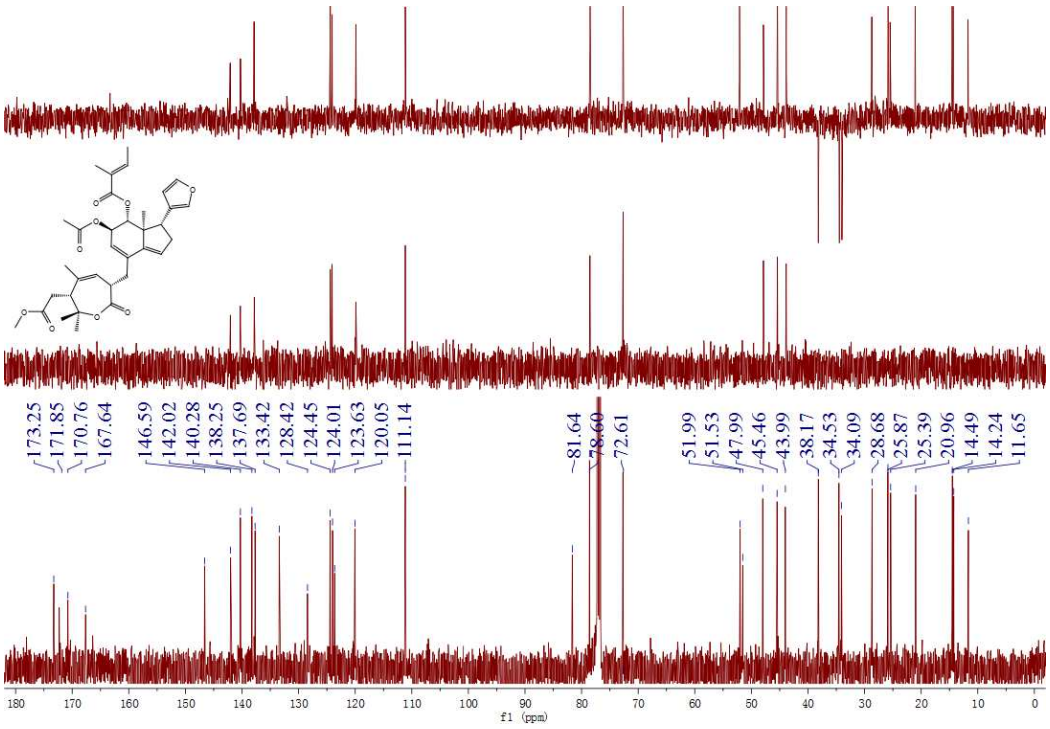


Figure S15. HSQC spectrum of aphanamixoid D (**2**) in $CDCl_3$

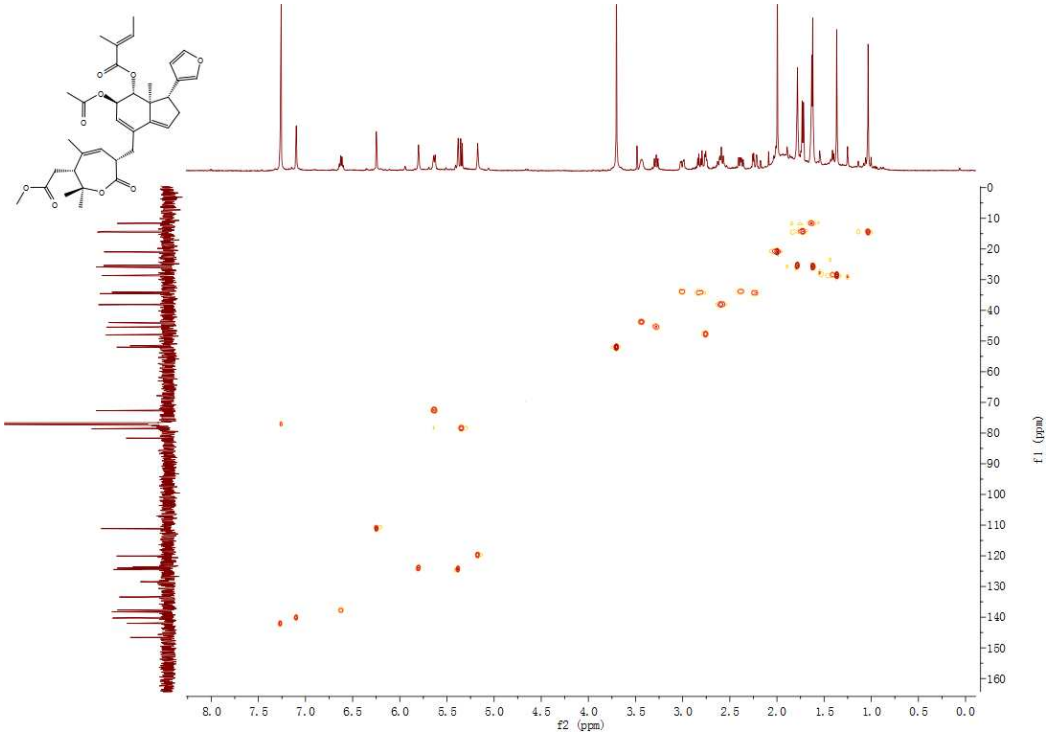


Figure S16. HMBC spectrum of aphanamixoid D (**2**) in $CDCl_3$

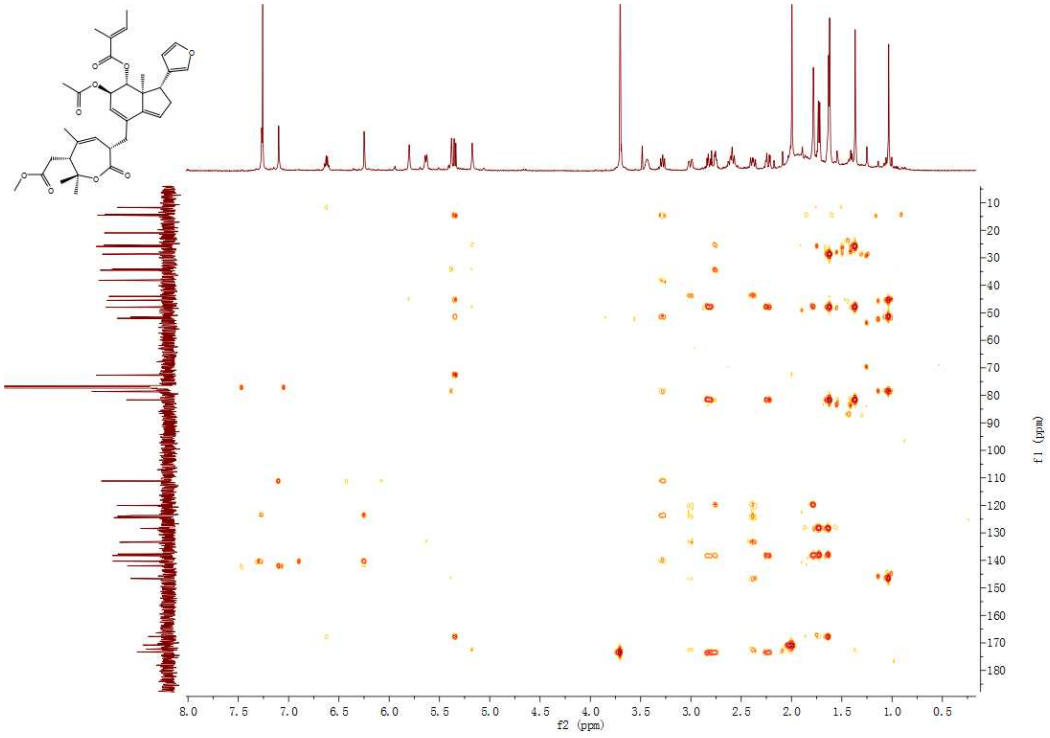


Figure S17. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid D (**2**) in $CDCl_3$

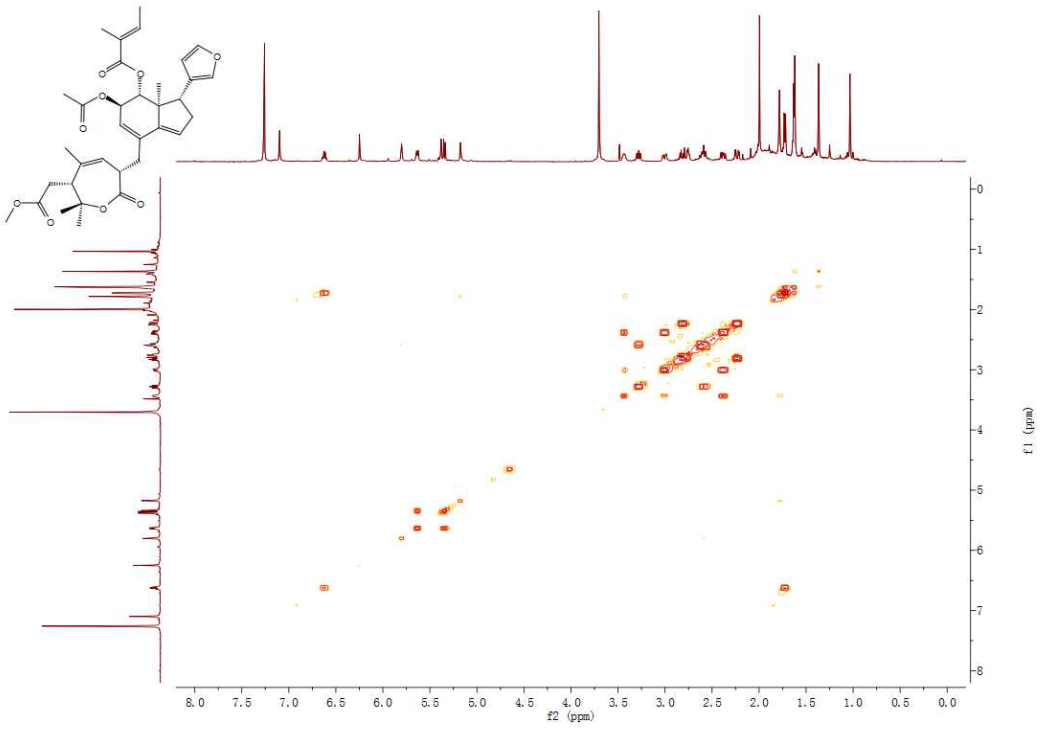


Figure S18. ROESY spectrum of aphanamixoid D (**2**) in $CDCl_3$

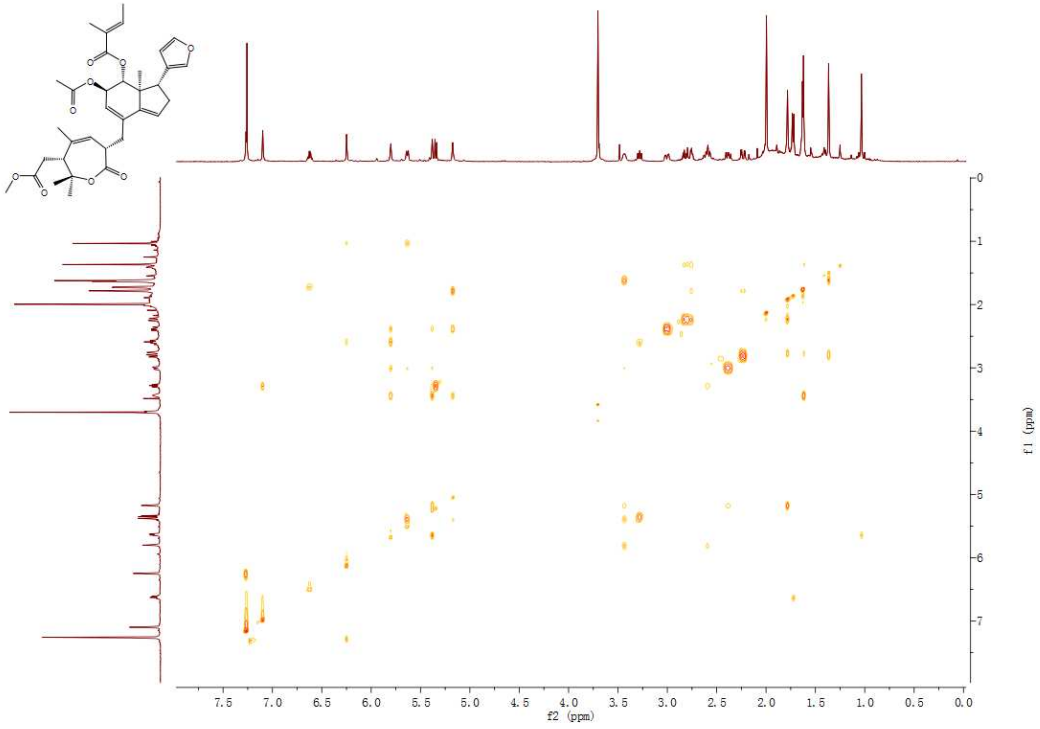


Figure S19. ESI (+) MS of aphanamixoid D (**2**)

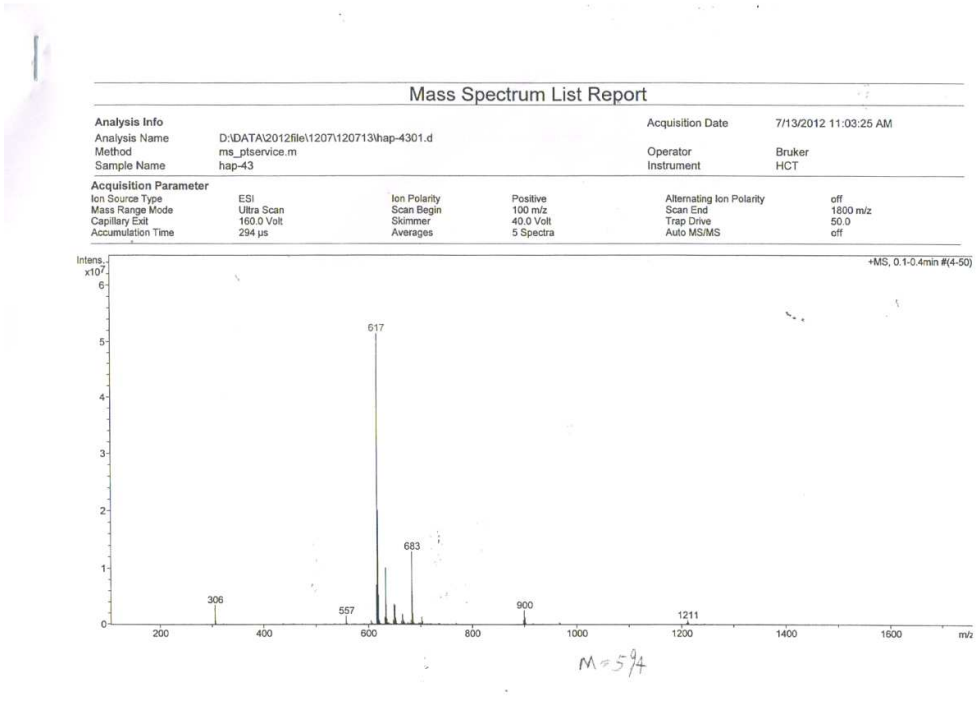


Figure S20. HR-EI (+) MS of aphanamixoid D (**2**)

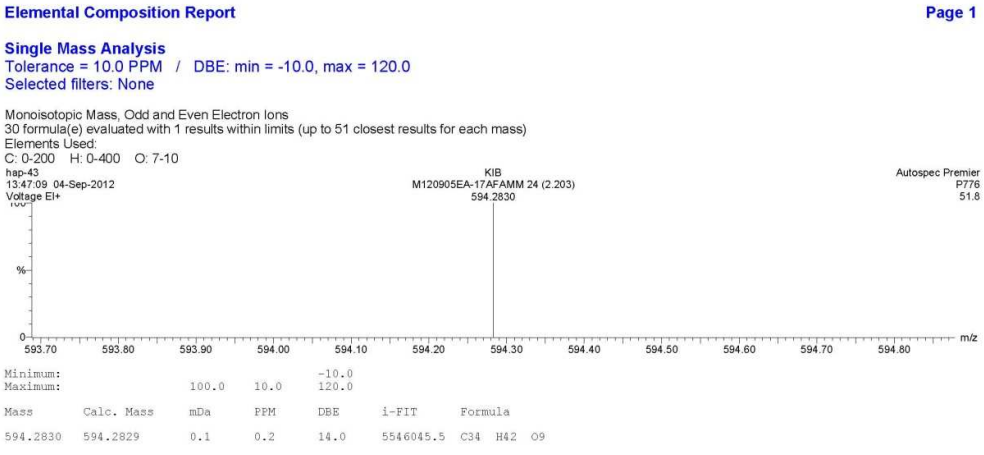
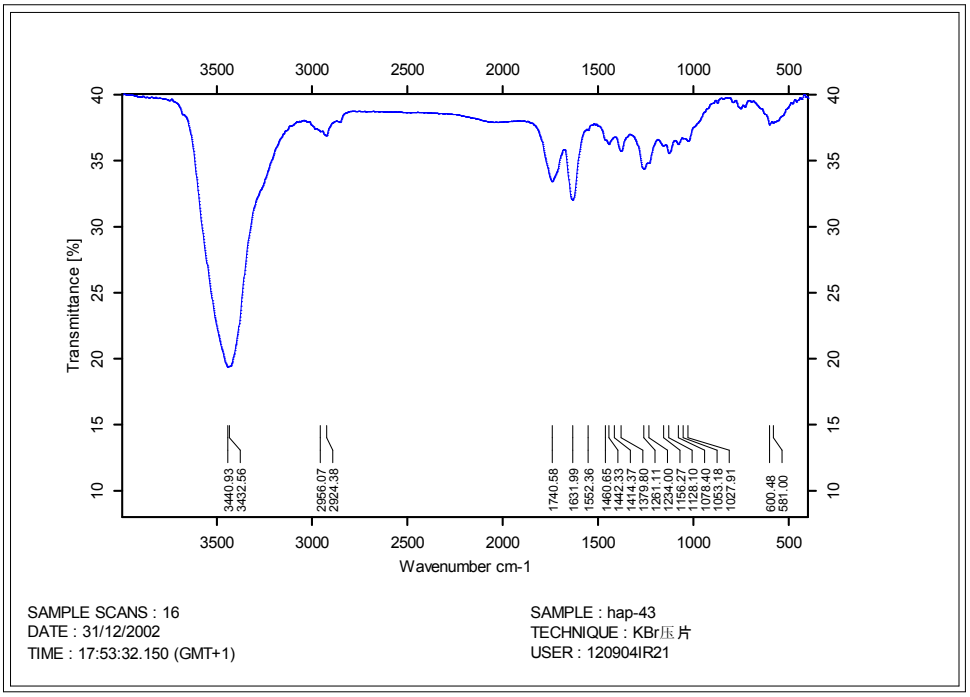


Figure S21. IR spectrum of aphanamixoid D (**2**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
555.820	0.380	0.001	39.310	0.129447	0
570.255	0.379	0.000	7.951	0.011008	0
580.998	0.378	0.002	9.107	0.659917	0
600.475	0.377	0.022	12.637	10.032131	0
1027.912	0.364	0.004	23.601	1.280008	0
1053.183	0.367	0.000	7.539	0.057577	0
1078.400	0.362	0.004	18.852	1.405190	0
1128.102	0.355	0.013	21.805	5.196657	0
1156.271	0.361	0.002	22.241	0.389019	0
1234.003	0.348	0.001	16.404	0.122877	0
1261.105	0.343	0.040	26.707	16.562296	0
1379.795	0.357	0.015	29.744	6.347952	0
1414.368	0.368	0.000	4.490	0.002089	0
1442.328	0.362	0.008	18.457	2.635344	0
1460.651	0.366	0.000	12.380	0.017679	0
1552.355	0.373	0.002	10.422	0.502862	0
1631.989	0.320	0.074	48.789	32.599537	0
1740.584	0.334	0.026	73.265	11.712383	0
2924.375	0.369	0.015	23.197	5.791806	0
2956.068	0.372	0.001	12.784	0.280767	0
3432.564	0.194	0.000	51.679	0.045776	0
3440.925	0.193	0.207	148.523	99.895714	0

Figure S22. CD spectrum of aphanamixoid D (**2**)

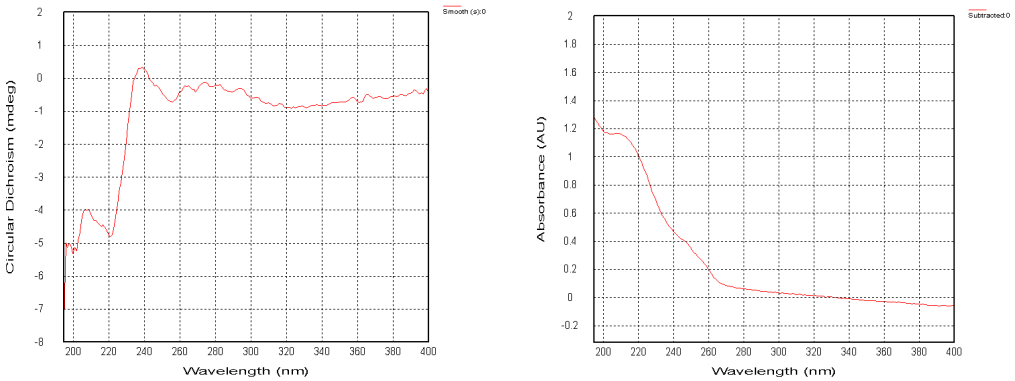


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Figure S23. ^{1}H NMR spectrum of aphanamixoid E (**3**) in $CDCl_3$

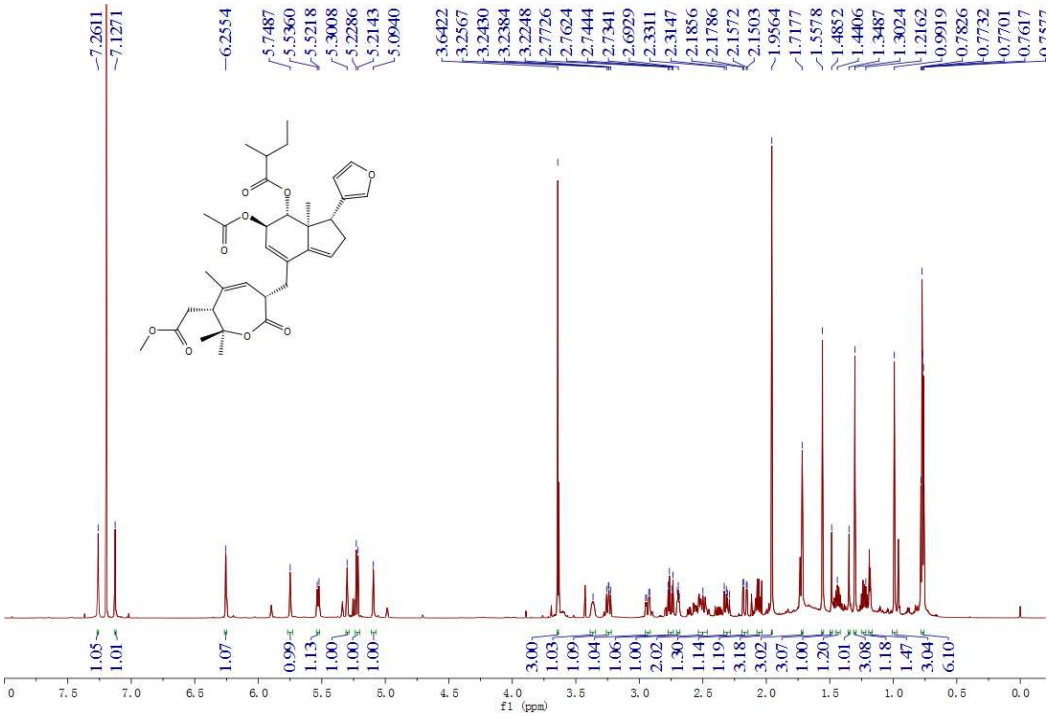


Figure S24. ^{13}C NMR spectrum of aphanamixoid E (**3**) in $CDCl_3$

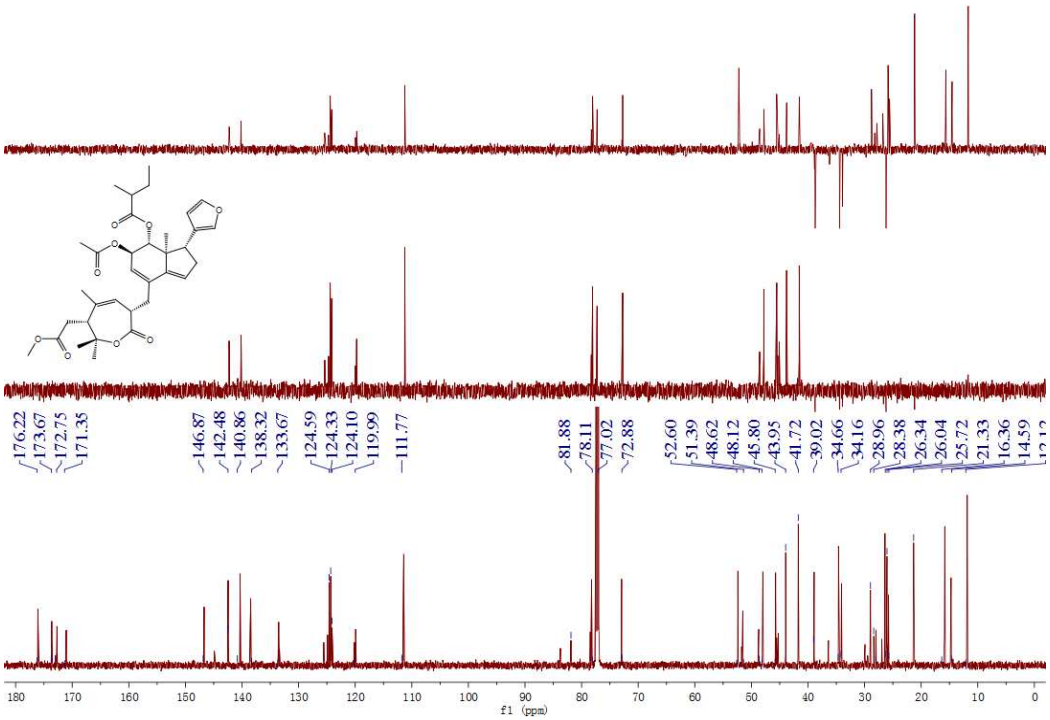


Figure S25. HSQC spectrum of aphanamixoid E (**3**) in $CDCl_3$

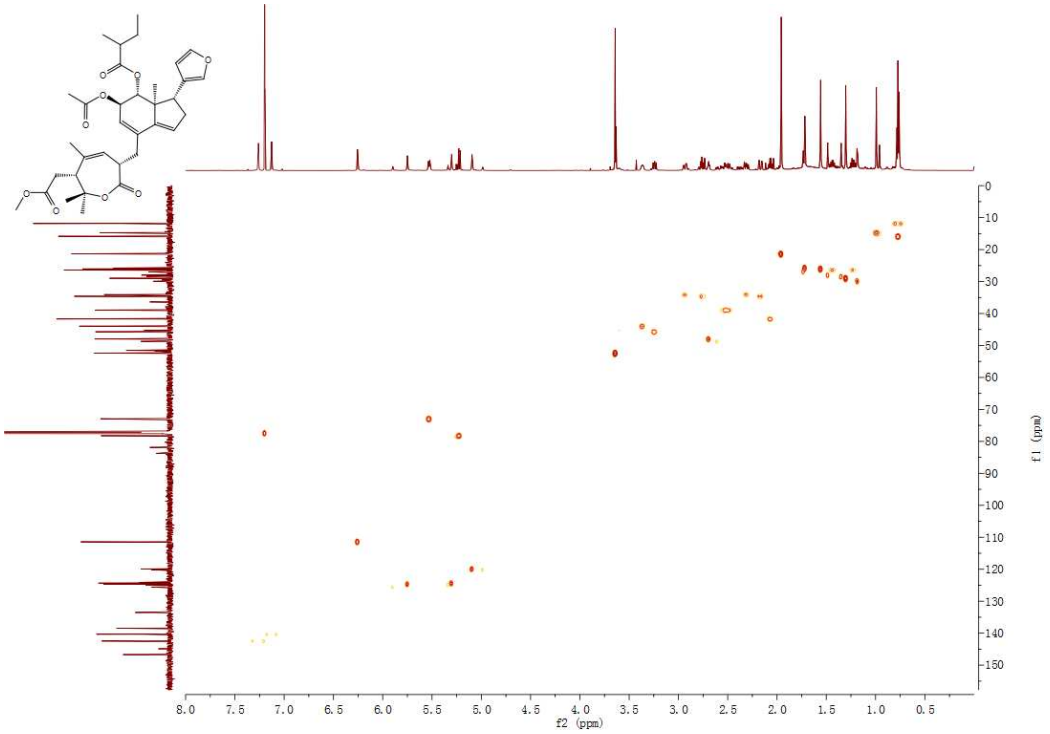


Figure S26. HMBC spectrum of aphanamixoid E (**3**) in $CDCl_3$

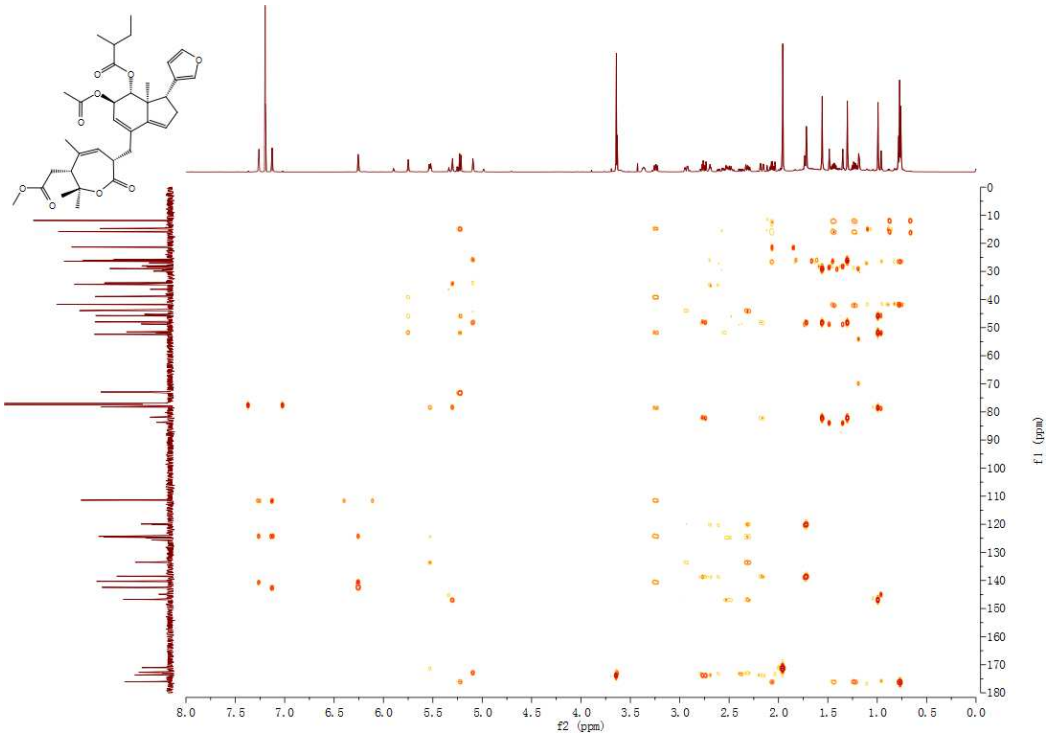


Figure S27. ^{1}H–^{1}H COSY spectrum of aphanamixoid E (**3**) in $CDCl_3$

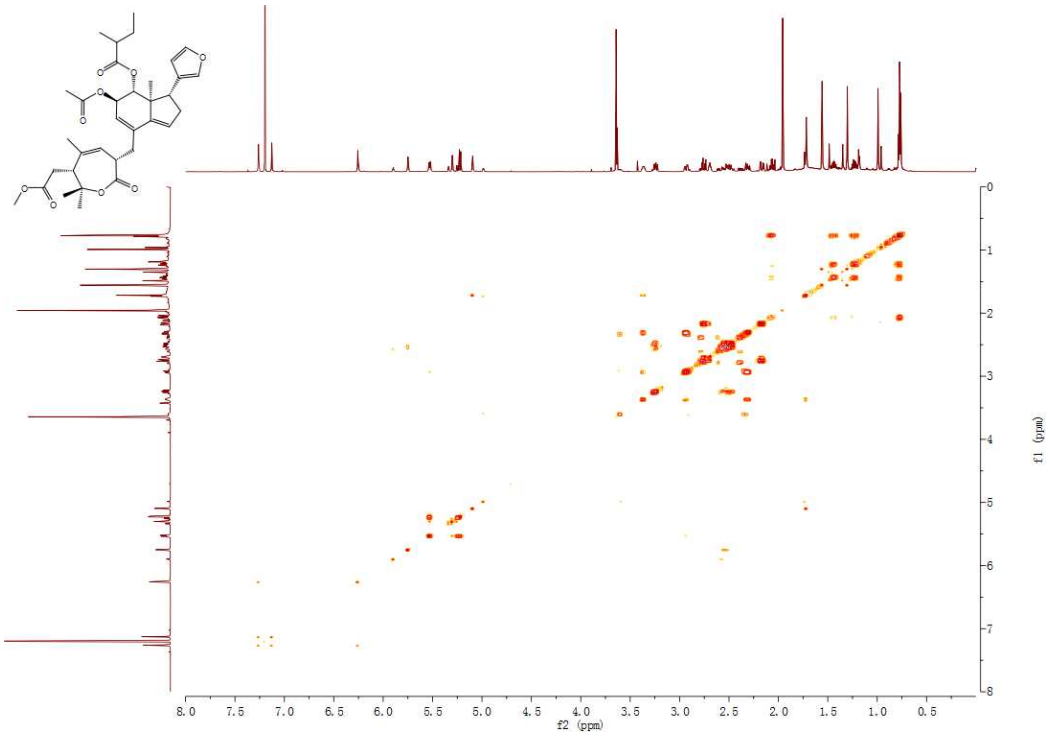


Figure S28. ROESY spectrum of aphanamixoid E (**3**) in $CDCl_3$

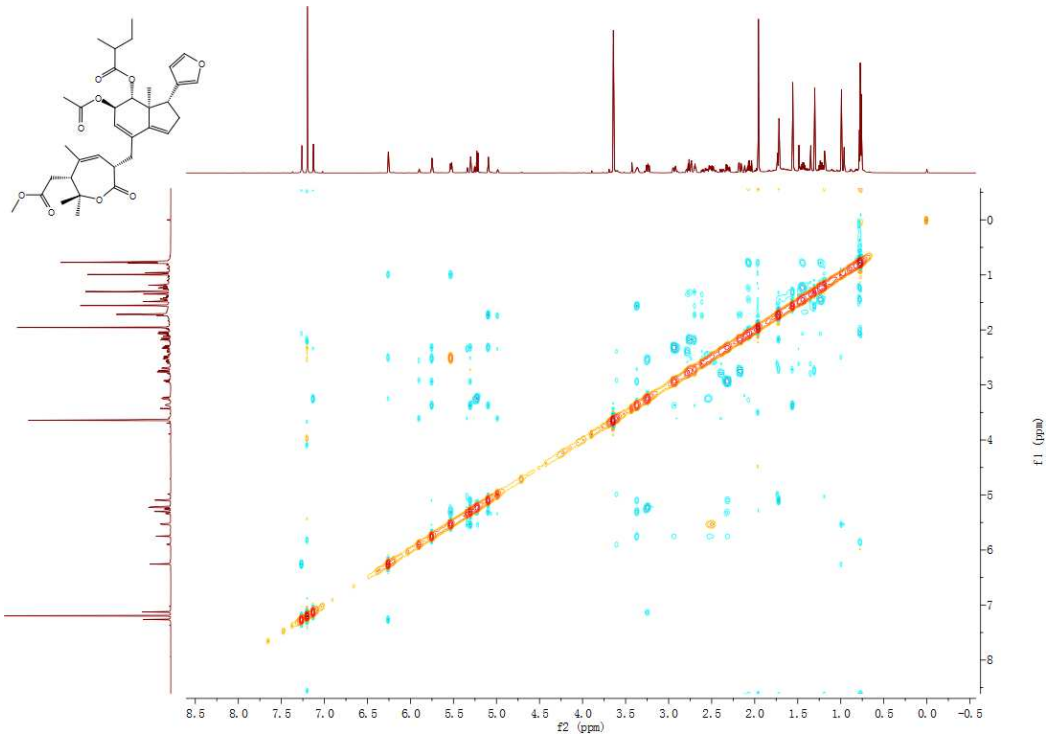


Figure S29. ESI (+) MS of aphanamixoid E (**3**)

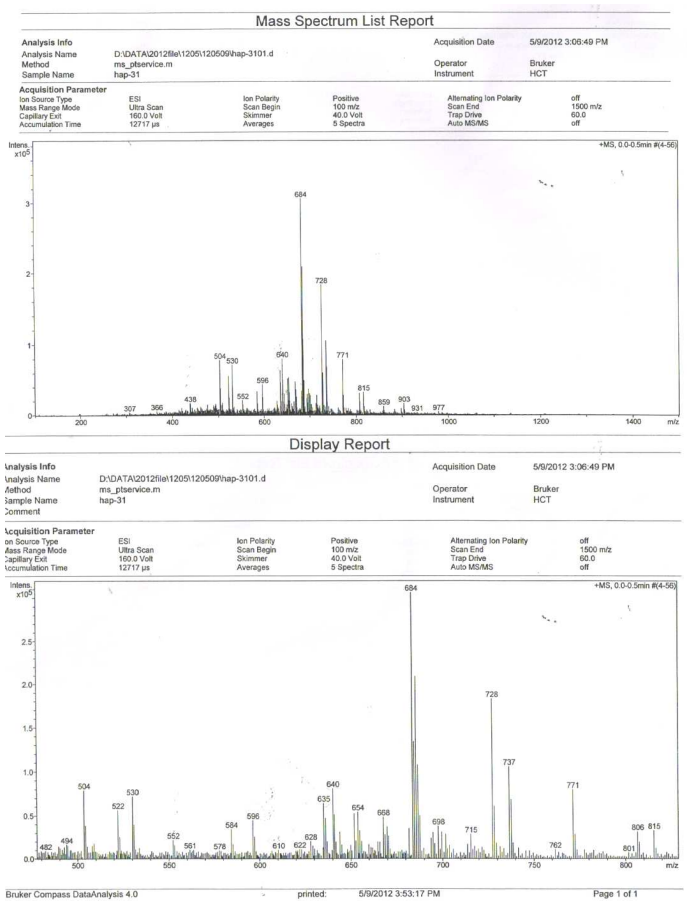


Figure S30. HR-EI (+) MS of aphanamixoid E (**3**)

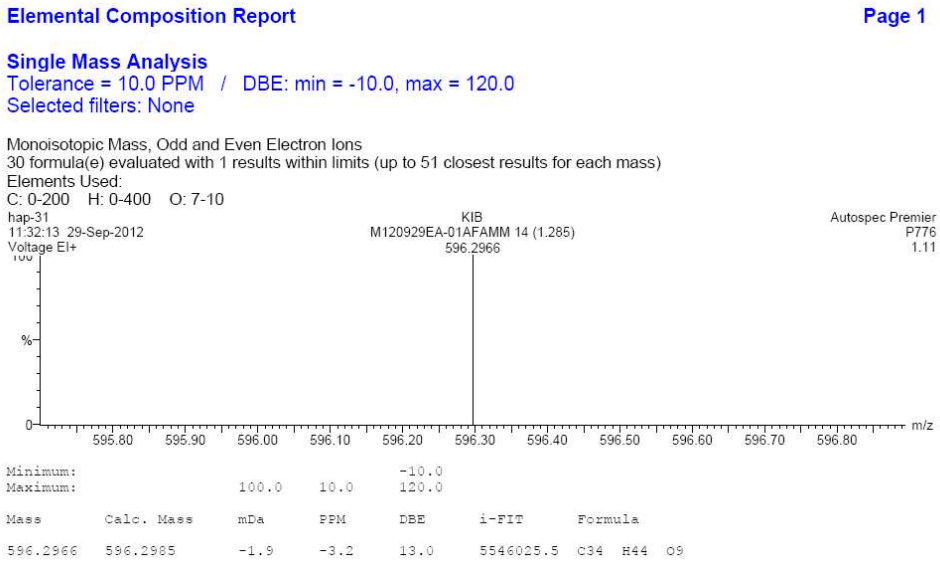
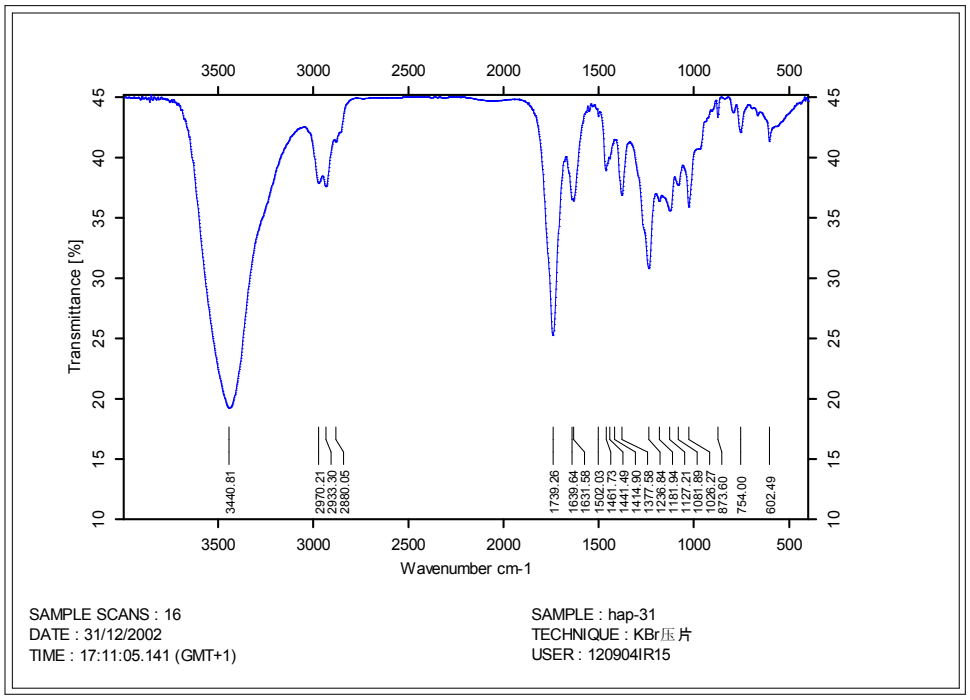
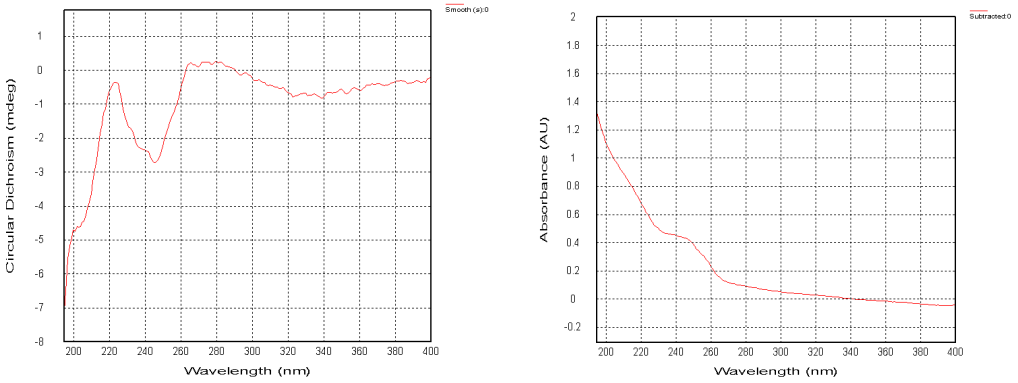


Figure S31. IR spectrum of aphanamixoid E (**3**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
602.486	0.413	0.037	11.375	14.218742	0
666.405	0.435	0.005	11.353	1.206165	0
754.003	0.420	0.025	23.459	8.994852	0
792.697	0.437	0.008	19.063	2.511778	0
873.600	0.433	0.015	7.449	5.494808	0
905.787	0.439	0.003	16.076	0.334087	0
1026.265	0.359	0.038	23.539	13.466860	0
1081.889	0.377	0.012	23.720	2.690619	0
1127.207	0.356	0.022	31.674	5.450434	0
1181.936	0.364	0.006	13.789	1.889563	0
1236.841	0.308	0.138	51.570	52.713100	0
1377.582	0.368	0.051	29.407	17.232460	0
1414.898	0.414	0.001	3.642	0.290436	0
1441.485	0.399	0.004	10.307	0.516004	0
1461.734	0.389	0.037	12.239	10.089800	0
1502.028	0.434	0.005	5.638	1.653914	0
1631.578	0.364	0.050	17.895	14.181130	0
1639.641	0.365	0.005	11.915	0.392330	0
1739.256	0.253	0.198	63.207	76.080849	0
2880.046	0.413	0.003	11.315	0.838048	0
2933.297	0.376	0.053	26.303	19.130117	0
2970.206	0.379	0.015	27.382	2.320803	0
3440.808	0.192	0.260	244.324	99.387856	0

Figure S32. CD spectrum of aphanamixoid E (**3**)



File: CD HAP-31-1mm(195-400)12090414.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 15:43:00 2012

- File ID : {BBE3BD59-833F-419d-89B0-5E206634C365}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.6000mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S33. ^{1}H NMR spectrum of aphanamixoid F (**4**) in $CDCl_3$

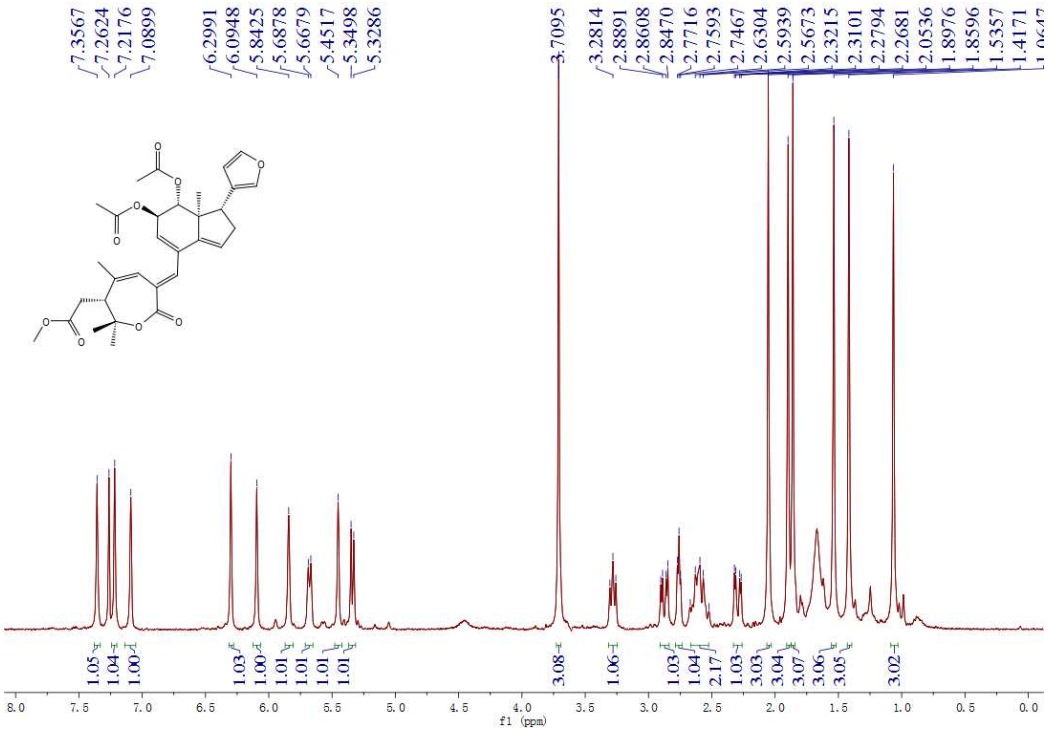


Figure S34. ^{13}C NMR spectrum of aphanamixoid F (**4**) in $CDCl_3$

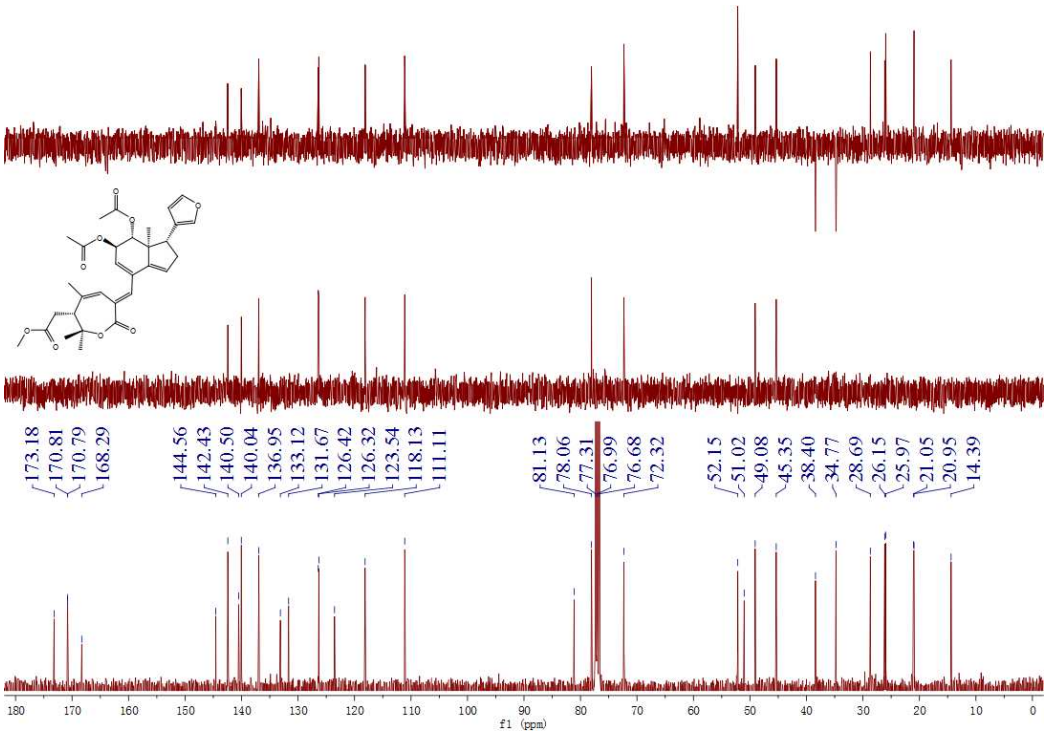


Figure S35. HSQC spectrum of aphanamixoid F (**4**) in $CDCl_3$

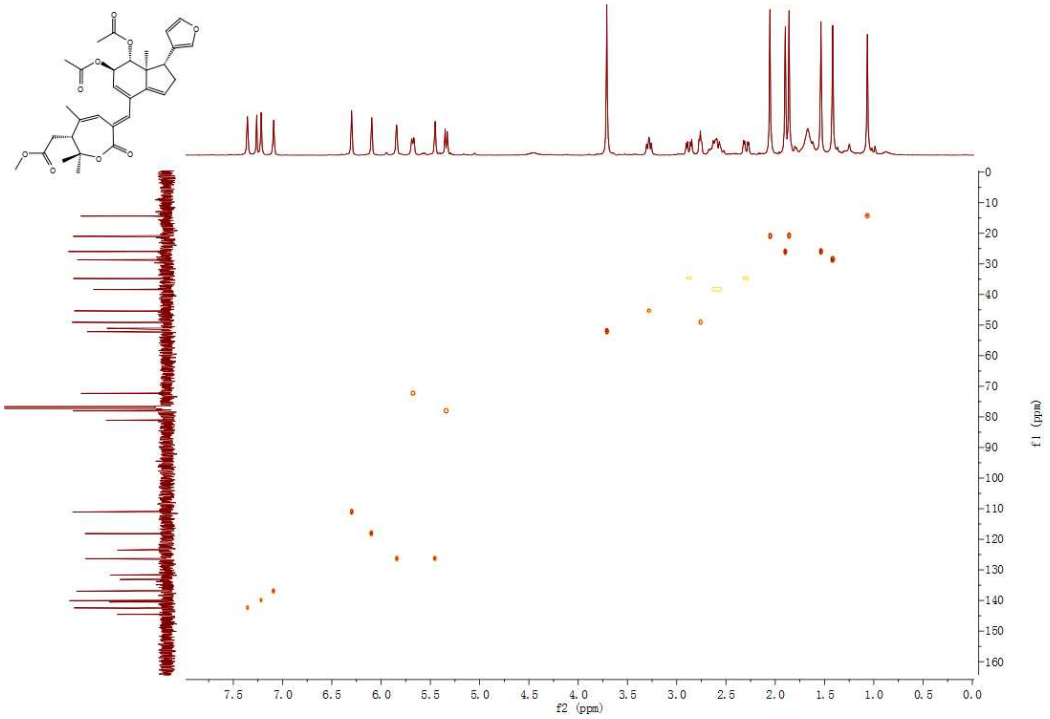


Figure S36. HMBC spectrum of aphanamixoid F (**4**) in $CDCl_3$

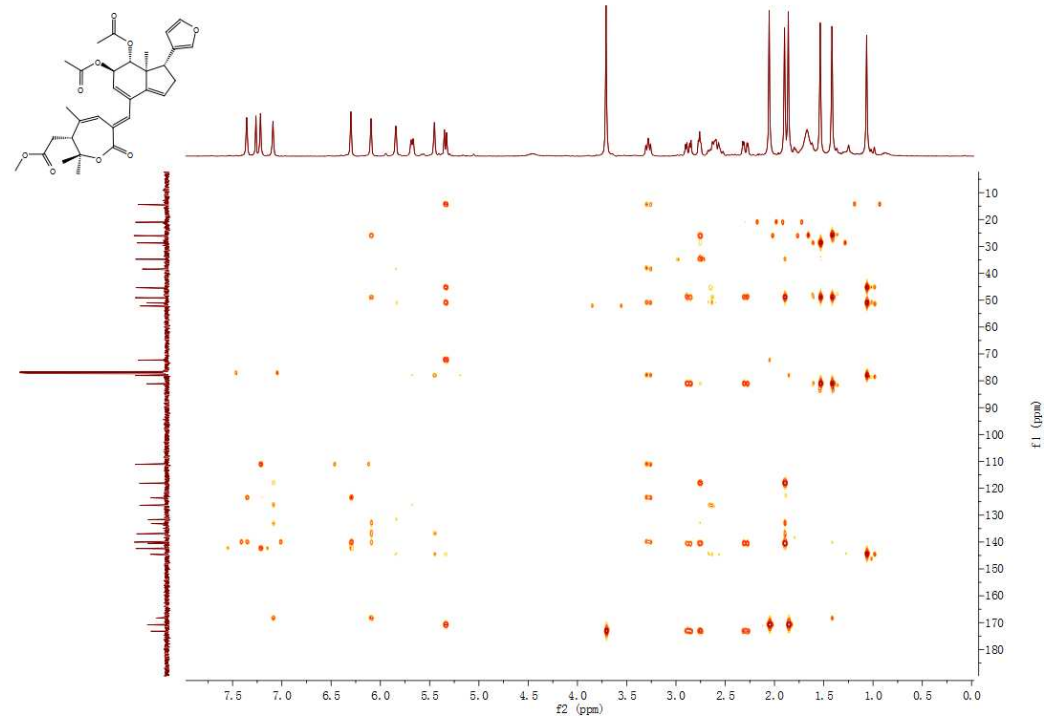


Figure S37. ^{1}H–^{1}H COSY spectrum of aphanamixoid F (**4**) in $CDCl_3$

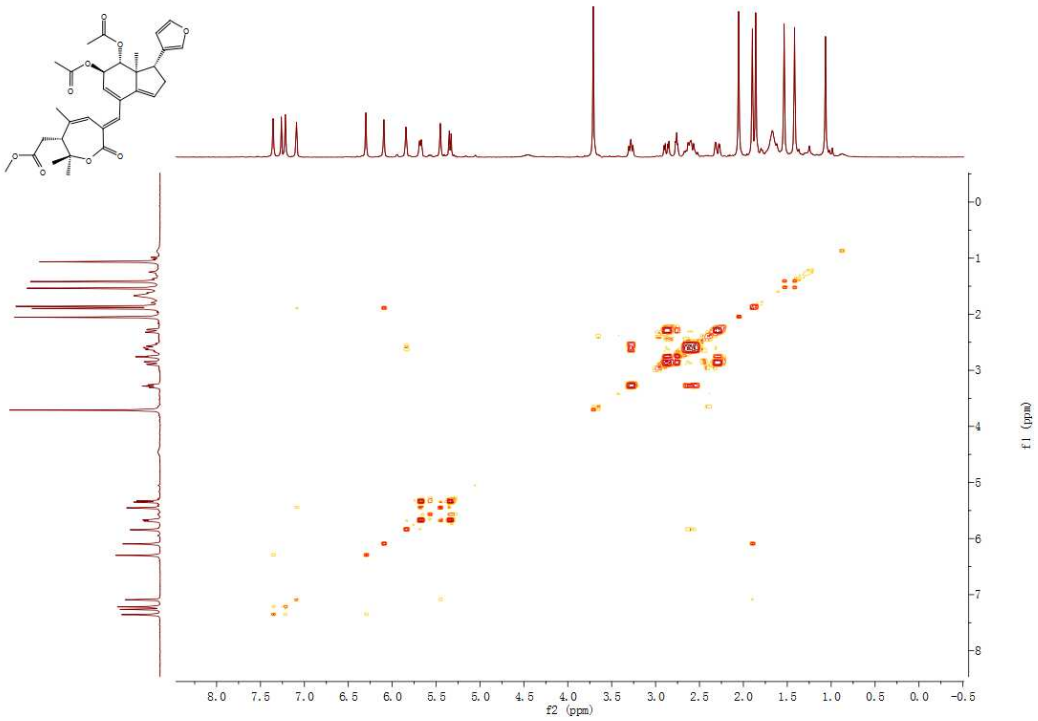


Figure S38. ROESY spectrum of aphanamixoid F (**4**) in $CDCl_3$

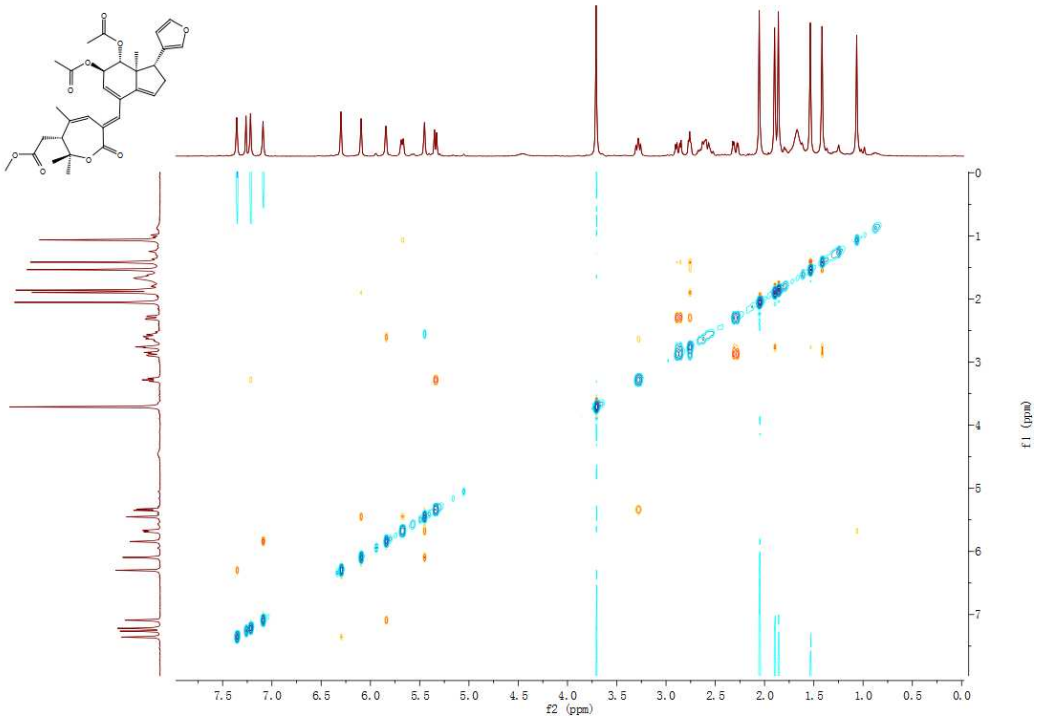


Figure S39. ESI (+) MS of aphanamixoid F (**4**)

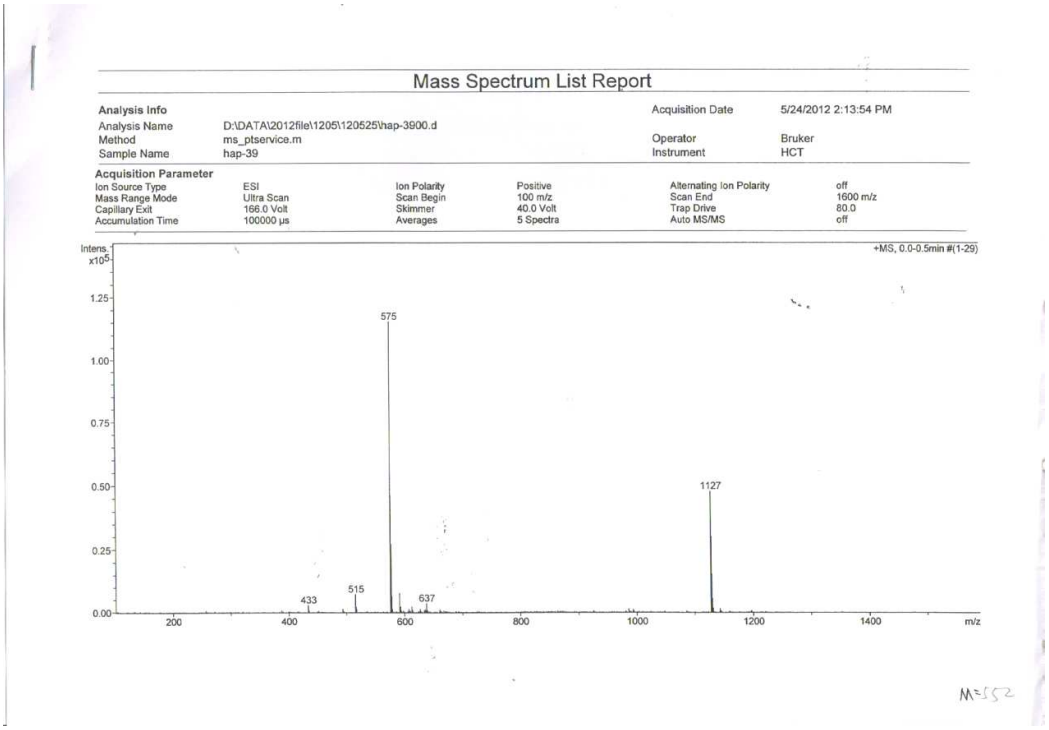


Figure S40. HR-EI (+) MS of aphanamixoid F (**4**)

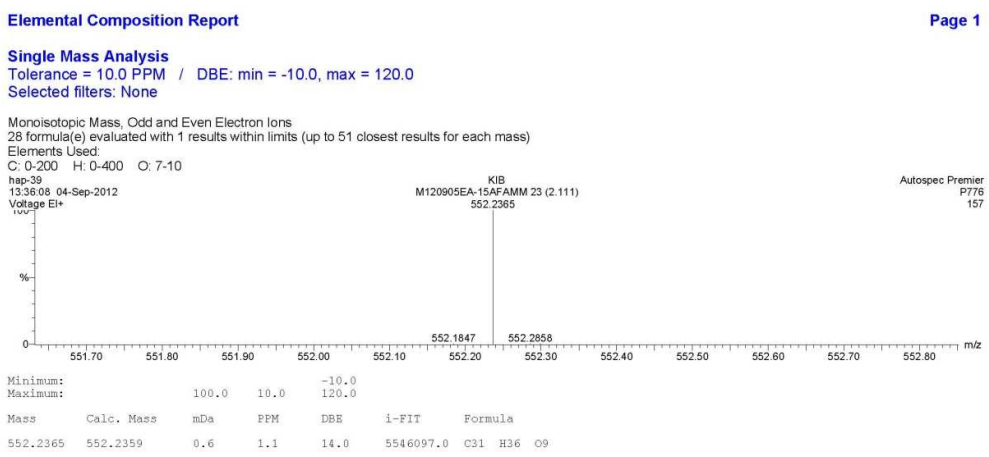
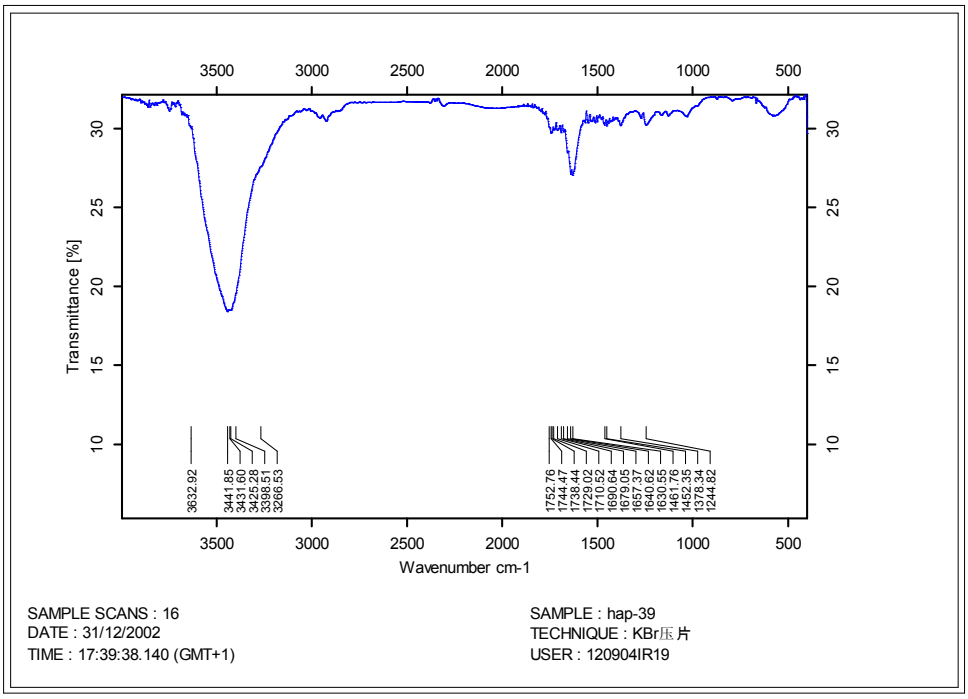
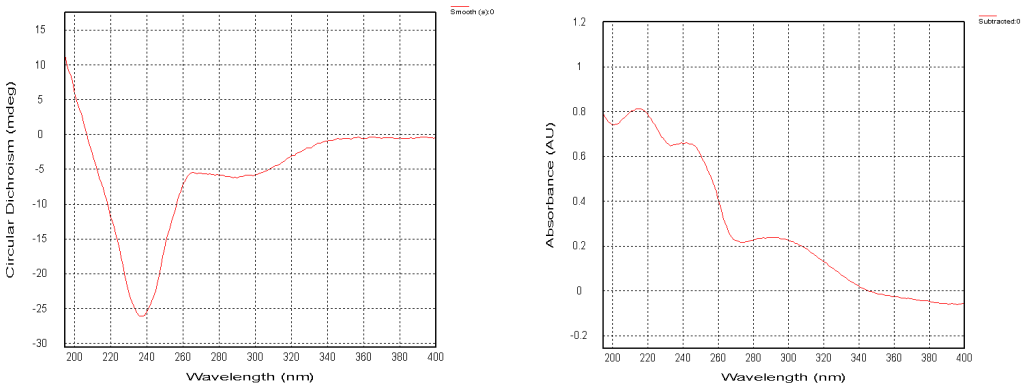


Figure S41. IR spectrum of aphanamixoid F (**4**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
568.214	0.308	0.001	9.208	0.412869	0
581.766	0.308	0.013	35.033	9.105393	0
1031.219	0.307	0.005	11.133	3.022829	0
1037.314	0.308	0.000	6.770	0.008037	0
1128.992	0.308	0.003	19.044	2.131382	0
1244.823	0.302	0.010	36.044	6.613341	0
1271.219	0.306	0.004	14.674	2.543186	0
1359.792	0.306	0.000	3.919	0.129007	0
1378.335	0.302	0.006	14.484	4.080581	0
1390.657	0.304	0.001	3.481	0.492850	0
1401.899	0.306	0.001	2.868	0.340796	0
1414.505	0.305	0.002	6.726	1.147572	0
1424.377	0.305	0.001	6.051	0.377137	0
1432.722	0.304	0.002	3.779	1.574908	0
1441.859	0.303	0.002	5.608	0.883020	0
1452.347	0.301	0.011	5.191	7.094265	0
1461.762	0.302	0.004	4.111	2.675691	0
1467.913	0.303	0.001	4.072	0.451230	0
1479.510	0.306	0.002	9.694	1.277295	0
1493.620	0.307	0.001	3.922	0.627265	0
1501.975	0.304	0.004	4.952	2.946802	0
1512.421	0.303	0.006	7.246	3.923683	0
1529.435	0.304	0.003	6.520	2.015777	0
1535.215	0.304	0.002	4.261	0.354394	0
1549.773	0.303	0.007	11.554	3.999601	0
1564.866	0.303	0.004	5.773	1.358535	0
1572.757	0.304	0.001	3.541	0.570202	0
1630.552	0.270	0.050	22.908	35.675121	0
1640.622	0.271	0.003	11.656	2.130035	0
1657.374	0.284	0.002	5.544	1.098871	0
1679.046	0.297	0.003	4.856	1.294347	0
1690.638	0.297	0.005	7.916	3.539030	0
1710.520	0.299	0.004	11.173	2.477825	0
1729.015	0.299	0.003	11.556	1.314266	0
1738.437	0.297	0.001	3.658	0.219826	0
1744.469	0.297	0.008	5.520	5.071515	0
1752.756	0.300	0.000	5.831	0.105590	0
1765.547	0.306	0.001	5.731	0.451361	0
2923.912	0.304	0.009	21.302	5.963810	0
2958.175	0.306	0.003	21.933	1.512718	0
3104.719	0.308	0.000	15.158	0.135610	0
3112.531	0.308	0.001	4.370	0.312101	0
3134.362	0.305	0.001	14.941	0.350397	0
3147.446	0.304	0.000	7.788	0.223454	0
3266.531	0.276	0.000	31.412	0.133612	0
3398.509	0.195	0.000	16.961	0.138108	0
3425.277	0.185	0.001	23.910	0.350408	0
3431.602	0.185	0.000	3.661	0.065448	0
3441.846	0.184	0.136	180.602	99.204567	0
3632.916	0.300	0.001	16.767	0.647250	0
3653.662	0.307	0.002	3.900	1.309552	0
3664.712	0.308	0.001	5.336	0.598028	0

Figure S42. CD spectrum of aphanamixoid F (**4**)



File: CD HAP-39-1mm(195-400)12090420.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 16:35:11 2012

- File ID : {A07D8115-1B23-47a0-AC18-4F99046C5FC8}
- Is CFR Compliant : false
- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v
- Time per point: 1 s
- Description: Sample 1
- Concentration: 0.3150mg/ml MeOH
- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)
- Wavelength: 195nm - 400nm
- Step Size: 1nm
- Bandwidth: 1nm

Figure S43. ^{1}H NMR spectrum of aphanamixoid G (**5**) in $CDCl_3$

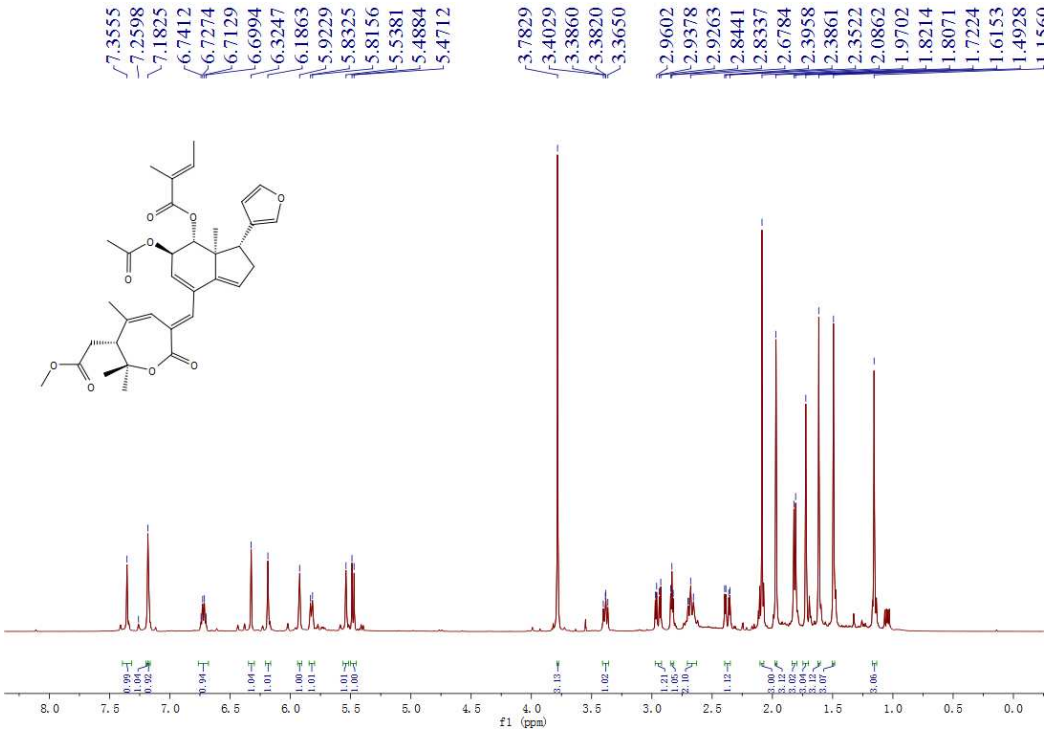


Figure S44. ^{13}C NMR spectrum of aphanamixoid G (**5**) in $CDCl_3$

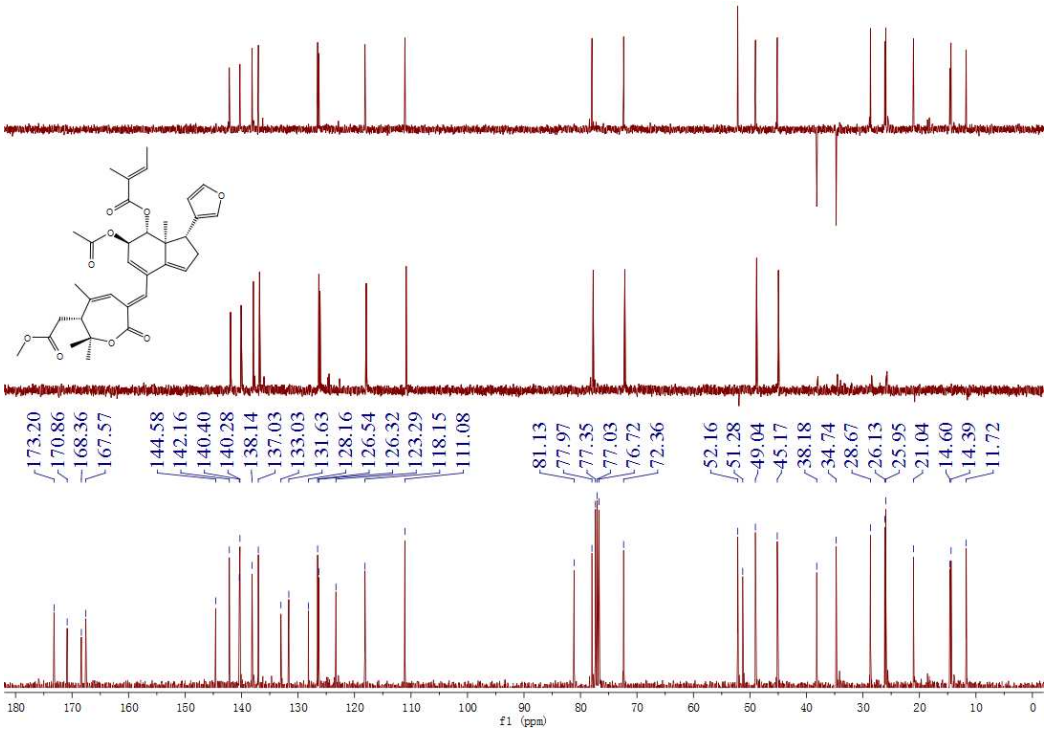


Figure S45. HSQC spectrum of aphanamixoid G (**5**) in $CDCl_3$

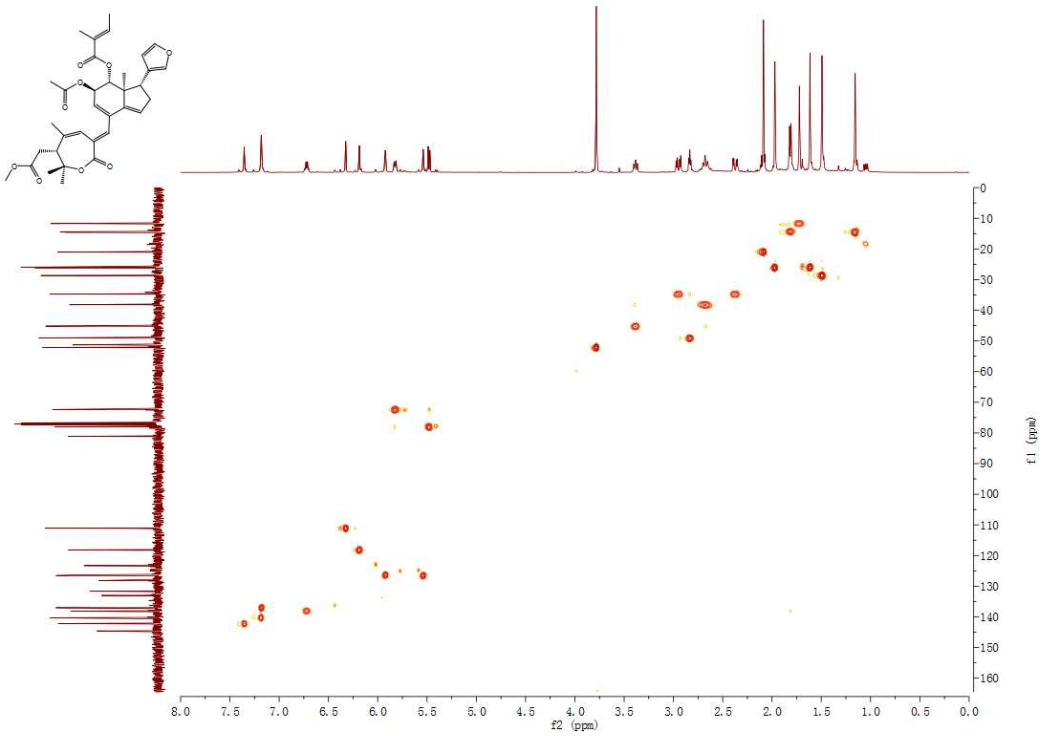


Figure S46. HMBC spectrum of aphanamixoid G (**5**) in $CDCl_3$

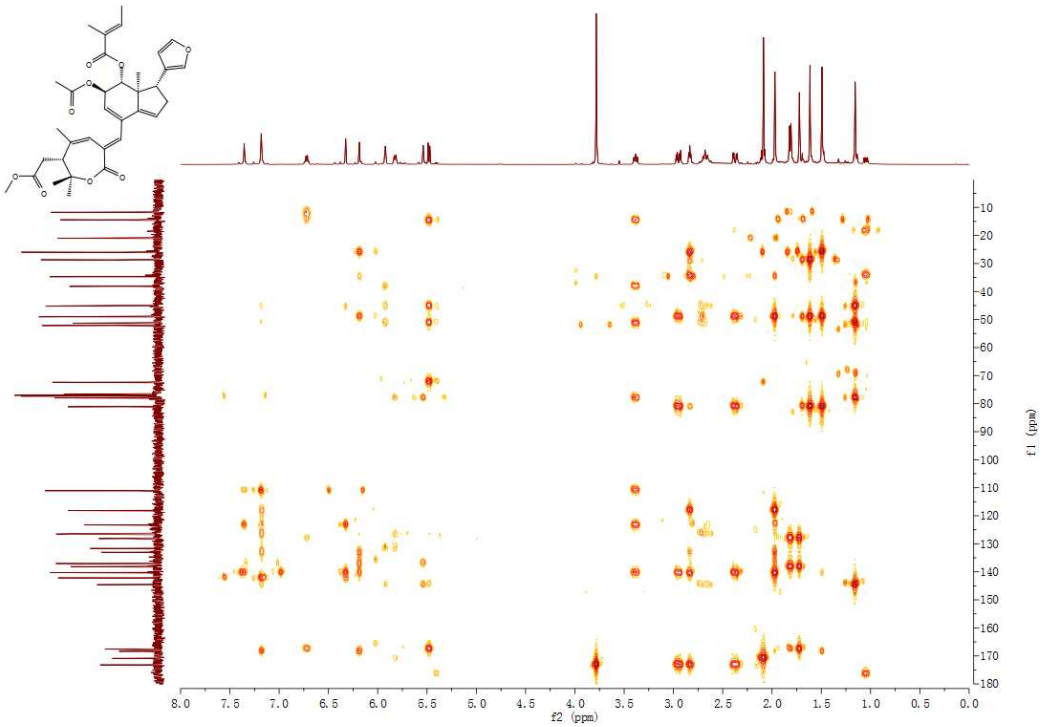


Figure S47. ^{1}H–^{1}H COSY spectrum of aphanamixoid G (**5**) in $CDCl_3$

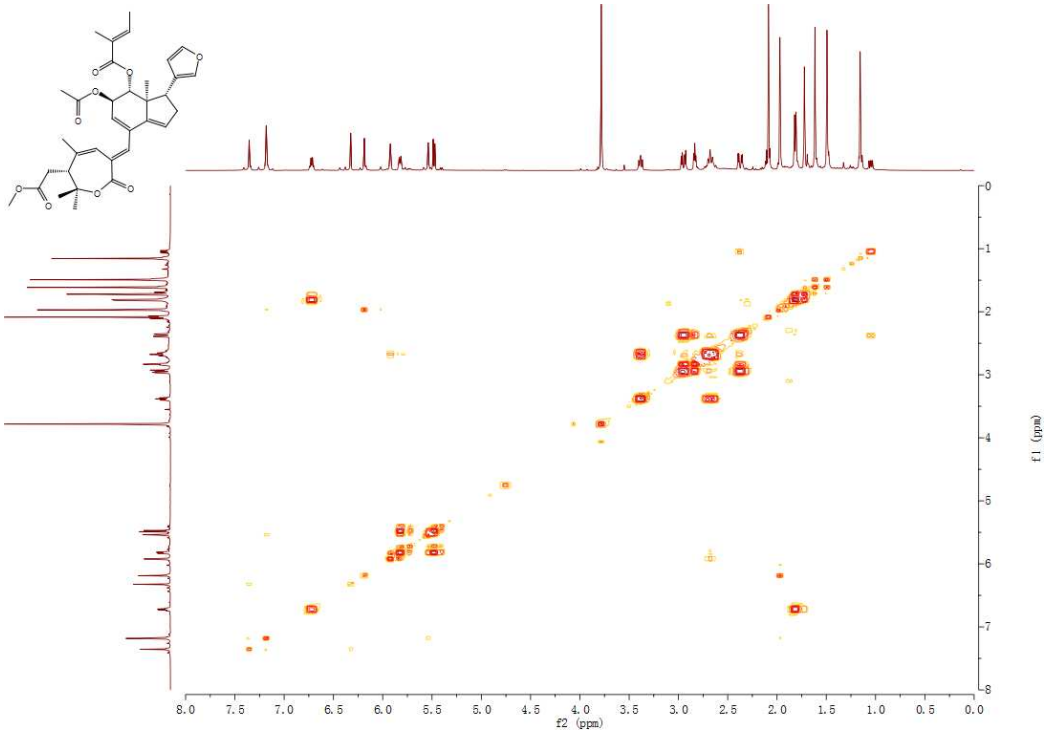


Figure S48. ROESY spectrum of aphanamixoid G (**5**) in $CDCl_3$

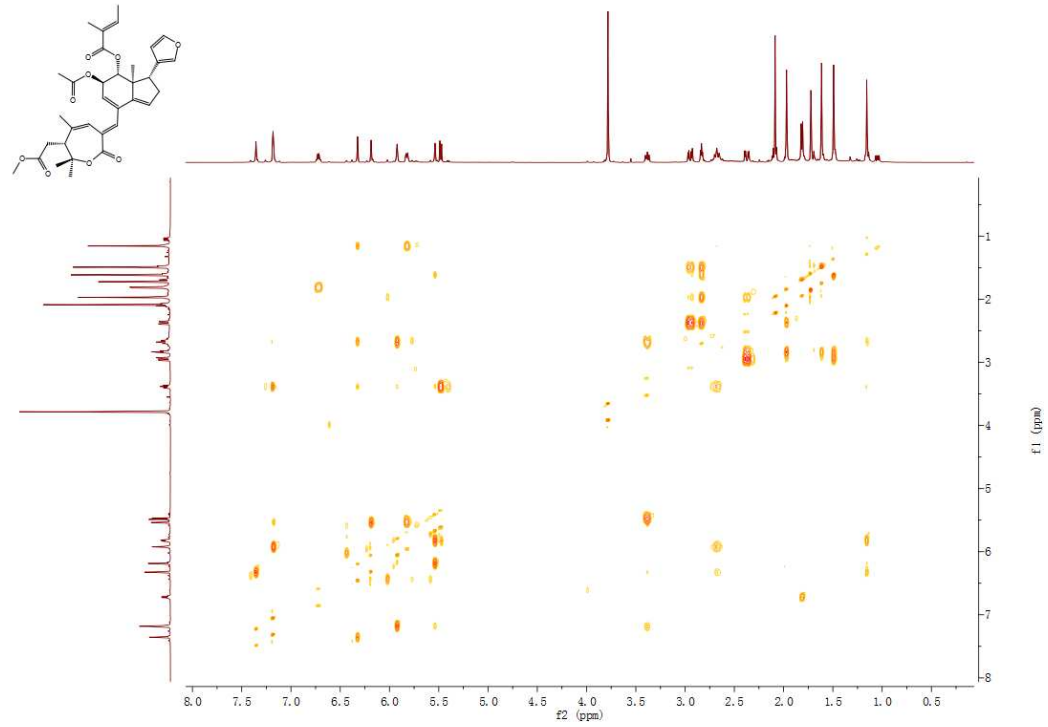


Figure S49. ESI (+) MS of aphanamixoid G (**5**)

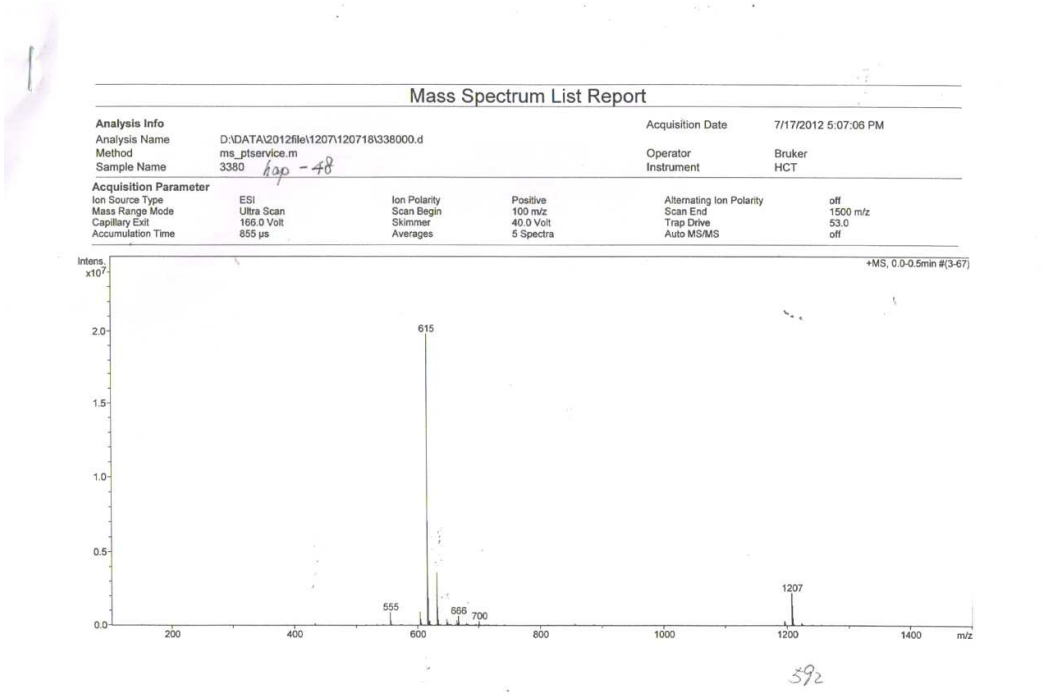


Figure S50. HR-EI (+) MS of aphanamixoid G (**5**)

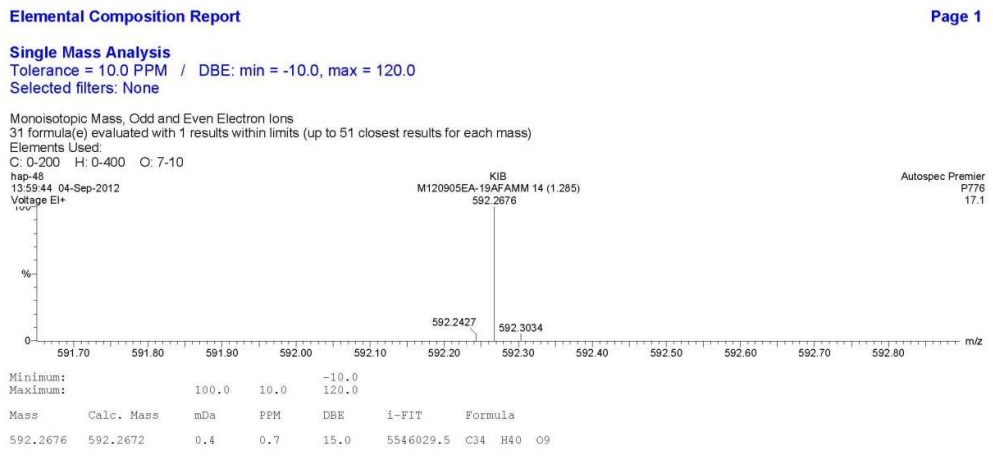
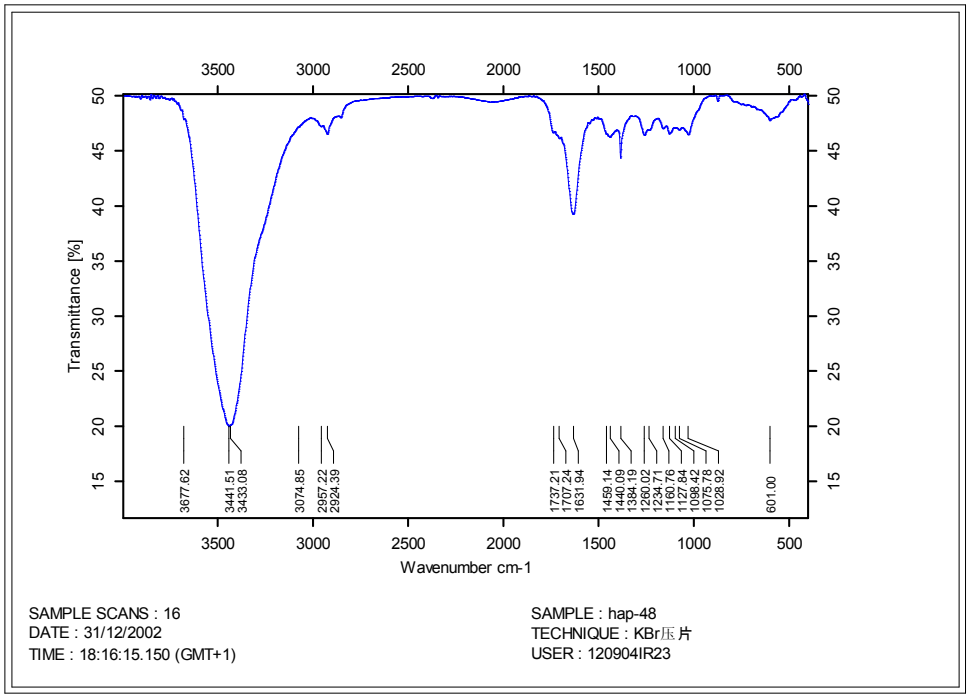
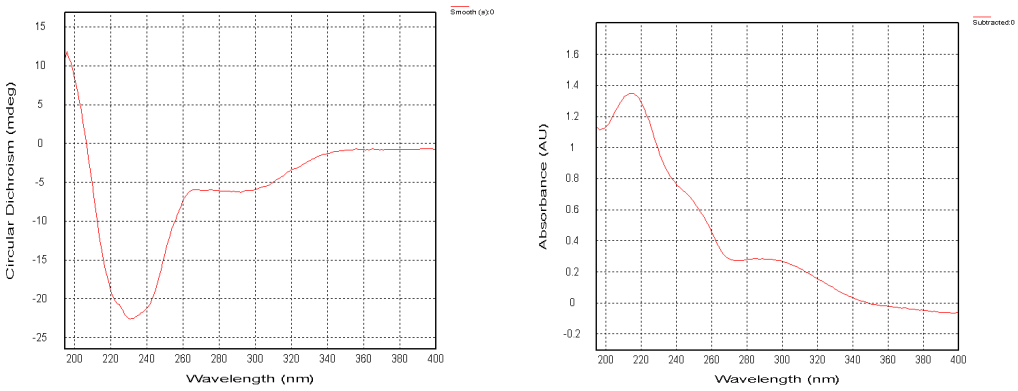


Figure S51. IR spectrum of aphanamixoid G (**5**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
600.996	0.477	0.024	25.436	7.703007	0
1028.915	0.465	0.019	33.485	4.846217	0
1075.778	0.469	0.002	14.350	0.567102	0
1098.419	0.471	0.000	4.548	0.043993	0
1127.835	0.465	0.010	19.876	1.913461	0
1160.759	0.470	0.005	19.321	0.836307	0
1234.708	0.469	0.002	16.026	0.121571	0
1260.024	0.464	0.019	22.188	5.892594	0
1384.187	0.443	0.040	10.393	12.434483	0
1440.086	0.462	0.011	23.024	2.306371	0
1459.139	0.465	0.001	12.271	0.065095	0
1631.943	0.392	0.109	58.086	35.859497	0
1707.237	0.461	0.002	12.401	0.332431	0
1737.213	0.466	0.002	17.080	0.483604	0
2924.388	0.465	0.018	23.263	5.005702	0
2957.223	0.472	0.002	18.516	0.256059	0
3074.853	0.471	0.000	7.166	0.016901	0
3433.079	0.201	0.000	52.861	0.027299	0
3441.506	0.200	0.302	169.426	100.005142	0
3677.618	0.478	0.001	7.576	0.289891	0

Figure S52. CD spectrum of aphanamixoid G (**5**)



File: CD HAP-48-1mm(195-400)12090427.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 17:45:20 2012

- File ID : {A5AEF20B-414D-4b49-B41F-9C128064939D}
- Is CFR Compliant : false
- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v
- Time per point: 1 s
- Description: Sample 1
- Concentration: 0.3450mg/ml MeOH
- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)
- Wavelength: 195nm - 400nm
- Step Size: 1nm
- Bandwidth: 1nm

Figure S53. ^{1}H NMR spectrum of aphanamixoid H (**6**) in $CDCl_3$

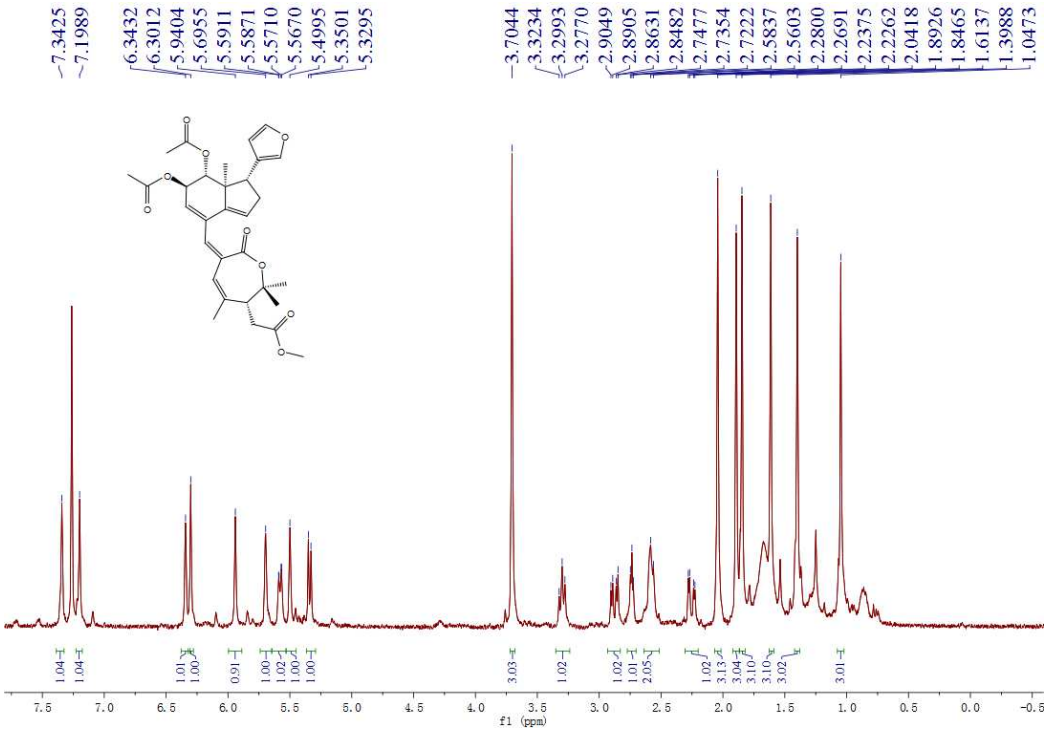


Figure S54. ^{13}C NMR spectrum of aphanamixoid H (**6**) in $CDCl_3$

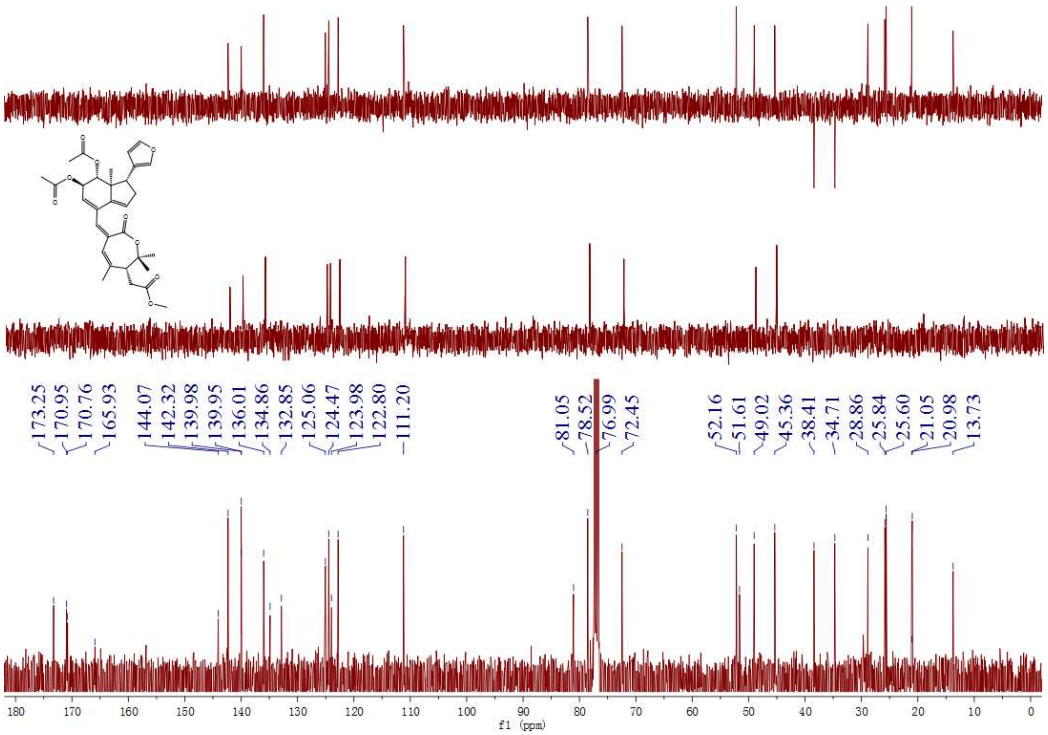


Figure S55. HSQC spectrum of aphanamixoid H (**6**) in $CDCl_3$

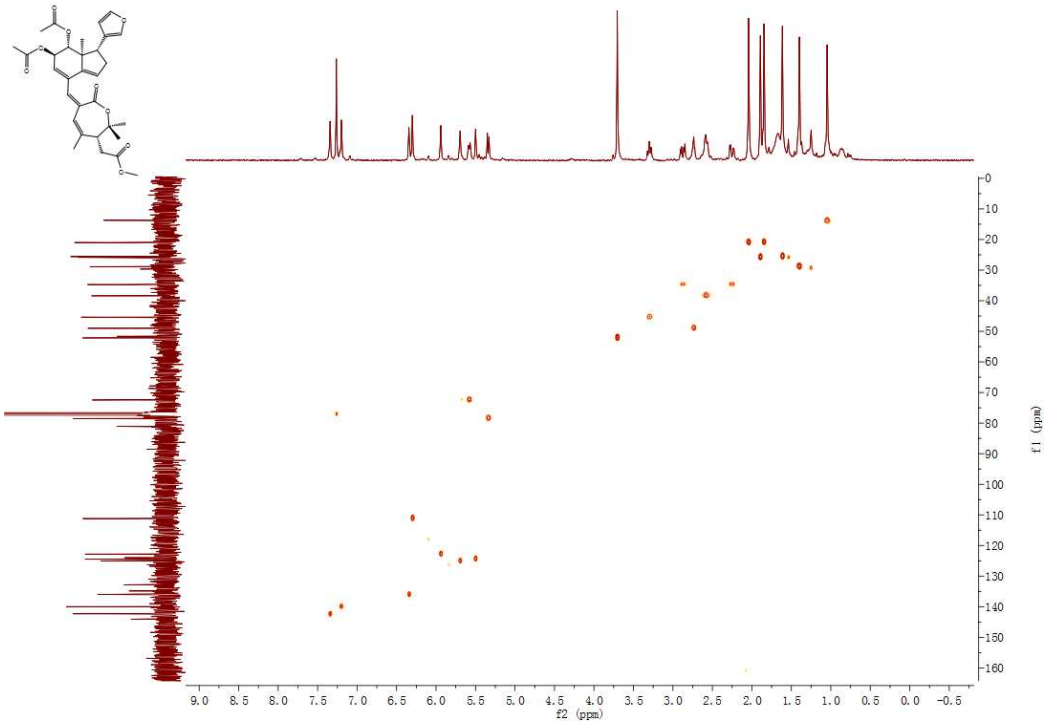


Figure S56. HMBC spectrum of aphanamixoid H (**6**) in $CDCl_3$

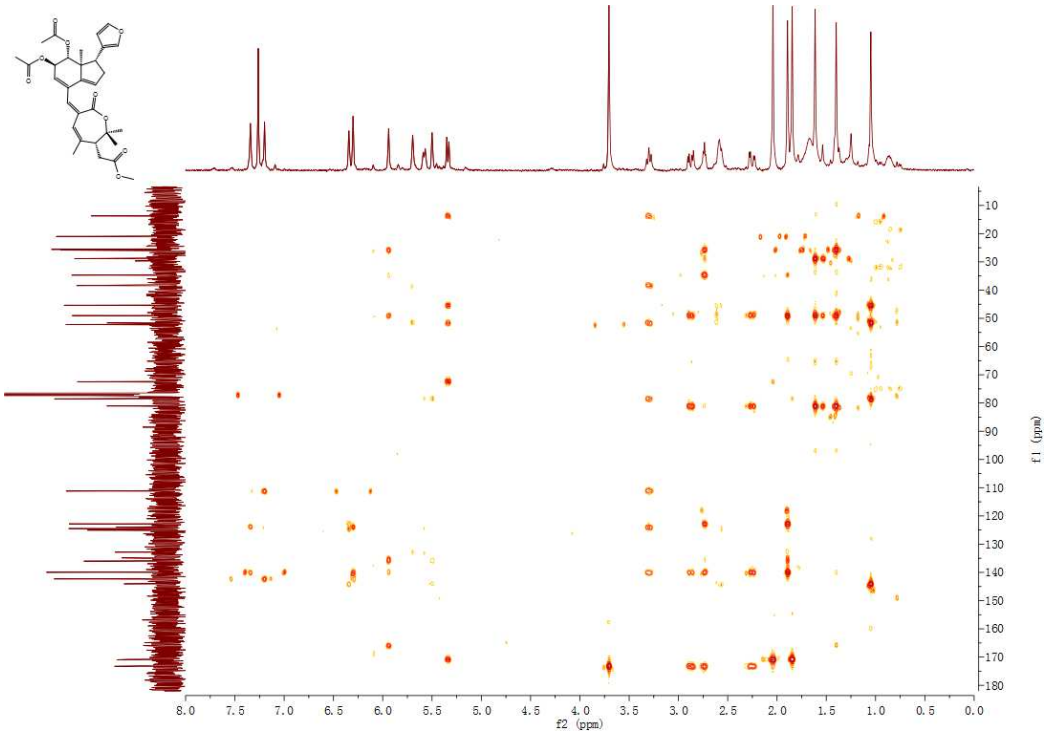


Figure S57. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid H (**6**) in $CDCl_3$

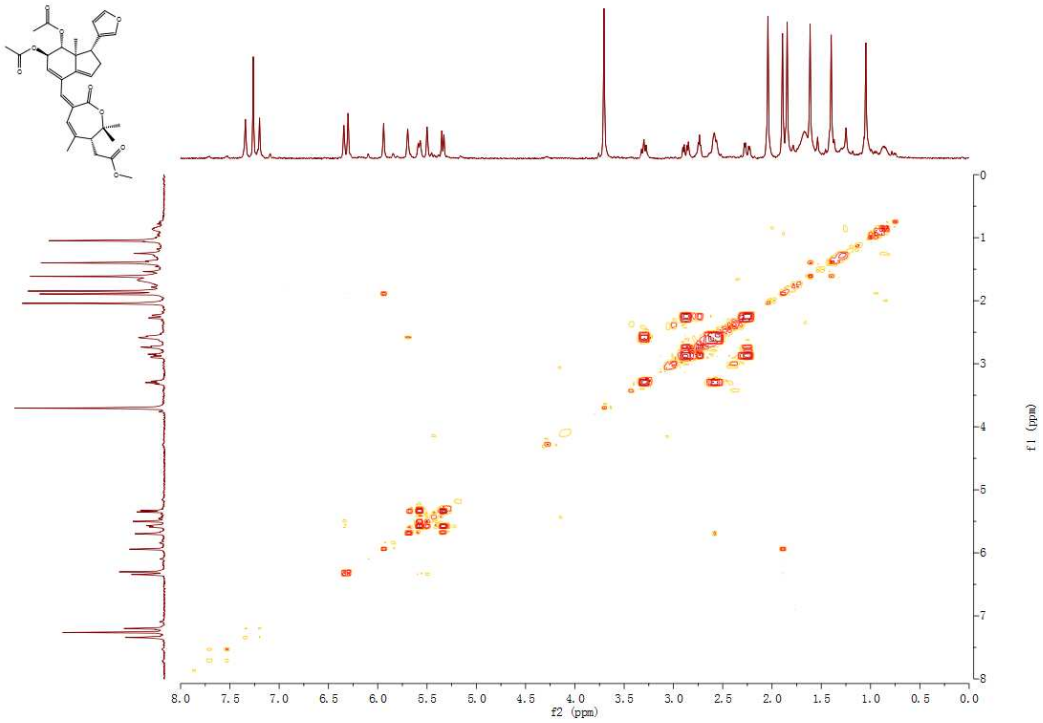


Figure S58. ROESY spectrum of aphanamixoid H (**6**) in $CDCl_3$

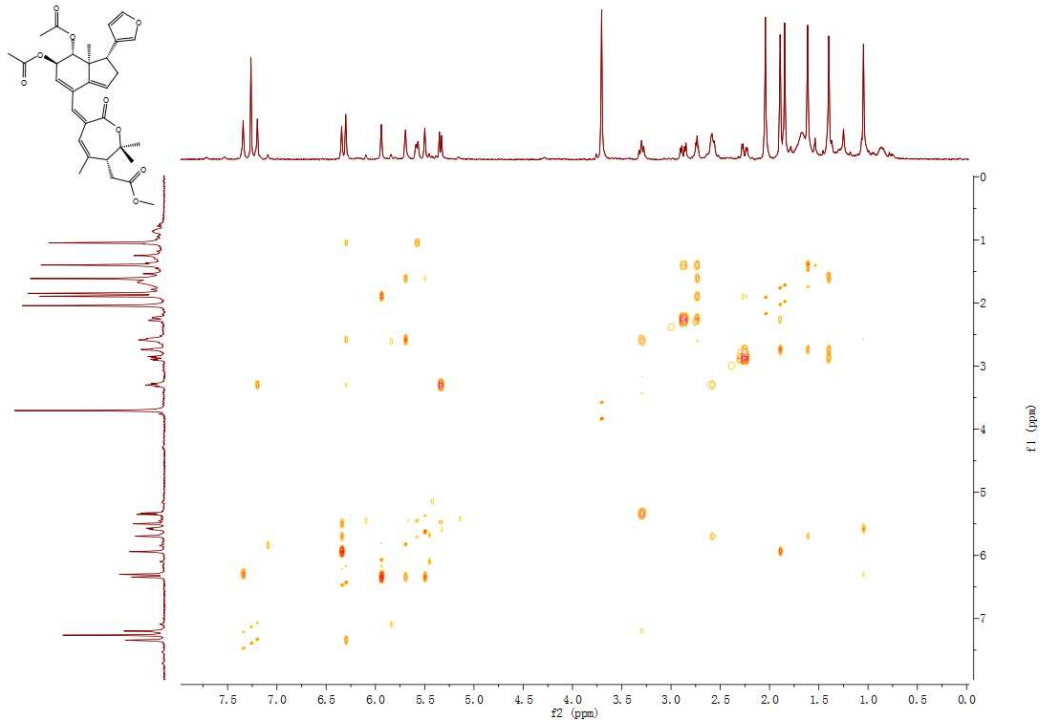


Figure S59. ESI (+) MS of aphanamixoid H (**6**)

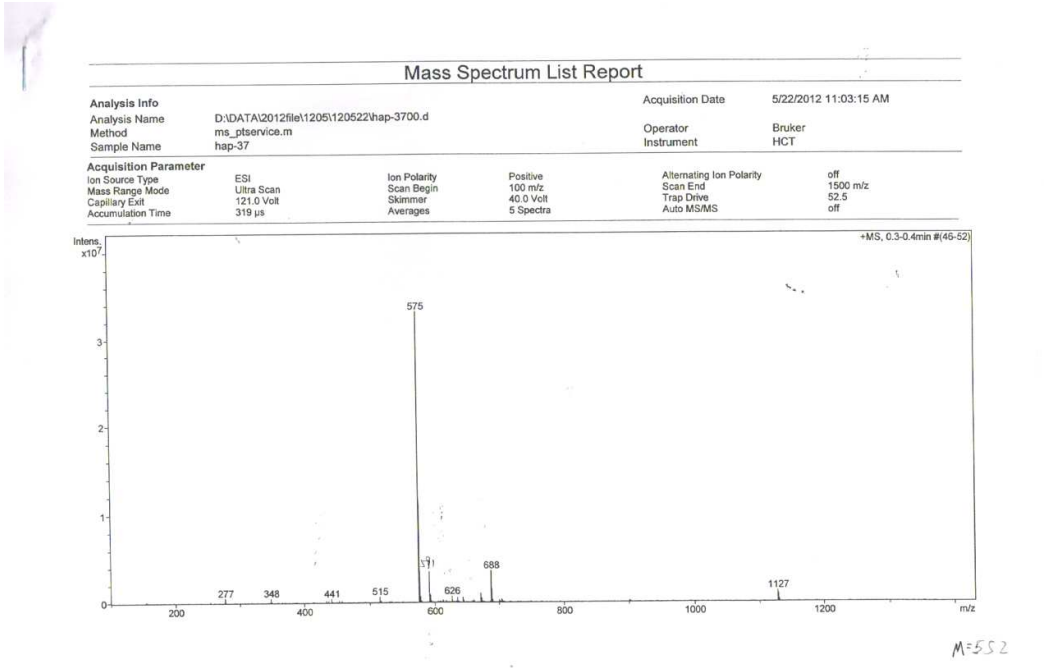


Figure S58. HR-EI (+) MS of aphanamixoid H (**6**)

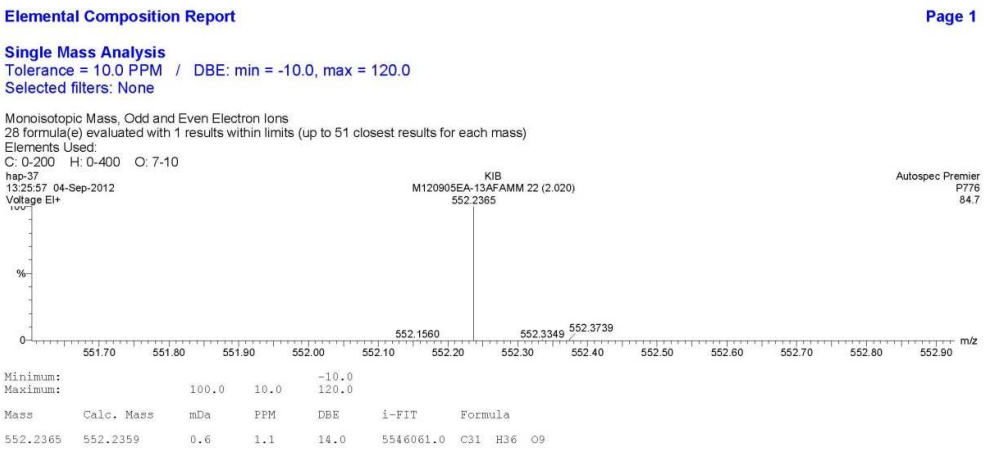
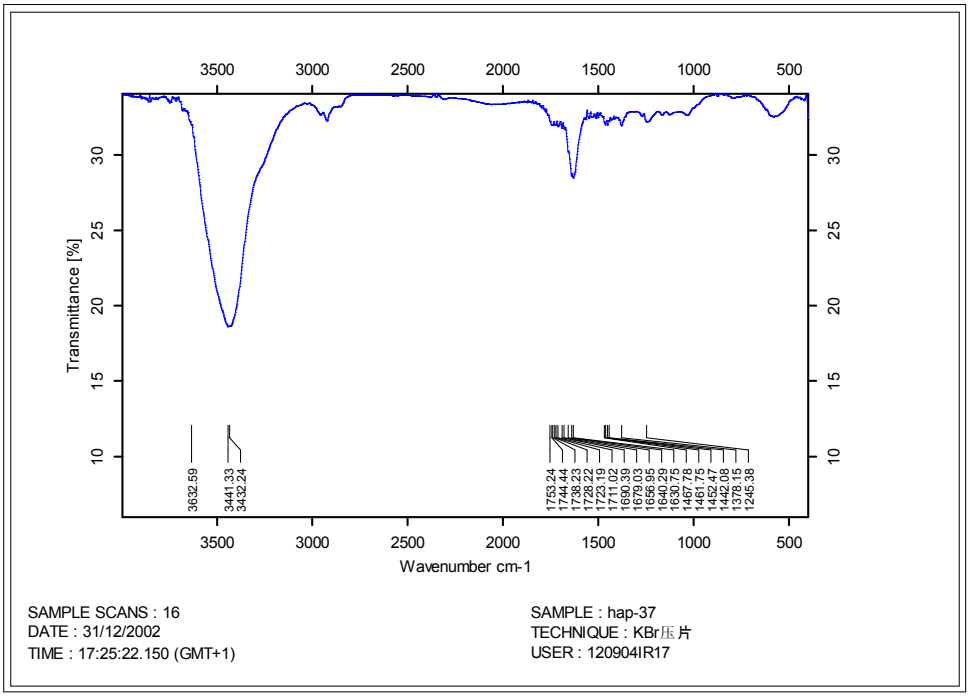
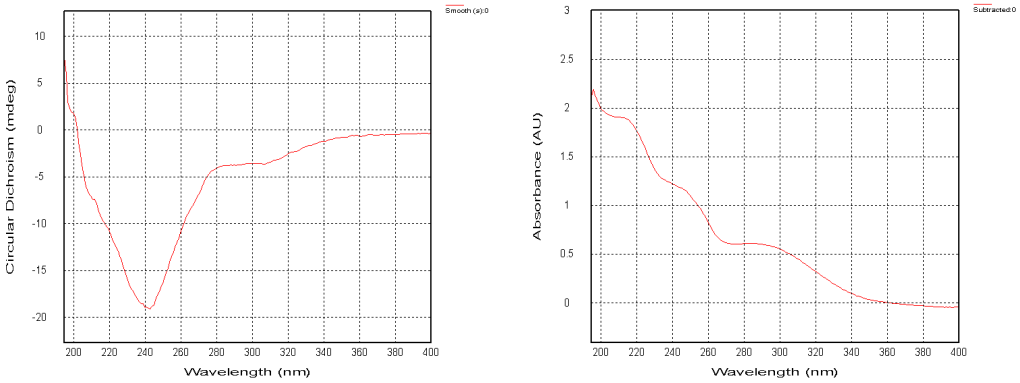


Figure S61. IR spectrum of aphanamixoid H (**6**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
567.402	0.326	0.001	8.211	0.134617	0
582.341	0.325	0.015	6.549	9.766092	0
1245.380	0.322	0.008	39.278	4.516885	0
1270.975	0.325	0.002	13.445	1.220646	0
1359.750	0.325	0.000	4.041	0.111698	0
1378.150	0.319	0.013	13.526	6.808423	0
1390.622	0.323	0.001	3.222	0.323046	0
1401.859	0.324	0.001	3.163	0.319840	0
1414.465	0.324	0.002	6.300	0.795016	0
1424.208	0.324	0.001	5.847	0.362994	0
1432.825	0.323	0.002	3.755	1.224623	0
1442.083	0.322	0.001	5.605	0.459806	0
1452.470	0.320	0.007	5.202	4.022692	0
1461.746	0.320	0.004	4.198	2.261783	0
1467.776	0.321	0.001	4.121	0.268712	0
1478.409	0.325	0.001	10.012	0.502728	0
1501.990	0.325	0.004	4.948	2.235736	0
1512.563	0.324	0.004	7.438	2.687587	0
1529.354	0.325	0.001	6.597	0.263345	0
1535.499	0.325	0.003	4.246	1.525812	0
1551.123	0.324	0.005	11.746	2.784881	0
1564.885	0.323	0.003	5.672	0.903663	0
1573.042	0.324	0.001	3.575	0.341427	0
1630.747	0.284	0.056	22.443	36.063702	0
1640.285	0.286	0.002	12.404	1.161273	0
1656.952	0.302	0.001	5.067	0.391049	0
1679.025	0.317	0.001	4.755	0.734079	0
1690.394	0.318	0.004	7.870	2.332586	0
1711.017	0.319	0.004	10.823	2.261358	0
1723.189	0.320	0.003	4.540	1.542900	0
1728.215	0.320	0.001	5.205	0.075630	0
1738.227	0.320	0.001	3.631	0.317388	0
1744.441	0.319	0.004	5.379	2.018210	0
1753.239	0.322	0.000	5.900	0.185880	0
1765.520	0.326	0.001	5.820	0.381299	0
2923.139	0.323	0.013	21.886	7.714441	0
2957.656	0.327	0.003	24.380	1.191375	0
3135.167	0.327	0.000	13.947	0.073275	0
3432.240	0.186	0.000	51.091	0.116409	0
3441.328	0.186	0.154	180.946	99.799782	0
3632.587	0.319	0.001	16.682	0.421402	0

Figure S65. CD spectrum of aphanamixoid H (**6**)



File: CD HAP-37-1mm(195-400)12090416.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 16:00:02 2012

- File ID : {2676664F-67B3-4965-B142-B6BE998B2110}
- Is CFR Compliant : false
- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v
- Time per point: 1 s
- Description: Sample 1
- Concentration: 0.6500mg/ml MeOH
- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)
- Wavelength: 195nm - 400nm
- Step Size: 1nm
- Bandwidth: 1nm

Figure S63. ^{1}H NMR spectrum of aphanamixoid I (**7**) in $CDCl_3$

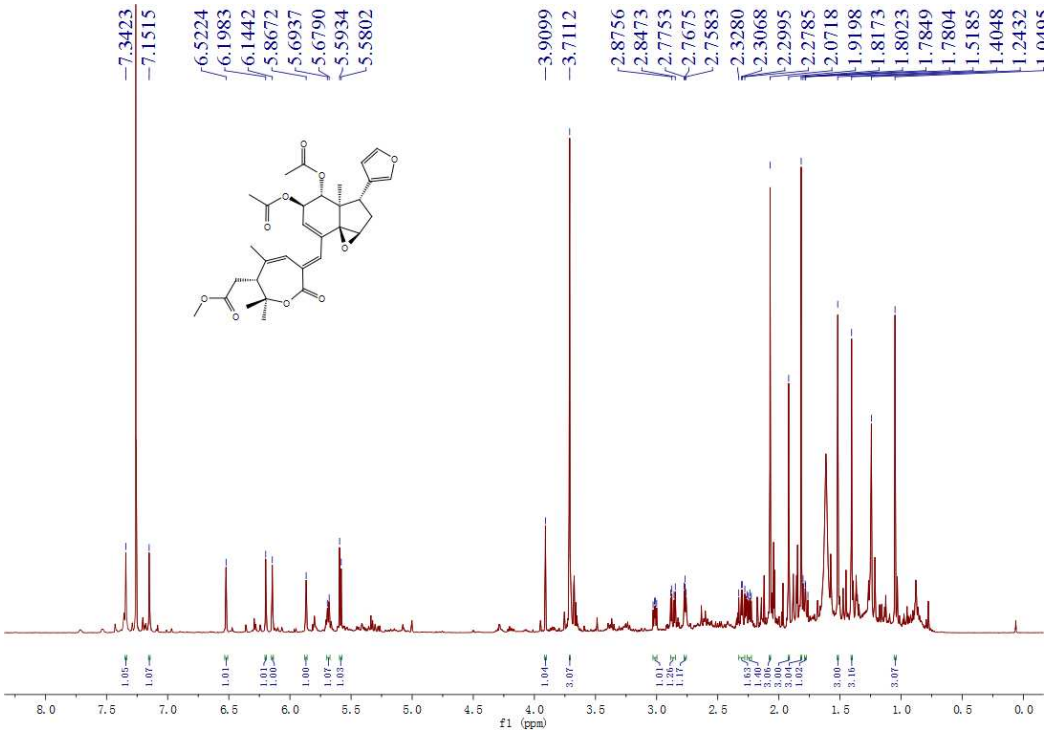


Figure S64. ^{13}C NMR spectrum of aphanamixoid I (**7**) in $CDCl_3$

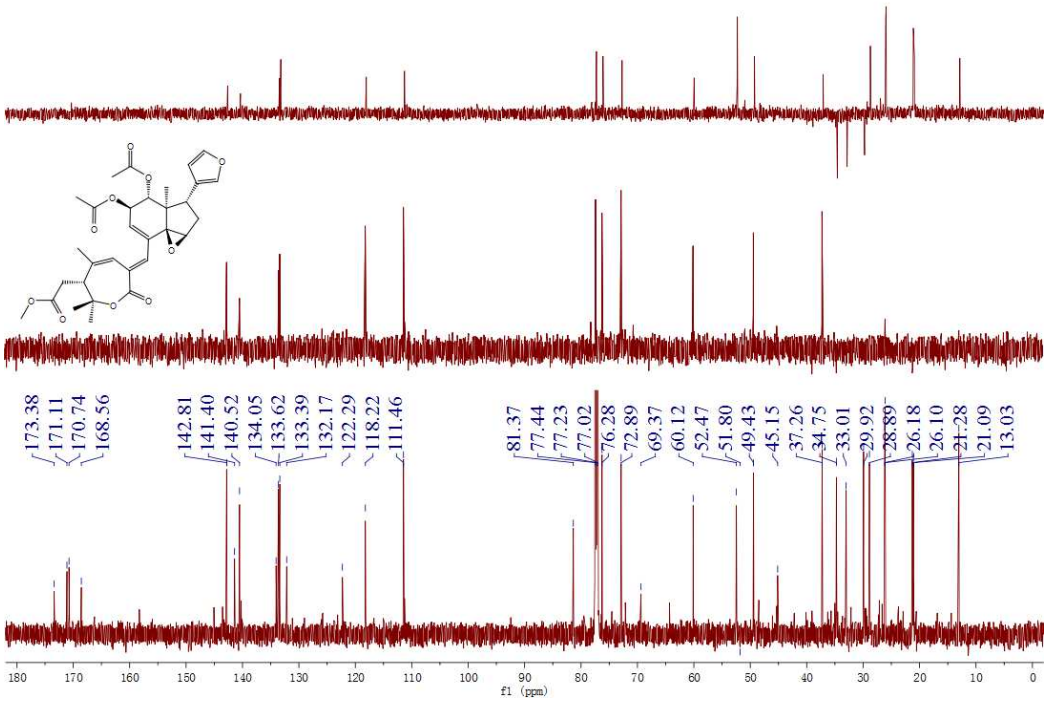


Figure S65. HSQC spectrum of aphanamixoid I (**7**) in $CDCl_3$

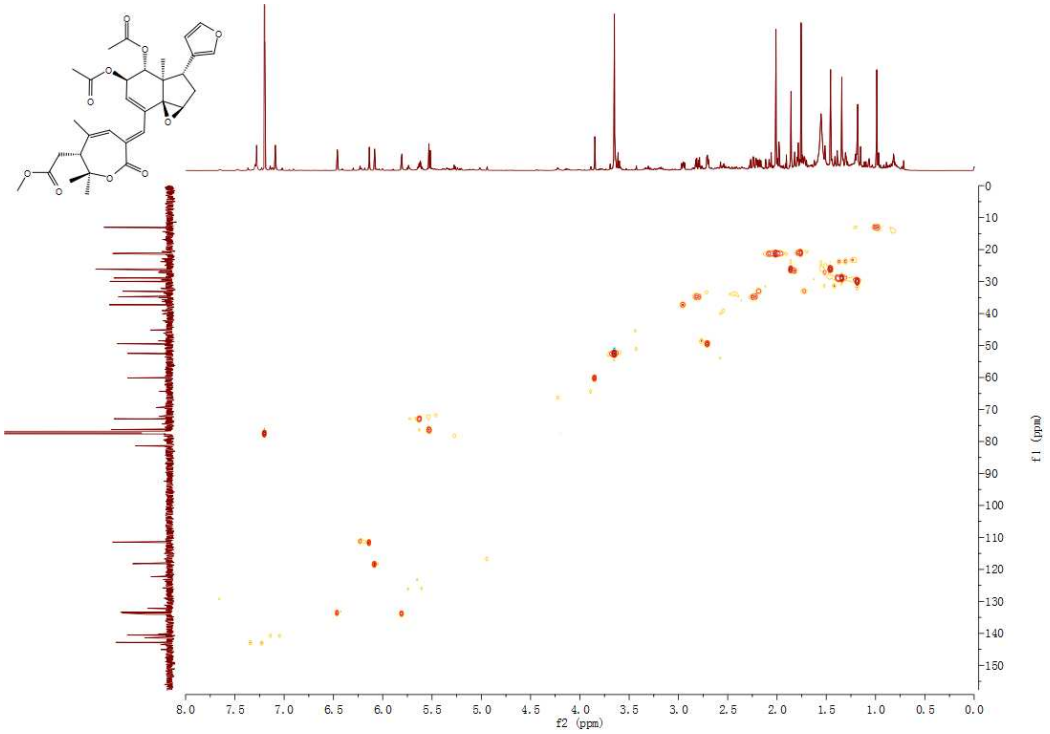


Figure S66. HMBC spectrum of aphanamixoid I (**7**) in $CDCl_3$

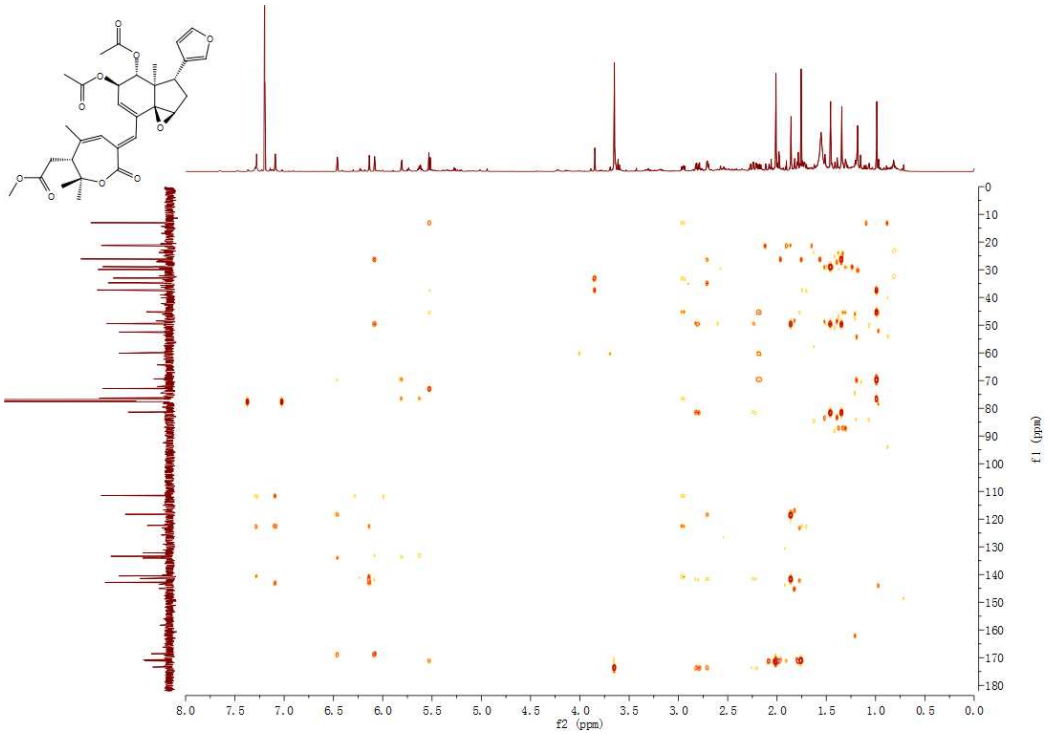


Figure S67. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid I (**7**) in $CDCl_3$

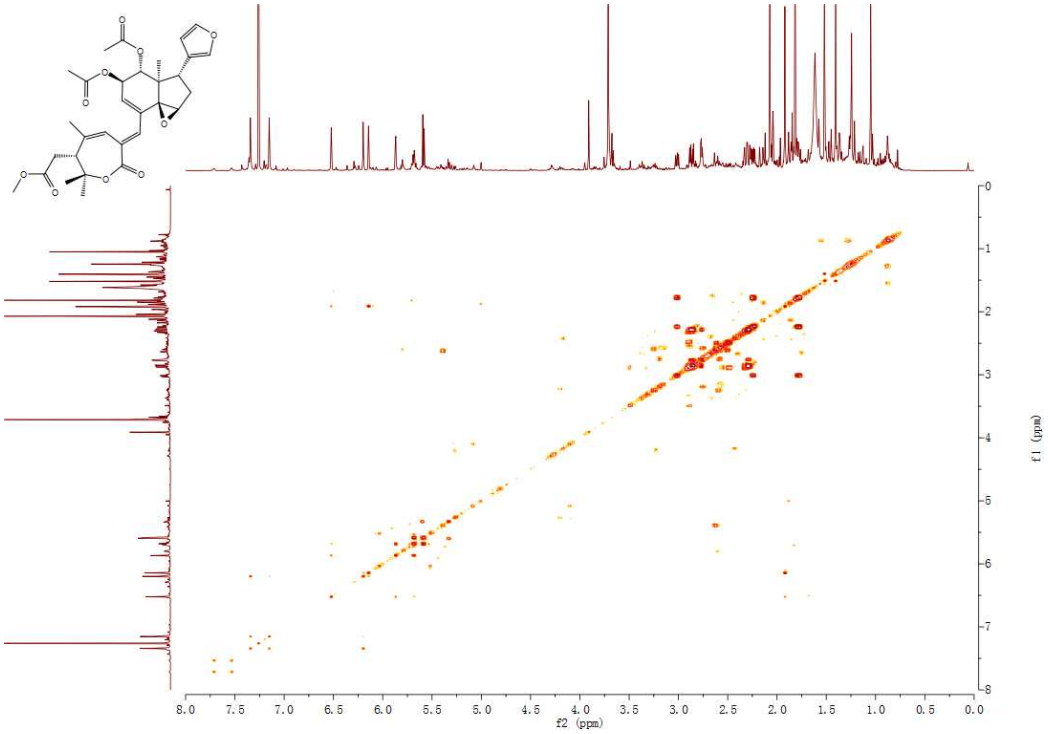


Figure S68. ROESY spectrum of aphanamixoid I (**7**) in $CDCl_3$

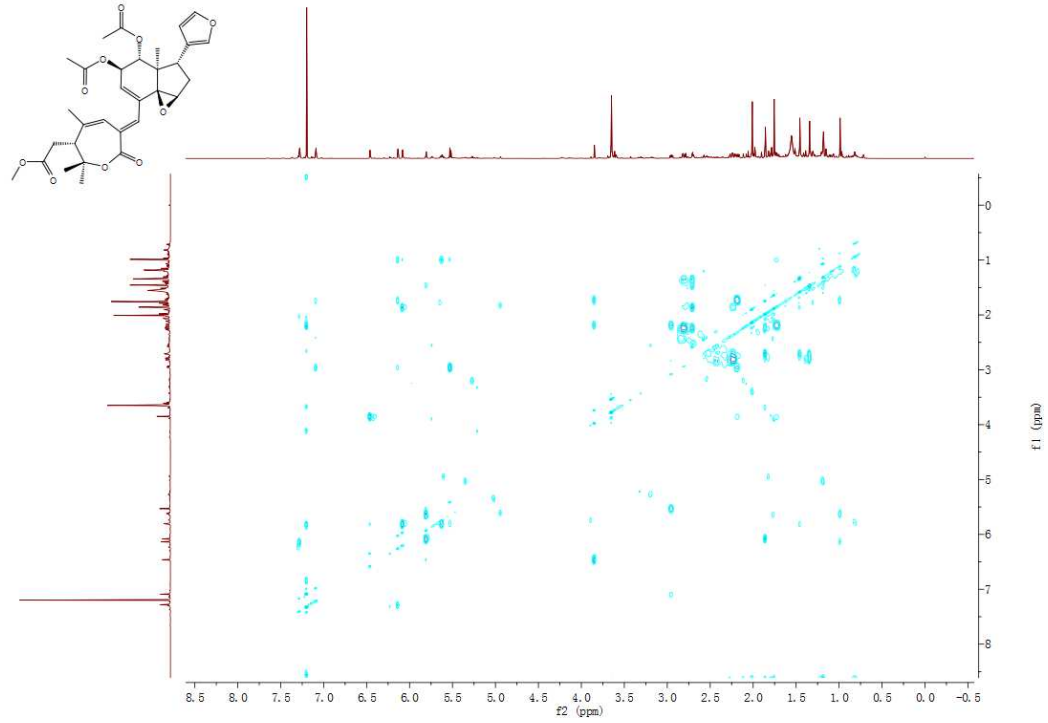


Figure S69. ESI (+) MS of aphanamixoid I (**7**)

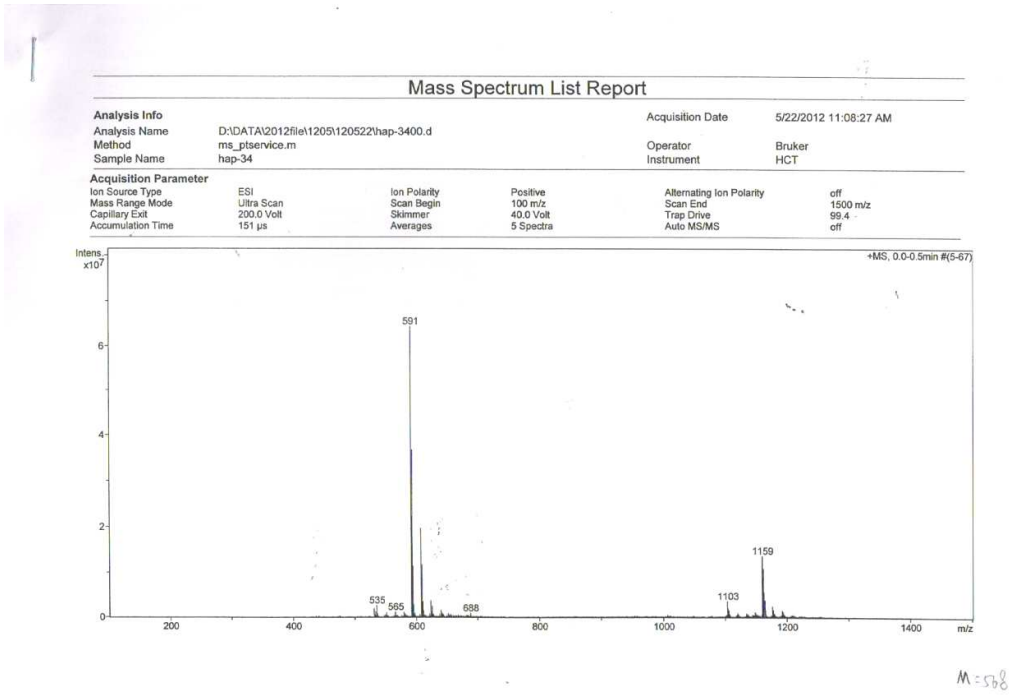


Figure S70. HR-EI (+) MS of aphanamixoid I (**7**)

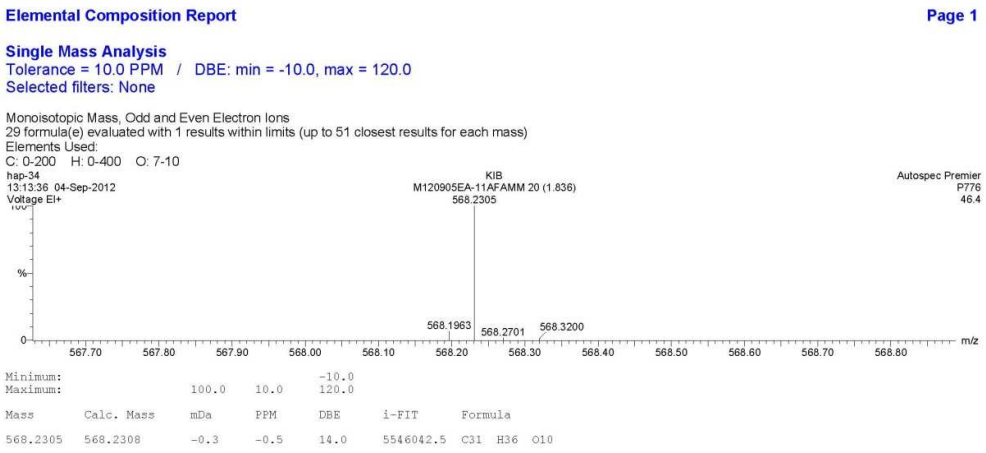
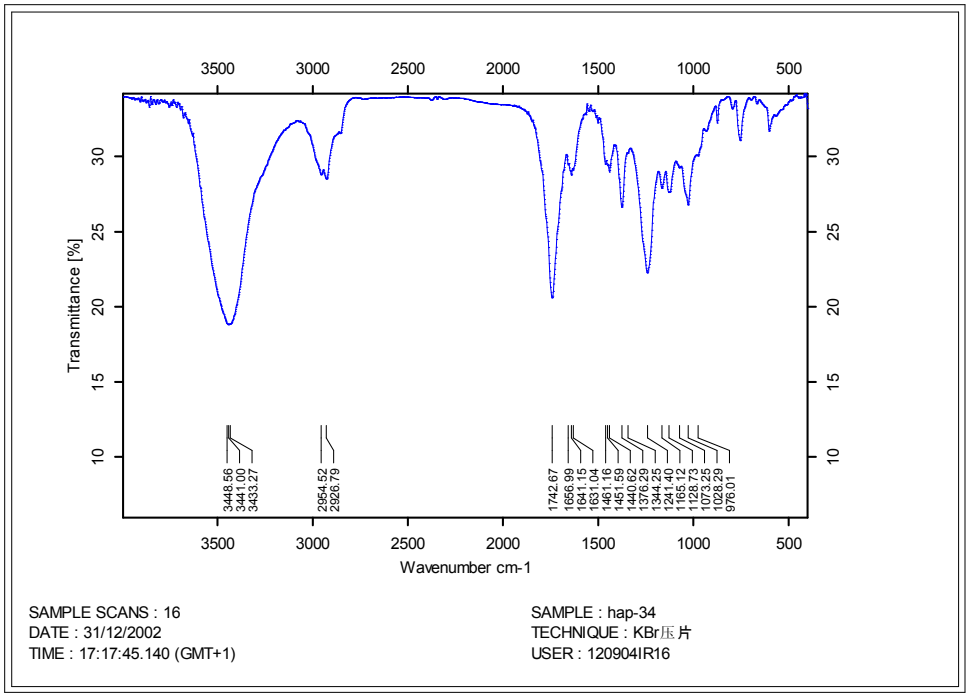
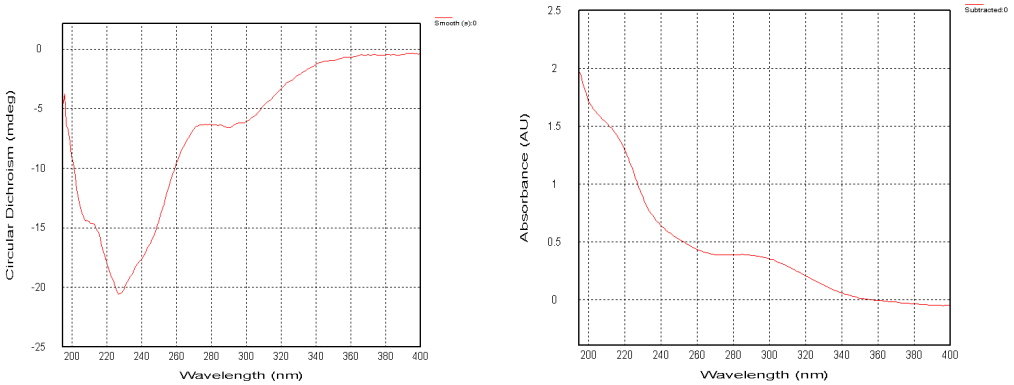


Figure S71. IR spectrum of aphanamixoid I (**7**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
566.509	0.327	0.002	23.434	0.730121	0
601.531	0.317	0.024	15.196	15.109008	0
754.645	0.311	0.030	25.806	19.110735	0
794.561	0.332	0.007	16.857	3.596402	0
873.726	0.322	0.012	8.646	7.301173	0
933.111	0.317	0.004	29.793	1.037559	0
976.005	0.300	0.001	24.553	0.487406	0
1028.288	0.268	0.033	34.590	18.897408	0
1073.254	0.293	0.002	14.908	0.505345	0
1128.726	0.276	0.018	27.054	9.189581	0
1165.122	0.279	0.011	18.611	7.319848	0
1241.397	0.222	0.115	64.289	73.285919	0
1344.245	0.302	0.001	5.112	0.187349	0
1376.289	0.266	0.045	27.222	25.657572	0
1414.648	0.307	0.001	3.812	0.415845	0
1440.616	0.290	0.023	13.273	11.824325	0
1451.587	0.294	0.002	4.809	0.504454	0
1461.162	0.295	0.005	12.680	2.031492	0
1631.039	0.291	0.004	14.843	0.924386	0
1641.154	0.288	0.022	12.667	9.080729	0
1656.987	0.294	0.002	4.281	0.759645	0
1742.671	0.206	0.135	65.708	87.315880	0
1832.453	0.319	0.000	11.110	0.098043	0
2853.958	0.315	0.001	10.455	0.746336	0
2926.790	0.285	0.043	21.609	25.438162	0
2954.521	0.288	0.006	40.397	2.167369	0
3147.898	0.317	0.000	7.682	0.097675	0
3433.273	0.188	0.000	51.936	0.018530	0
3441.004	0.188	0.152	6.199	98.873955	0
3448.564	0.189	0.000	178.780	0.027276	0
3632.215	0.314	0.002	13.616	1.285446	0

Figure S72. CD spectrum of aphanamixoid I (**7**)



File: CD HAP-34-1mm(195-400)12090415.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 15:50:01 2012

- File ID : {88623781-C993-4a27-B45C-2410B8A0323F}
- Is CFR Compliant : false
- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v
- Time per point: 1 s
- Description: Sample 1
- Concentration: 0.6300mg/ml MeOH
- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)
- Wavelength: 195nm - 400nm
- Step Size: 1nm
- Bandwidth: 1nm

Figure S73. ^{1}H NMR spectrum of aphanamixoid J (**8**) in $CDCl_3$

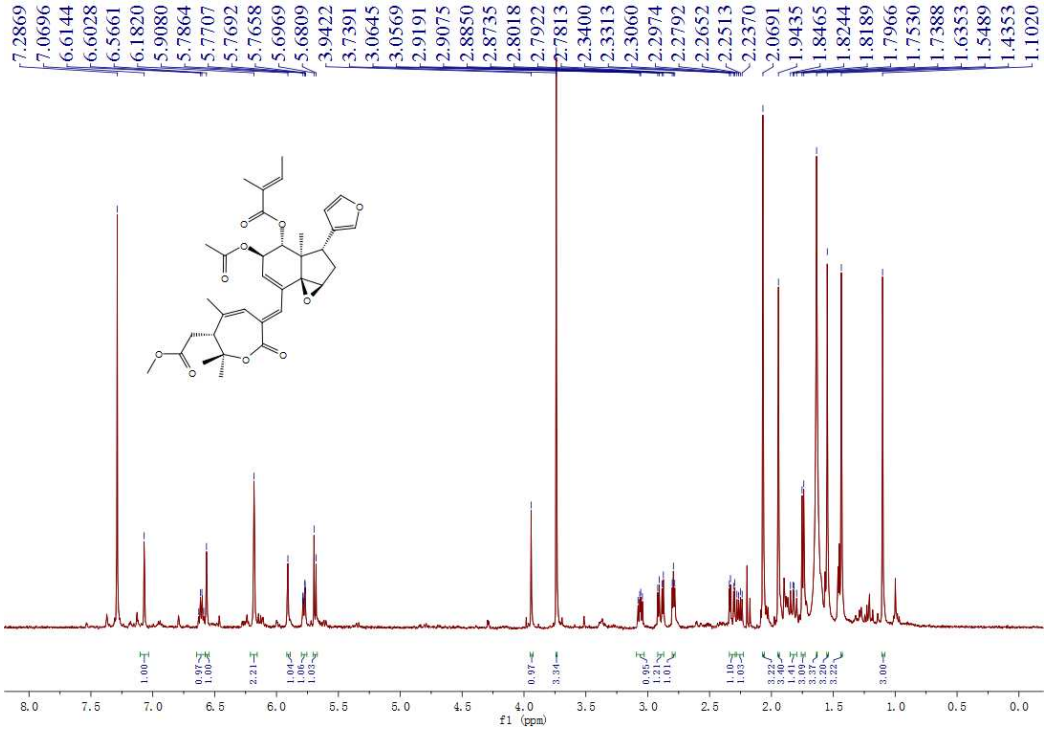


Figure S74. ^{13}C NMR spectrum of aphanamixoid J (**8**) in $CDCl_3$

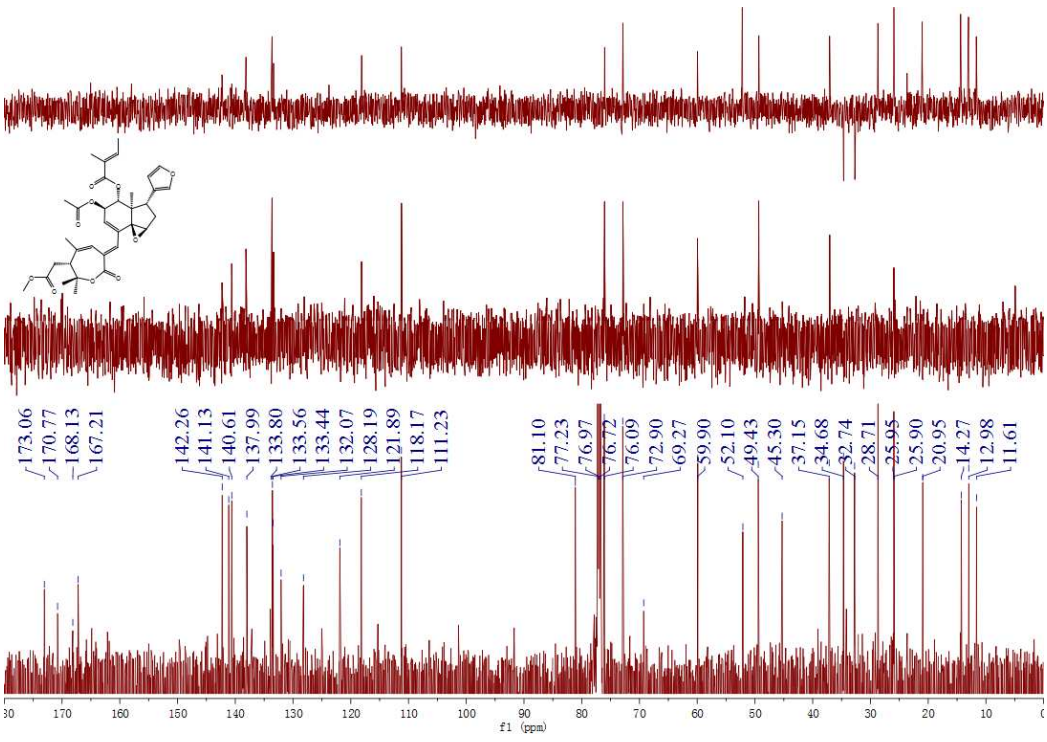


Figure S75. HSQC spectrum of aphanamixoid J (**8**) in $CDCl_3$

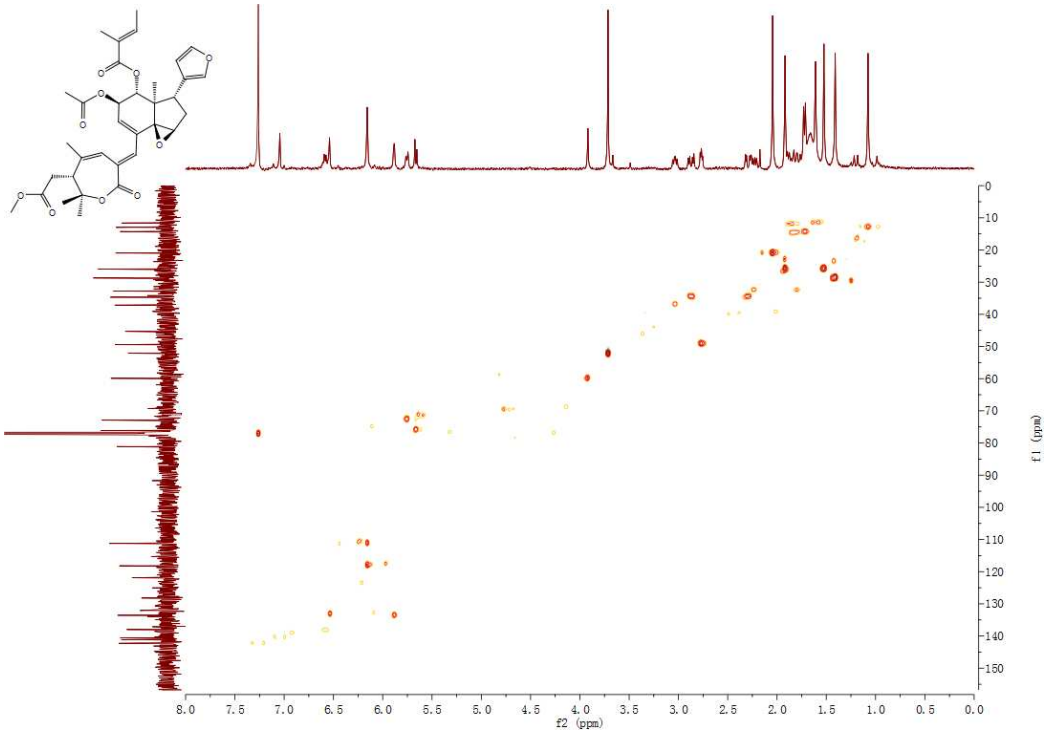


Figure S76. HMBC spectrum of aphanamixoid J (**8**) in $CDCl_3$

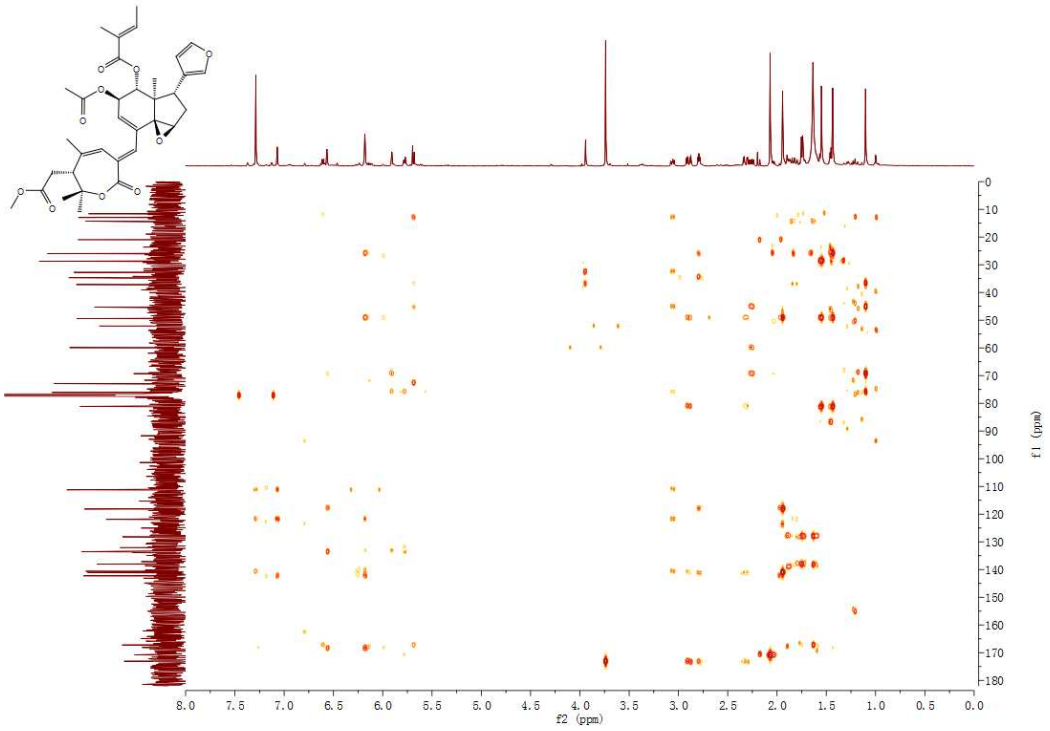


Figure S77. ^{1}H–^{1}H COSY spectrum of aphanamixoid J (**8**) in $CDCl_3$

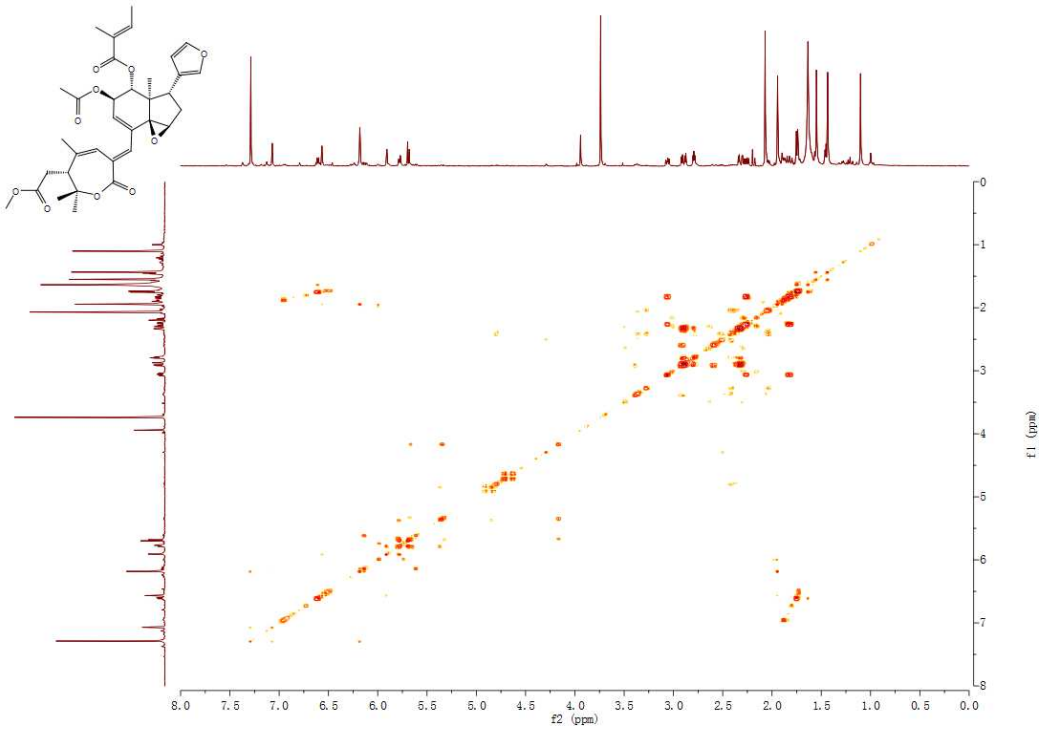


Figure S78. ROESY spectrum of aphanamixoid J (**8**) in $CDCl_3$

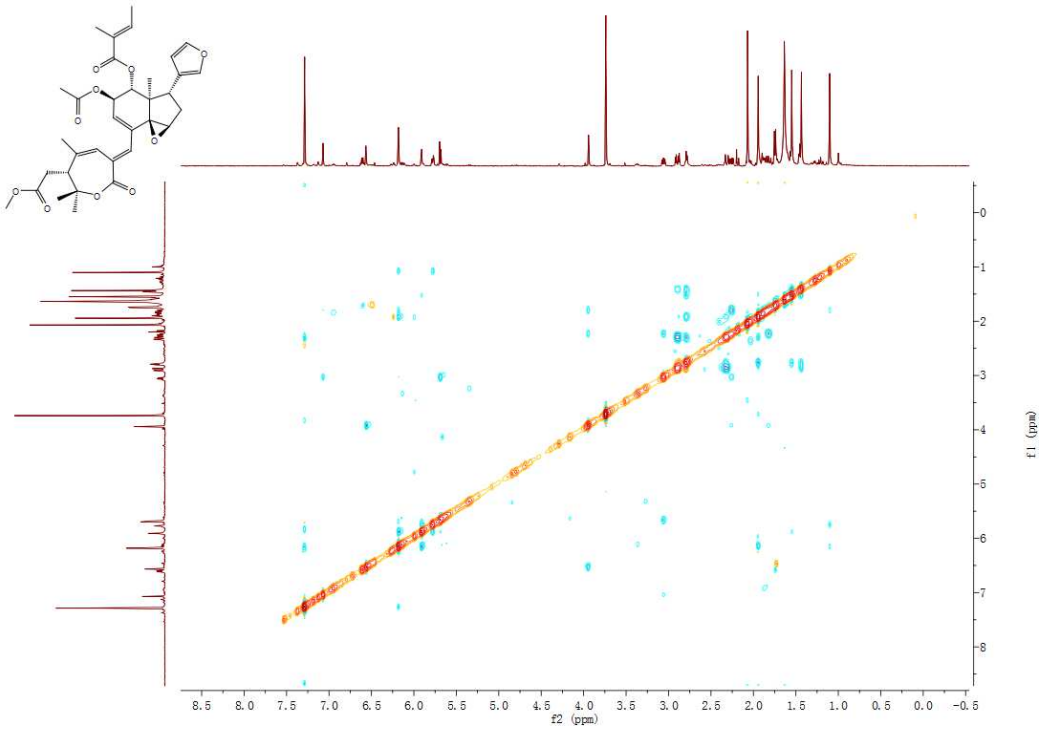


Figure S79. ESI (+) MS of aphanamixoid J (**8**)

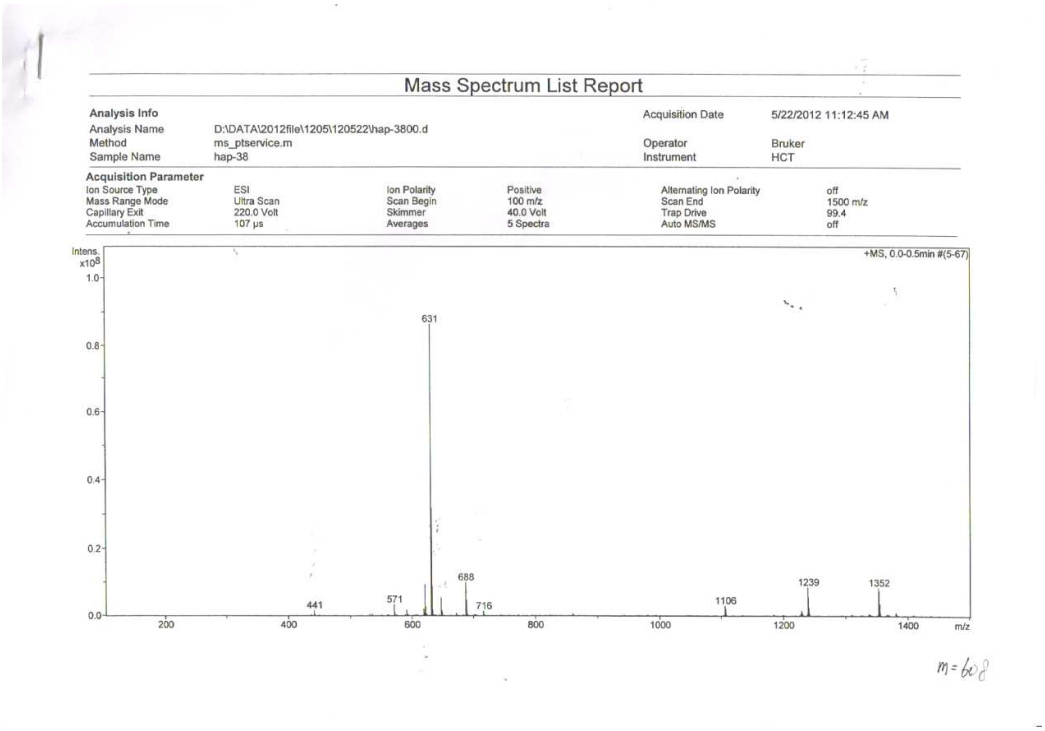


Figure S80. HR-EI (+) MS of aphanamixoid J (**8**)

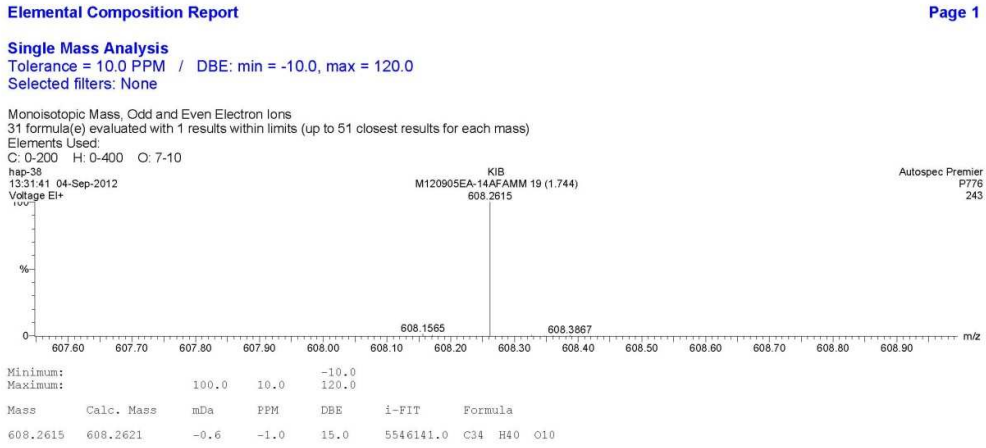
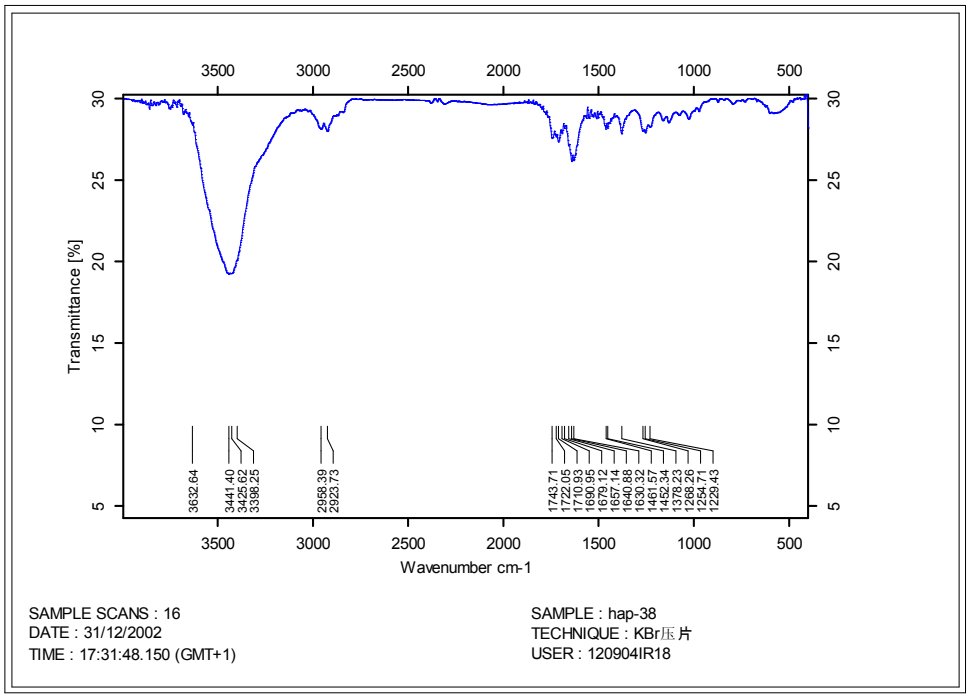
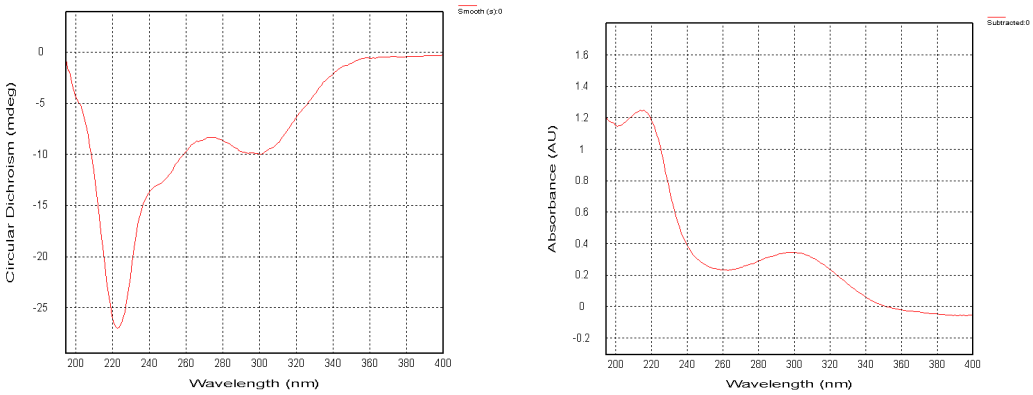


Figure S81. IR spectrum of aphanamixoid J (**8**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
582.625	0.291	0.010	7.695	8.611174	0
602.088	0.291	0.002	12.828	0.723808	0
623.513	0.295	0.001	7.394	0.573596	0
795.805	0.296	0.004	10.032	3.294452	0
974.425	0.292	0.002	14.987	2.019695	0
1000.452	0.292	0.001	9.183	0.390389	0
1027.897	0.287	0.006	21.109	4.789096	0
1076.025	0.290	0.002	17.437	1.898821	0
1131.653	0.285	0.007	18.888	5.893352	0
1163.792	0.286	0.004	18.846	2.331362	0
1229.429	0.282	0.002	15.886	1.244092	0
1254.708	0.279	0.015	9.621	12.756756	0
1268.258	0.280	0.003	9.737	1.017297	0
1359.312	0.287	0.001	4.480	0.346666	0
1378.225	0.278	0.018	11.347	14.938067	0
1433.152	0.286	0.002	3.633	1.128446	0
1441.736	0.285	0.002	5.442	0.630430	0
1452.337	0.282	0.004	5.278	3.215676	0
1461.574	0.281	0.011	4.338	8.706665	0
1630.315	0.262	0.003	16.777	2.991292	0
1640.880	0.261	0.040	11.962	35.270714	0
1657.143	0.271	0.001	4.996	1.233581	0
1679.118	0.281	0.003	4.758	1.978519	0
1690.953	0.278	0.004	7.609	2.047164	0
1710.925	0.273	0.012	11.492	10.250178	0
1722.050	0.276	0.002	10.170	1.581927	0
1743.712	0.275	0.005	7.625	4.169638	0
2923.726	0.280	0.015	22.174	12.592999	0
2958.390	0.281	0.005	28.292	3.255254	0
3398.248	0.201	0.000	17.161	0.240556	0
3425.616	0.193	0.001	24.306	0.268215	0
3441.401	0.192	0.108	25.882	98.069359	0
3632.640	0.283	0.002	15.139	1.716102	0

Figure S82. CD spectrum of aphanamixoid J (**8**)



File: CD HAP-38-1mm(195-400)12090418.dsx

ProBinaryX

Attributes :

- Time Stamp :Tue Sep 04 16:19:25 2012

- File ID : {FF769333-431F-4276-8496-BDB84A2BE7B8}
- Is CFR Compliant : false
- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v
- Time per point: 1 s
- Description: Sample 1
- Concentration: 0.3400mg/ml MeOH
- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)
- Wavelength: 195nm - 400nm
- Step Size: 1nm
- Bandwidth: 1nm

Figure S83. ^{1}H NMR spectrum of aphanamixoid K (**9**) in $CDCl_3$

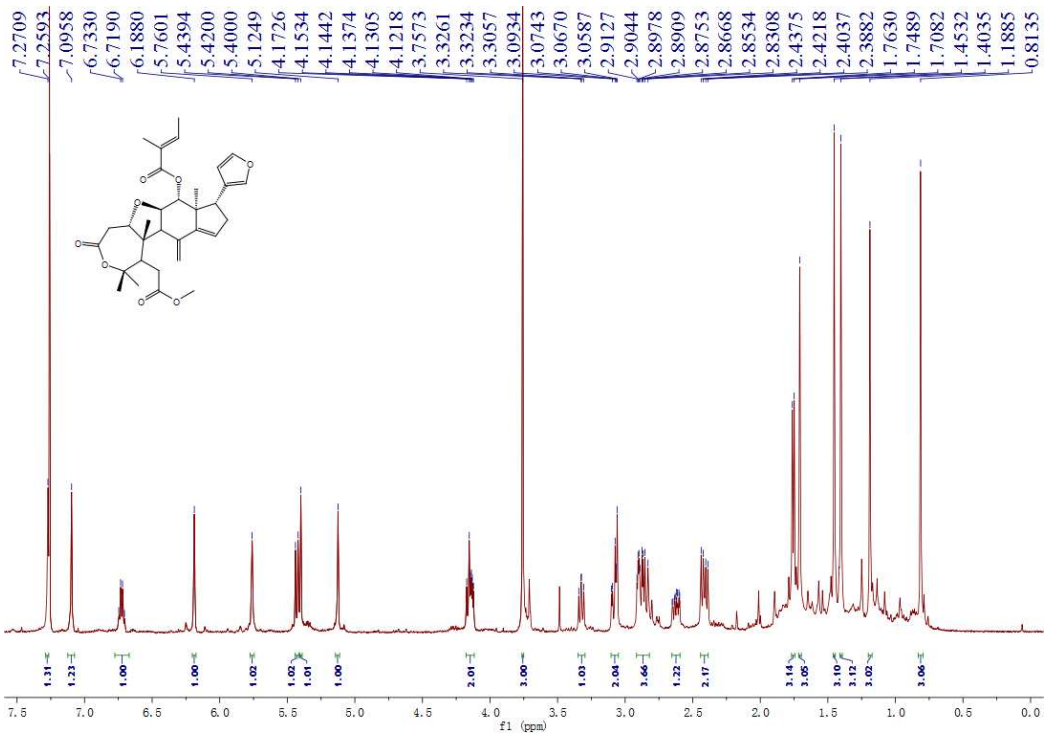


Figure S84. ^{13}C NMR spectrum of aphanamixoid K (**9**) in $CDCl_3$

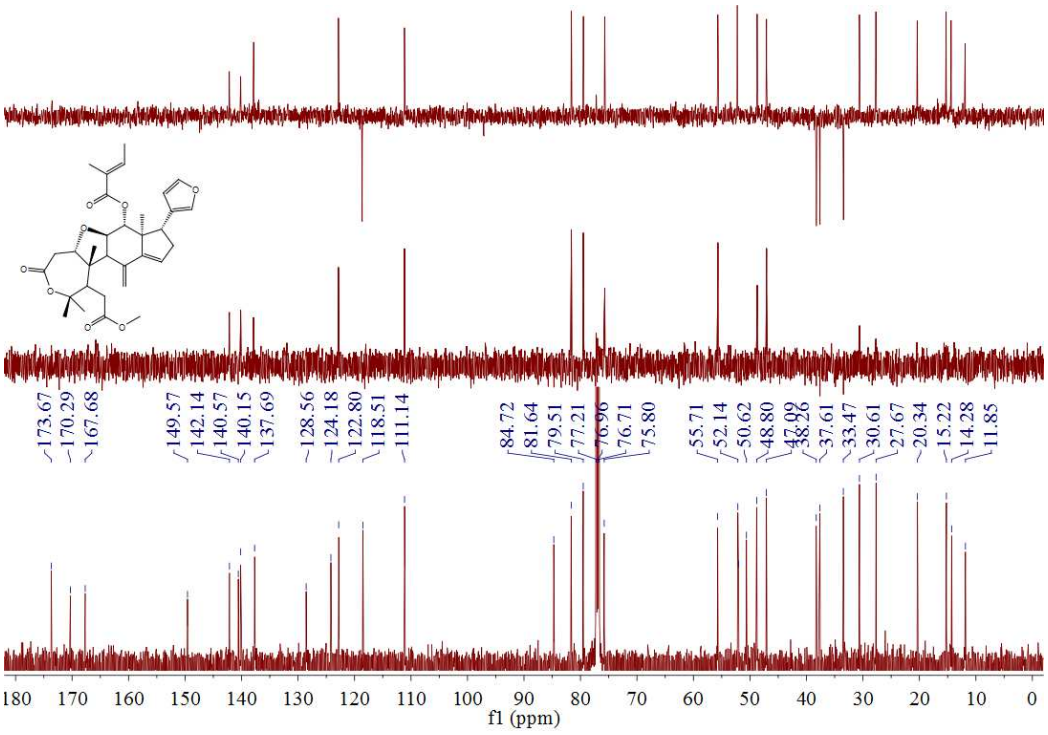


Figure S85. HSQC spectrum of aphanamixoid K (**9**) in $CDCl_3$

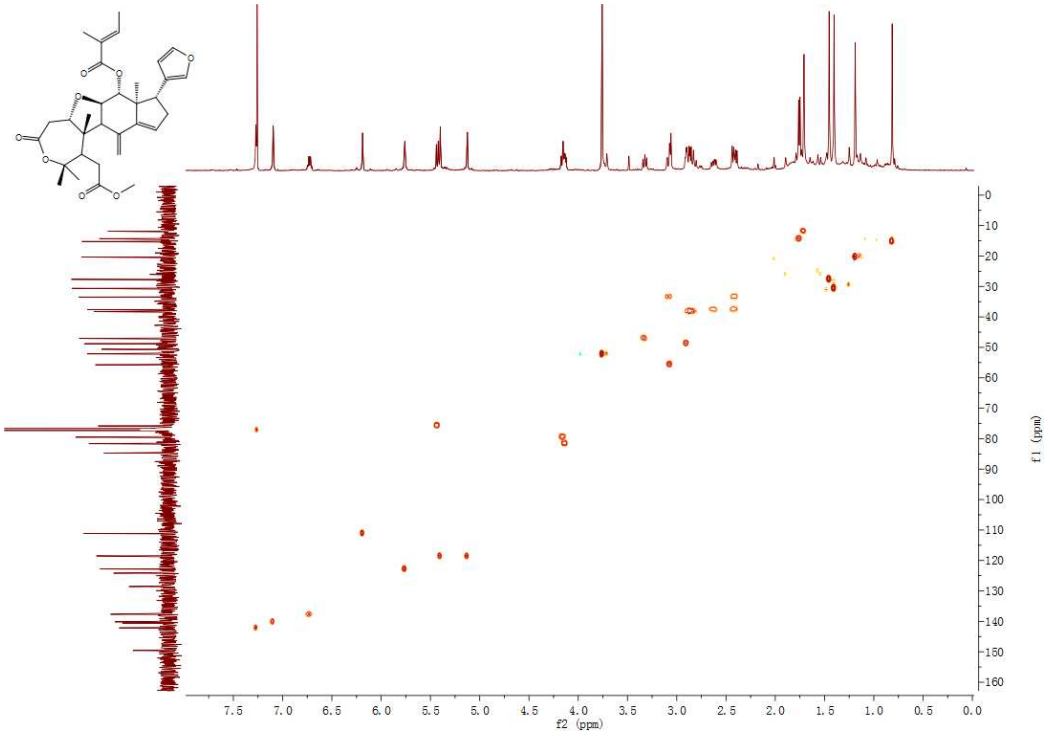


Figure S86. HMBC spectrum of aphanamixoid K (**9**) in $CDCl_3$

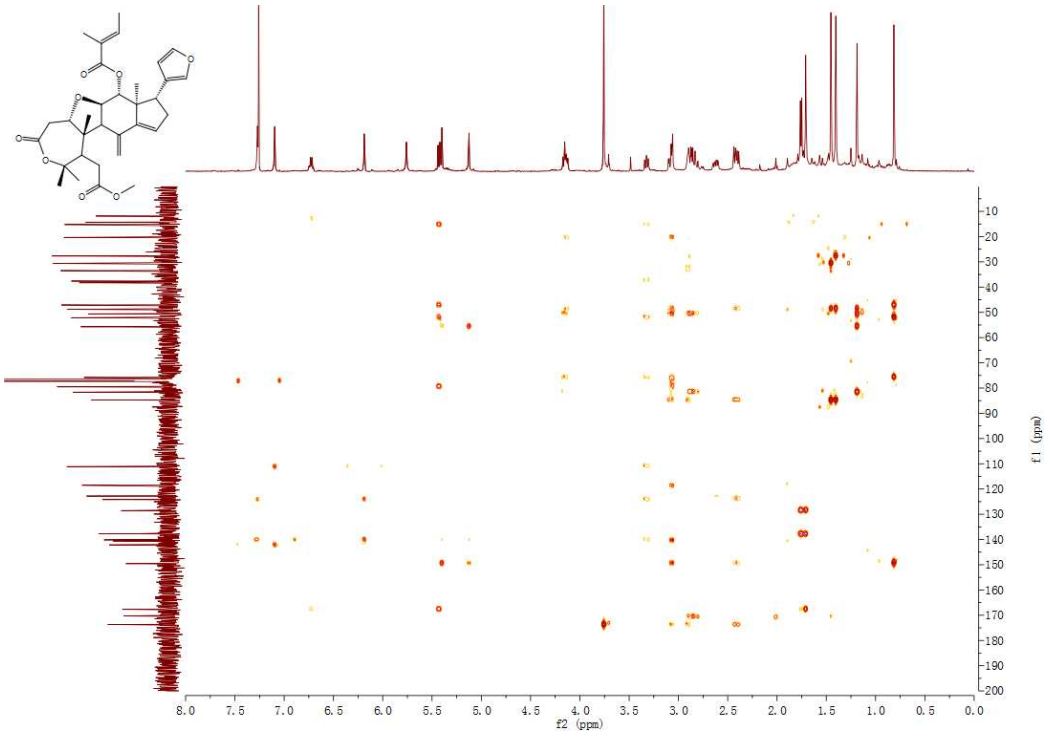


Figure S87. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid K (**9**) in $CDCl_3$

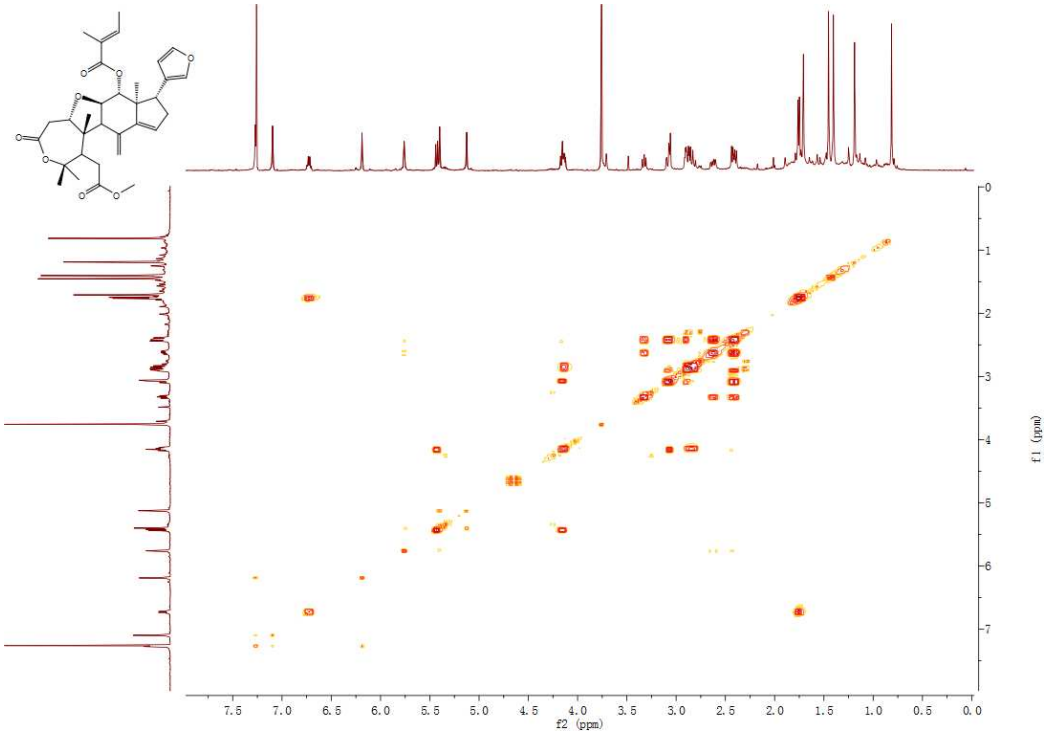


Figure S88. ROESY spectrum of aphanamixoid K (9) in $CDCl_3$

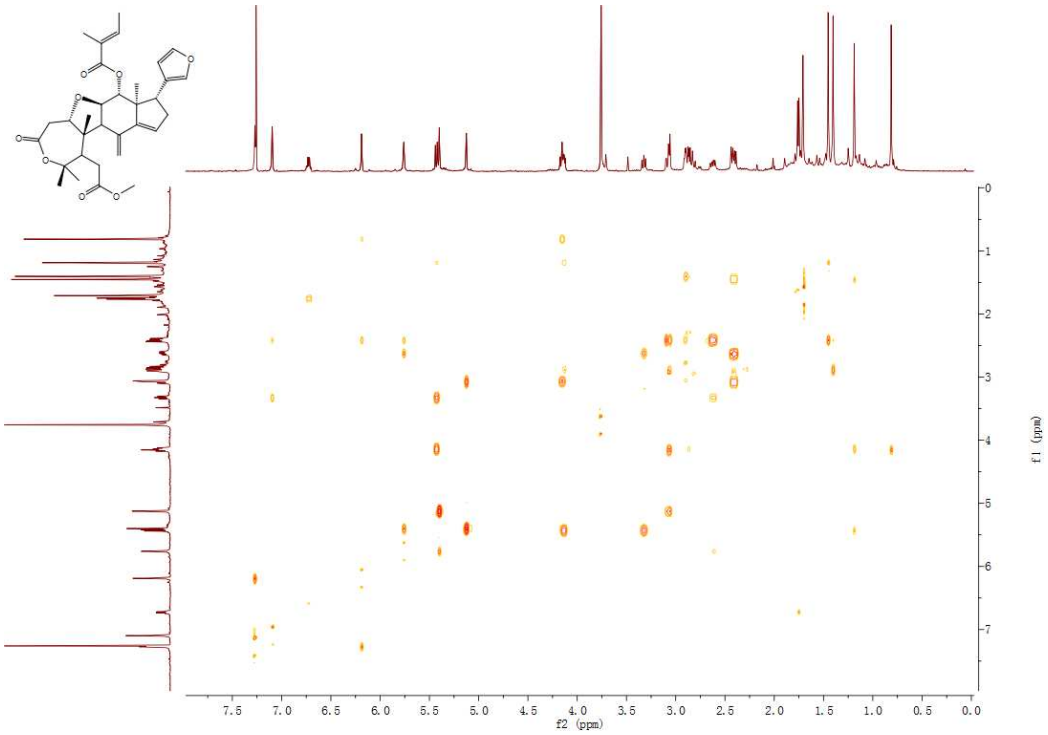


Figure S89. ESI (+) MS of aphanamixoid K (**9**)

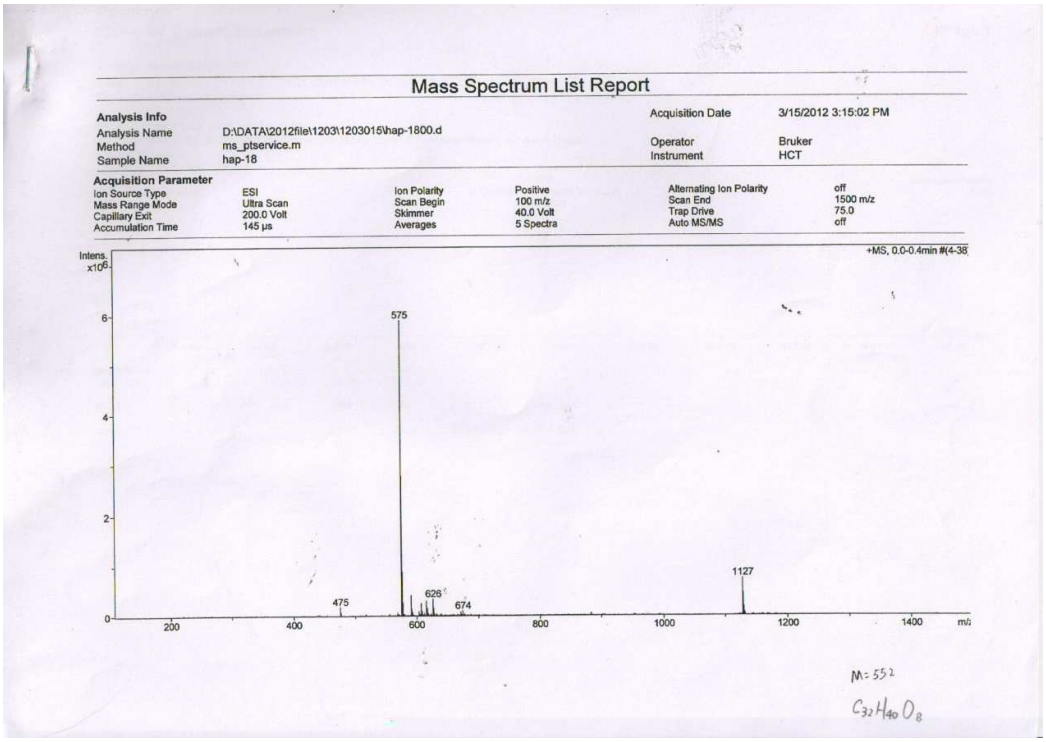


Figure S90. HR-EI (+) MS of aphanamixoid K (**9**)

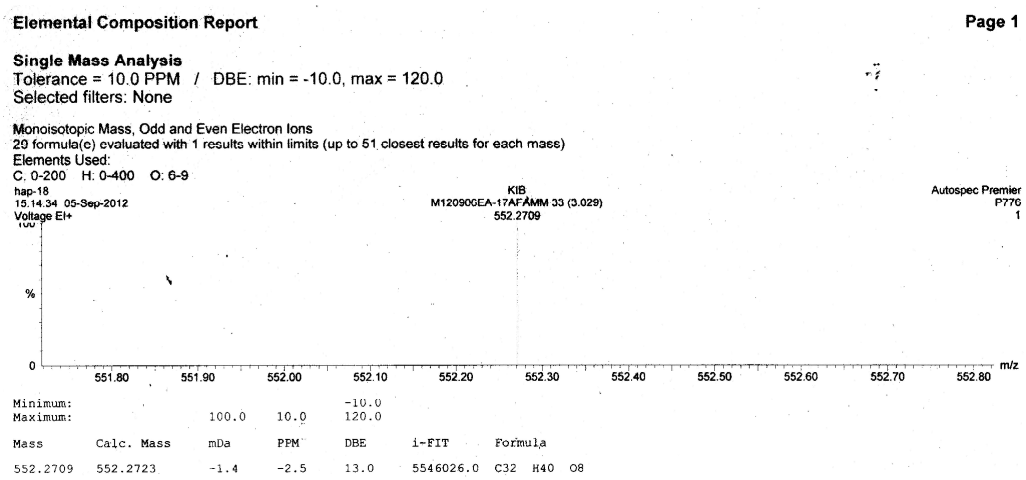
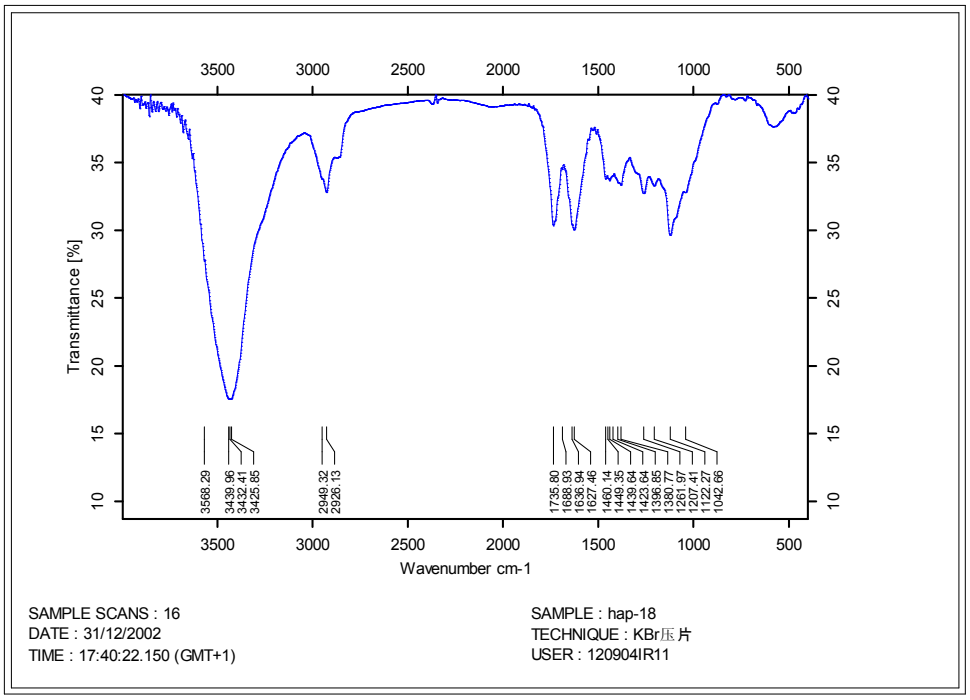
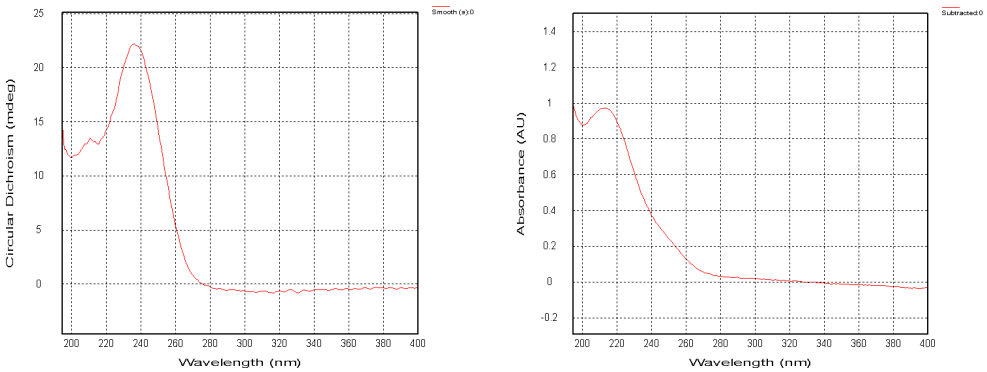


Figure S91. IR spectrum of aphanamixoid K (**9**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
567.640	0.377	0.001	41.052	0.036824	0
583.308	0.376	0.024	14.614	10.569580	0
604.859	0.378	0.001	10.194	0.072799	0
1042.662	0.328	0.004	38.430	0.326232	0
1122.270	0.296	0.104	52.283	46.187241	0
1207.413	0.333	0.006	23.637	2.361092	0
1261.965	0.327	0.016	31.839	5.595063	0
1380.771	0.333	0.026	13.395	9.143389	0
1396.854	0.335	0.001	8.895	0.119989	0
1423.643	0.340	0.001	5.548	0.032317	0
1439.641	0.336	0.013	6.772	2.473884	0
1449.351	0.338	0.001	4.863	0.088865	0
1460.143	0.338	0.005	13.606	1.130831	0
1627.461	0.300	0.079	52.080	33.710754	0
1636.942	0.304	0.001	8.477	0.030342	0
1688.925	0.345	0.002	6.385	0.486094	0
1735.800	0.303	0.049	44.821	20.089136	0
2857.260	0.354	0.001	7.877	0.111930	0
2870.153	0.353	0.002	12.321	0.338666	0
2926.130	0.328	0.049	22.299	19.595989	0
2949.321	0.338	0.001	13.295	0.075053	0
3425.854	0.176	0.000	34.241	0.012911	0
3432.411	0.175	0.225	4.320	100.012260	0
3439.961	0.176	0.002	123.441	0.069525	0
3568.287	0.277	0.002	14.749	0.504520	0
3631.094	0.353	0.005	12.998	2.053776	0

Figure S92. CD spectrum of aphanamixoid K (**9**)



File: CD HAP-18-1mm(195-400)12052505.dsx

ProBinaryX

Attributes :

- Time Stamp :Fri May 25 13:44:00 2012

- File ID : {5E75909A-2670-4d05-B654-F52B1B197A85}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.4200mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S93. ^{1}H NMR spectrum of aphanamixoid L (**10**) in $CDCl_3$

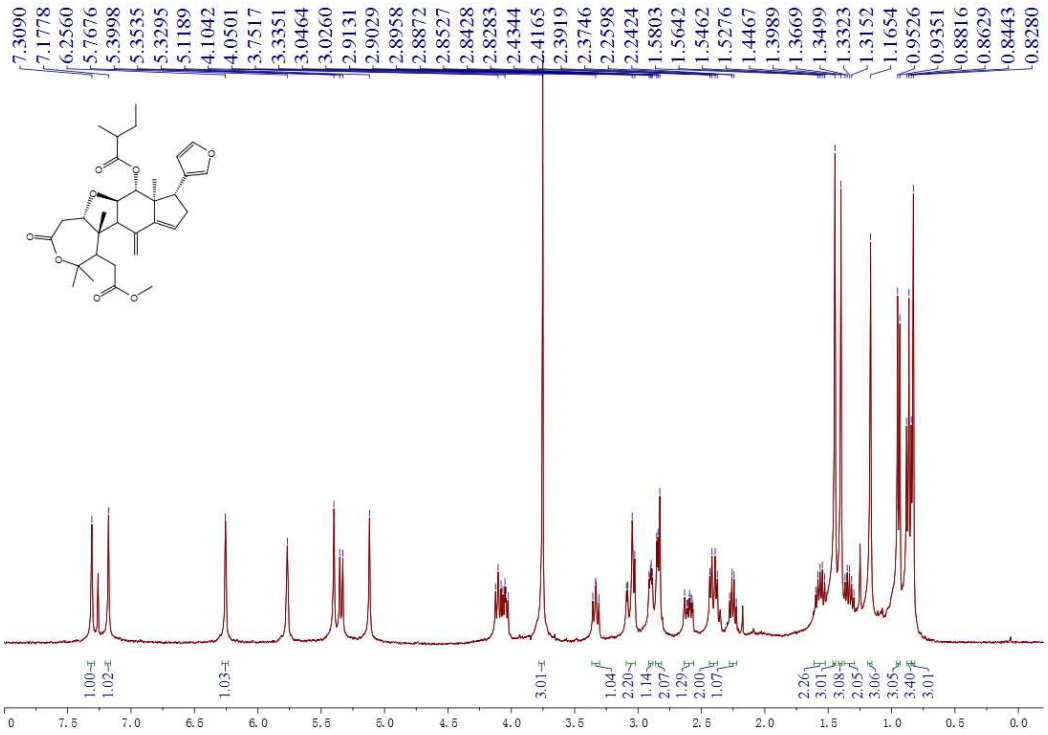


Figure S94. ^{13}C NMR spectrum of aphanamixoid L (**10**) in $CDCl_3$

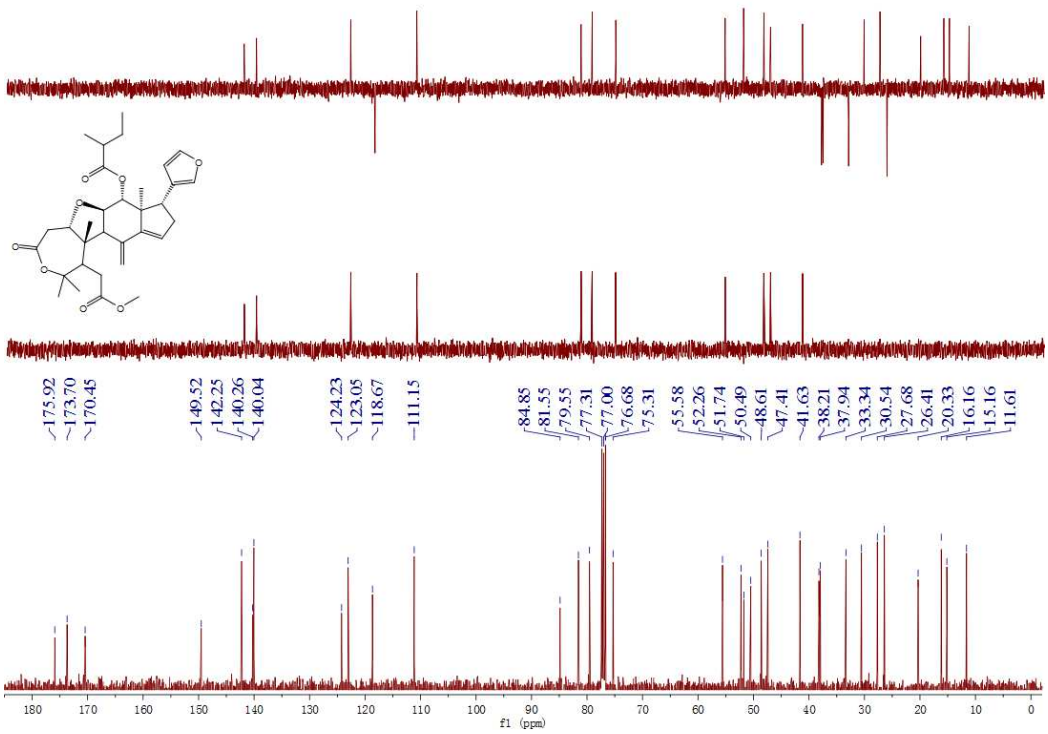


Figure S95. HSQC spectrum of aphanamixoid L (**10**) in $CDCl_3$

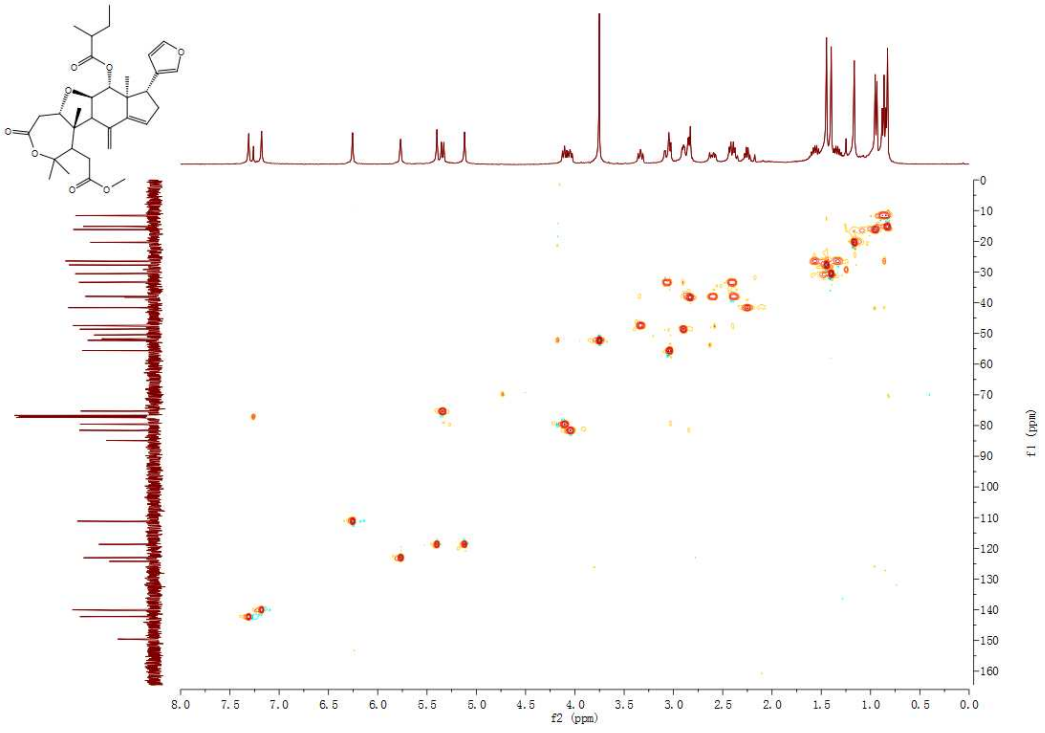


Figure S96. HMBC spectrum of aphanamixoid L (**10**) in $CDCl_3$

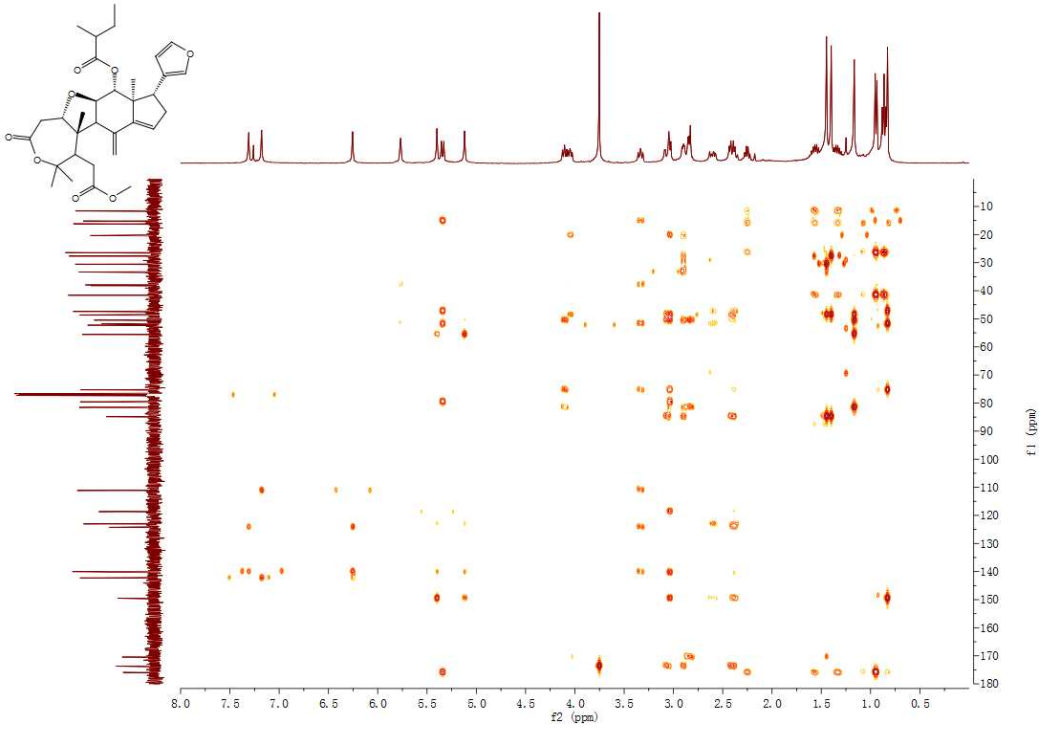


Figure S97. ^{1}H–^{1}H COSY spectrum of aphanamixoid L (**10**) in $CDCl_3$

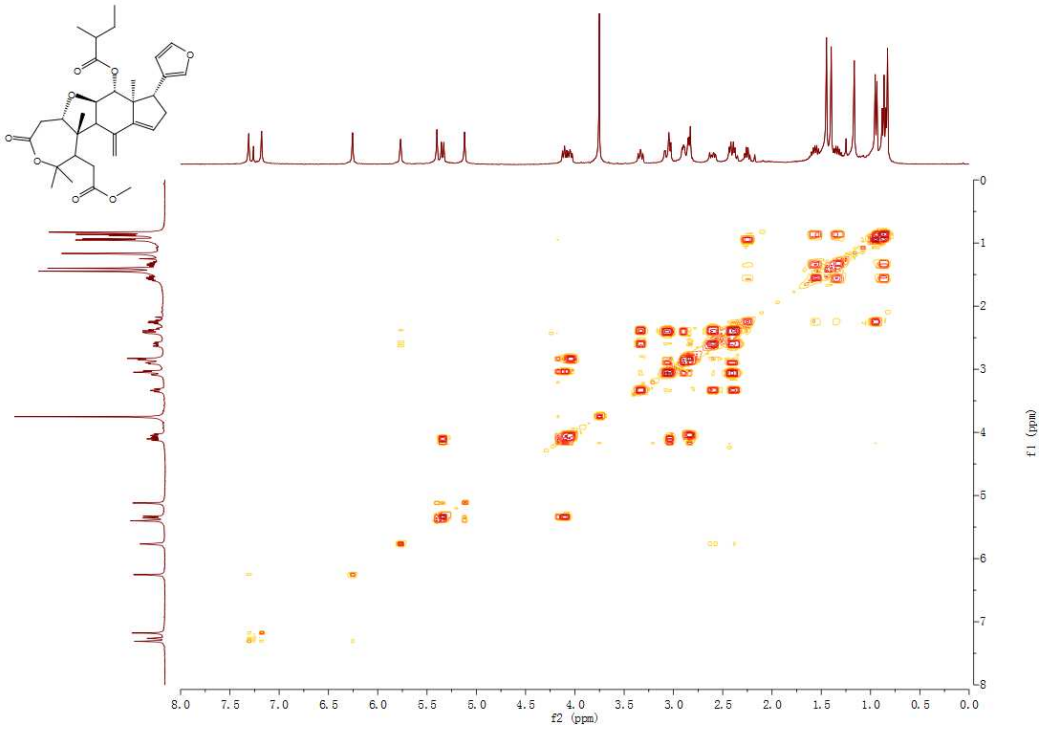


Figure S98. ROESY spectrum of aphanamixoid L (**10**) in $CDCl_3$

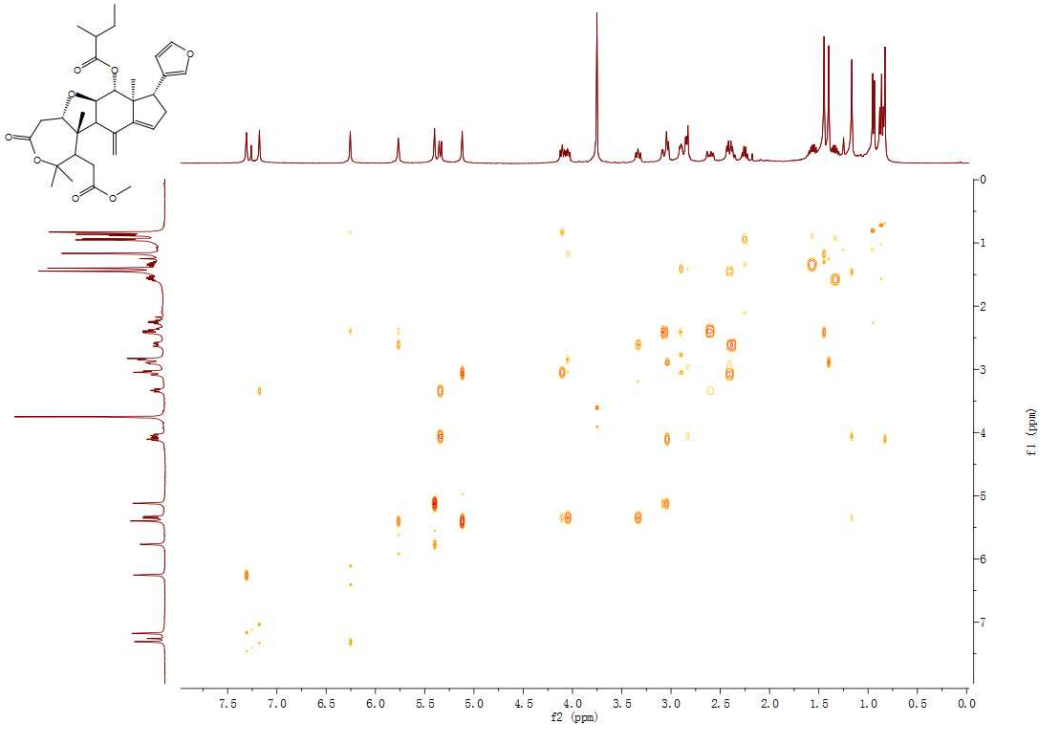


Figure S99. ESI (+) MS of aphanamixoid L (**10**)

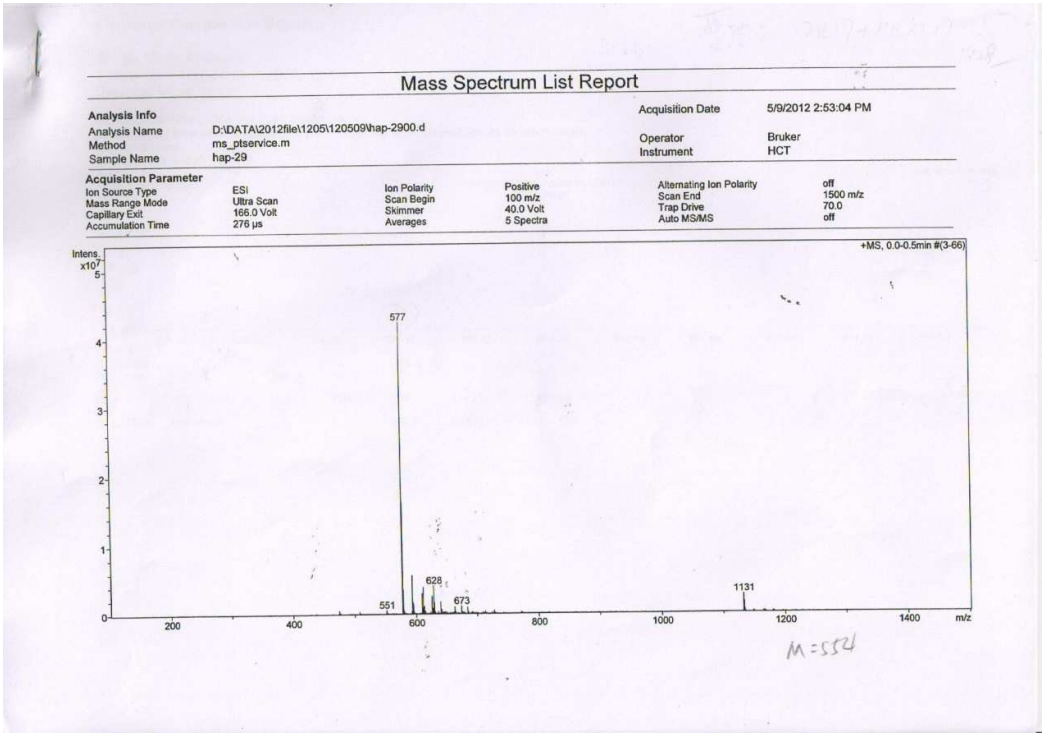


Figure S100. HR-EI (+) MS of aphanamixoid L (**10**)

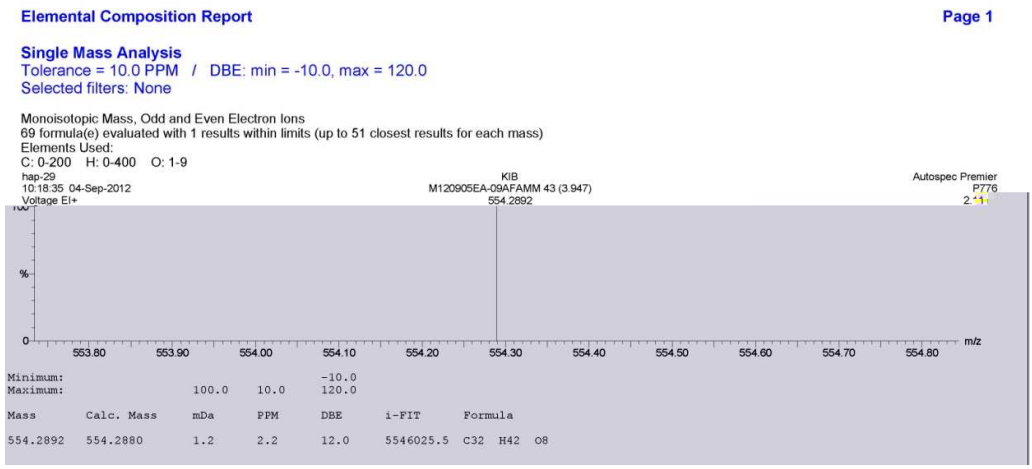
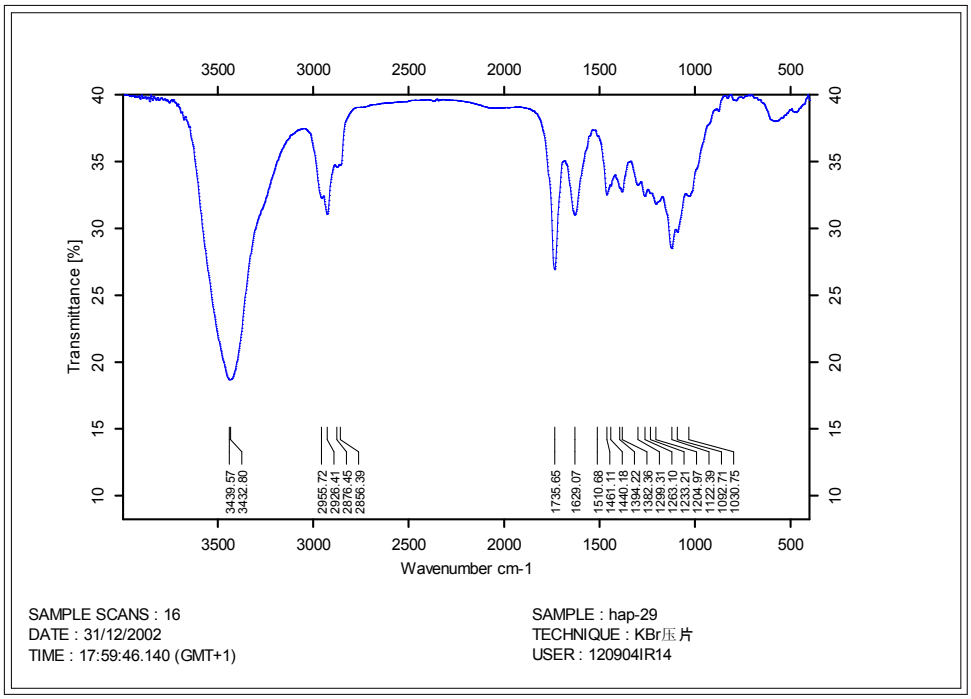
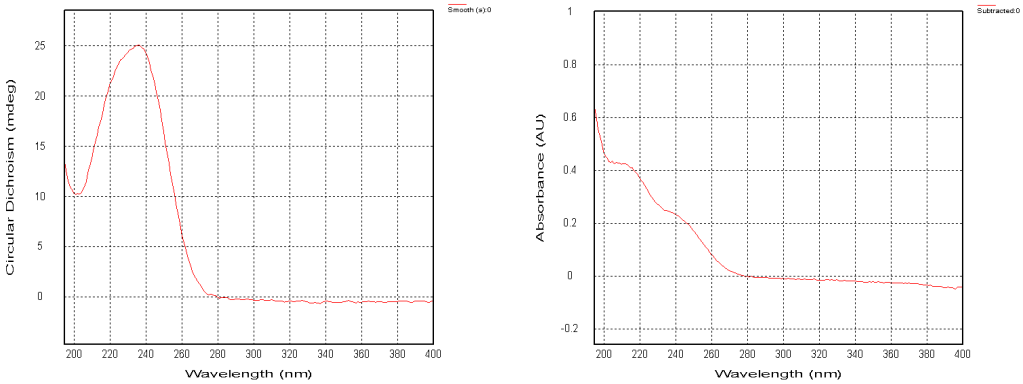


Figure S101. IR spectrum of aphanamixoid L (**10**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
428.850	0.393	0.001	8.997	0.205299	0
450.181	0.390	0.000	5.135	0.013070	0
470.321	0.387	0.006	14.302	1.355528	0
478.591	0.387	0.001	4.483	0.183255	0
485.499	0.387	0.000	5.306	0.013014	0
498.910	0.389	0.000	6.037	0.089531	0
514.748	0.386	0.001	5.665	0.207913	0
525.798	0.385	0.001	6.248	0.033115	0
540.383	0.383	0.001	8.079	0.214063	0
568.219	0.380	0.001	16.805	0.109632	0
581.820	0.380	0.020	46.961	9.379220	0
645.981	0.394	0.000	7.582	0.006724	0
661.626	0.396	0.000	3.781	0.030668	0
669.804	0.396	0.001	5.137	0.295626	0
785.093	0.395	0.005	9.938	2.151297	0
797.921	0.396	0.001	9.450	0.055298	0
875.704	0.388	0.002	11.350	0.837158	0
894.054	0.389	0.000	5.761	0.085156	0
1030.747	0.324	0.004	38.736	0.858755	0
1092.713	0.297	0.003	26.839	0.967743	0
1122.394	0.285	0.098	25.231	41.670940	0
1204.965	0.318	0.010	31.474	2.629297	0
1233.212	0.326	0.001	9.227	0.210303	0
1263.100	0.324	0.008	17.927	2.400138	0
1299.305	0.332	0.007	27.037	1.359512	0
1382.359	0.327	0.017	13.696	5.948814	0
1394.224	0.330	0.001	8.553	0.060596	0
1440.178	0.332	0.002	8.128	0.263518	0
1461.107	0.325	0.040	19.811	11.803261	0
1510.676	0.369	0.001	7.101	0.268816	0
1629.071	0.310	0.050	56.869	19.212648	0
1735.652	0.269	0.129	38.083	59.932129	0
2856.388	0.347	0.001	9.602	0.387128	0
2876.450	0.346	0.003	12.601	0.978227	0
2926.408	0.311	0.068	23.281	30.190926	0
2955.716	0.323	0.007	23.139	0.833957	0
3432.796	0.187	0.000	51.084	0.059918	0
3439.567	0.187	0.213	173.565	100.011894	0

Figure S102. CD spectrum of aphanamixoid L (**10**)



File: CD HAP-29-1mm(195-400)12052508.dsx

ProBinaryX

Attributes :

- Time Stamp :Fri May 25 14:16:16 2012

- File ID : {BB717B15-0C29-4938-9A15-051140659AA4}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 269.516 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.4200mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S103. ^{1}H NMR spectrum of aphanamixoid M (**11**) in $CDCl_3$

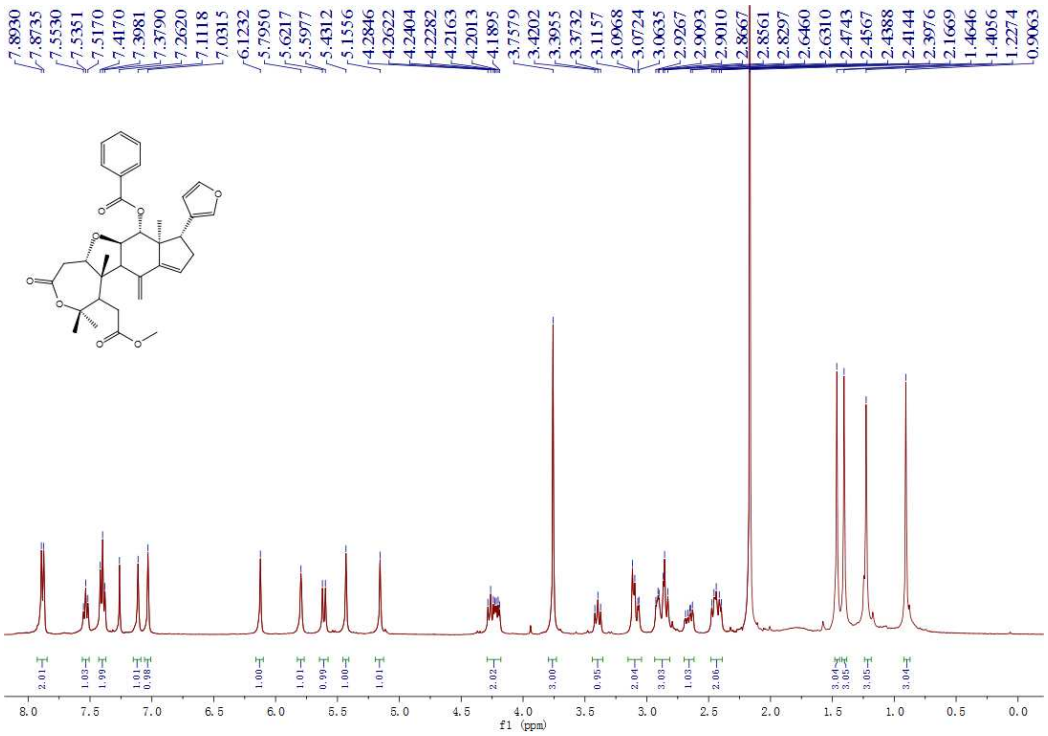


Figure S104. ^{13}C NMR spectrum of aphanamixoid M (**11**) in $CDCl_3$

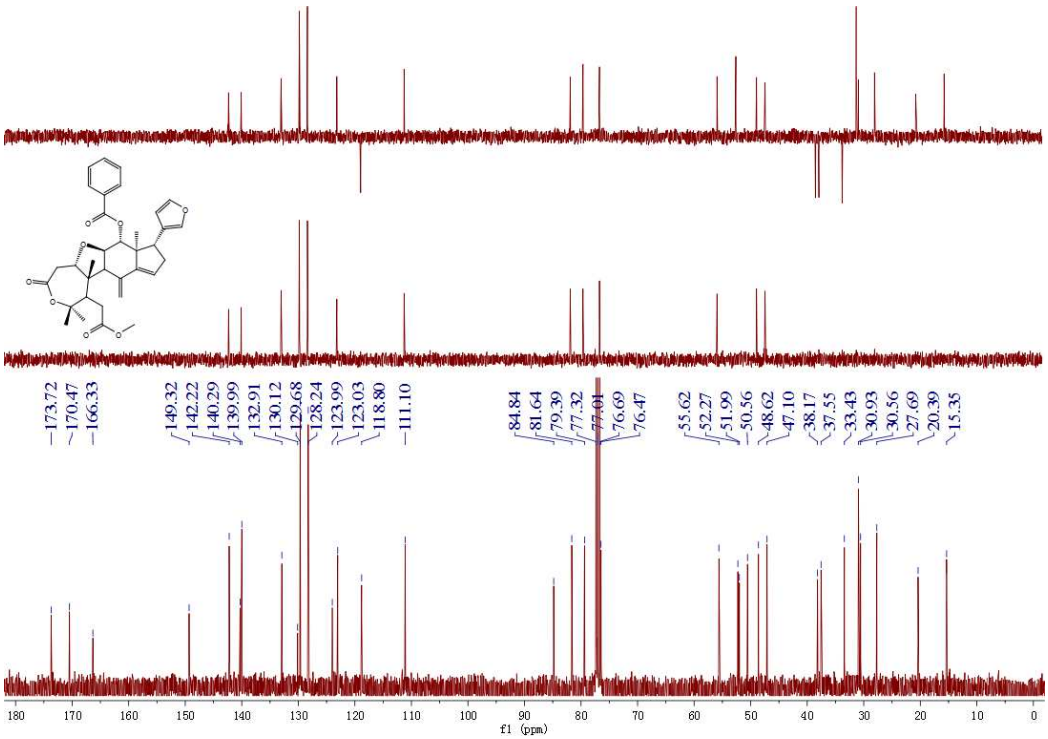


Figure S105. HSQC spectrum of aphanamixoid M (**11**) in $CDCl_3$

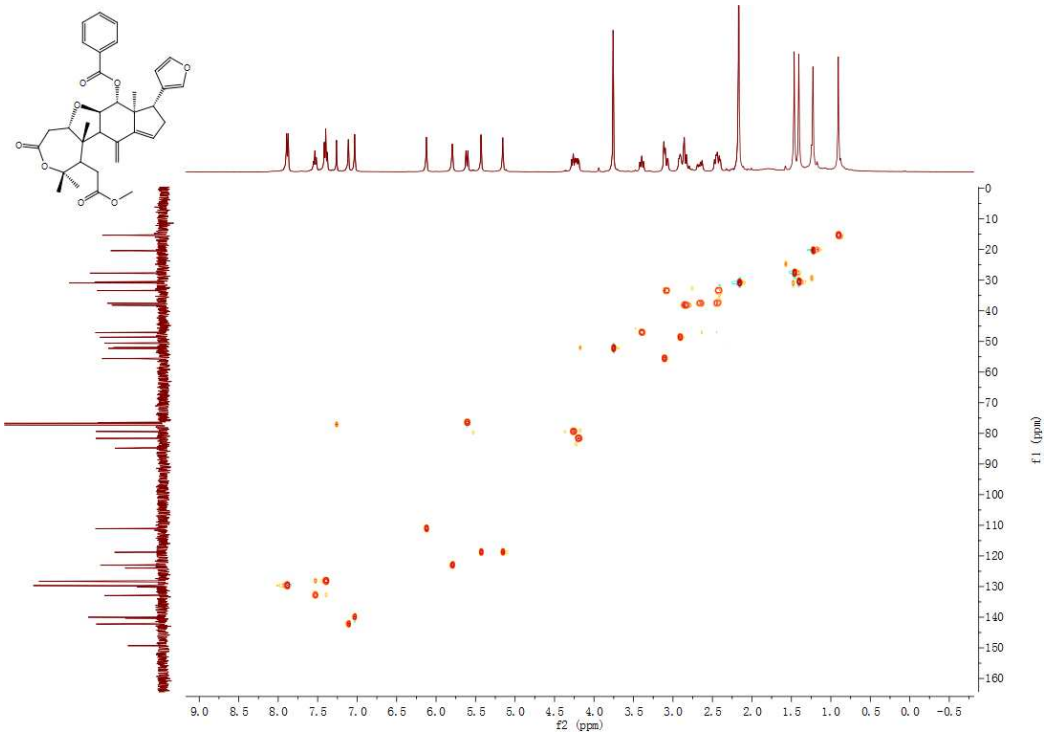


Figure S106. HMBC spectrum of aphanamixoid M (**11**) in $CDCl_3$

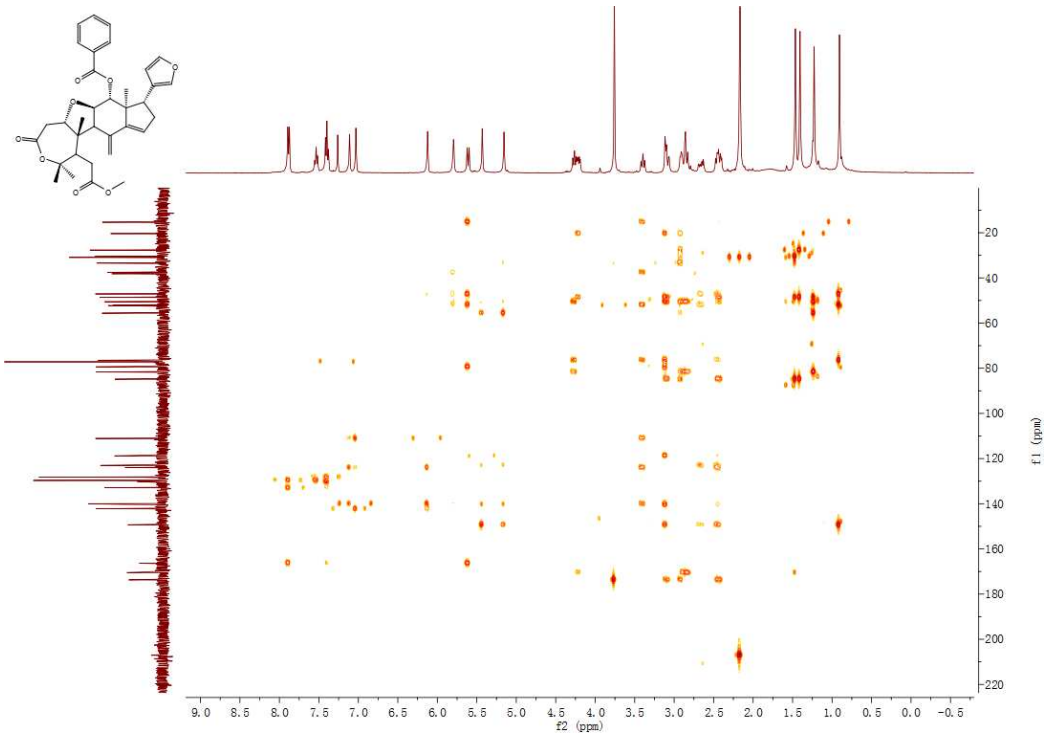


Figure S107. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid M (**11**) in $CDCl_3$

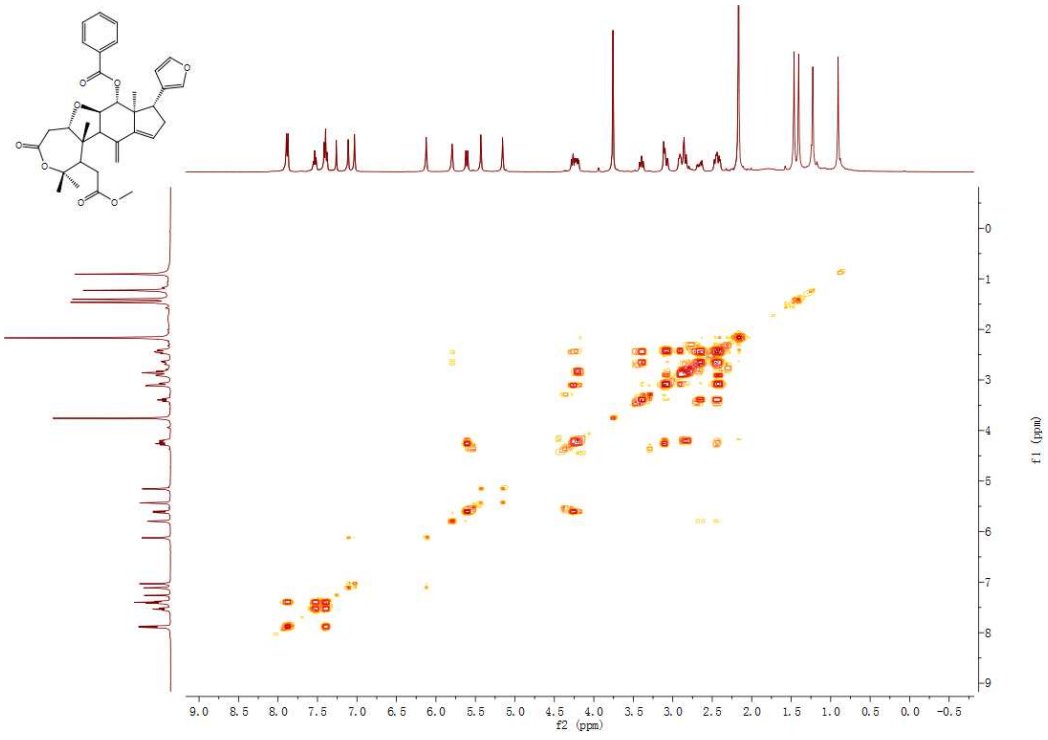


Figure S108. ROESY spectrum of aphanamixoid M (**11**) in $CDCl_3$

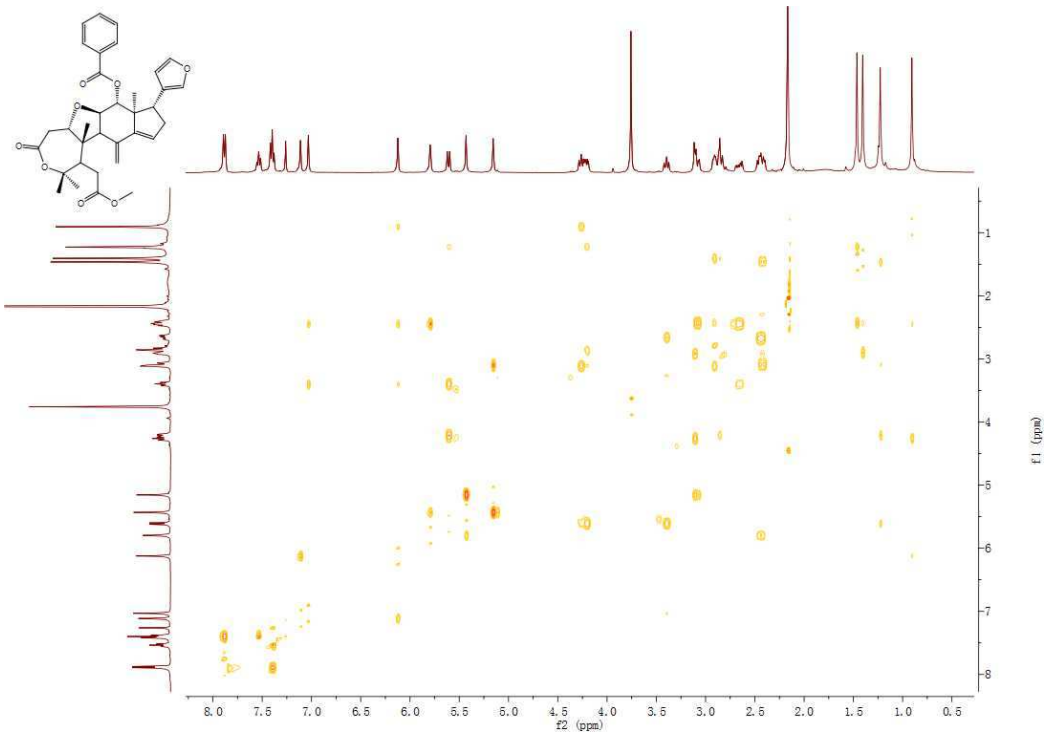


Figure S109. ESI (+) MS of aphanamixoid M (**11**)

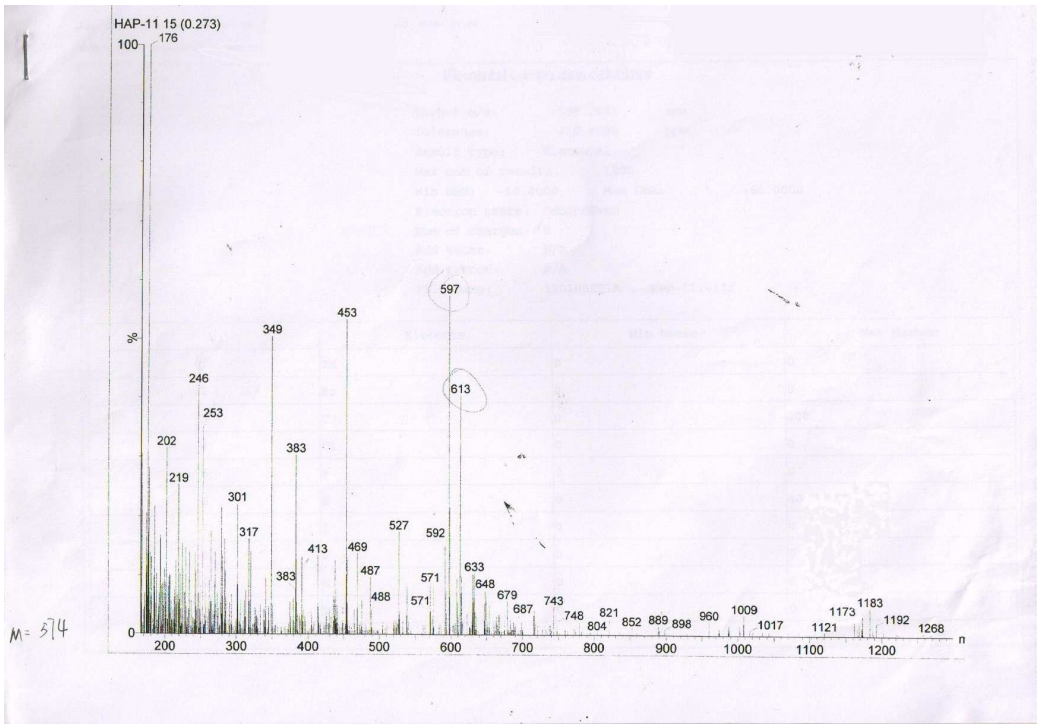


Figure S110. HR-EI (+) MS of aphanamixoid M (**11**)

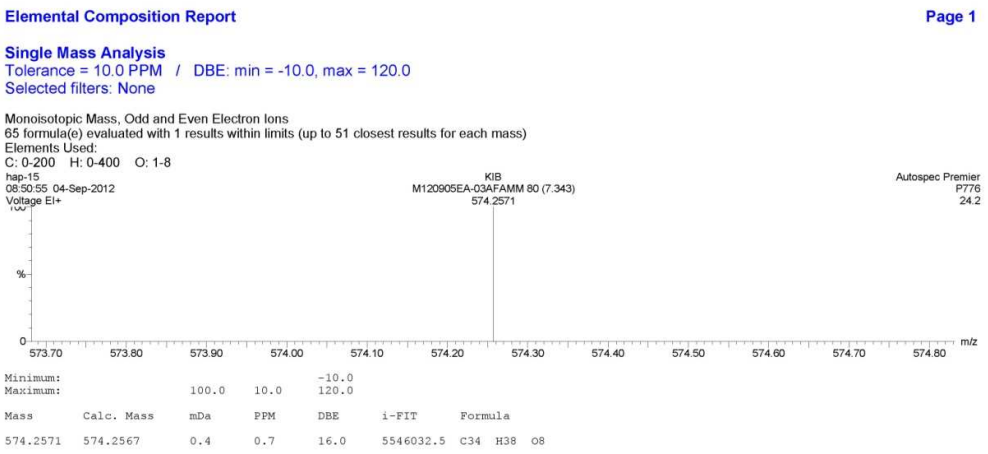
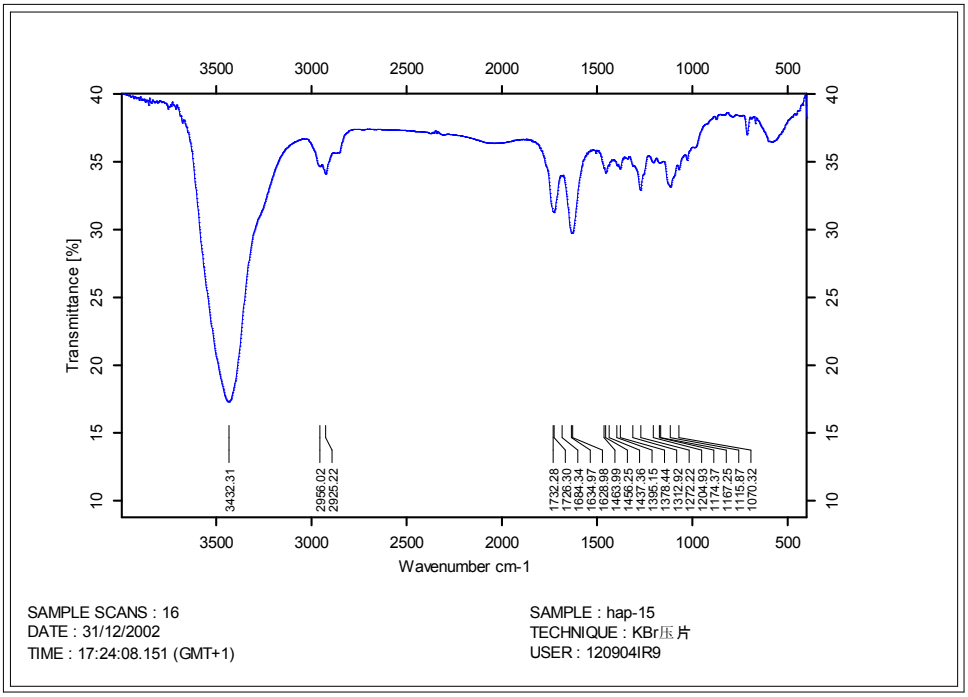
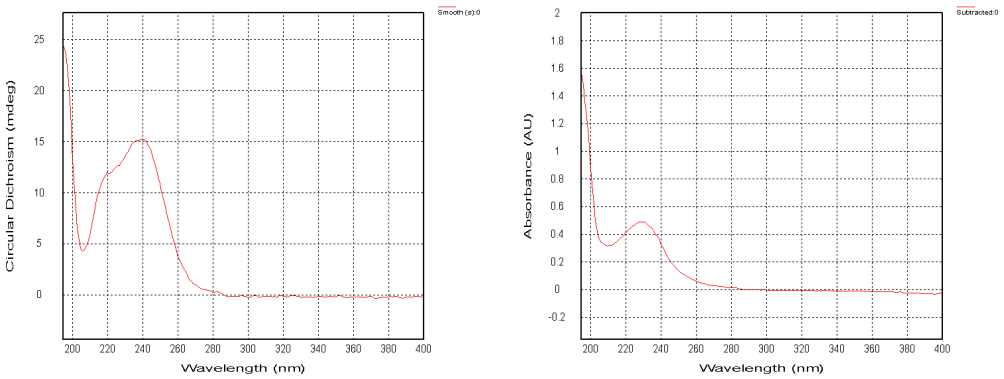


Figure S111. IR spectrum of aphanamixoid M (**11**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
492.595	0.381	0.001	4.191	0.042655	0
526.910	0.372	0.001	5.112	0.097911	0
581.081	0.364	0.030	46.494	9.676296	0
599.306	0.365	0.001	10.950	0.210744	0
668.545	0.378	0.005	5.121	2.051030	0
689.126	0.382	0.001	8.255	0.448381	0
711.950	0.370	0.014	13.428	5.876683	0
874.429	0.381	0.003	8.517	1.015028	0
987.416	0.360	0.001	18.378	0.174625	0
998.059	0.361	0.000	3.918	0.039348	0
1027.126	0.351	0.005	9.954	1.904939	0
1070.323	0.344	0.004	10.573	1.465286	0
1115.872	0.331	0.030	40.211	10.272658	0
1167.245	0.349	0.000	10.946	0.002756	0
1174.367	0.349	0.002	9.724	0.568420	0
1204.925	0.349	0.004	18.874	1.424717	0
1272.215	0.329	0.039	31.599	13.225202	0
1312.922	0.347	0.002	9.146	0.216217	0
1340.326	0.352	0.002	4.299	0.611547	0
1346.050	0.352	0.000	4.873	0.035542	0
1362.952	0.352	0.001	3.779	0.144254	0
1378.442	0.345	0.008	13.116	3.211061	0
1395.149	0.347	0.002	6.315	0.571202	0
1419.133	0.351	0.001	3.723	0.369068	0
1437.361	0.347	0.001	3.879	0.340810	0
1456.246	0.342	0.015	12.309	5.387274	0
1463.990	0.345	0.001	4.152	0.139201	0
1628.984	0.297	0.000	16.950	0.112938	0
1634.971	0.297	0.089	14.425	33.855331	0
1684.335	0.339	0.001	3.857	0.396735	0
1726.297	0.313	0.029	17.813	12.172623	0
1732.277	0.313	0.000	9.470	0.023953	0
2854.950	0.356	0.001	9.064	0.251838	0
2870.867	0.356	0.002	13.952	0.275882	0
2925.216	0.341	0.028	22.477	11.449226	0
2956.017	0.346	0.004	22.111	0.701688	0
3432.306	0.173	0.227	231.974	99.974861	0

Figure S112. CD spectrum of aphanamixoid M (**11**)



File: CD HAP-15-1mm(195-400)12052503.dsx

ProBinaryX

Attributes :

- Time Stamp :Fri May 25 13:30:04 2012

- File ID : {A16A837B-47F0-435f-9467-9E5F2D8C48C6}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.1500mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S113. ^{1}H NMR spectrum of aphanamixoid N (**12**) in $CDCl_3$

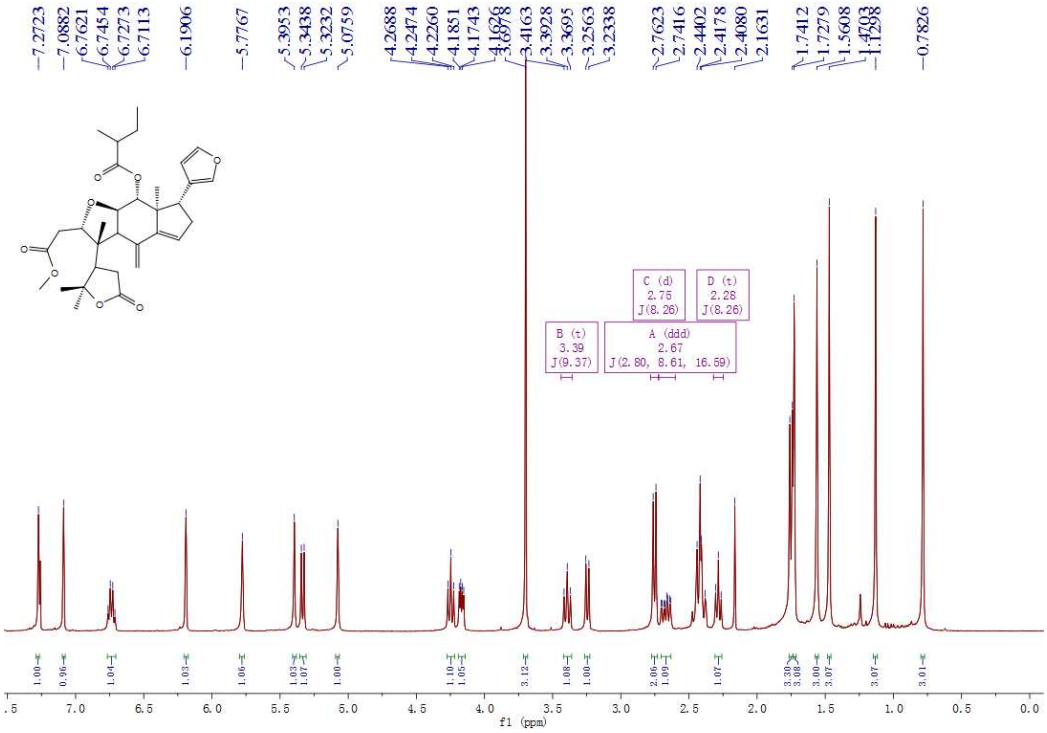


Figure S114. ^{13}C NMR spectrum of aphanamixoid N (**12**) in $CDCl_3$

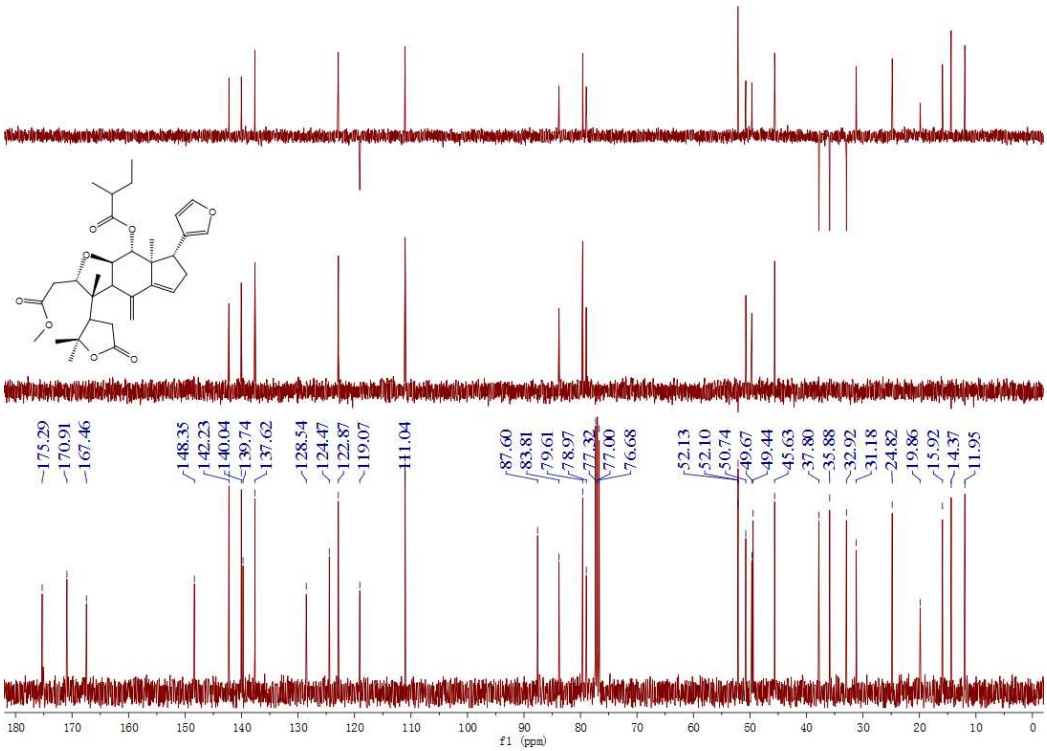


Figure S115. HSQC spectrum of aphanamixoid N (**12**) in $CDCl_3$

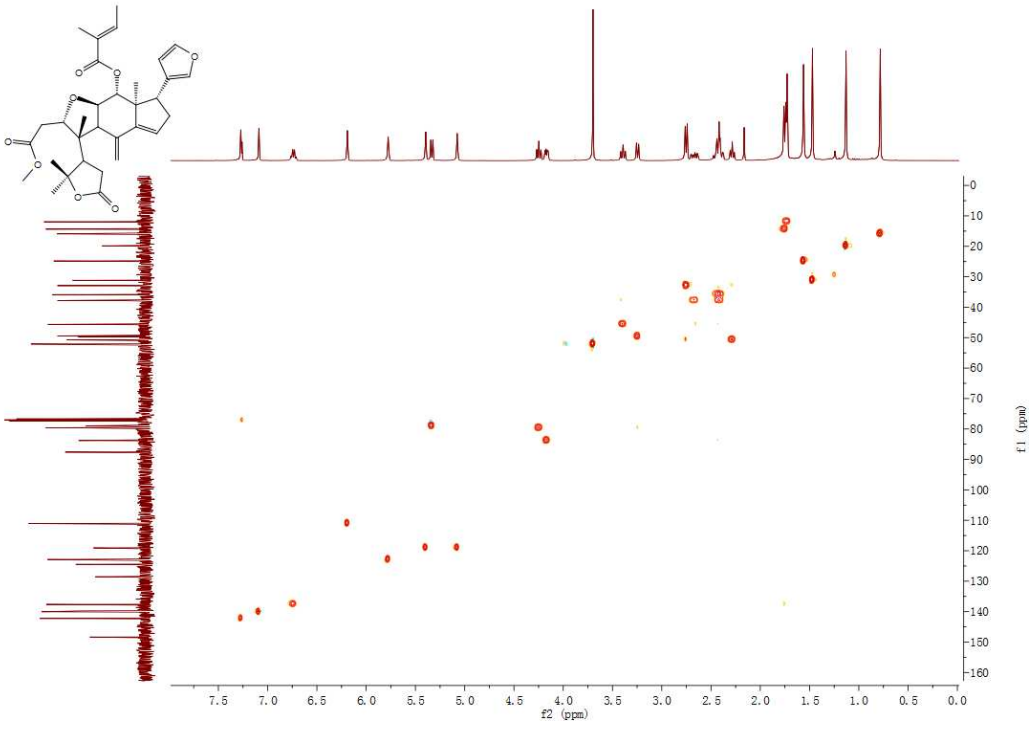


Figure S116. HMBC spectrum of aphanamixoid N (**12**) in $CDCl_3$

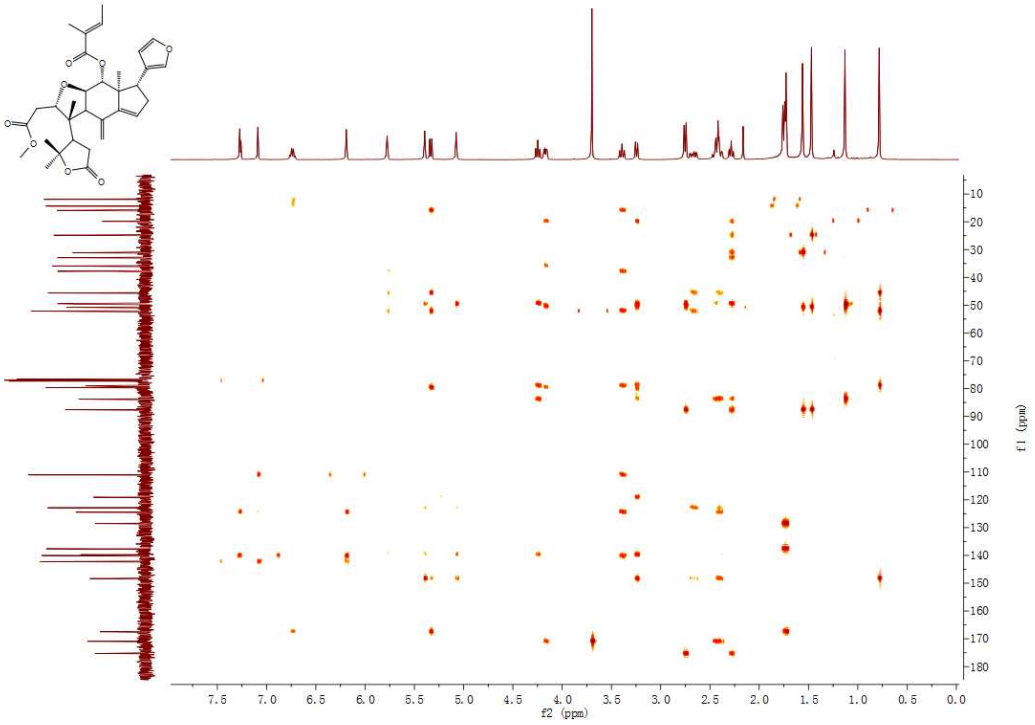


Figure S117. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid N (**12**) in $CDCl_3$

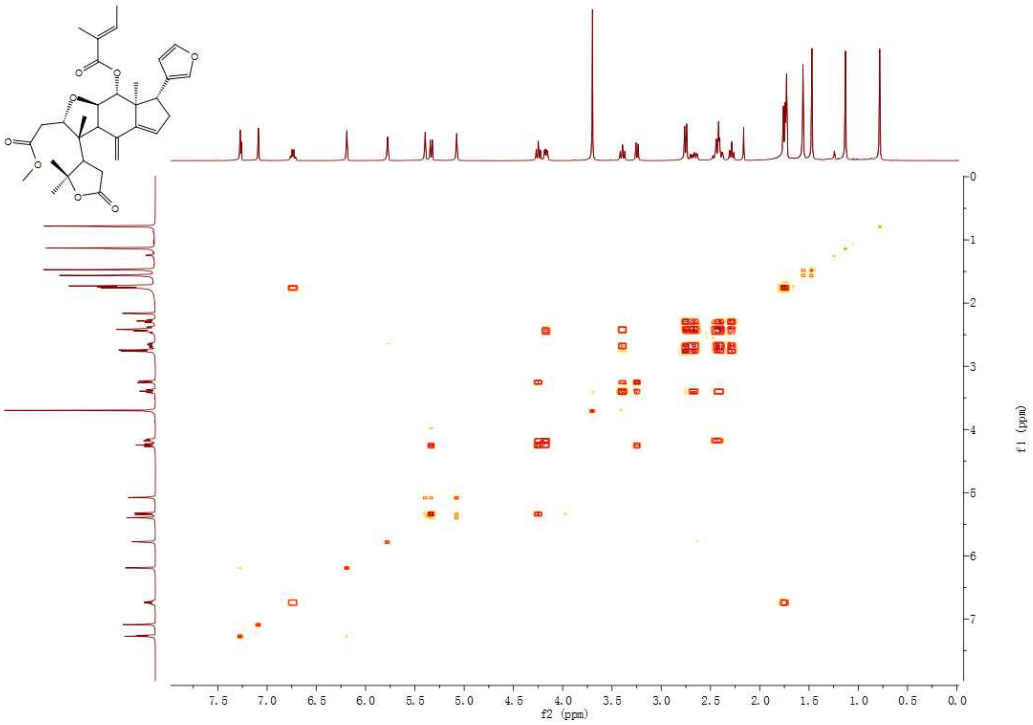


Figure S118. ROESY spectrum of aphanamixoid N (**12**) in $CDCl_3$

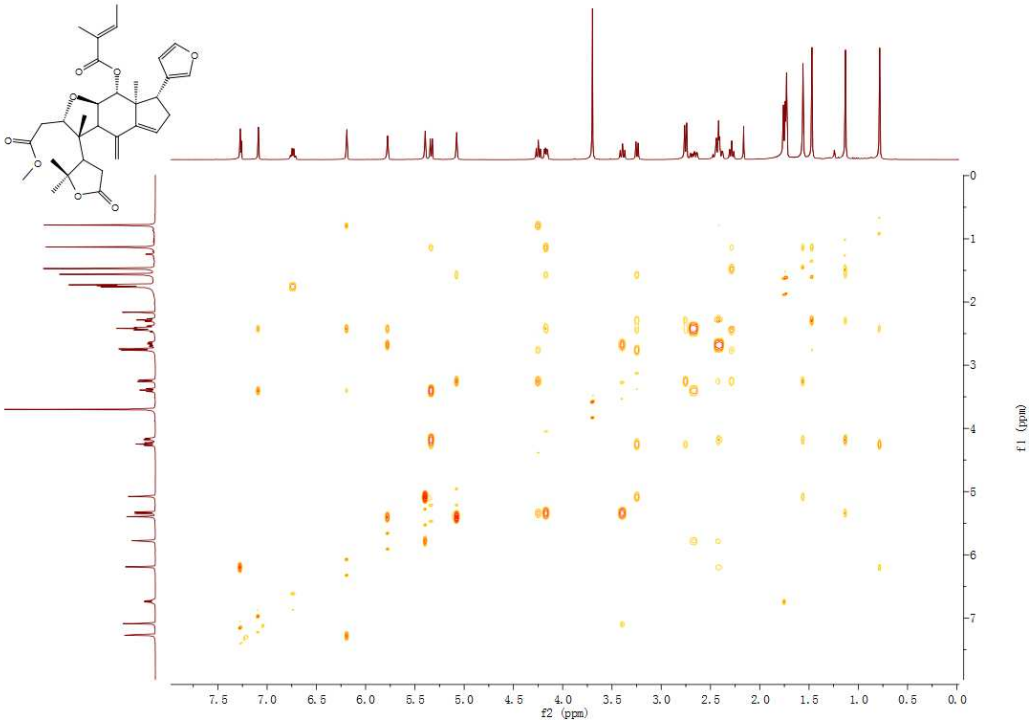


Figure S119. ESI (+) MS of aphanamixoid N (**12**)

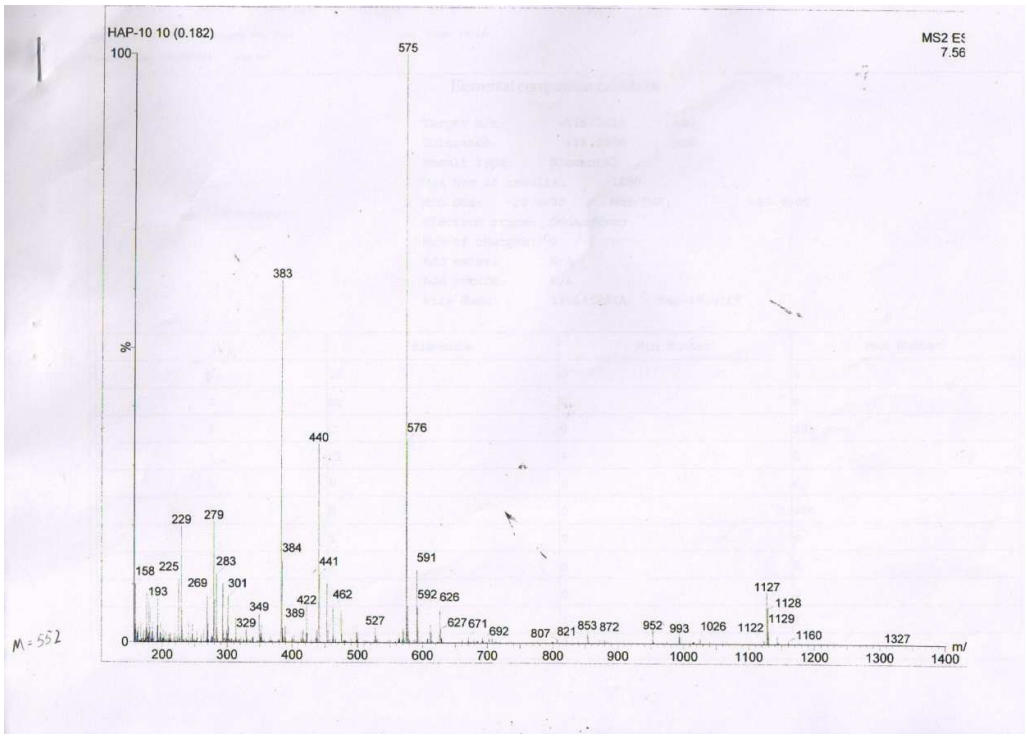


Figure S120. HR-ESI (+) MS of aphanamixoid N (**12**)

Elemental composition calculator

Target m/z: +575.2631 amu
Tolerance: 10.0000 ppm
Result type: Elemental
Max num of results: 1000
Min DBE: -10.0000 Max DBE: +60.3000
Electron state: OddAndEven
Num of charges: 0
Add water: N/A
Add proton: N/A
File Name: 120105ESIA hap-10.wiff

	Elements	Min Number	Max Number
1	H	0	0
2	He	0	0
3	C	0	200
4	Cl	0	0
5	F	0	0
6	N	0	400
7	I	0	0
8	K	0	0
9	Li	0	0
10	Na	1	1
11	O	5	8

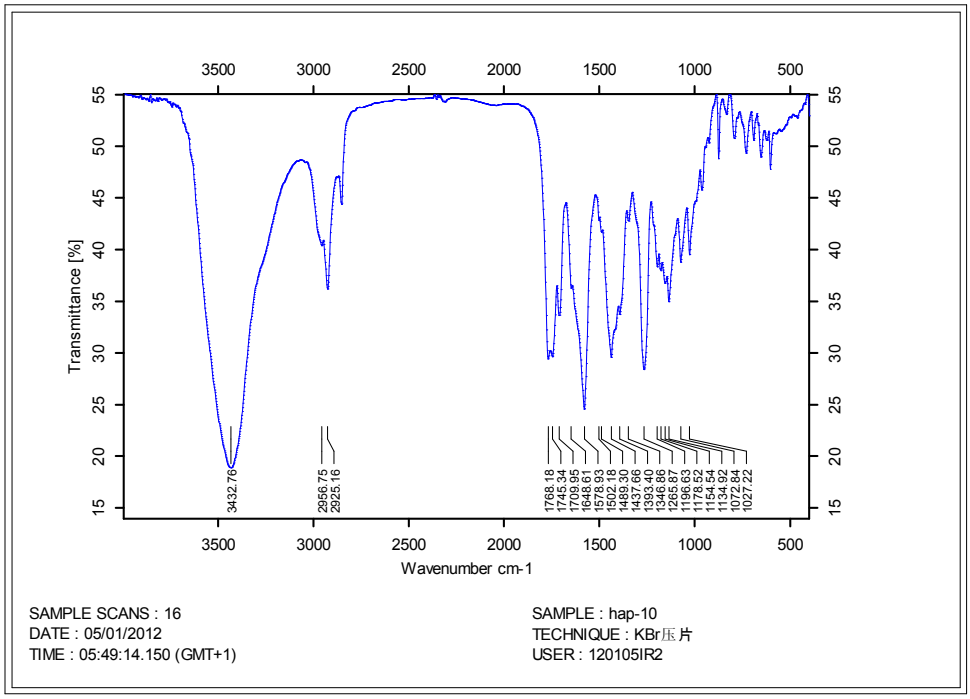
Acq. Date: Wednesday, January 04, 2012 Acq. Time: 19:45

Sample Name: 120105ESIA hap-10

	Elements	Min Number	Max Number
12	P	0	0
13	Pt	0	0
14	S	0	0
15	Si	0	0

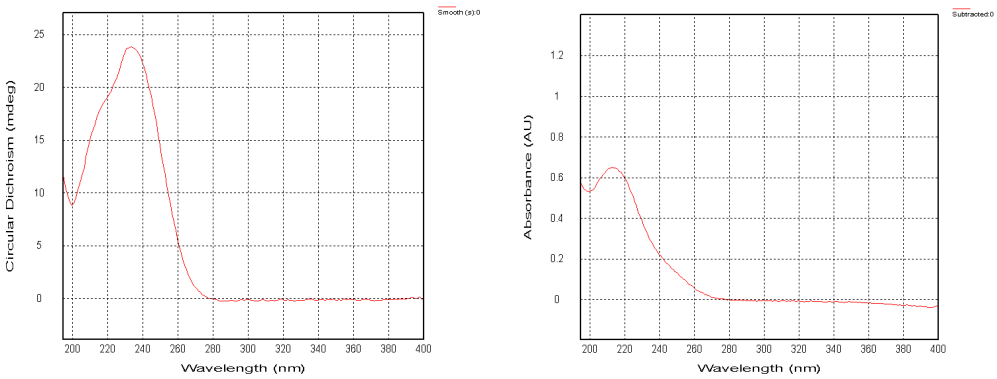
	Formula	Calculated m/z (amu)	mDa Error	PPM Error	DBE
1	C32 H40 O8 Na	575.2620	1.0115	1.7584	12.5

Figure S121. IR spectrum of aphanamixoid N (**12**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
459.869	0.527	0.010	8.663	1.099586	0
473.483	0.529	0.001	8.727	0.172872	0
494.641	0.528	0.002	8.538	0.154895	0
518.792	0.521	0.001	7.507	0.028449	0
546.483	0.514	0.005	22.208	0.686703	0
572.612	0.512	0.004	10.379	0.293182	0
581.461	0.512	0.000	4.489	0.034898	0
601.821	0.478	0.072	8.958	19.989674	0
621.275	0.505	0.009	11.083	2.495686	0
651.066	0.489	0.029	13.954	7.087254	0
667.363	0.520	0.004	3.965	0.398881	0
690.729	0.505	0.027	12.175	7.196003	0
730.224	0.493	0.045	20.256	11.268280	0
775.222	0.527	0.002	6.674	0.237439	0
791.360	0.507	0.034	15.879	7.150435	0
833.303	0.531	0.017	19.209	4.073959	0
873.558	0.488	0.062	8.531	17.178211	0
925.101	0.503	0.012	9.396	1.548158	0
942.223	0.499	0.004	7.276	0.273565	0
961.086	0.458	0.029	12.780	5.348363	0
993.032	0.447	0.003	14.006	0.047638	0
1027.222	0.395	0.055	17.204	12.653017	0
1072.836	0.388	0.053	21.883	11.654660	0
1134.918	0.349	0.125	17.291	26.805845	0
1154.536	0.368	0.014	12.458	1.793043	0
1178.521	0.380	0.015	7.415	2.279366	0
1196.629	0.383	0.024	13.309	3.512679	0
1265.874	0.284	0.185	40.527	47.560997	0
1346.857	0.428	0.016	12.087	2.730568	0
1393.404	0.337	0.019	25.620	2.312532	0
1437.658	0.296	0.159	43.078	43.588474	0
1489.304	0.417	0.007	6.529	0.699740	0
1502.177	0.428	0.008	6.094	1.043133	0
1578.928	0.245	0.305	42.559	84.267281	0
1648.613	0.363	0.015	8.665	0.665799	0
1709.948	0.336	0.051	18.892	7.971789	0
1745.340	0.296	0.029	19.001	1.640152	0
1768.184	0.294	0.165	11.488	41.844437	0
2852.272	0.444	0.030	13.173	7.602767	0
2873.351	0.470	0.001	6.047	0.220724	0
2925.161	0.362	0.138	24.262	34.696106	0
2956.753	0.404	0.012	38.943	1.530157	0
3044.333	0.484	0.001	9.011	0.161492	0
3082.119	0.485	0.001	7.499	0.062110	0
3432.759	0.189	0.361	253.758	99.925224	0

Figure S122. CD spectrum of aphanamixoid N (**12**)



File: CD HAP-10-1mm(195-400)11122906.dsx

ProBinaryX

Attributes :

- Time Stamp :Thu Dec 29 15:30:29 2011

- File ID : {22DD87D1-8BDC-4613-84AA-3D04AA979FC5}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.1575mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S123. ^{1}H NMR spectrum of aphanamixoid O (**13**) in $CDCl_3$

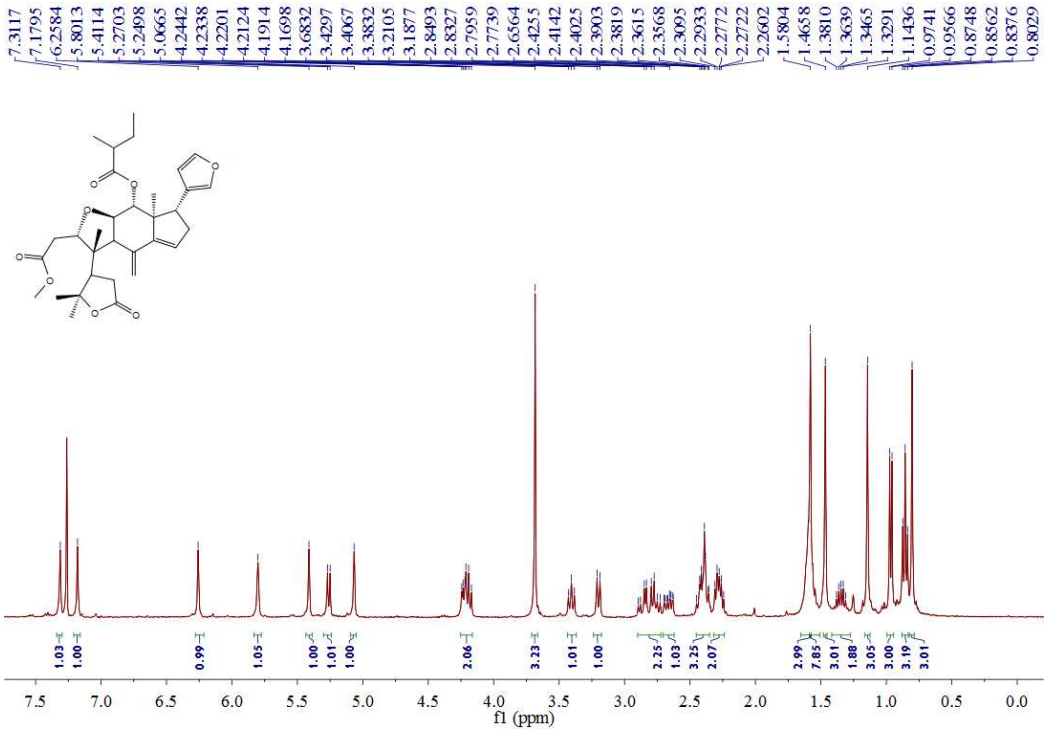


Figure S124. ^{13}C NMR spectrum of aphanamixoid O (**13**) in $CDCl_3$

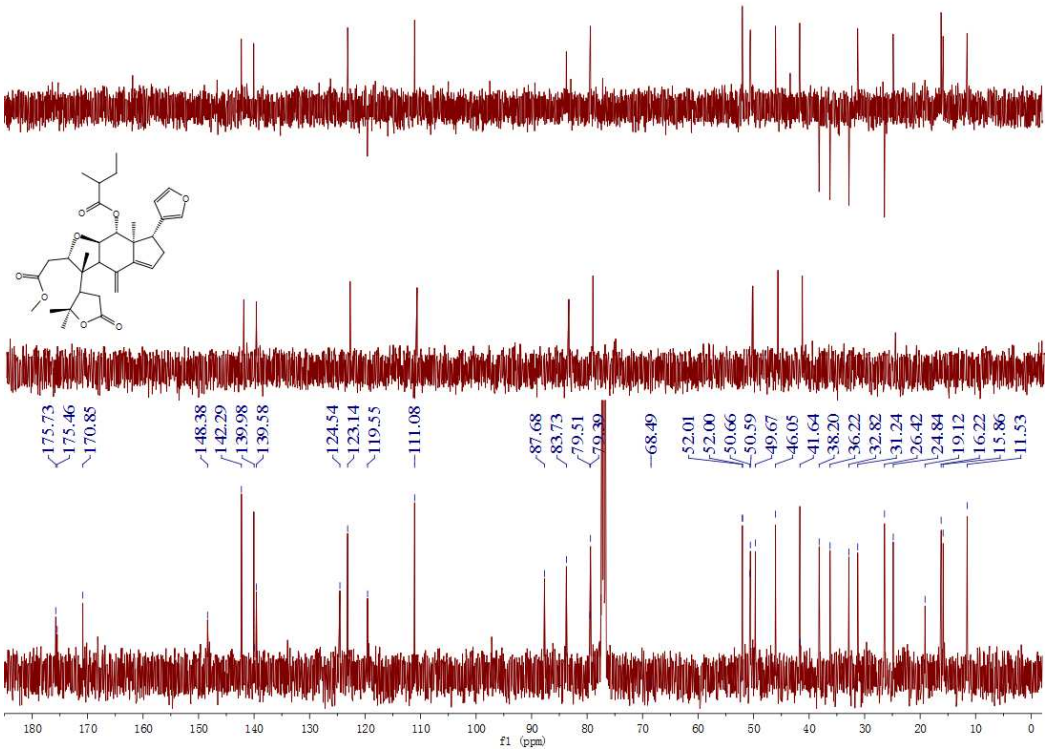


Figure S125. HSQC spectrum of aphanamixoid O (**13**) in $CDCl_3$

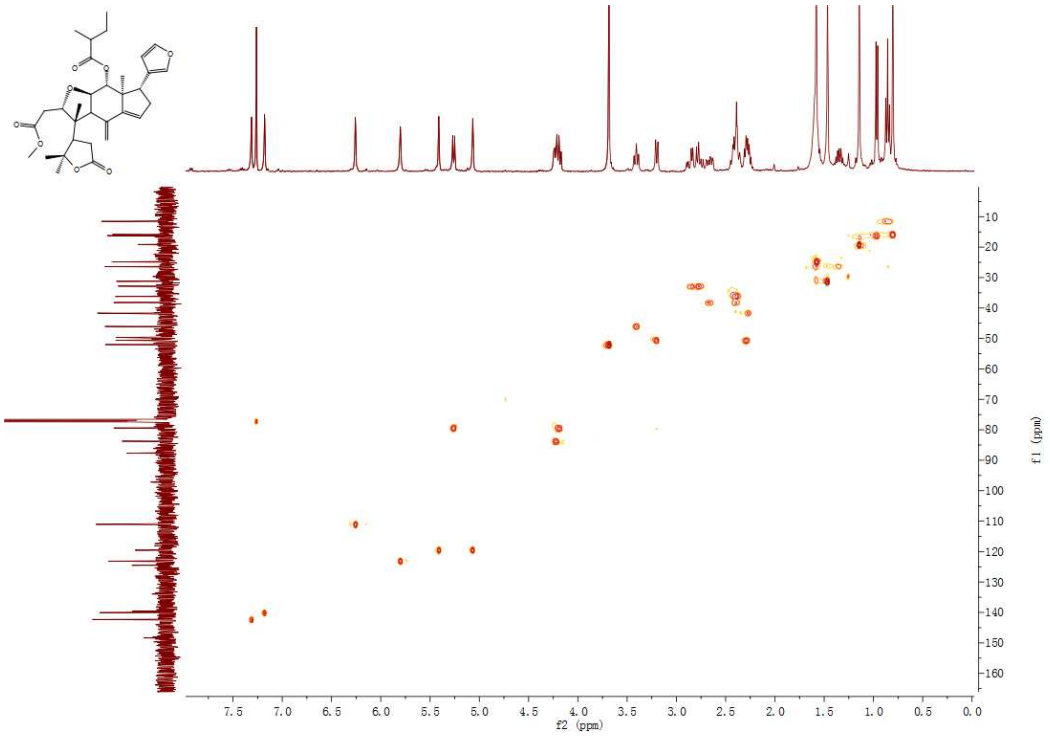


Figure S126. HMBC spectrum of aphanamixoid O (**13**) in $CDCl_3$

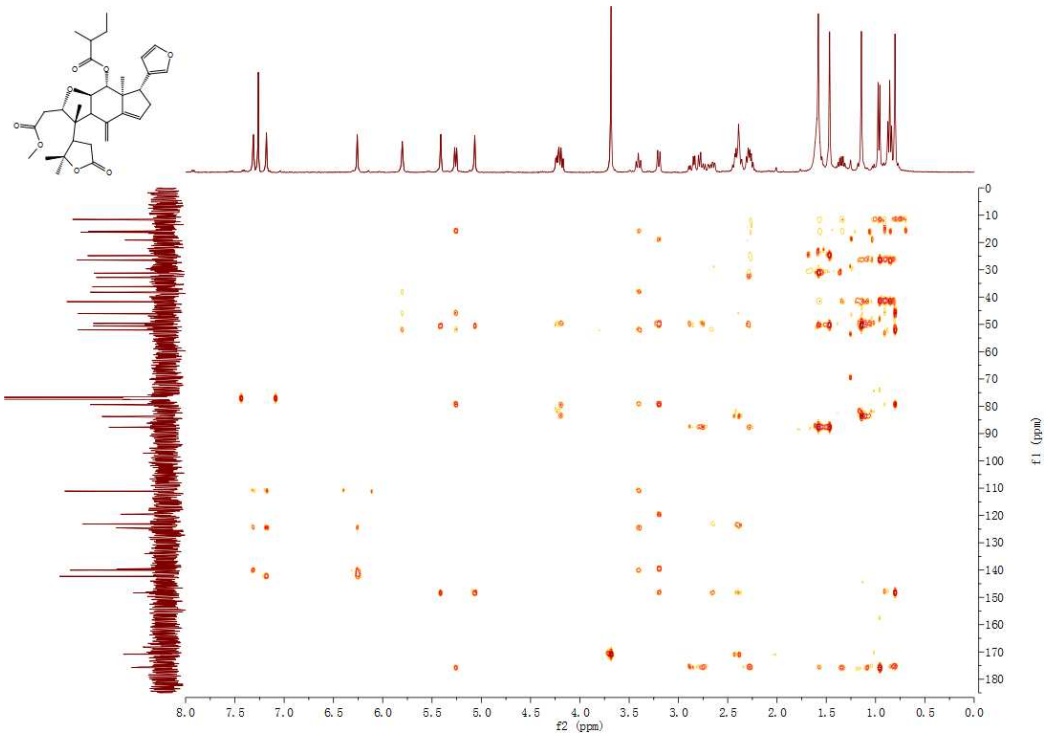


Figure S127. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid O (**13**) in $CDCl_3$

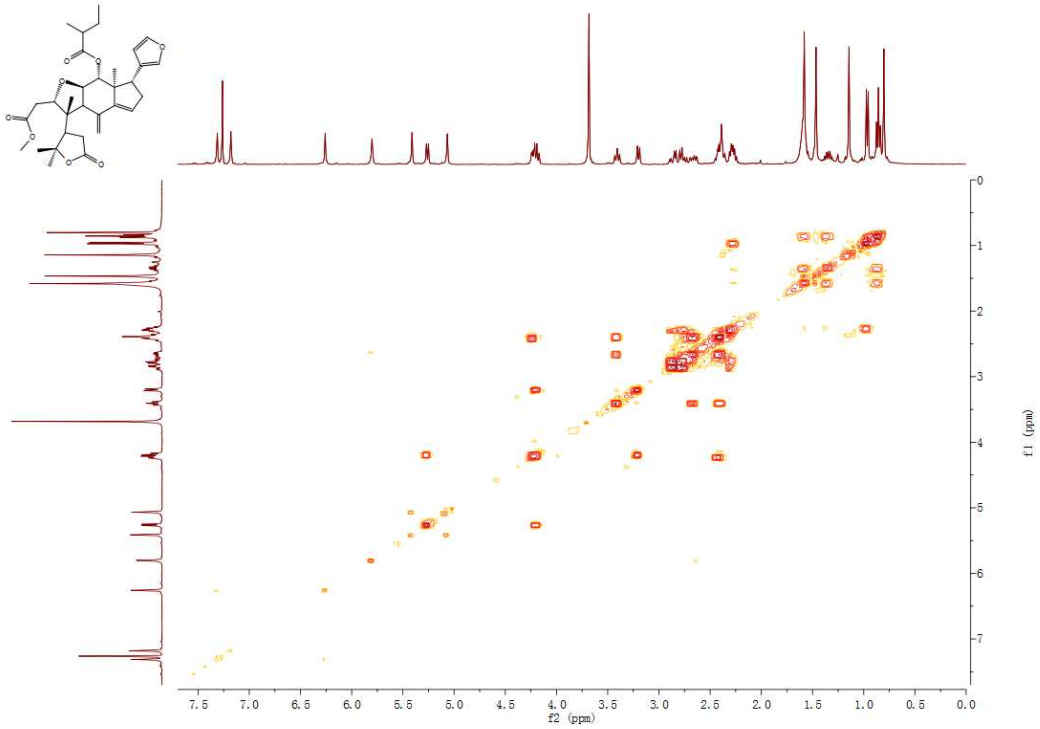


Figure S128. ROESY spectrum of aphanamixoid O (**13**) in $CDCl_3$

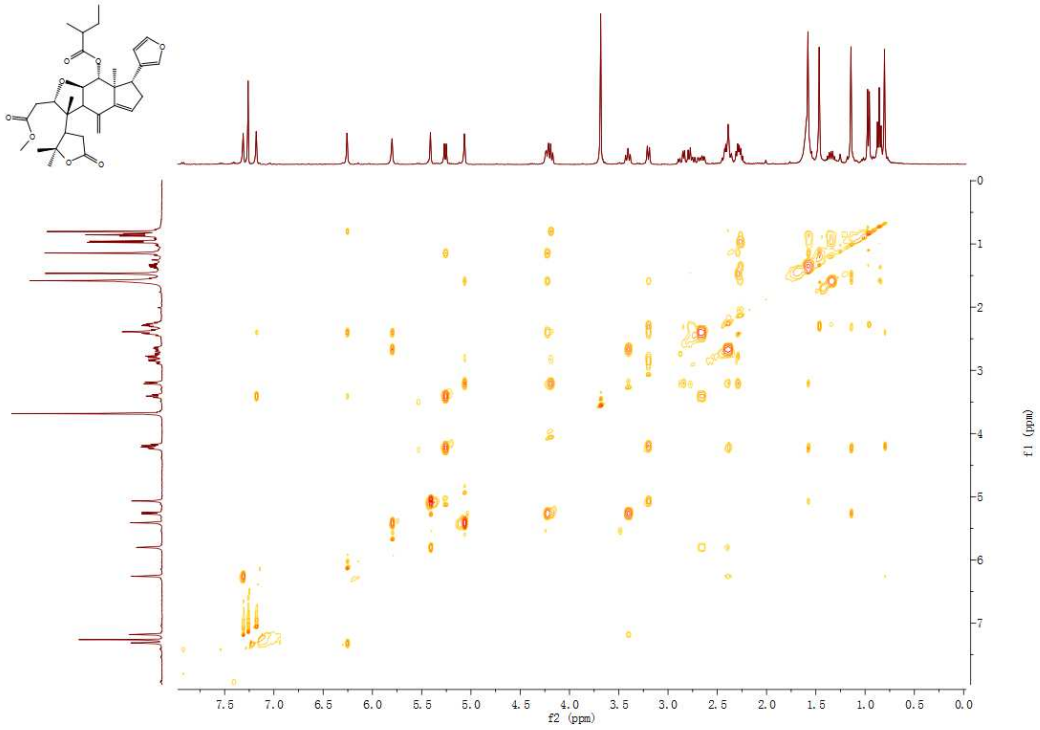


Figure S129. ESI (+) MS of aphanamixoid O (**13**)

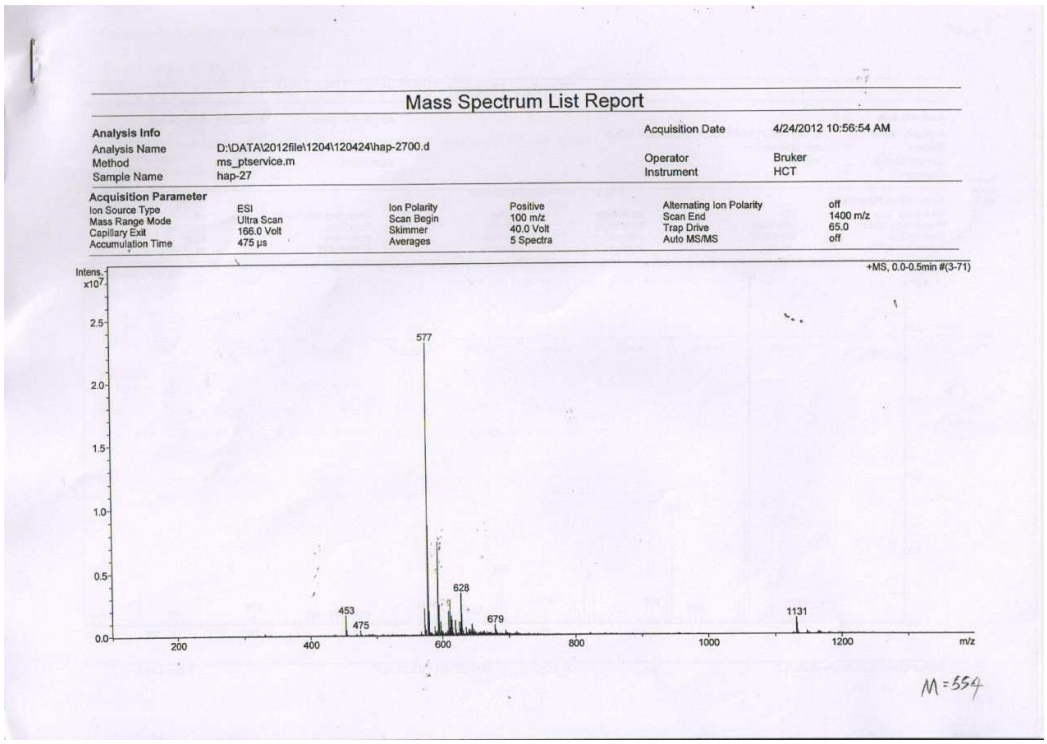


Figure S130. HR-EI (+) MS of aphanamixoid O (**13**)

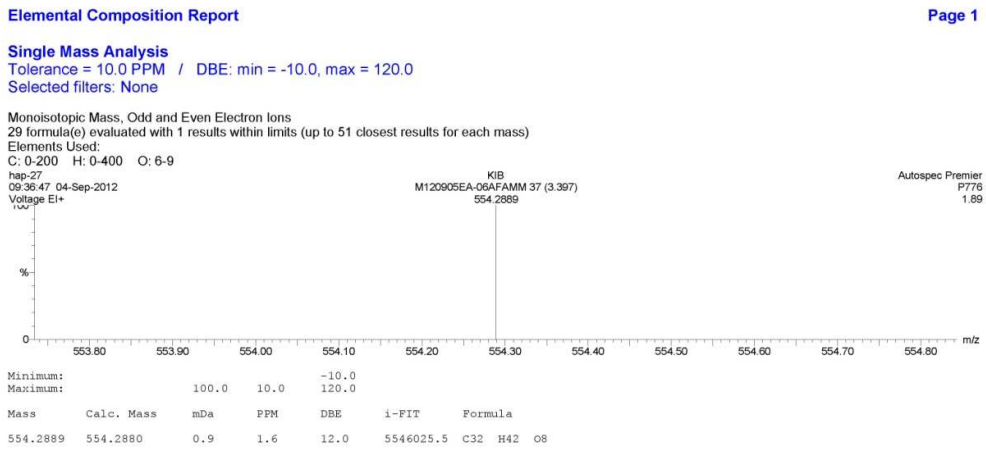
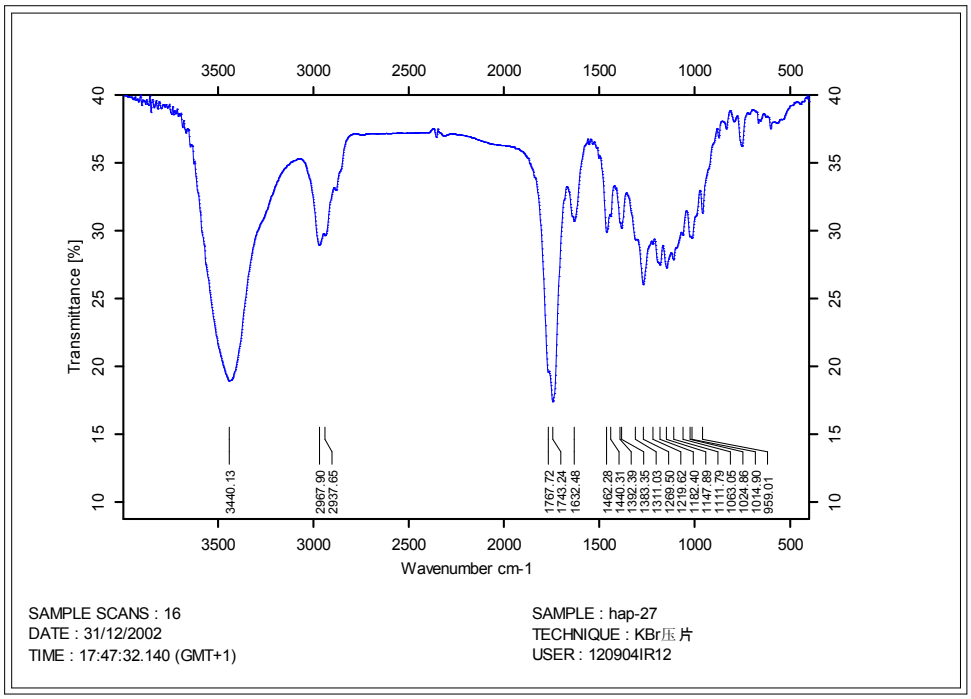
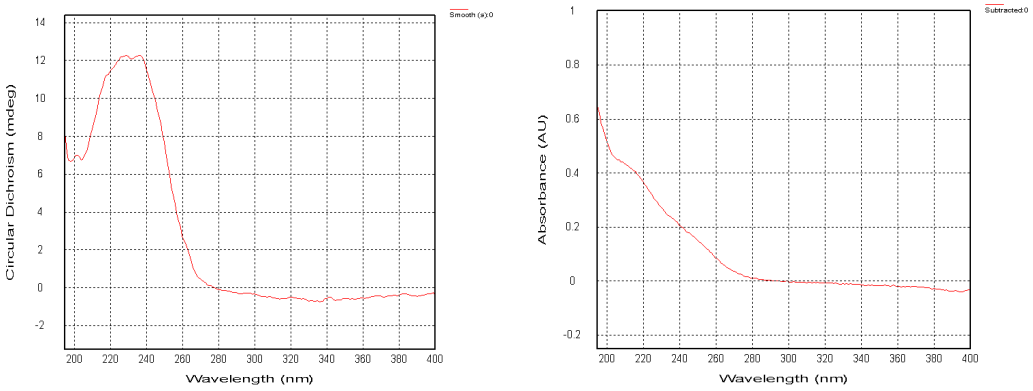


Figure S131. IR spectrum of aphanamixoid O (**13**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
542.110	0.382	0.001	24.125	0.196633	0
566.355	0.379	0.003	14.229	0.397930	0
584.943	0.380	0.000	2.690	0.004282	0
589.695	0.380	0.000	2.869	0.030565	0
601.969	0.375	0.018	9.368	6.370305	0
657.370	0.381	0.002	11.041	0.415874	0
666.856	0.379	0.009	5.251	3.172189	0
752.950	0.362	0.028	24.189	11.665393	0
794.863	0.380	0.006	18.111	1.896465	0
834.099	0.375	0.010	15.259	2.636609	0
873.796	0.368	0.008	7.106	3.007939	0
959.006	0.313	0.019	16.039	7.562804	0
1014.904	0.294	0.024	12.742	8.962687	0
1024.863	0.295	0.003	9.296	0.157478	0
1063.048	0.297	0.006	10.038	0.975590	0
1111.787	0.278	0.007	12.963	2.353655	0
1147.887	0.272	0.030	19.701	9.557183	0
1182.403	0.275	0.016	28.029	6.439275	0
1219.624	0.290	0.003	8.709	0.920295	0
1269.501	0.260	0.116	28.443	47.535782	0
1311.027	0.293	0.002	14.222	0.159981	0
1383.353	0.302	0.028	12.925	11.591720	0
1392.392	0.306	0.001	7.580	0.049458	0
1416.038	0.331	0.001	4.623	0.220229	0
1440.312	0.310	0.007	9.930	0.657064	0
1462.279	0.299	0.044	19.759	15.274588	0
1503.401	0.354	0.003	5.927	0.692675	0
1632.483	0.307	0.038	44.545	11.415178	0
1743.237	0.174	0.226	33.740	100.005371	0
1767.722	0.196	0.002	15.039	0.359374	0
1840.725	0.339	0.000	4.564	0.066835	0
2880.797	0.330	0.003	12.995	0.847057	0
2937.647	0.296	0.003	23.429	0.823395	0
2967.897	0.289	0.067	31.570	28.227734	0
3440.125	0.189	0.203	218.504	82.281624	0

Figure S132. CD spectrum of aphanamixoid O (**13**)



File: CD HAP-27-1mm(195-400)12052506.dsx

ProBinaryX

Attributes :

- Time Stamp :Fri May 25 13:51:39 2012

- File ID : {38C74302-66F6-4469-856C-B675B27926E9}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.3850mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm

Figure S133. ^{1}H NMR spectrum of aphanamixoid P (1**4**) in $CDCl_3$

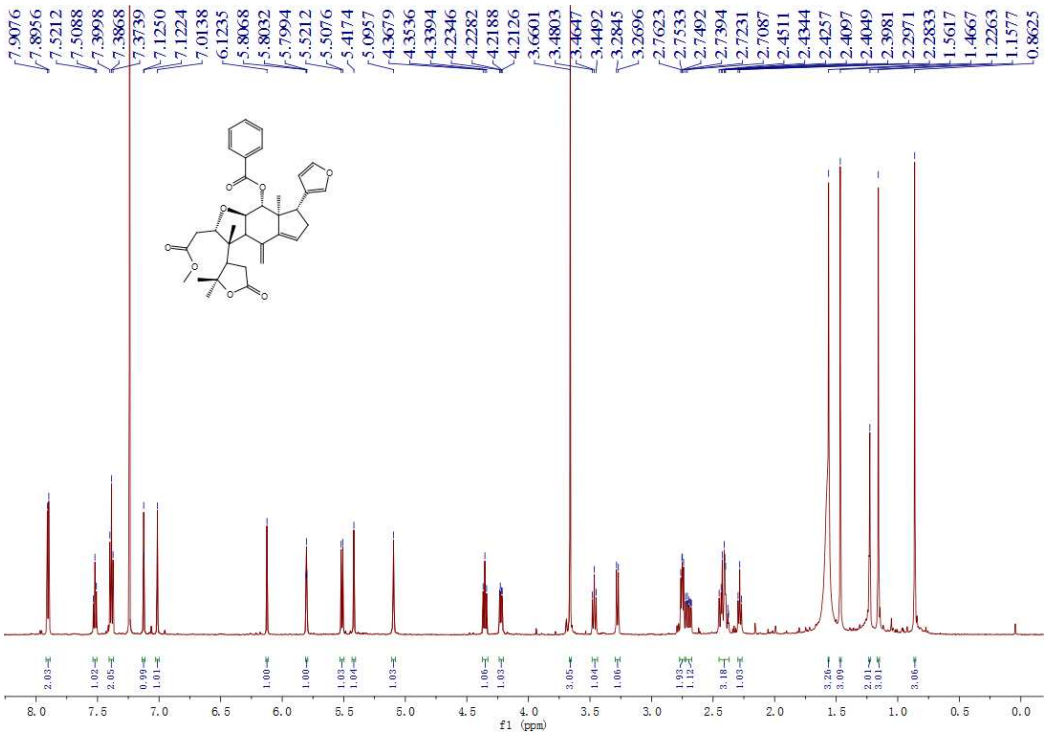


Figure S134. ^{13}C NMR spectrum of aphanamixoid P (1**4**) in $CDCl_3$

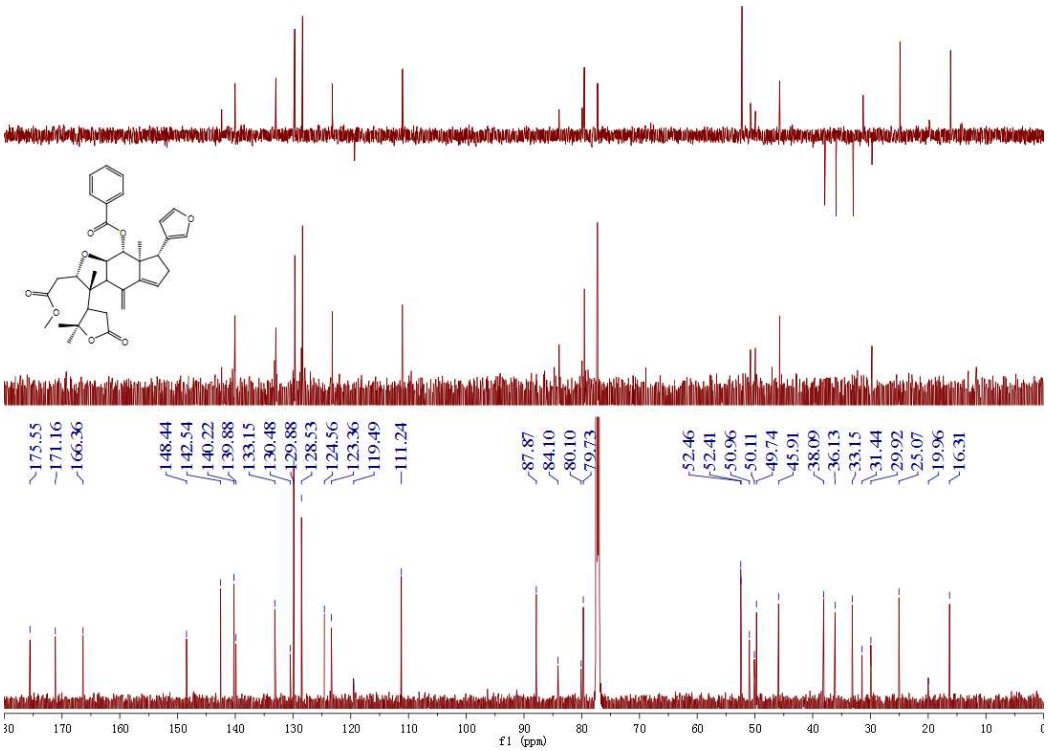


Figure S135. HSQC spectrum of aphanamixoid P (1**4**) in $CDCl_3$

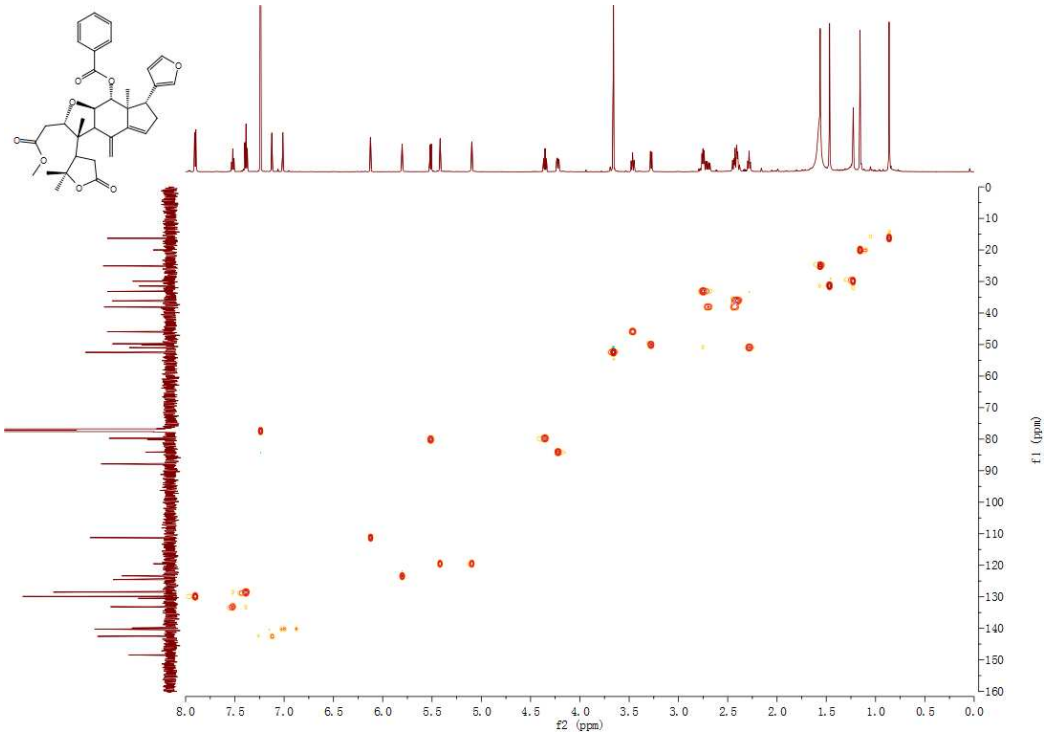


Figure S136. HMBC spectrum of aphanamixoid P (1**4**) in $CDCl_3$

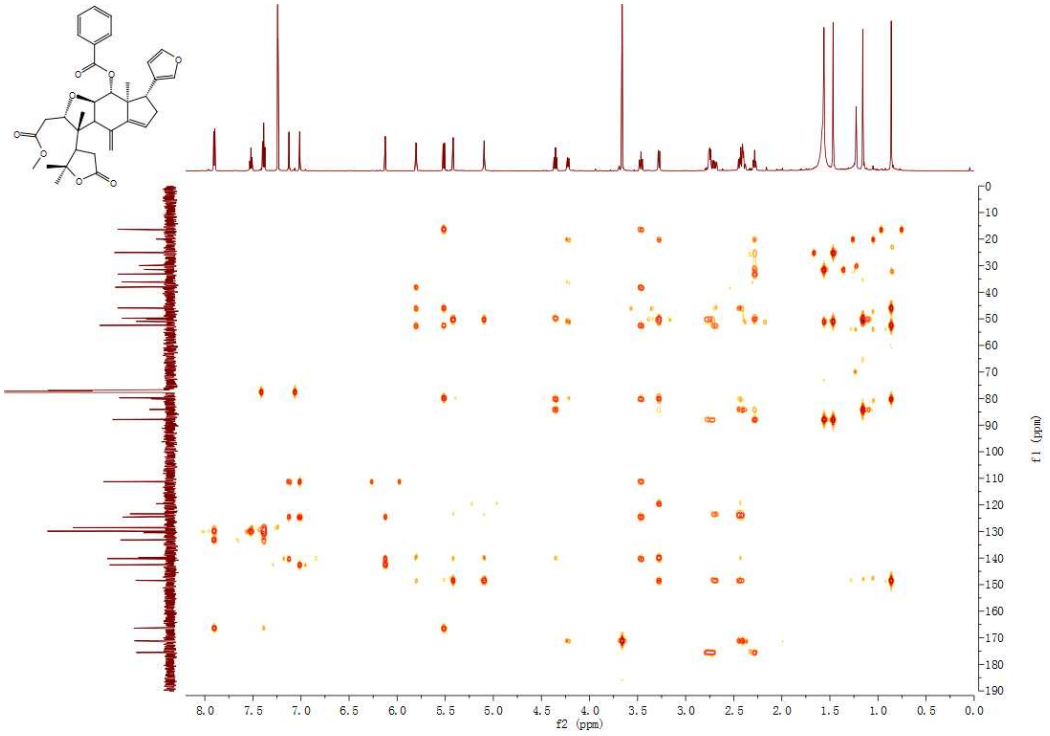


Figure S137. $^{1}H–^{1}H$ COSY spectrum of aphanamixoid P (1**4**) in $CDCl_3$

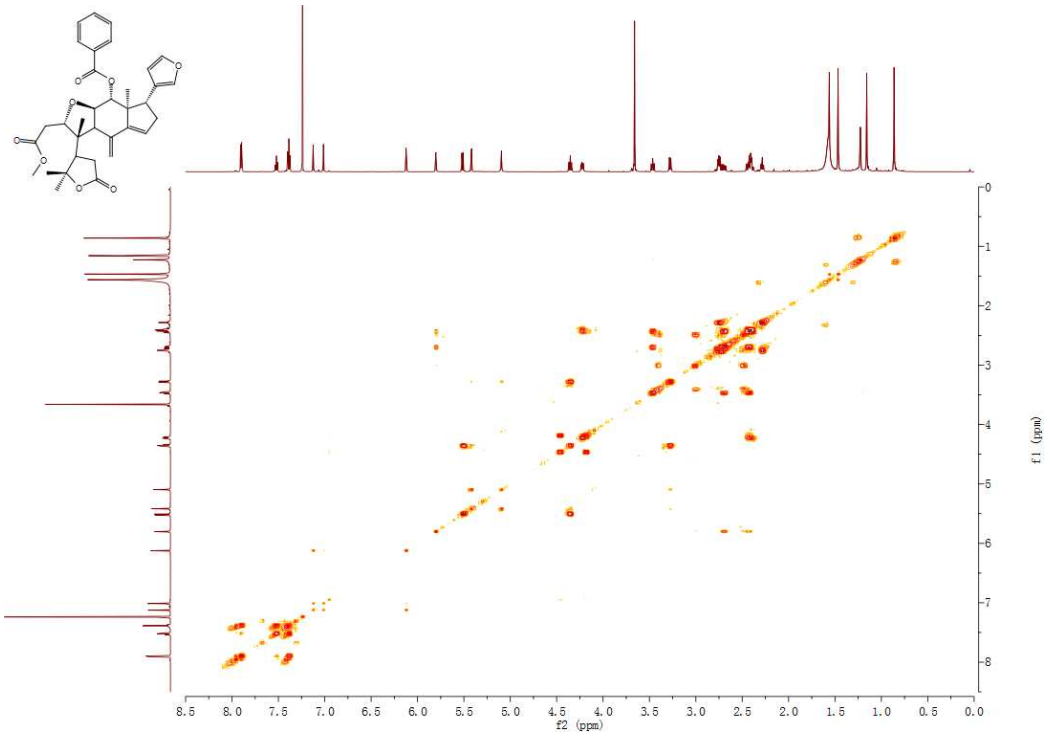


Figure S138. ROESY spectrum of aphanamixoid P (1**4**) in $CDCl_3$

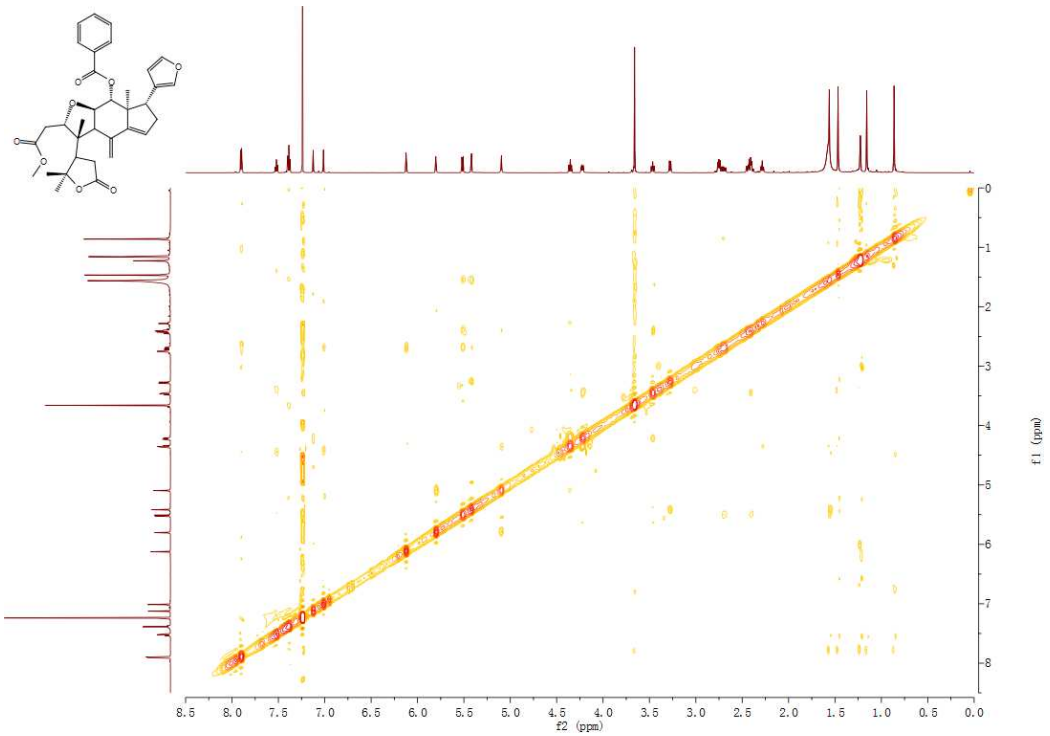


Figure S139. ESI (+) MS of aphanamixoid P (1**4**)

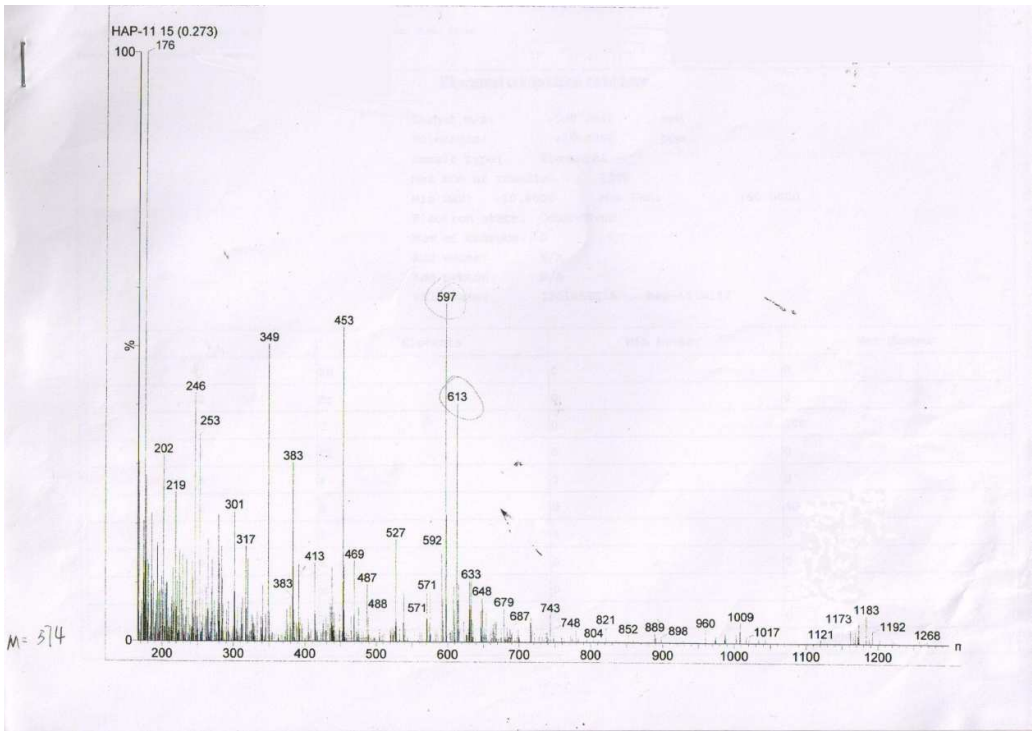
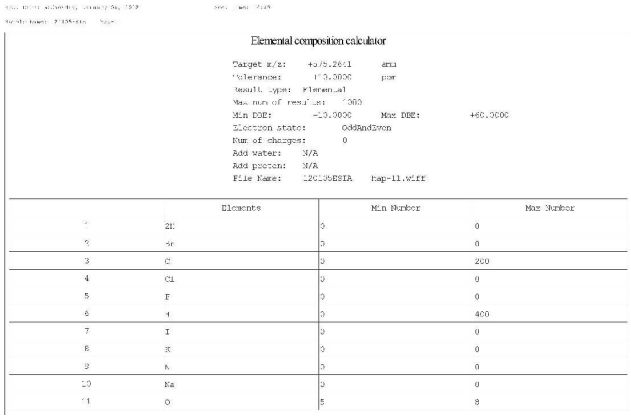


Figure S140. HR-ESI (+) MS of aphanamixoid P (1**4**)



Elemental composition calculator

Target m/z: 575.2641 amu
Tolerance: 10.0000 ppm
Result type: Elemental
Max num of results: 1000
Min DBE: -10.0000 Max DBE: 40.0000
Electron state: OddAndEven
Num of charges: 0
Add water: N/A
Add proton: N/A
File Name: 120131B9IA Hap-11.wiff

	Elements	Min Number	Max Number
1	2H	0	0
2	6Li	0	0
3	C	0	200
4	Cl	0	0
5	F	0	0
6	N	0	400
7	I	0	0
8	K	0	0
9	Na	0	0
10	Na	0	0
11	O	5	8

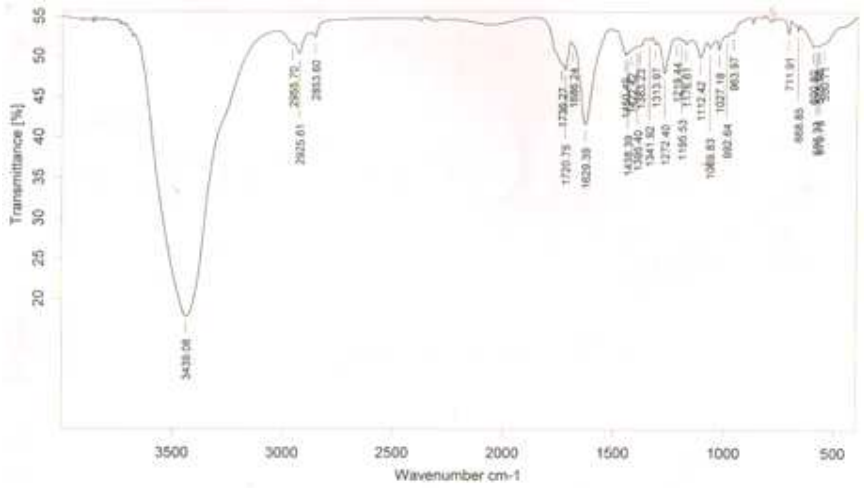
Acq. Date: Wednesday, January 04, 2012 Acq. Time: 19:49

Sample Name: 120131B9IA Hap-11

	Elements	Min Number	Max Number
12	P	0	0
13	Pt	0	0
14	S	0	0
15	Si	0	0

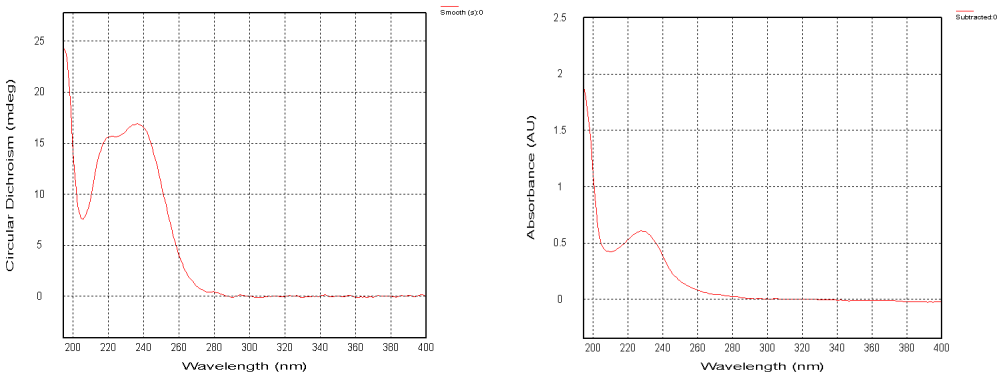
	Formula	Calculated m/z (amu)	mDa Error	PPM Error	DBE
1	C34 H39 O8	575.2644	-0.3936	-0.6843	15.5

Figure S141. IR spectrum of aphanamixoid P (**14**)



Wavenumber	Abs. Intensity	Rel. Intensity	Width	Found if Threshold <	Shoulder
550.710	0.517	0.001	46.046	0.035276	0
570.730	0.514	0.001	5.101	0.028074	0
575.982	0.514	0.004	4.175	0.297771	0
585.323	0.514	0.000	4.975	0.060752	0
600.798	0.513	0.038	10.170	9.964440	0
668.848	0.532	0.009	5.259	2.148974	0
711.910	0.529	0.017	13.582	4.414880	0
963.967	0.530	0.003	12.169	0.523207	0
992.643	0.526	0.003	11.868	0.391568	0
1027.180	0.509	0.014	11.607	3.209902	0
1069.826	0.511	0.009	17.835	2.205313	0
1112.422	0.499	0.033	28.263	6.867225	0
1176.613	0.516	0.007	17.859	1.543999	0
1195.529	0.521	0.002	11.415	0.228112	0
1219.441	0.522	0.002	8.544	0.253430	0
1272.395	0.479	0.062	27.502	14.918269	0
1313.972	0.516	0.005	8.926	0.726336	0
1341.918	0.521	0.003	13.033	0.631312	0
1383.228	0.514	0.001	11.620	0.013256	0
1395.402	0.512	0.002	7.215	0.264328	0
1422.417	0.508	0.001	16.384	0.025764	0
1438.385	0.504	0.003	7.982	0.413492	0
1450.494	0.502	0.029	15.301	6.050733	0
1629.394	0.416	0.135	58.592	35.919525	0
1686.240	0.515	0.001	6.415	0.046461	0
1720.749	0.484	0.037	17.480	9.578664	0
1736.271	0.491	0.001	43.877	0.173653	0
2853.595	0.524	0.006	14.666	1.524306	0
2925.606	0.503	0.031	23.308	7.719439	0
2955.702	0.515	0.002	29.730	0.158007	0
3439.078	0.178	0.372	242.290	99.491318	0

Figure S142. CD spectrum of aphanamixoid P (**14**)



File: CD HAP-11-1mm(195-400)12010604.dsx

ProBinaryX

Attributes :

- Time Stamp :Fri Jan 06 16:17:03 2012

- File ID : {20DD912E-9AA8-460d-8BA2-7A47D5803945}

- Is CFR Compliant : false

- Original unaltered data

Remarks:

- HV (CDDC channel): 0 v

- Time per point: 1 s

- Description: Sample 1

- Concentration: 0.1560mg/ml MeOH

- Pathlength: 1 mm

Settings:

- Time-per-point: 1s (25us x 40000)

- Wavelength: 195nm - 400nm

- Step Size: 1nm

- Bandwidth: 1nm