Supporting Information

Canescones A–E: Aromatic Polyketide Dimers with PTP1B inhibitory activity from *Penicillium canescens*

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Contents

Table S1. ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR Data of **1** and **2** recorded in pyridine-d_5

No.	**1**		**2**		No.	**1**		**2**	
	δ_H (J in Hz)	δ_C	δ_H (J in Hz)	δ_C		δ_H (J in Hz)	δ_C	δ_H (J in Hz)	δ_C
2		93.9		93.9	14	7.12, s	102.6	7.13, s	102.5
3		186.3		186.2	15		153.9		153.9
4		117.9		117.9	16	5.39, dd 6.8,3.2	68.2	5.46, dd 6.8,2.9	68.2
5		159.8		159.8	17	2.88, dd 18.0,3.2	49.4	2.85, dd 18.0,2.9	49.4
7	7.43, brs	137.9	7.43, brs	137.9		3.13, dd 18.0,6.8		3.19, dd 18.0,6.8	
8		119.6		119.6	18		199.6		199.6
9	3.78, dd 16.3,2.0	24.8	3.78, dd 16.2,2.0	24.9	19		120.1		120.1
	3.89, d 16.3		3.89, d 16.2		20		140.3		140.2
10		99.9		99.9	21	2.40, s	14.1	2.40, s	14.1
12		130.4		130.5	22	3.35, s	49.8	3.38, s	49.9
13		156.2		156.1	23	3.80, s	56.8	3.81, s	56.7

Table S2. ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR Data of **3**–**5** recorded in DMSO-d_6

No.	**3**		**4**		**5**	
	δ_H (J in Hz)	δ_C	δ_H (J in Hz)	δ_C	δ_H (J in Hz)	δ_C
2		91.5		91.6		91.5
3		184.7		184.1		184.2
4		116.2		116.2		116.2
5		158.8		158.8		158.9
7	7.57, d 1.7	137.6	7.57, d 1.9	137.6	7.57, brs	137.6
8		117.8		117.7		117.7
9	3.07, dd 16.2,1.7	23.2	3.08, dd 16.3,2.0	23.2	3.08, d 16.2	23.2
	3.66, d 16.2		3.67, d 16.3		3.69, d 16.2	
10		98.6		98.7		98.8
12		131.5		133.9/134.3[a]		133.9/134.3[a]
13		149.4		150.2		150.2
14	6.96, s	98.9	7.07, s	99.9	7.07, s	99.9
15		125.1		119.6/119.8[a]		119.6/119.8[a]
16		166.6		167.4		167.5
18	4.75, q 6.7	54.1		105.0/105.2[a]		105.0/105.2[a]
19		127.7		130.8/131.2[a]		130.8/131.2[a]
20		136.5		136.2/136.6[a]		136.2/136.6[a]
21	2.58, s	13.5	2.57, s	13.5	2.58, s	13.5
22	3.09, s	49.2	3.09, s	49.2	3.10, s	49.3
23	3.87, s	56.2	3.89, s	56.2	3.90, s	56.3
24	3.22, dt 14.1,7.4	41.8	1.84/1.86, s[a]	24.1/24.2[a]	1.84/1.86, s[a]	24.1/24.2[a]
	3.84, dt 14.1,5.4					
25	3.60, m	59.6				
	3.56, m					
26	1.49, d 6.7	16.5				

[a]Those data were collected from NMR spectra of the mixture of **4** and **5**, because those carbons were not observed in their individual spectra of pure **4** or **5**.

S1. Cloning, Expression, and Purification

Full length of PTP1B were cloned, expressed, and purified essentially as described previously. The cDNA was cloned into the pET28a vector (Novagen). The expression construct of pET28a-PTP1B was transformed into Escherichia coli strain BL21 (DE) (Invitrogen) and selected on kanamycin plates. The transformed cells were cultivated in Luria-Bertani (LB) media at 37 ℃ in the presence of kanamycin until the optical density (OD600) reached 0.8. Cells were then induced with 0.4 mM IPTG (isopropyl-β-D-1-thiogalactopyranoside) for 16 h at 20 ℃. The cells harvested by centrifugation were lysed by ultrasonication on ice in a buffer containing 20 mM Tris, pH 8.5, 200 mM NaCl, 5 mM mercaptoethanol, 0.1% TritonX-100, and 5% glycerol. Soluble PTP1B was bound to Ni-agarose affinity resin (Qiagen), washed with buffer A (20 mM Tris, pH 8.5, 200 mM NaCl, and 10 mM imidazole), and eluted with buffer B (20 mM Tris, pH 8.8, 250 mM NaCl, and 150 mM imidazole). The protein was further purified with anion exchange chromatography and size exclusion chromatography.

S2. Detailed computational procedures

ECD calculation for compounds 1–3 and 5:

All calculations were performed using Gaussian 09W. The X-ray single diffraction tridimensional structure of **1**, **2**, and **5** were used as geometry input. The electronic circular dichroism (ECD) spectrum were calculated for each conformer using the TDDFT methodology at the B3LYP/6-311++G(d,p) level with MeOH as solvent by the IEFPCM solvation model implemented in Gaussian 09 program.[1] The ECD spectra were simulated using a Gaussian function with a bandwidth σ of 0.3 eV. The spectra were combined after Boltzmann weighting according to their population contributions and UV correction was applied.[2]

The theoretical calculations of compound **3** were performed using Gaussian 09[3] and figured using Gauss View 5.0[4]. Conformation search using molecular mechanics calculations of **3** was performed in Discovery Studio 3.5 Client with MMFF force field with 20 kcal mol^{-1} upper energy limit.[5] The optimized conformation geometries and thermodynamic parameters of all selected conformations were provided. The predominant conformers were optimized at B3LYP/6-31G(d,p) level. The theoretical calculation of ECD was performed using time dependent Density Functional Theory (TDDFT) at B3LYP/6-31G(d,p) level in MeOH with PCM model.[6] The ECD spectra of **3** were obtained by weighing the Boltzmann distribution rate of each geometric conformation.[7] The ECD spectra were simulated by overlapping Gaussian functions for each transition according to:

$$\Delta\varepsilon(E) = \frac{1}{2.297\times10^{-39}} \times \frac{1}{\sqrt{2\pi\sigma}} \sum_{i}^{A} \Delta E_i R_i e^{-[(E-E_i)/(2\sigma)]^2} \qquad (1)$$

The σ represented the width of the band at 1/e height, and ΔEi and Ri were the excitation energies and rotational strengths for transition i, respectively. Rvel had been used in this work.

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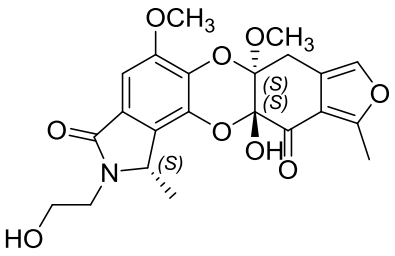
Table S3. Optimized coordinates of compound **1** at B3LYP/6-31++G(d,p) level in methanol

Atom	X	Y	Z	Atom	X	Y	Z
O	0.037	1.714	-0.41	C	-2.343	1.817	-0.441
O	0.035	-1.12	-0.216	H	-2.363	2.786	0.064
O	-1.085	0.742	1.391	H	-2.228	2.012	-1.512
O	-1.118	-0.213	-2.022	C	1.2	-0.402	-0.217
H	-1.121	-1.093	-2.44	C	-3.571	-0.436	-0.104
O	2.281	3.055	-0.378	C	-3.58	1.01	-0.173
O	1.919	-3.45	0.039	C	-4.865	1.378	0.04
O	5.735	-0.771	0.964	H	-5.378	2.326	0.091
H	6.566	-1.262	0.864	C	-1.124	1.007	0.015
O	-2.292	-2.458	-0.135	C	2.428	-1.079	-0.096
O	-5.656	0.262	0.228	C	3.622	-0.352	-0.098
C	4.221	-2.652	0.298	C	1.203	0.988	-0.308
H	4.634	-3.473	-0.295	C	3.643	1.035	-0.198
H	4.389	-2.884	1.357	H	4.582	1.572	-0.186
C	2.421	1.713	-0.294	C	4.828	-1.267	-0.019
C	-5.511	-2.162	0.324	H	5.327	-1.292	-0.999
H	-5.986	-2.235	1.309	C	3.464	3.86	-0.369
H	-4.755	-2.943	0.234	H	3.116	4.891	-0.44
H	-6.288	-2.325	-0.432	H	4.105	3.628	-1.226
C	-1.097	1.878	2.264	H	4.026	3.724	0.561

H	-2.096	2.326	2.324	C	2.709	-2.517	0.067
H	-0.371	2.63	1.942	C	-2.363	-1.24	-0.234
H	-0.816	1.499	3.248	C	-4.868	-0.836	0.143
C	-1.115	-0.404	-0.629				

Table S4. Optimized coordinates of compound **2** at B3LYP/6-31++G(d,p) level in methanol

Atom	X	Y	Z	Atom	X	Y	Z
O	0.033	1.691	-0.462	C	-2.352	1.807	-0.467
O	2.275	3.054	-0.324	H	-2.384	2.774	0.041
O	-1.132	-0.314	-2.035	H	-2.23	2.013	-1.535
H	-0.551	0.424	-2.299	C	-1.134	1.001	0.006
O	-1.086	0.775	1.382	C	-4.878	1.358	-0.029
O	-5.669	0.239	0.142	H	-5.395	2.304	0.017
O	-2.284	-2.463	-0.11	C	3.452	3.866	-0.263
O	0.035	-1.122	-0.182	H	4.154	3.6	-1.061
O	5.862	-0.884	-0.399	H	3.945	3.772	0.71
O	1.905	-3.436	0.301	H	3.107	4.89	-0.404
C	1.193	-0.402	-0.107	C	-5.519	-2.185	0.234
C	2.412	1.718	-0.175	H	-6.278	-2.351	-0.54
C	2.413	-1.07	0.111	H	-6.017	-2.259	1.208
C	-2.365	-1.253	-0.26	H	-4.759	-2.964	0.163
C	1.203	0.984	-0.242	C	4.228	-2.656	0.284
C	3.625	1.05	0.038	H	4.564	-3.047	-0.684
H	4.562	1.59	0.089	H	4.531	-3.368	1.058
C	-3.577	-0.453	-0.157	C	-1.09	1.932	2.23
C	-3.589	0.993	-0.222	H	-0.367	2.676	1.883
C	2.7	-2.509	0.244	H	-0.798	1.574	3.218
C	-1.112	-0.414	-0.638	H	-2.088	2.379	2.289
C	3.599	-0.332	0.188	H	5.103	-1.085	1.518
C	4.788	-1.228	0.474	H	6.657	-1.331	-0.07
C	-4.876	-0.856	0.069				



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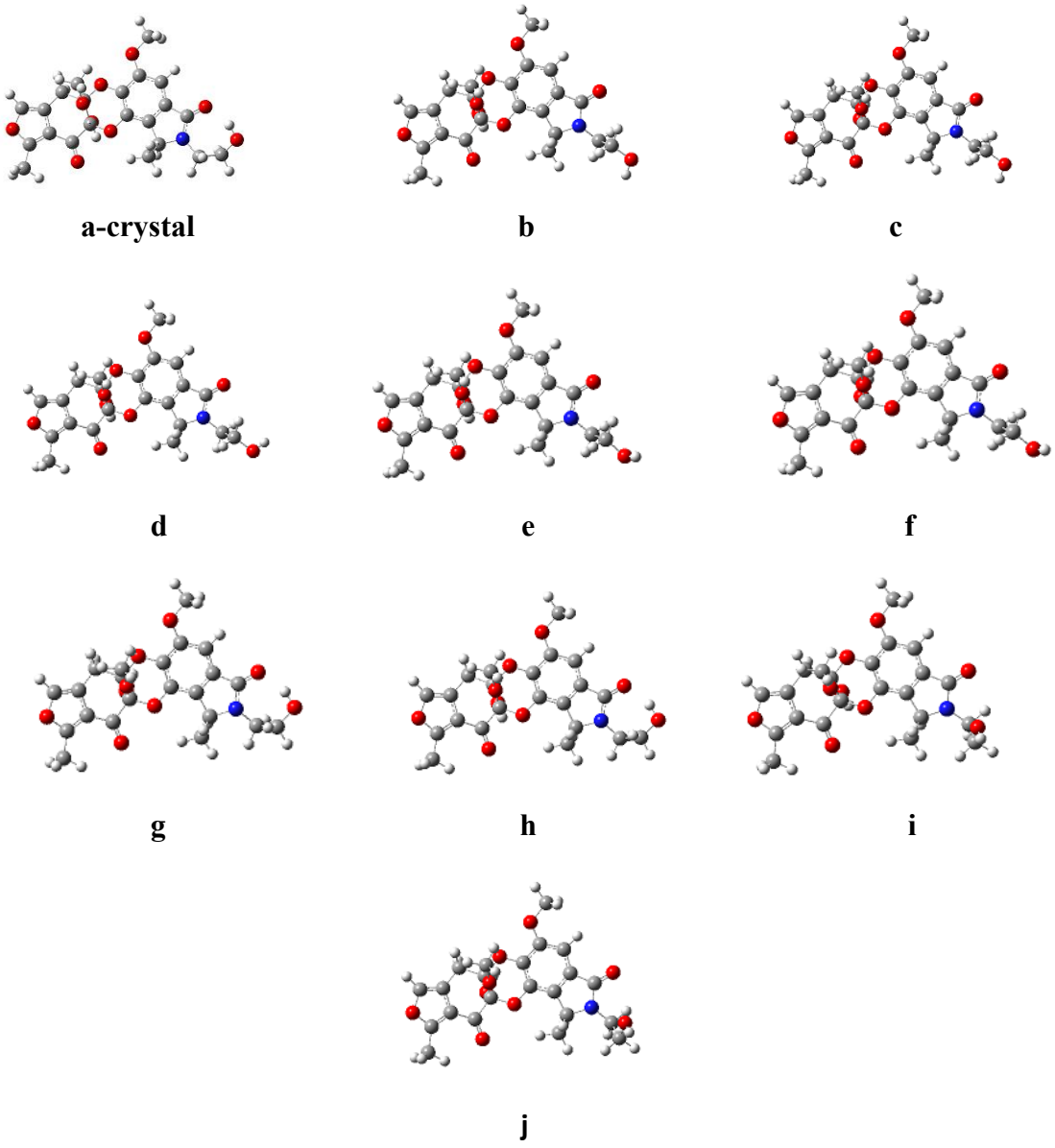

Optimized geometries of predominant conformers for compound **3** at the B3LYP/6-31G(d,p) level in the gas phase.

Important thermodynamic parameters (a.u.) and Boltzmann distributions of the optimized compound **3** at B3LYP/6-31G(d,p) level in the gas phase

Conformations	E+ZPE	G	%
3-a-crystal	-1583.528787	-1583.588208	32
3-b	-1583.521807	-1583.581854	0
3-c	-1583.519989	-1583.579980	0
3-d	-1583.523293	-1583.583439	0.2
3-e	-1583.522150	-1583.582338	0.1
3-f	-1583.520230	-1583.580320	0
3-g	-1583.527251	-1583.586740	6.7
3-h	-1583.529246	-1583.588818	61
3-i	-1583.518112	-1583.578604	0

3-j	-1583.516366	-1583.576716	0

E+ZPE, G: total energy with zero point energy (ZPE) and Gibbs free energy in the gas phase at B3LYP/6-31G(d,p) level., %: Boltzmann distributions, using the relative Gibbs free energies as weighting factors

Table S5. Optimized Z-matrixes of compound **3** in the gas phase (Å) at B3LYP/6-31G(d,p) level

3-a-crystal				**3**-b			
O	-1.01659	1.936726	-0.37263	O	-1.13385	1.9968	-0.2576
O	-0.40106	-0.83651	-0.23	O	-0.33767	-0.72842	-0.40904
O	-1.95082	0.707384	1.374026	O	-1.87249	0.558715	1.423221
O	5.314648	0.577379	0.195948	O	5.31496	0.980126	-0.20819
O	-1.69041	-0.18437	-2.05024	O	-1.7869	-0.01019	-2.07793
H	-1.46588	-1.03374	-2.45961	H	-1.52945	-0.8006	-2.57623
O	0.869107	3.757003	-0.2373	O	0.639423	3.923732	-0.07041
O	-6.26112	-0.73771	0.113796	O	-6.15516	-1.06276	0.30306
O	7.195659	-1.37253	-0.01624	O	7.000065	-3.03928	0.656202
H	6.751521	-0.50972	0.110499	H	6.659279	-3.90863	0.407893
O	-2.38654	-2.65731	-0.25402	O	-2.19941	-2.67243	-0.46789
N	3.957017	-1.32387	0.119403	N	4.044399	-0.95916	-0.30022
C	1.303629	2.46826	-0.18006	C	1.156657	2.666663	-0.15469
C	0.578472	0.128685	-0.18144	C	0.582421	0.292627	-0.32553
C	0.278998	1.492693	-0.24404	C	0.193955	1.633039	-0.24613
C	1.906589	-0.26419	-0.04825	C	1.938164	-0.02105	-0.30465
C	4.212152	0.024997	0.125443	C	4.231705	0.408777	-0.23466
C	2.899039	0.702544	0.00801	C	2.86988	1.003908	-0.21779
C	-1.66606	-0.3864	-0.65639	C	-1.65347	-0.33067	-0.7122
C	2.635996	2.070197	-0.06106	C	2.516224	2.350479	-0.14917
H	3.453216	2.778229	-0.01296	H	3.289392	3.105519	-0.0858
C	-4.39205	0.450157	-0.24694	C	-4.39313	0.277503	-0.06358
C	-4.06816	-0.9579	-0.18462	C	-3.97749	-1.10513	-0.14778
C	2.515612	-1.63934	0.06372	C	2.632695	-1.36302	-0.36987
H	2.315684	-2.22886	-0.84376	H	2.440637	-1.84171	-1.34343
C	-1.99896	0.980481	-0.00228	C	-2.02689	0.947841	0.082769
C	-2.71018	-1.48105	-0.30795	C	-2.59999	-1.52072	-0.39951
C	-3.35448	1.506976	-0.49061	C	-3.44247	1.420045	-0.27363
H	-3.59105	2.449267	0.010271	H	-3.70553	2.297973	0.322133
H	-3.25333	1.720814	-1.55835	H	-3.42597	1.729876	-1.32232
C	4.95696	-2.38745	0.239986	C	5.164858	-1.86855	-0.46184
H	4.458604	-3.31078	-0.07433	H	5.888556	-1.42009	-1.1503
H	5.260822	-2.51626	1.287444	H	4.795866	-2.79645	-0.91662
C	-5.2466	-1.63288	0.037068	C	-5.09324	-1.87606	0.08476
C	-5.73107	0.5241	-0.05605	C	-5.71827	0.242502	0.214849
H	-6.44028	1.335503	-0.01427	H	-6.47292	0.996554	0.373129

C	6.230858	-2.20522	-0.60489	C	5.888757	-2.17724	0.858249
H	6.69147	-3.19503	-0.709	H	6.288888	-1.24399	1.26159
H	5.939839	-1.87505	-1.61716	H	5.179673	-2.58667	1.593644
C	2.01694	-2.42944	1.283008	C	2.214476	-2.33795	0.739341
H	2.514978	-3.40082	1.355846	H	2.778942	-3.27324	0.669474
H	0.941594	-2.60032	1.189762	H	1.151176	-2.57135	0.642806
H	2.206939	-1.86928	2.203051	H	2.391766	-1.89531	1.723694
C	-2.20599	1.806165	2.248729	C	-2.13098	1.55901	2.407717
H	-1.63984	2.693068	1.947346	H	-1.63571	2.501697	2.15477
H	-1.87666	1.484779	3.237983	H	-1.72086	1.173459	3.342389
H	-3.27514	2.046938	2.292827	H	-3.20686	1.729297	2.53728
C	-5.57473	-3.07128	0.201683	C	-5.3174	-3.34252	0.140391
H	-6.03934	-3.25725	1.176384	H	-5.69878	-3.64291	1.12267
H	-4.65648	-3.65398	0.124052	H	-4.37174	-3.85103	-0.04878
H	-6.28061	-3.40271	-0.56816	H	-6.05374	-3.65527	-0.60844
C	1.851406	4.783341	-0.19825	C	1.556779	5.006341	0.001228
H	1.302853	5.723911	-0.26049	H	0.948589	5.91028	0.052755
H	2.543885	4.709576	-1.04562	H	2.198055	5.049604	-0.88762
H	2.424776	4.75759	0.736733	H	2.188712	4.941663	0.8958
3-c				**3**-d			
O	-1.14159	1.994328	-0.34861	O	-1.13109	1.994732	-0.25612
O	-0.34554	-0.71222	-0.52787	O	-0.34331	-0.73288	-0.40755
O	-1.76822	0.568885	1.402123	O	-1.87413	0.558389	1.424147
O	5.304693	0.9629	-0.14682	O	5.315914	0.957126	-0.21504
O	-1.90179	-0.03691	-2.12932	O	-1.78904	-0.00944	-2.07721
H	-1.52484	0.837655	-2.31775	H	-1.53512	-0.80104	-2.57549
O	0.641235	3.923542	-0.06801	O	0.647313	3.91648	-0.07162
O	-6.13937	-1.08604	0.385564	O	-6.1619	-1.04938	0.303606
O	6.954807	-3.07046	0.698092	O	6.974077	-3.06898	0.672392
H	6.617407	-3.93633	0.433479	H	7.667676	-2.55661	0.236393
O	-2.1819	-2.65869	-0.42957	O	-2.21171	-2.67103	-0.47057
N	4.030714	-0.97024	-0.3088	N	4.037794	-0.97551	-0.30316
C	1.156752	2.666578	-0.16474	C	1.161047	2.657835	-0.15597
C	0.574494	0.294466	-0.39762	C	0.579911	0.285138	-0.32496
C	0.197251	1.637342	-0.30143	C	0.195434	1.626845	-0.24581
C	1.929317	-0.02458	-0.34914	C	1.934797	-0.03261	-0.30506
C	4.221833	0.394026	-0.21297	C	4.228662	0.390575	-0.23857
C	2.861096	0.995472	-0.22037	C	2.86947	0.990261	-0.22032
C	-1.68094	-0.31437	-0.7727	C	-1.65773	-0.33095	-0.7115
C	2.514796	2.343015	-0.13304	C	2.519671	2.337966	-0.15208
H	3.291057	3.09112	-0.03542	H	3.294783	3.091121	-0.0902
C	-4.3906	0.266726	0.010721	C	-4.39574	0.28552	-0.06261
C	-3.97698	-1.11006	-0.1372	C	-3.98447	-1.09833	-0.14774

C	2.619246	-1.36762	-0.42359	C	2.625255	-1.37699	-0.37094
H	2.450107	-1.82412	-1.41147	H	2.431298	-1.85462	-1.3444
C	-2.01584	0.942947	0.080254	C	-2.02745	0.948317	0.083843
C	-2.60312	-1.51652	-0.42654	C	-2.60834	-1.51819	-0.40028
C	-3.4515	1.421121	-0.18421	C	-3.44152	1.425108	-0.27239
H	-3.68865	2.267004	0.466159	H	-3.70177	2.303743	0.323575
H	-3.49815	1.787225	-1.21382	H	-3.42406	1.735149	-1.32102
C	5.151991	-1.8822	-0.45313	C	5.159451	-1.88422	-0.45556
H	5.89348	-1.42976	-1.11966	H	5.884799	-1.4161	-1.1328
H	4.79025	-2.80374	-0.92579	H	4.813342	-2.81209	-0.92143
C	-5.08328	-1.89012	0.106908	C	-5.10257	-1.86593	0.084352
C	-5.7062	0.220807	0.331576	C	-5.72094	0.254512	0.216091
H	-6.45409	0.968133	0.544572	H	-6.47316	1.010852	0.375029
C	5.842074	-2.20642	0.881323	C	5.864956	-2.20242	0.871846
H	6.235575	-1.2788	1.303704	H	6.157769	-1.25961	1.352465
H	5.113272	-2.62018	1.594651	H	5.182433	-2.72696	1.547241
C	2.166553	-2.3628	0.653524	C	2.208559	-2.35238	0.738235
H	2.729152	-3.29884	0.579683	H	2.771651	-3.28797	0.665083
H	1.105609	-2.58938	0.521151	H	1.144569	-2.5836	0.644307
H	2.317812	-1.94166	1.651652	H	2.388848	-1.91076	1.722587
C	-1.95711	1.573503	2.400402	C	-2.13079	1.558569	2.409126
H	-1.49487	2.519924	2.102807	H	-1.63321	2.500323	2.157118
H	-1.46731	1.197656	3.299793	H	-1.72205	1.171392	3.343728
H	-3.02063	1.731232	2.615975	H	-3.20633	1.731295	2.538325
C	-5.30522	-3.35777	0.114834	C	-5.33126	-3.33171	0.138932
H	-5.6788	-3.69076	1.089469	H	-5.71326	-3.63168	1.121096
H	-4.35968	-3.85773	-0.09646	H	-4.38726	-3.84305	-0.05092
H	-6.04585	-3.64739	-0.63911	H	-6.06877	-3.64159	-0.60994
C	1.560312	5.001077	0.057496	C	1.567566	4.996421	-0.00043
H	0.953611	5.905575	0.114964	H	0.961979	5.902077	0.051814
H	2.226438	5.064119	-0.8115	H	2.208339	5.038287	-0.88976
H	2.165932	4.910346	0.967572	H	2.200055	4.929848	0.893657
3-e				**3**-f			
O	-1.13414	1.994733	-0.26023	O	-1.14168	1.992192	-0.35067
O	-0.33954	-0.73121	-0.40454	O	-0.34765	-0.71525	-0.5248
O	-1.87686	0.561489	1.422886	O	-1.77176	0.570638	1.401882
O	5.314163	0.975547	-0.19954	O	5.303575	0.957971	-0.13871
O	-1.78646	-0.01676	-2.07697	O	-1.90234	-0.04184	-2.12868
H	-1.52693	-0.8082	-2.5726	H	-1.52219	0.830865	-2.31919
O	0.639825	3.921024	-0.07361	O	0.641896	3.920582	-0.0711
O	-6.15863	-1.05935	0.300356	O	-6.14287	-1.08223	0.384472
O	6.923805	-3.10219	0.533649	O	6.882226	-3.13015	0.574337
H	7.519286	-3.15537	1.290716	H	7.456446	-3.19567	1.346714

O	-2.20306	-2.67421	-0.45977	O	-2.1863	-2.66007	-0.42396
N	4.043209	-0.96345	-0.29184	N	4.029355	-0.97497	-0.30121
C	1.156628	2.663245	-0.15518	C	1.156861	2.662862	-0.16545
C	0.581342	0.289228	-0.32262	C	0.5733	0.290761	-0.39556
C	0.193617	1.630014	-0.24612	C	0.19692	1.634068	-0.3016
C	1.936954	-0.02533	-0.30063	C	1.927976	-0.02927	-0.34598
C	4.230617	0.403287	-0.22815	C	4.22051	0.388132	-0.20715
C	2.868984	0.99945	-0.21392	C	2.860112	0.990586	-0.21723
C	-1.65451	-0.33353	-0.71003	C	-1.68239	-0.31689	-0.77134
C	2.515944	2.34637	-0.14734	C	2.514556	2.338522	-0.13175
H	3.289443	3.101115	-0.08431	H	3.291219	3.086265	-0.03449
C	-4.39493	0.278566	-0.06712	C	-4.39256	0.268257	0.008375
C	-3.98017	-1.10458	-0.14664	C	-3.97996	-1.10914	-0.13624
C	2.631424	-1.36733	-0.36378	C	2.617882	-1.37238	-0.41826
H	2.441577	-1.84675	-1.33718	H	2.450935	-1.82969	-1.40594
C	-2.02831	0.947447	0.080797	C	-2.01721	0.94238	0.078788
C	-2.60243	-1.52198	-0.39524	C	-2.60609	-1.51749	-0.42361
C	-3.44302	1.419695	-0.27895	C	-3.45217	1.421292	-0.18826
H	-3.70614	2.299529	0.314013	H	-3.68923	2.268977	0.45981
H	-3.42476	1.726623	-1.32847	H	-3.49727	1.784891	-1.21882
C	5.159731	-1.87518	-0.46576	C	5.147275	-1.88898	-0.45666
H	5.869094	-1.4391	-1.17664	H	5.875043	-1.4491	-1.14624
H	4.791524	-2.81541	-0.8879	H	4.785913	-2.82375	-0.89606
C	-5.09672	-1.87407	0.086212	C	-5.08704	-1.88777	0.108531
C	-5.72063	0.245255	0.209064	C	-5.70852	0.224127	0.328103
H	-6.47497	1.000341	0.363851	H	-6.45599	0.972535	0.538689
C	5.902435	-2.16007	0.840609	C	5.856349	-2.18817	0.865156
H	6.312478	-1.2146	1.219357	H	6.259522	-1.24775	1.263396
H	5.199401	-2.55391	1.591342	H	5.133308	-2.58702	1.593899
C	2.214052	-2.34237	0.745536	C	2.165971	-2.36768	0.658938
H	2.785134	-3.2736	0.679479	H	2.735108	-3.29975	0.589212
H	1.152348	-2.58156	0.645493	H	1.106713	-2.59991	0.522838
H	2.384634	-1.89614	1.729567	H	2.310414	-1.94296	1.656681
C	-2.1354	1.564797	2.403971	C	-1.96083	1.577518	2.397604
H	-1.6377	2.505876	2.149681	H	-1.49688	2.522731	2.098751
H	-1.72821	1.180931	3.340645	H	-1.47296	1.202955	3.298608
H	-3.21121	1.737849	2.530881	H	-3.02446	1.737234	2.611275
C	-5.32187	-3.34022	0.145799	C	-5.30996	-3.35526	0.119718
H	-5.70522	-3.63751	1.128258	H	-5.68211	-3.68613	1.095647
H	-4.37613	-3.8498	-0.04013	H	-4.36506	-3.85625	-0.09197
H	-6.05693	-3.65484	-0.60351	H	-6.05201	-3.64589	-0.63242
C	1.557744	5.003038	-0.00505	C	1.561691	4.997521	0.051415
H	0.950274	5.907667	0.043465	H	0.95585	5.902796	0.106266

H	2.19949	5.043155	-0.89375	H	2.228102	5.057595	-0.81762
H	2.189454	4.940871	0.889931	H	2.167283	4.909023	0.961801
3-g				**3**-h			
O	-1.03885	1.954828	-0.40949	O	-1.03085	1.958504	-0.31518
O	-0.41096	-0.80054	-0.47813	O	-0.40454	-0.81483	-0.34504
O	-1.77381	0.637173	1.382583	O	-1.88448	0.637051	1.405462
O	5.311673	0.573727	-0.04884	O	5.325023	0.589265	-0.10773
O	-1.90198	-0.09073	-2.1256	O	-1.77653	-0.0749	-2.06859
H	-1.4719	0.752829	-2.33986	H	-1.56969	-0.90091	-2.53153
O	0.854764	3.779024	-0.16735	O	0.853624	3.777902	-0.16867
O	-6.22687	-0.78187	0.369164	O	-6.24299	-0.76004	0.26649
O	7.117431	-1.43078	0.473609	O	7.157251	-1.39724	0.370233
H	6.679191	-0.56657	0.338205	H	6.709214	-0.53707	0.2394
O	-2.36627	-2.62496	-0.33835	O	-2.38382	-2.64068	-0.37026
N	3.948016	-1.31354	-0.16905	N	3.96437	-1.30348	-0.14582
C	1.292849	2.490973	-0.21061	C	1.293648	2.490201	-0.19575
C	0.566698	0.15143	-0.37012	C	0.574633	0.149914	-0.28627
C	0.273119	1.517845	-0.32784	C	0.269866	1.514079	-0.26547
C	1.899039	-0.24705	-0.29117	C	1.908509	-0.24384	-0.23325
C	4.20371	0.034009	-0.12277	C	4.216128	0.046924	-0.13572
C	2.889387	0.717459	-0.17916	C	2.899725	0.724452	-0.16682
C	-1.71721	-0.33029	-0.75711	C	-1.68855	-0.34877	-0.68966
C	2.627346	2.086866	-0.14269	C	2.630538	2.092798	-0.15321
H	3.446037	2.789206	-0.05409	H	3.447227	2.801247	-0.10195
C	-4.39374	0.445538	-0.0321	C	-4.39461	0.453006	-0.11664
C	-4.06508	-0.95874	-0.12523	C	-4.06532	-0.95499	-0.1411
C	2.509929	-1.62664	-0.29769	C	2.524628	-1.62182	-0.22609
H	2.3342	-2.11585	-1.26768	H	2.323383	-2.13513	-1.17892
C	-1.98314	0.975735	0.045209	C	-1.99419	0.980617	0.048873
C	-2.71625	-1.45989	-0.3811	C	-2.71299	-1.46482	-0.35105
C	-3.38286	1.53188	-0.25674	C	-3.37121	1.525543	-0.35195
H	-3.57411	2.414744	0.358663	H	-3.58872	2.440736	0.204806
H	-3.39476	1.86124	-1.29971	H	-3.31785	1.792949	-1.41109
C	4.977699	-2.33678	-0.36366	C	4.988958	-2.32748	-0.36024
H	5.450498	-2.21207	-1.34726	H	5.421035	-2.22385	-1.36499
H	4.460568	-3.30053	-0.36448	H	4.476118	-3.29277	-0.31823
C	-5.22031	-1.65949	0.132803	C	-5.23109	-1.64565	0.098738
C	-5.7129	0.492746	0.273676	C	-5.72375	0.511125	0.137992
H	-6.41507	1.292101	0.450386	H	-6.43215	1.316099	0.253438
C	6.089641	-2.36166	0.700534	C	6.143997	-2.32714	0.657347
H	5.623163	-2.25022	1.695095	H	5.718266	-2.1981	1.667924
H	6.553664	-3.35517	0.671454	H	6.610675	-3.31948	0.628143
C	1.985293	-2.54035	0.818156	C	2.037729	-2.51134	0.925964

H	2.488175	-3.51199	0.801511	H	2.54453	-3.48111	0.917555
H	0.914275	-2.70705	0.678977	H	0.963673	-2.68552	0.824702
H	2.149928	-2.07945	1.796096	H	2.229743	-2.02641	1.887047
C	-1.91748	1.686532	2.341963	C	-2.10293	1.68786	2.346418
H	-1.39784	2.593662	2.017852	H	-1.54862	2.590037	2.069325
H	-1.46158	1.316033	3.261113	H	-1.734	1.315181	3.303155
H	-2.97288	1.911866	2.535713	H	-3.16925	1.924548	2.446464
C	-5.53385	-3.10918	0.190488	C	-5.54832	-3.09197	0.20458
H	-5.94656	-3.38032	1.168438	H	-5.96523	-3.32976	1.18955
H	-4.61807	-3.67507	0.017891	H	-4.63383	-3.66605	0.05345
H	-6.27652	-3.38098	-0.56811	H	-6.28976	-3.38641	-0.54662
C	1.836261	4.803135	-0.06397	C	1.833929	4.805725	-0.11813
H	1.284926	5.743925	-0.04887	H	1.280683	5.745562	-0.11035
H	2.517662	4.794209	-0.92321	H	2.491172	4.777892	-0.99578
H	2.420947	4.708627	0.859207	H	2.445174	4.735775	0.790207
3-i				**3**-j			
O	-1.0225	2.009828	-0.23938	O	-1.03037	2.008248	-0.33324
O	-0.32462	-0.73712	-0.4533	O	-0.33368	-0.72079	-0.56481
O	-1.78604	0.567372	1.426972	O	-1.68542	0.579512	1.404573
O	5.375135	0.797029	-0.37987	O	5.367857	0.77683	-0.31598
O	-1.77382	0.061854	-2.08533	O	-1.88553	0.035292	-2.134
H	-1.54427	-0.72581	-2.60128	H	-1.47668	0.897366	-2.31344
O	0.818144	3.871644	-0.04436	O	0.821773	3.869895	-0.04606
O	-6.14039	-0.88113	0.338926	O	-6.12664	-0.90112	0.415787
O	5.935244	-2.07941	1.608597	O	5.892104	-2.10473	1.633653
H	6.169821	-2.63929	2.358904	H	6.101275	-2.66649	2.390038
O	-2.25557	-2.61383	-0.51741	O	-2.23891	-2.60195	-0.47095
N	4.055402	-1.12261	-0.39527	N	4.040758	-1.13669	-0.39679
C	1.290775	2.598711	-0.15837	C	1.291951	2.596797	-0.16932
C	0.633589	0.248801	-0.36139	C	0.624999	0.249794	-0.42908
C	0.292703	1.600091	-0.25331	C	0.29619	1.603433	-0.30825
C	1.978344	-0.11181	-0.3637	C	1.968803	-0.11715	-0.4028
C	4.285005	0.244328	-0.34105	C	4.275902	0.226579	-0.31487
C	2.943396	0.879417	-0.2742	C	2.934809	0.868321	-0.27286
C	-1.62964	-0.28827	-0.72756	C	-1.65654	-0.27205	-0.78476
C	2.638117	2.236206	-0.18093	C	2.637698	2.225864	-0.16361
H	3.438812	2.962191	-0.11998	H	3.442118	2.944074	-0.06944
C	-4.33689	0.403384	-0.02666	C	-4.3342	0.39392	0.042388
C	-3.97169	-0.99095	-0.1434	C	-3.97246	-0.99413	-0.13312
C	2.628784	-1.47545	-0.4564	C	2.614173	-1.48172	-0.50558
H	2.410979	-1.93139	-1.43616	H	2.421441	-1.91332	-1.50107
C	-1.94583	0.987376	0.096018	C	-1.93539	0.983101	0.091419
C	-2.61305	-1.44989	-0.42261	C	-2.61741	-1.44521	-0.44557

C	-3.34958	1.515859	-0.22832	C	-3.35633	1.516768	-0.14536
H	-3.57225	2.389493	0.389802	H	-3.5534	2.358668	0.523335
H	-3.33826	1.847386	-1.27046	H	-3.40291	1.902672	-1.16768
C	5.144525	-2.04486	-0.65041	C	5.131435	-2.06243	-0.63509
H	5.998415	-1.42378	-0.93673	H	5.993788	-1.44527	-0.90407
H	4.890775	-2.69874	-1.49688	H	4.888953	-2.71207	-1.48764
C	-5.11067	-1.72666	0.089742	C	-5.10336	-1.7378	0.111146
C	-5.6586	0.409415	0.269826	C	-5.64687	0.389957	0.378228
H	-6.38373	1.186274	0.453568	H	-6.36464	1.160079	0.612563
C	5.56237	-2.92129	0.531779	C	5.522838	-2.94313	0.552696
H	4.746297	-3.60075	0.817284	H	4.694362	-3.6116	0.827776
H	6.403046	-3.54954	0.190992	H	6.360183	-3.58193	0.223617
C	2.164289	-2.44437	0.642072	C	2.112561	-2.47266	0.55581
H	2.60384	-3.4361	0.505432	H	2.556817	-3.46135	0.41267
H	1.077314	-2.5485	0.601333	H	1.02773	-2.57544	0.473981
H	2.45286	-2.06462	1.626057	H	2.366318	-2.11459	1.557474
C	-1.98636	1.559117	2.433054	C	-1.81821	1.576759	2.418928
H	-1.45958	2.486308	2.18661	H	-1.32696	2.509448	2.12453
H	-1.574	1.141543	3.352901	H	-1.32587	1.17136	3.304016
H	-3.05215	1.768811	2.586823	H	-2.87105	1.770767	2.656745
C	-5.38576	-3.1852	0.119955	C	-5.37818	-3.19646	0.097431
H	-5.76434	-3.49168	1.101453	H	-5.75039	-3.53279	1.071481
H	-4.4611	-3.7225	-0.09229	H	-4.45418	-3.7263	-0.13537
H	-6.1425	-3.45713	-0.62449	H	-6.13884	-3.44625	-0.65082
C	1.774115	4.919421	0.034035	C	1.780519	4.910935	0.087148
H	1.199383	5.843166	0.112902	H	1.207819	5.835457	0.170624
H	2.403373	4.958286	-0.86363	H	2.437089	4.967549	-0.7896
H	2.416956	4.814421	0.916956	H	2.394805	4.78043	0.986537

Table S6. Optimized coordinates of compound **5** at B3LYP/6-31++G(d,p) level in methanol

Atom	X	Y	Z	Atom	X	Y	Z
O	-0.026	-0.984	-0.128	C	-2.294	1.966	-0.237
O	1.094	-0.157	-1.993	C	-3.536	1.343	-0.101
H	1.061	-1.04	-2.402	H	-4.461	1.906	-0.08
O	2.231	-2.429	-0.12	C	-3.547	-0.048	0.023
O	-2.323	-2.801	1.413	C	-4.691	-0.959	0.204
H	-1.354	-2.872	1.367	C	-2.764	-2.28	0.173
O	5.726	0.141	0.118	C	-2.399	-0.819	-0.003
O	1.217	0.848	1.401	C	-1.16	-0.207	-0.135
O	-2.095	3.302	-0.359	C	5.477	-2.272	0.257
O	-5.877	-0.723	0.275	H	6.218	-2.486	-0.522
O	0.085	1.848	-0.377	H	4.684	-3.02	0.21
O	-4.205	-2.244	0.283	H	5.984	-2.348	1.226

C	1.139	-0.329	-0.601	C	1.337	1.992	2.257
C	2.36	-1.217	-0.234	H	1.08	1.64	3.257
C	3.605	-0.468	-0.148	H	0.642	2.782	1.959
C	4.889	-0.922	0.072	H	2.362	2.378	2.265
C	4.981	1.289	-0.066	C	-3.245	4.151	-0.343
H	5.537	2.213	-0.043	H	-3.915	3.923	-1.179
C	3.675	0.975	-0.239	H	-2.861	5.167	-0.447
C	2.469	1.834	-0.487	H	-3.791	4.059	0.603
H	2.329	2.011	-1.558	C	-2.385	-3.188	-0.991
H	2.549	2.812	-0.005	H	-2.766	-4.195	-0.802
C	1.23	1.088	0.023	H	-1.296	-3.229	-1.089
C	-1.107	1.186	-0.248	H	-2.806	-2.812	-1.927

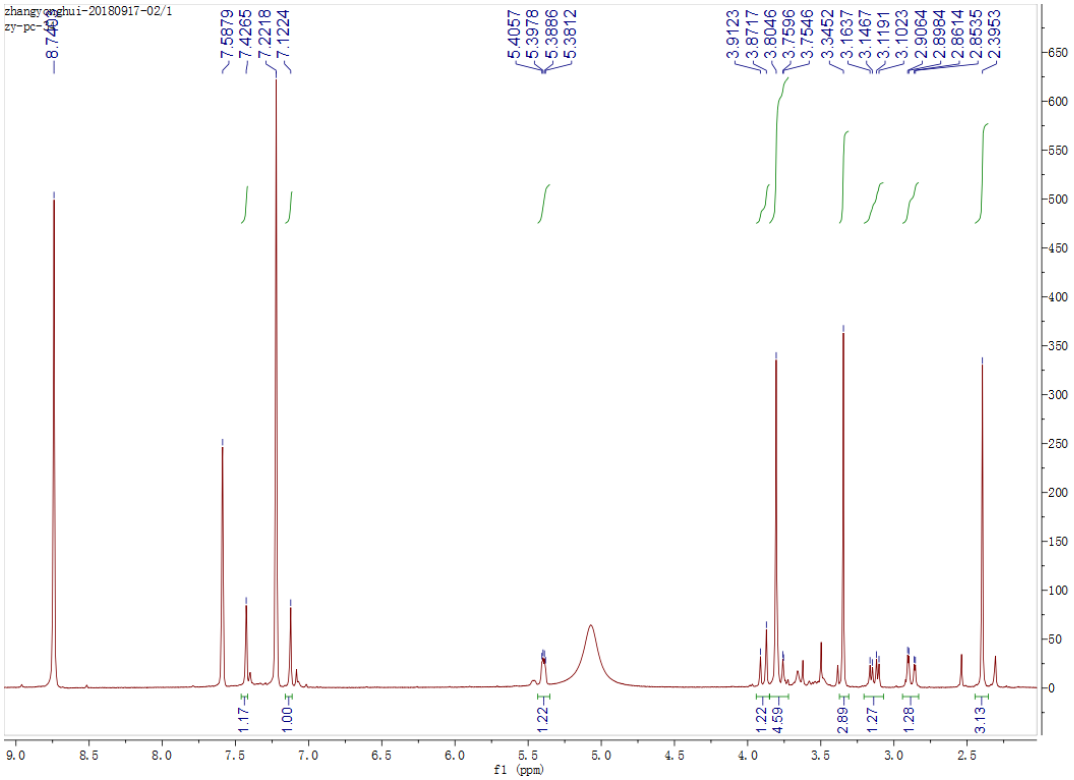

Figure S1. ^{1}H NMR spectrum of canescone A (**1**) in pyridine-d_5.

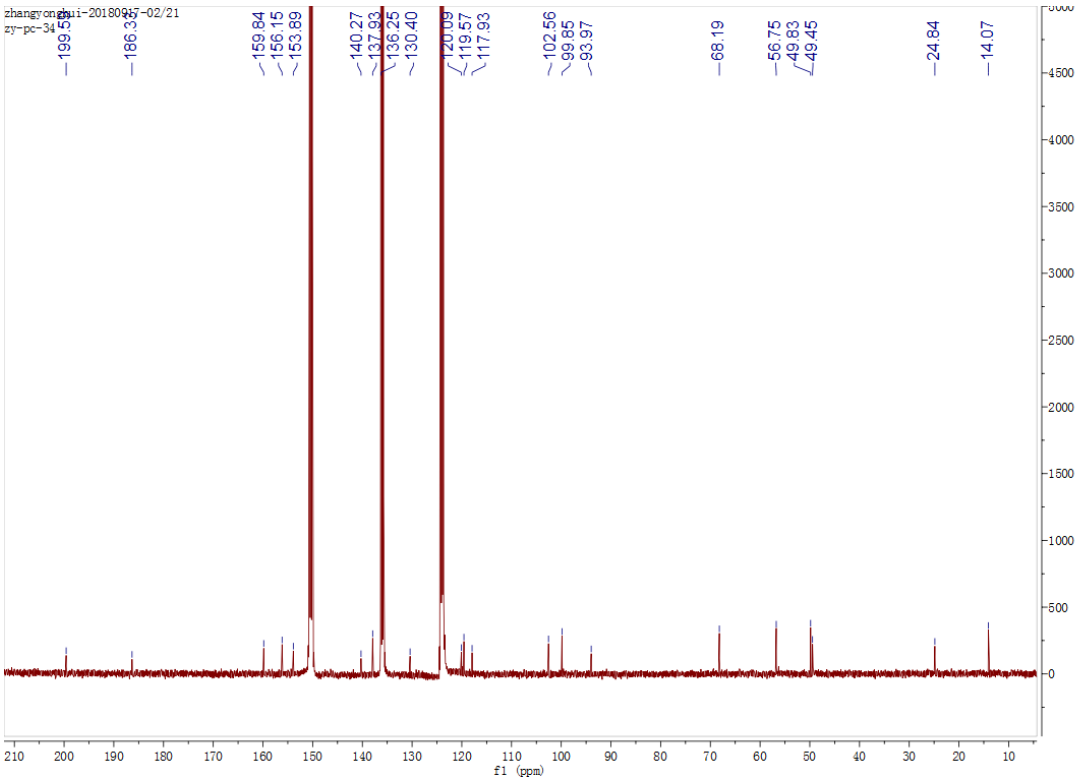

Figure S2. ^{13}C NMR spectrum of canescone A (**1**) in pyridine-d_5.

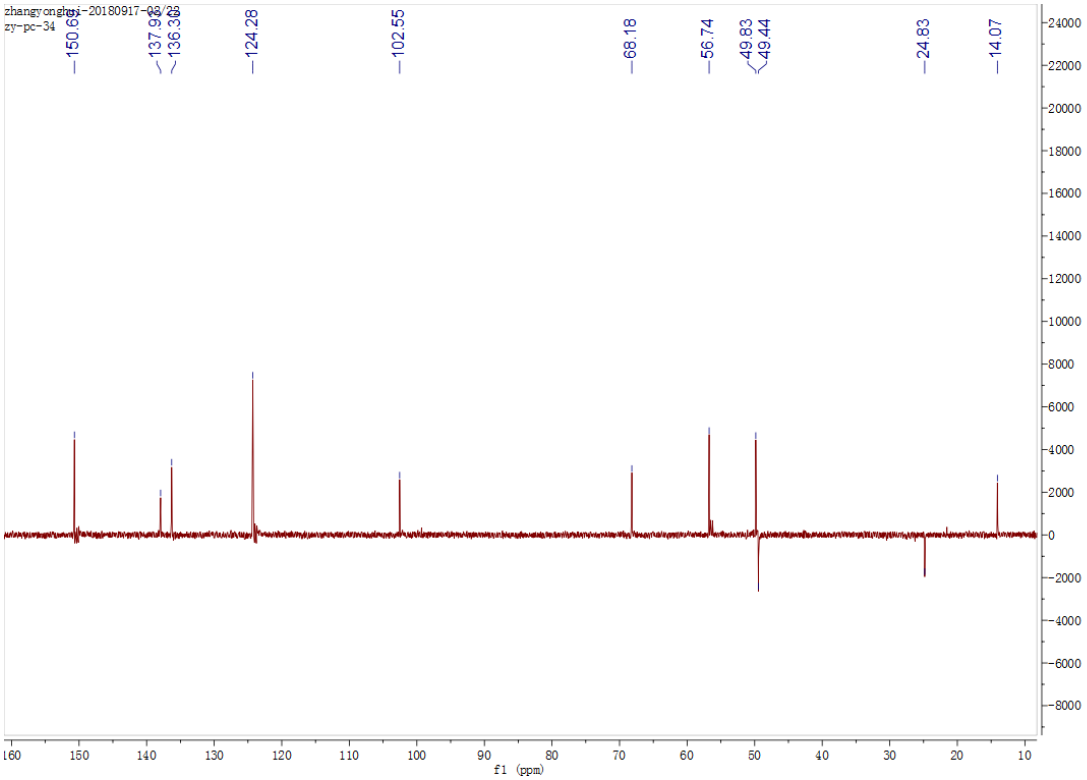

Figure S3. DEPT-135° spectrum of canescone A (**1**) in pyridine-d_5.

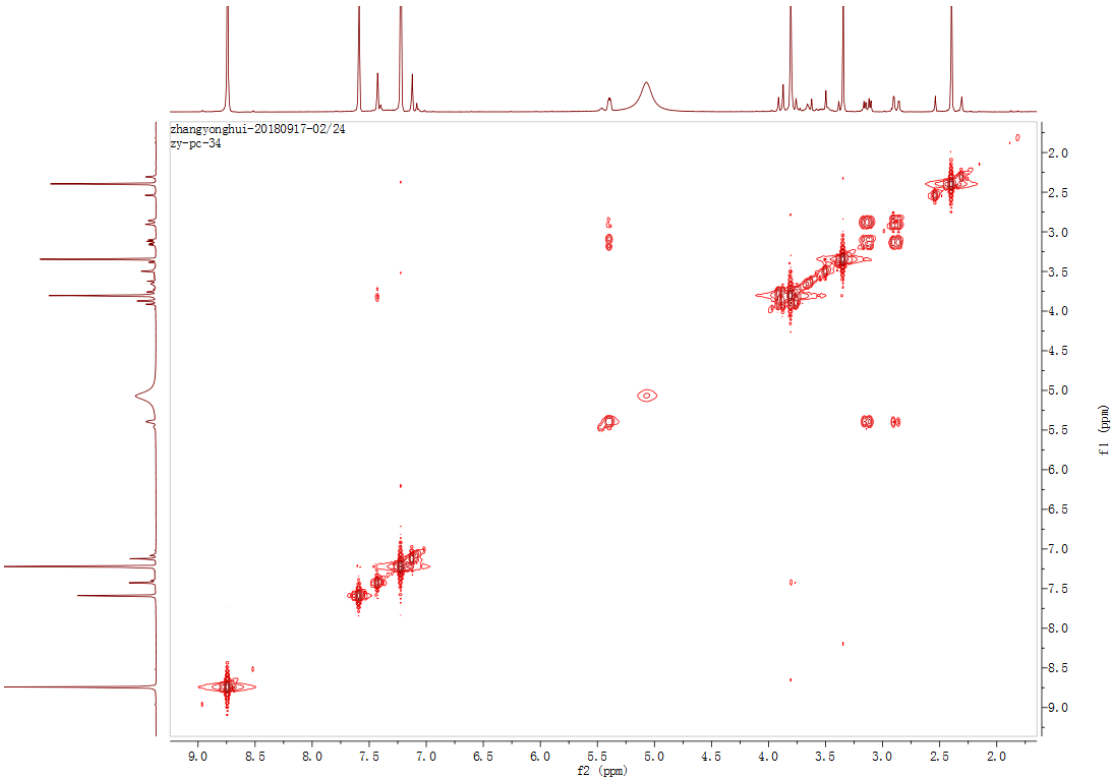

Figure S4. COSY spectrum of canescone A (**1**) in pyridine-d_5.

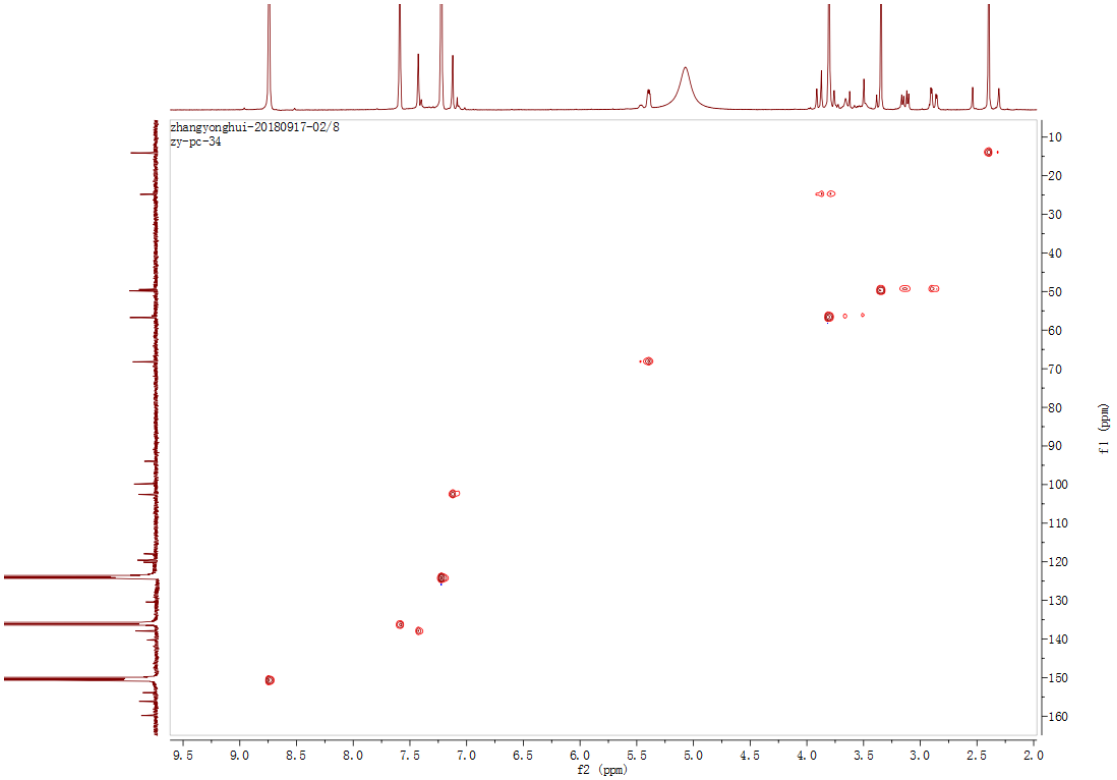

Figure S5. HSQC spectrum of canescone A (**1**) in pyridine-d_5.

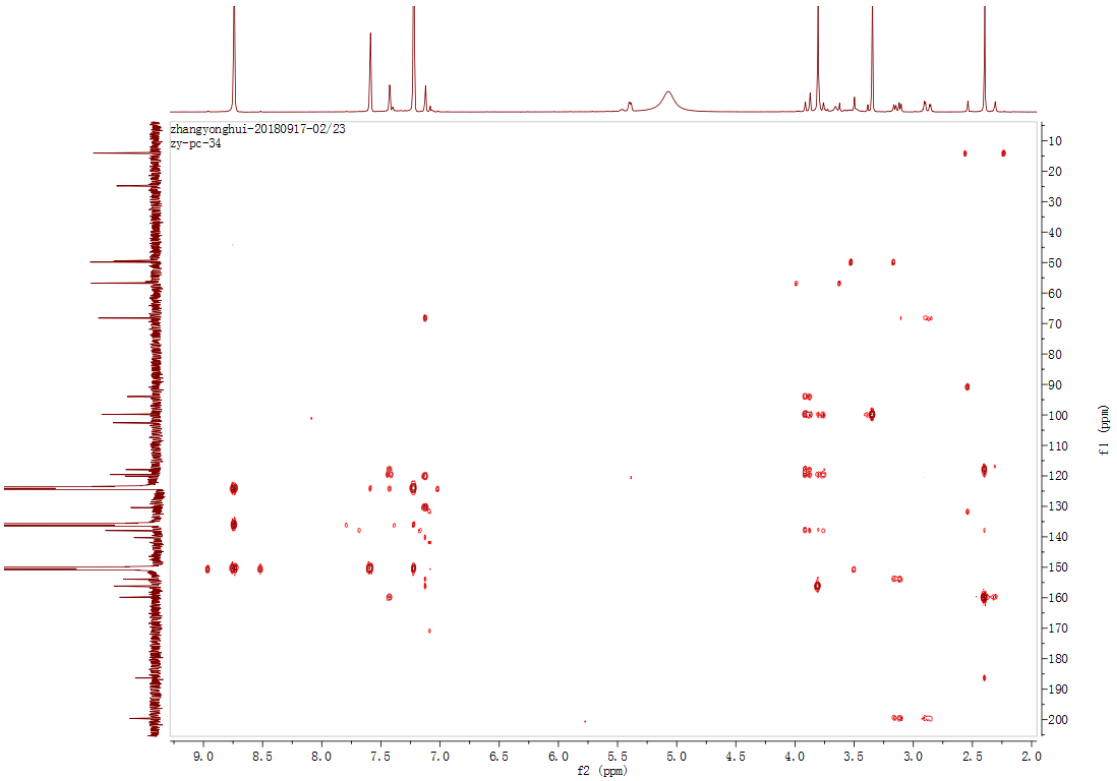

Figure S6. HMBC spectrum of canescone A (**1**) in pyridine-d_5.

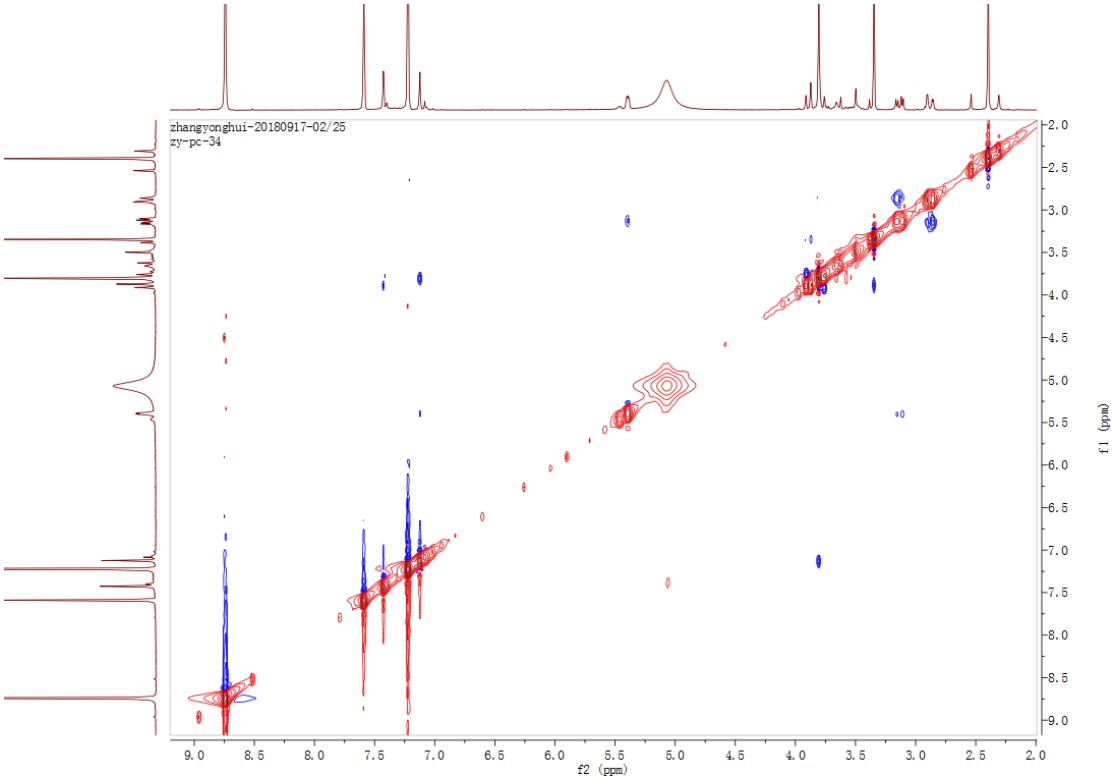

Figure S7. NOESY spectrum of canescone A (**1**) in pyridine-d_5.

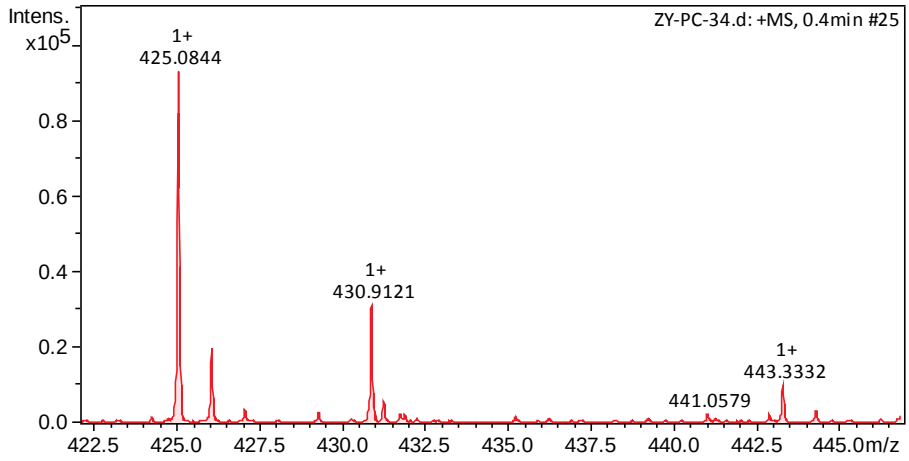

Figure S8. (+) ESI-MS spectrum of canescone A (**1**).

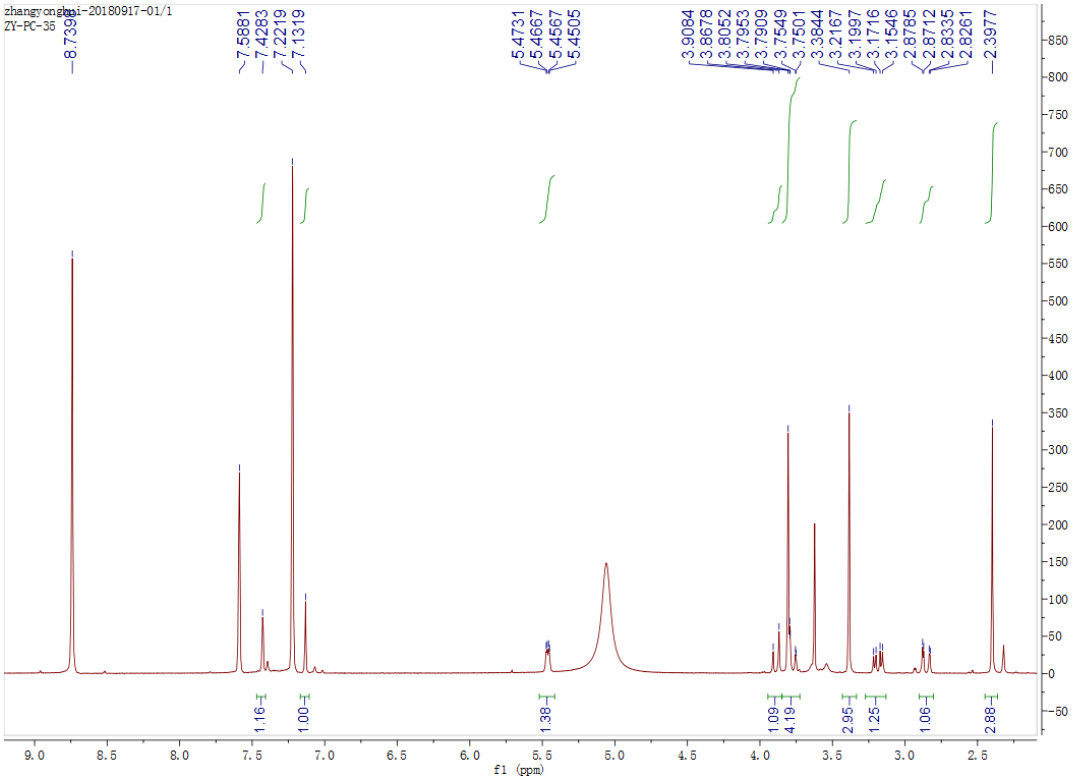

Figure S9. ^{1}H NMR spectrum of canescone B (**2**) in pyridine-d_5.

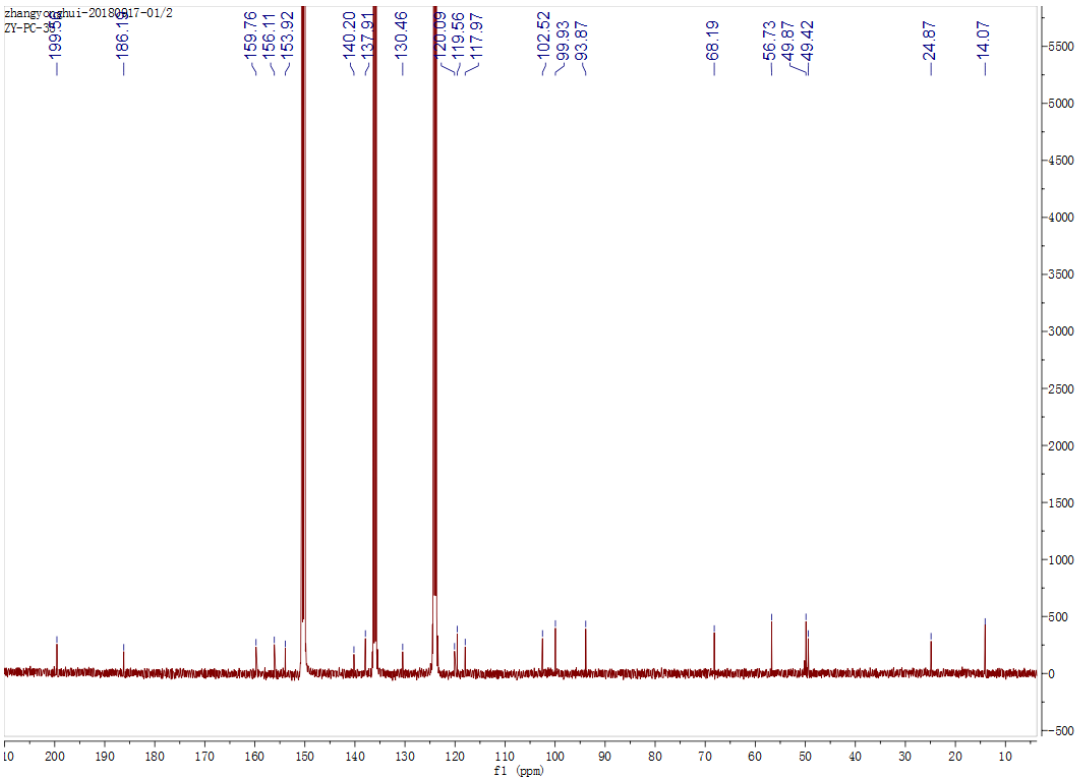

Figure S10. ^{13}C NMR spectrum of canescone B (**2**) in pyridine-d_5.

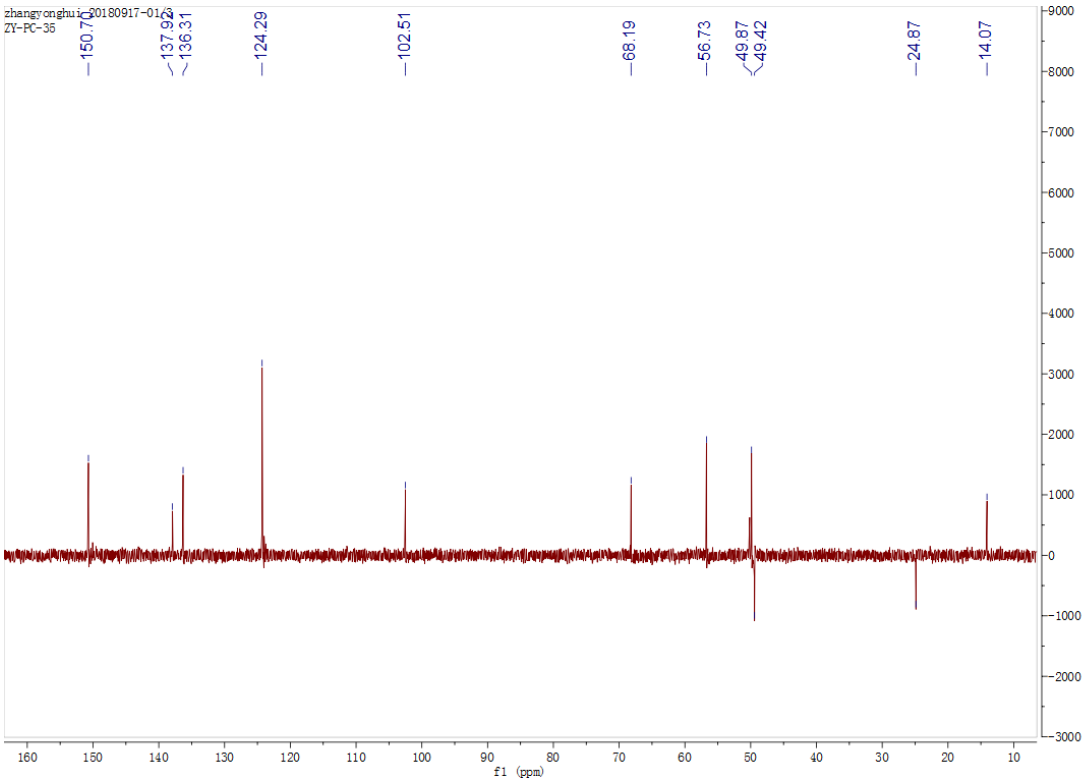

Figure S11. DEPT-135° spectrum of canescone B (**2**) in pyridine-d_5.

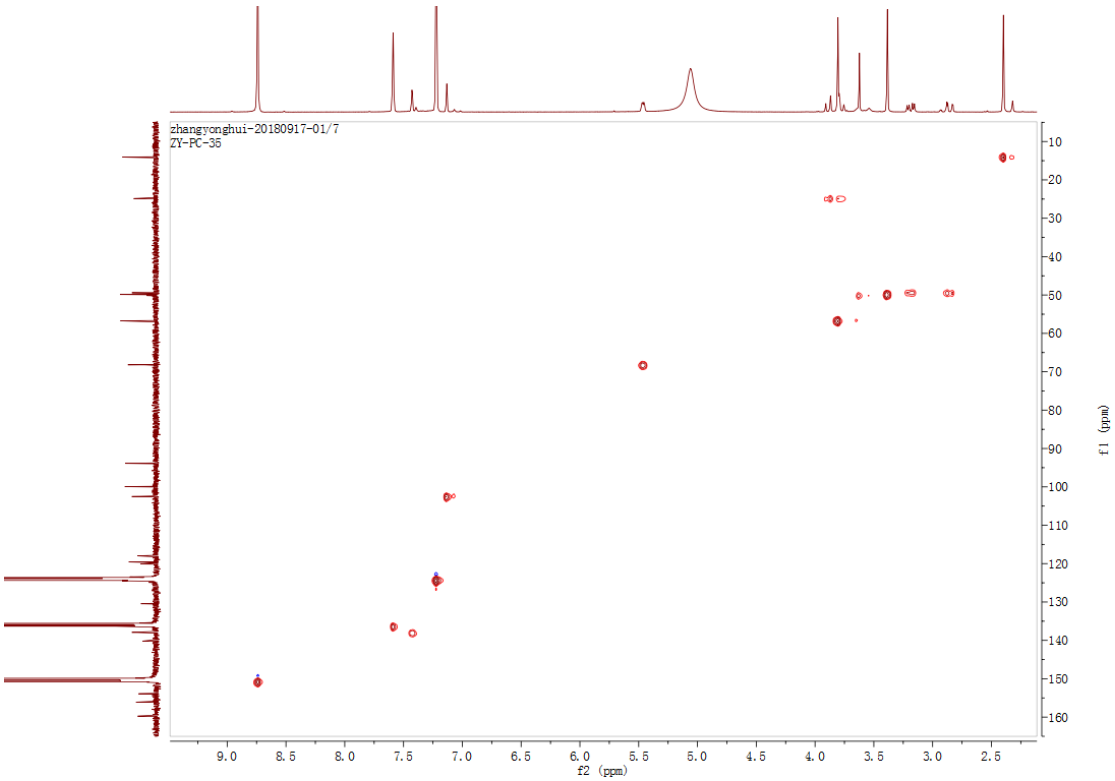

Figure S12. HSQC spectrum of canescone B (**2**) in pyridine-d_5.

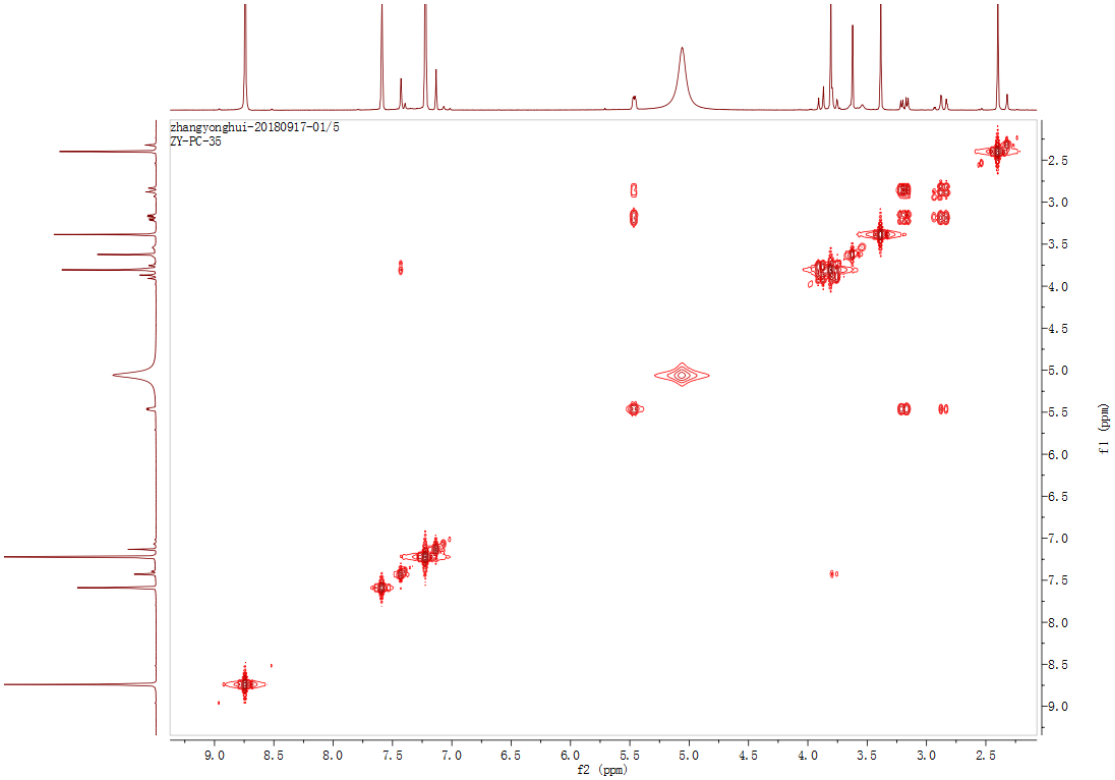

Figure S13. COSY spectrum of canescone B (**2**) in pyridine-d_5.

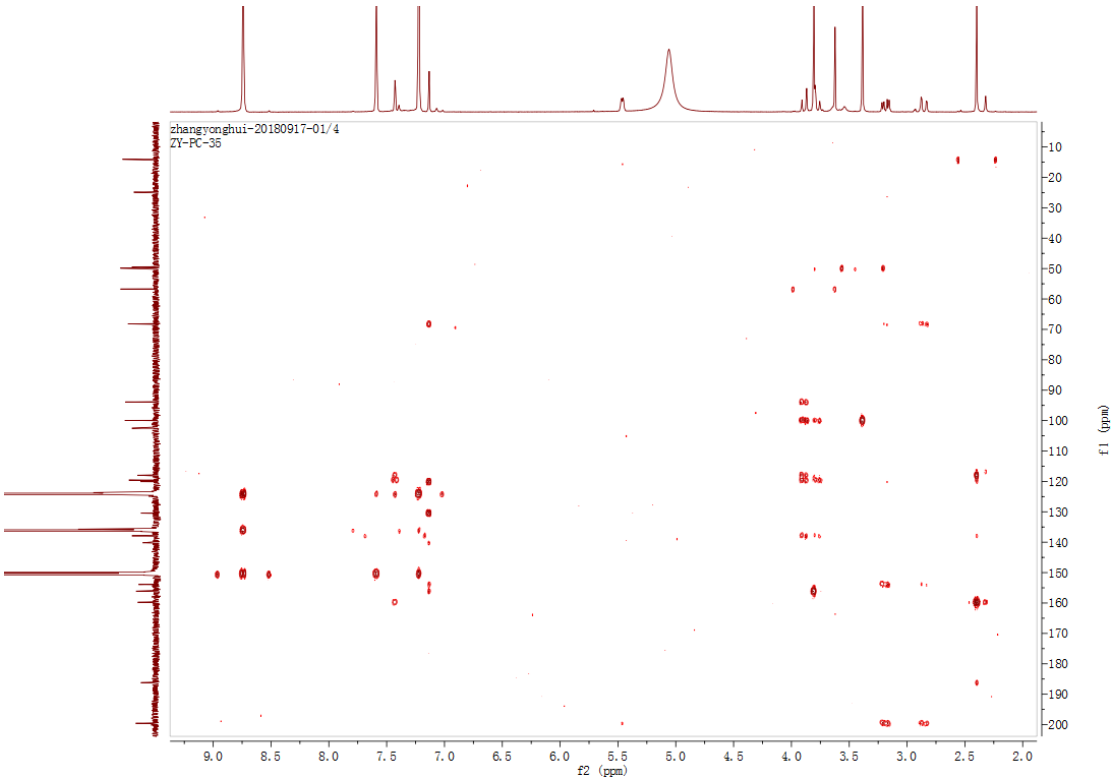

Figure S14. HMBC spectrum of canescone B (**2**) in pyridine-d_5.

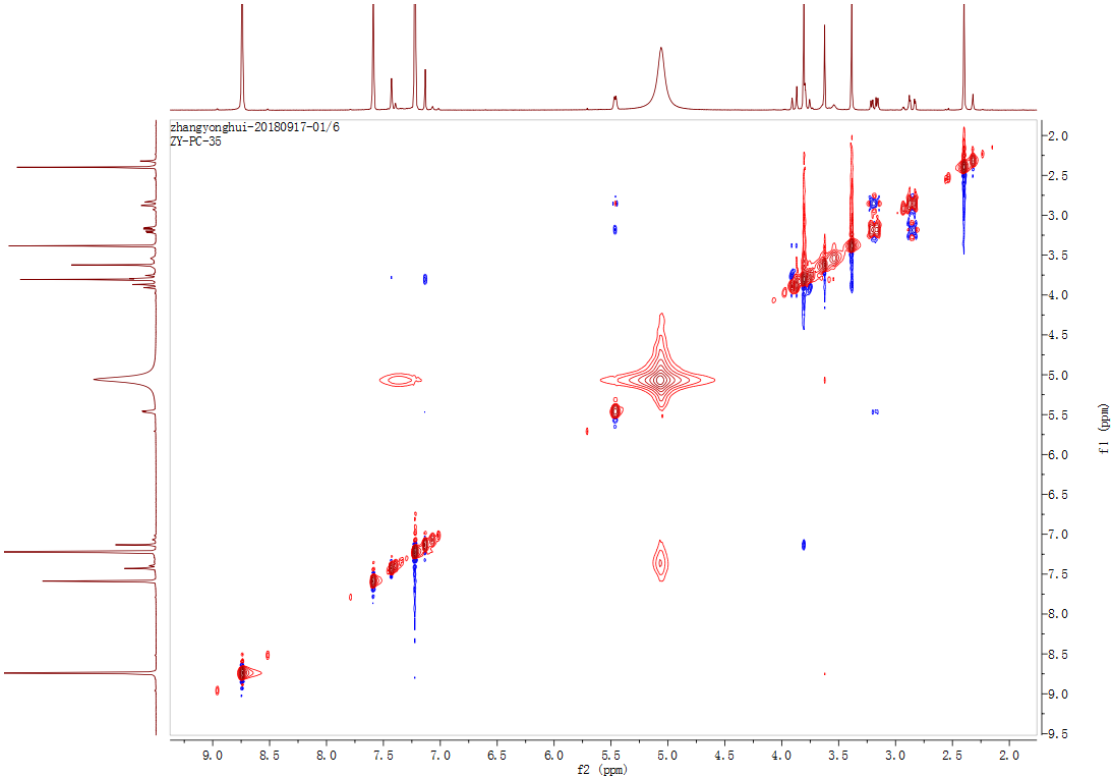

Figure S15. NOESY spectrum of canescone B (**2**) in pyridine-d_5.

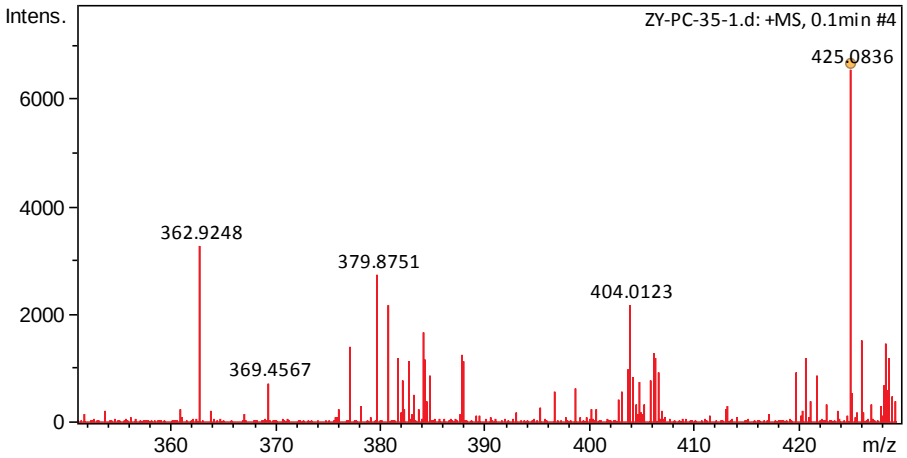

Figure S16. (+) ESI-MS spectrum of canescone B (**2**).

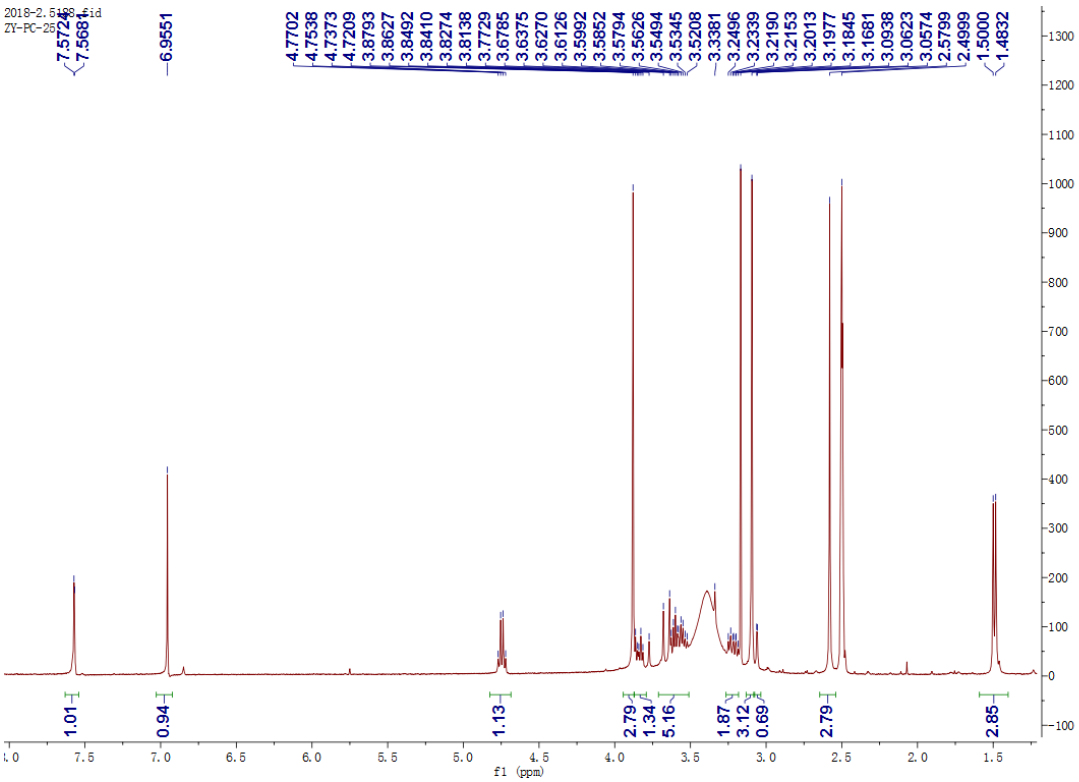

Figure S17. ^{1}H NMR spectrum of canescone C (**3**) in DMSO-d_6.

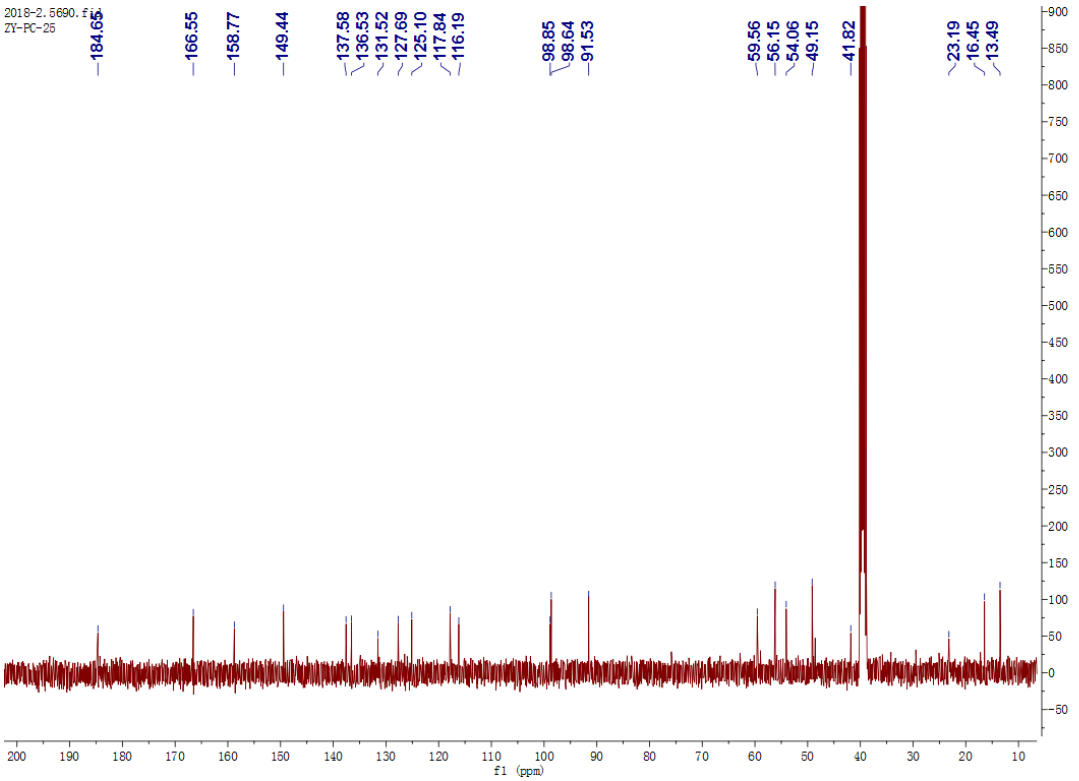

Figure S18. ^{13}C NMR spectrum of canescone C (**3**) in DMSO-d_6.

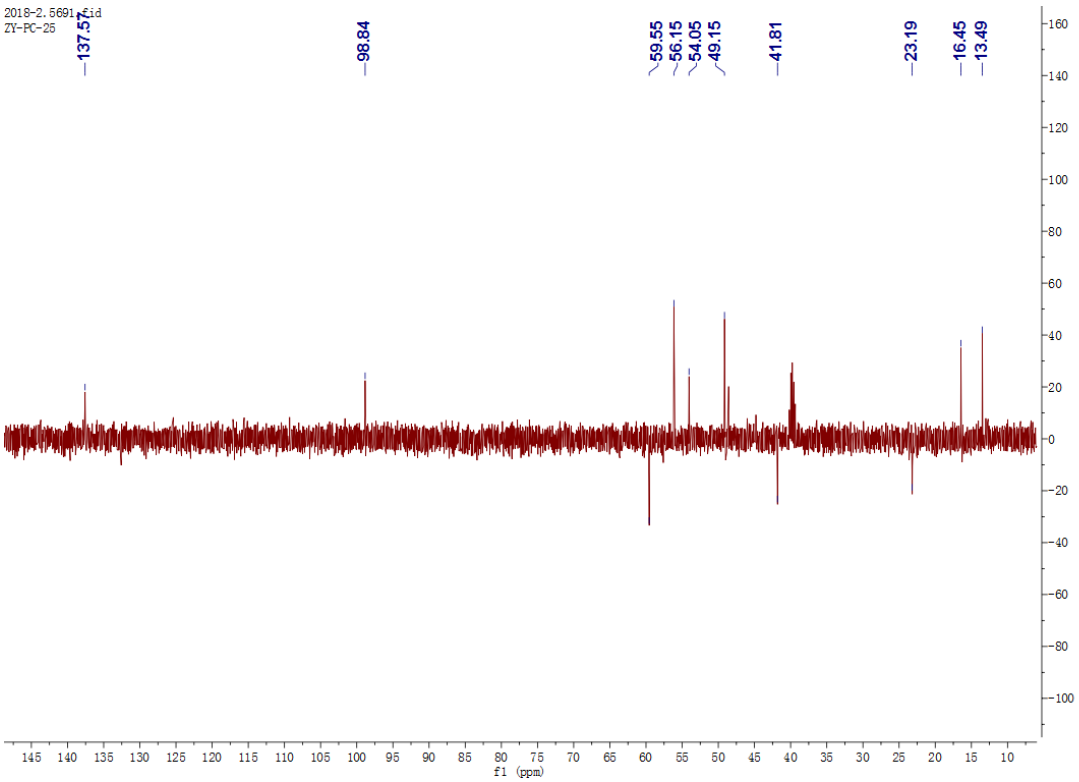

Figure S19. DEPT-135° spectrum of canescone C (**3**) in DMSO-d_6.

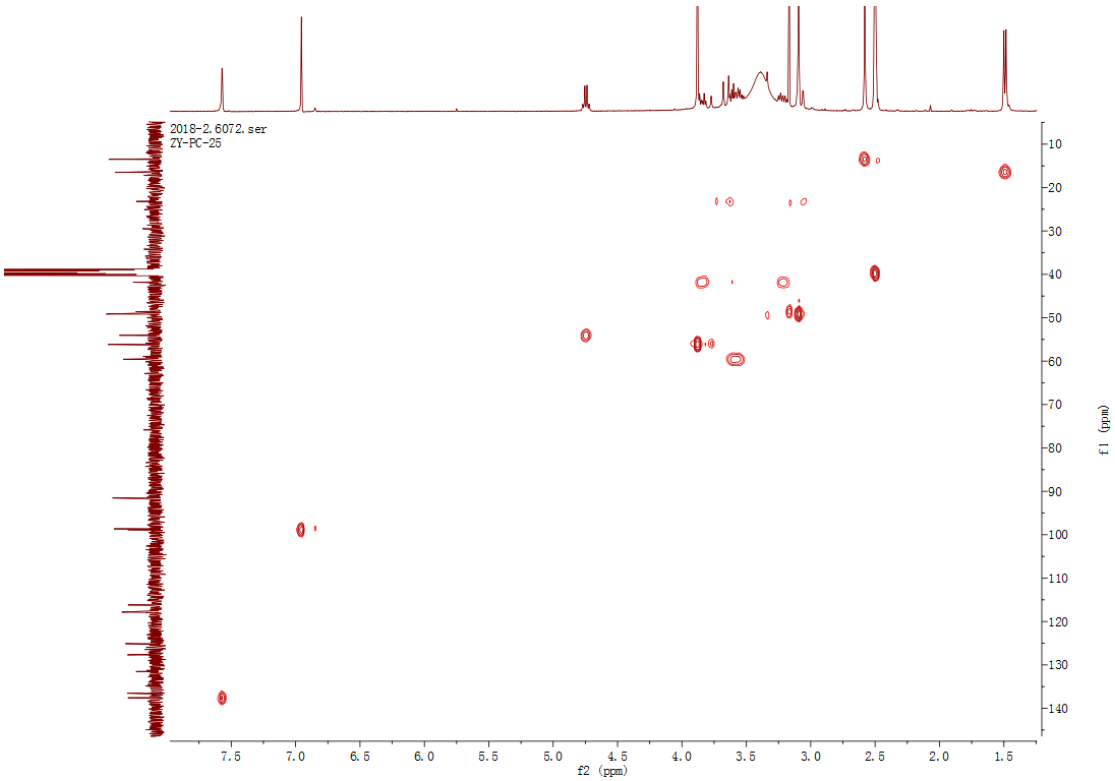

Figure S20. HSQC spectrum of canescone C (**3**) in DMSO-d_6.

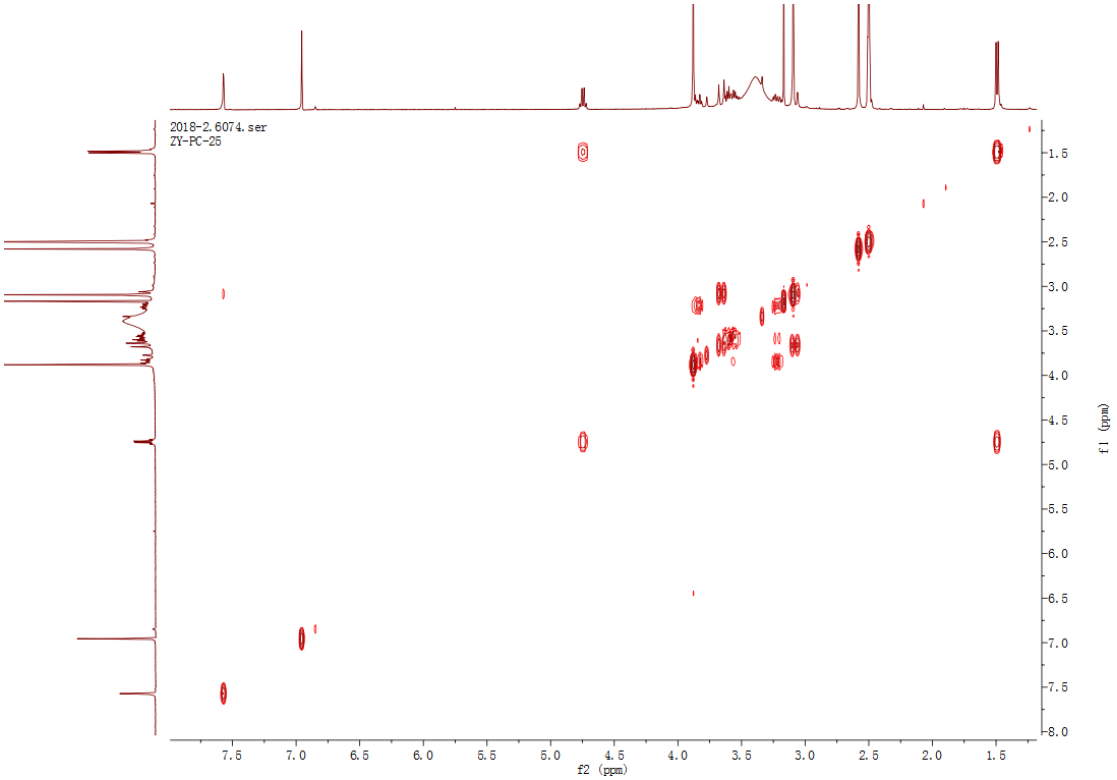

Figure S21. COSY spectrum of canescone C (**3**) in DMSO-d_6.

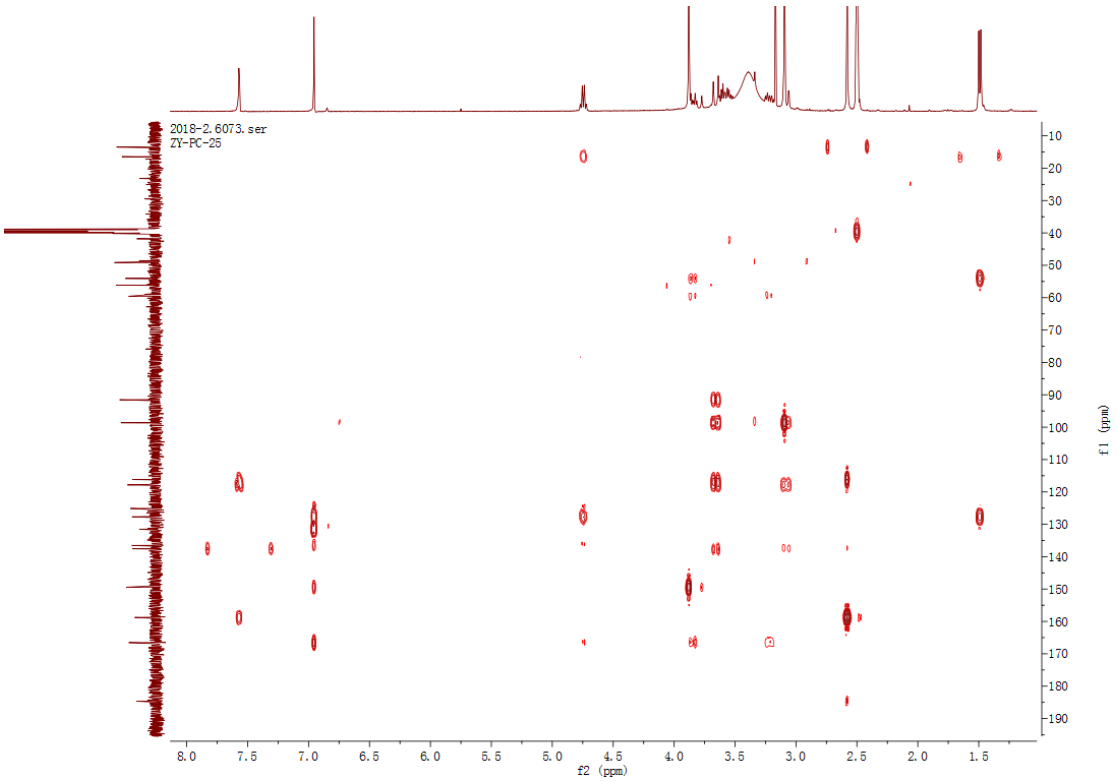

Figure S22. HMBC spectrum of canescone C (**3**) in DMSO-d_6.

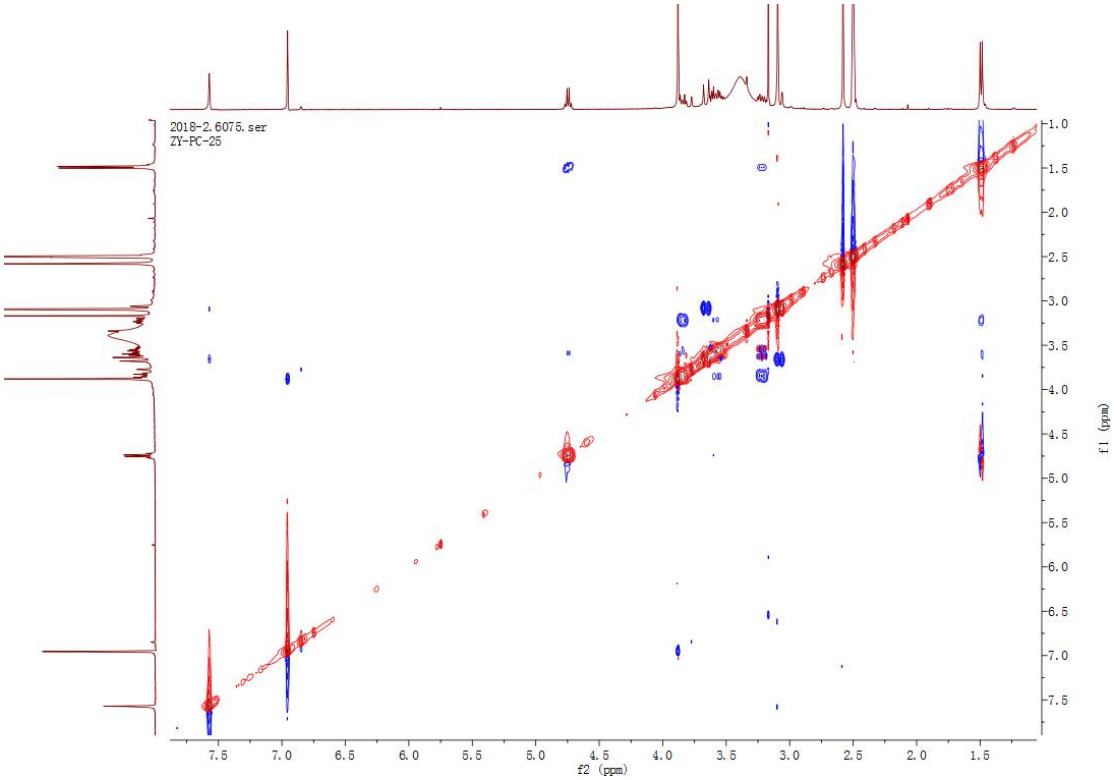

Figure S23. NOESY spectrum of canescone C (**3**) in DMSO-d_6.

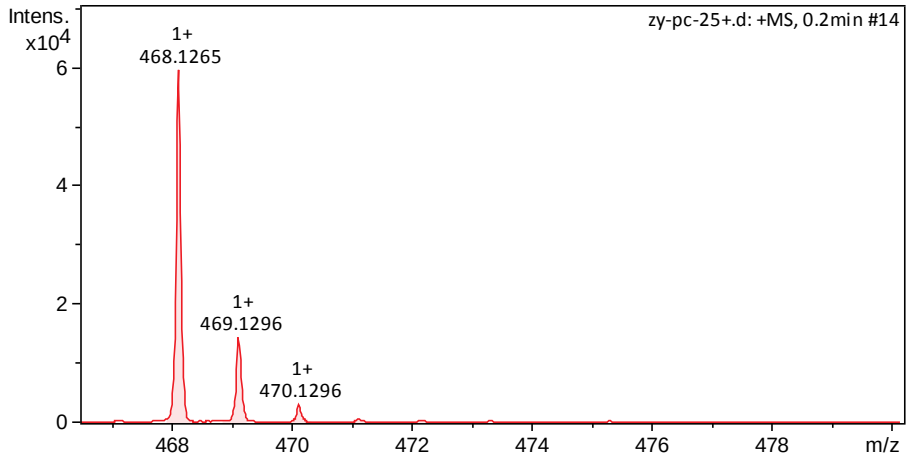

Figure S24. (+) ESI-MS spectrum of canescone C (**3**).

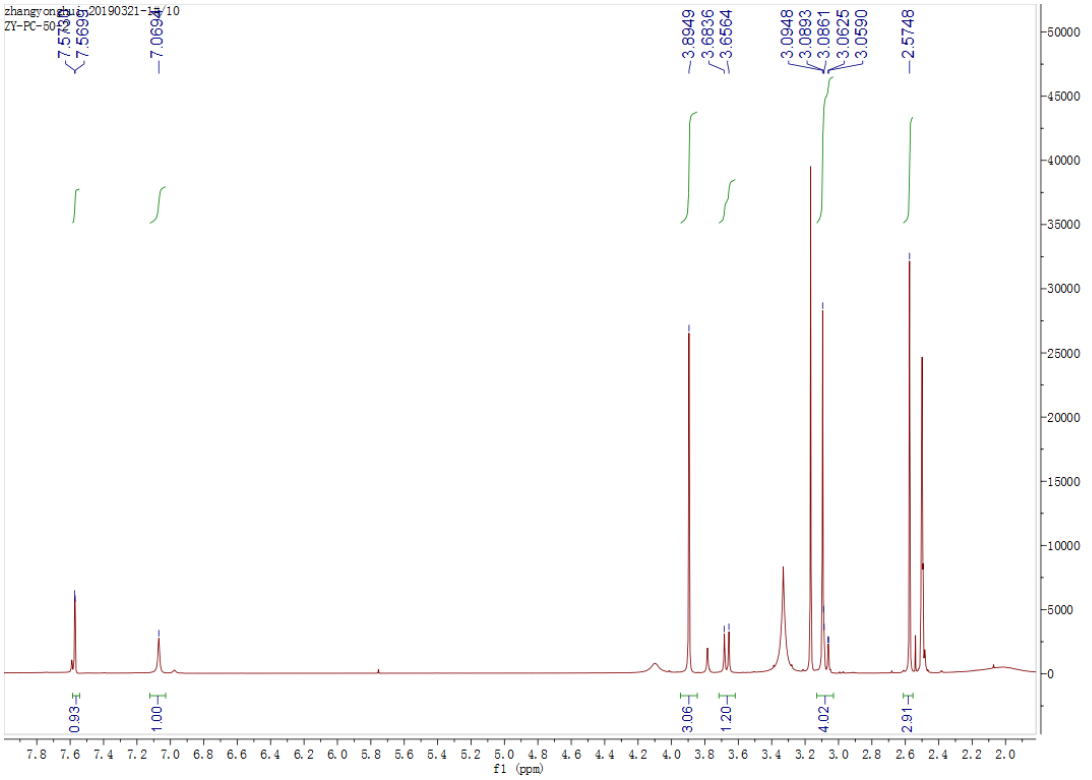

Figure S25. ^{1}H NMR spectrum of canescone D (**4**) in DMSO-d_6.

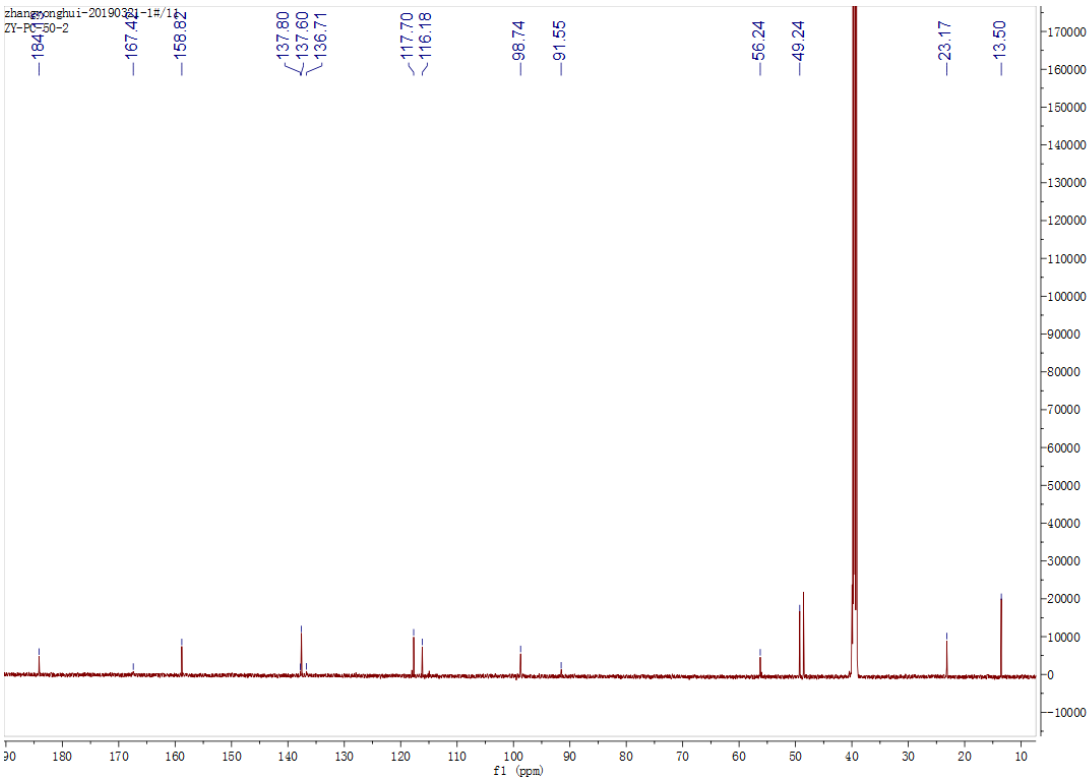

Figure S26. ^{13}C NMR spectrum of canescone D (**4**) in DMSO-d_6.

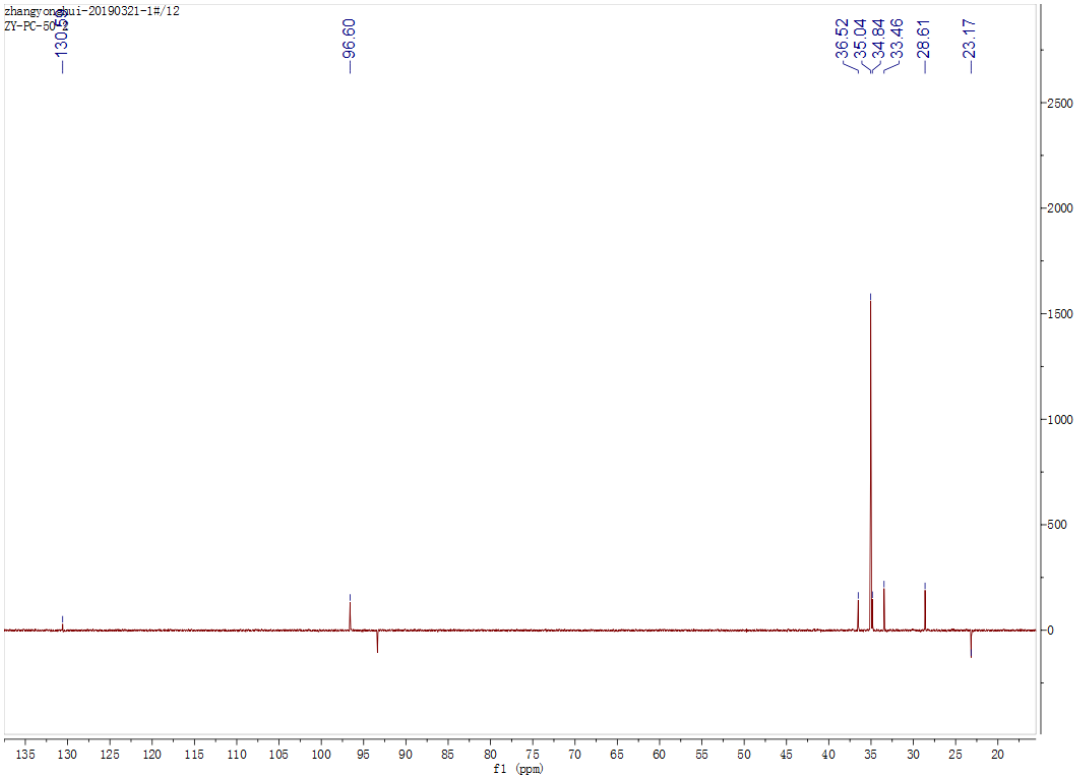

Figure S27. DEPT-135° spectrum of canescone D (**4**) in DMSO-d_6.

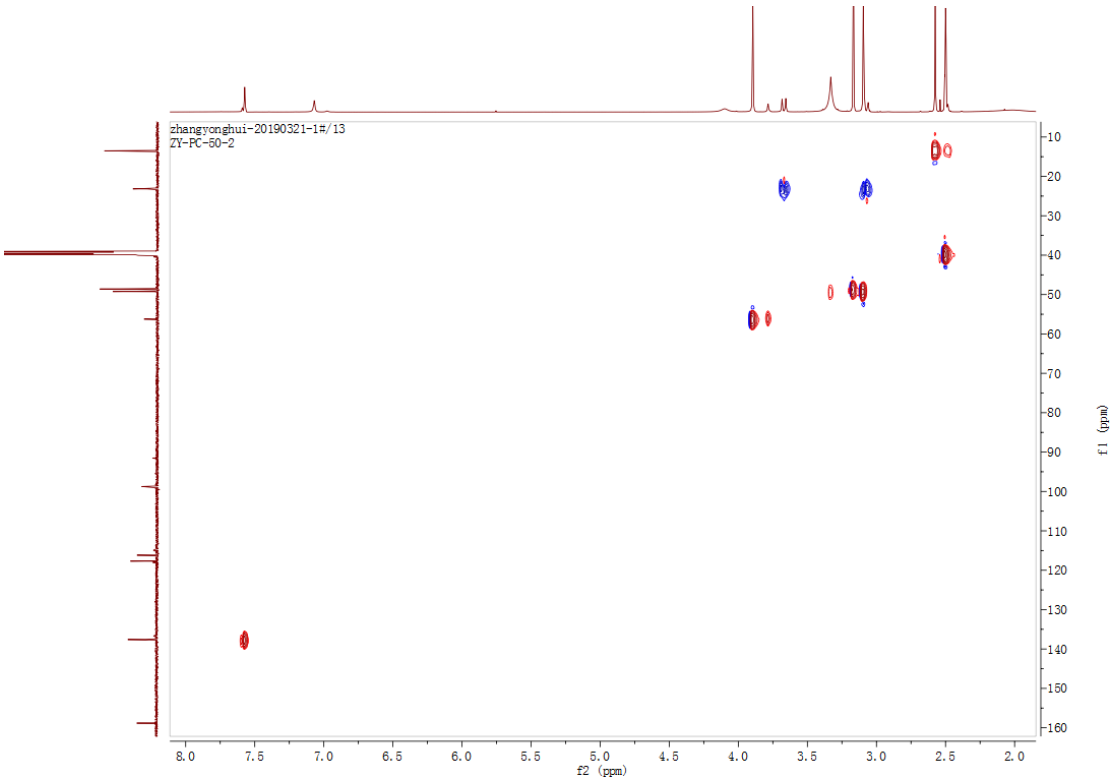

Figure S28. HSQC spectrum of canescone D (**4**) in DMSO-d_6.

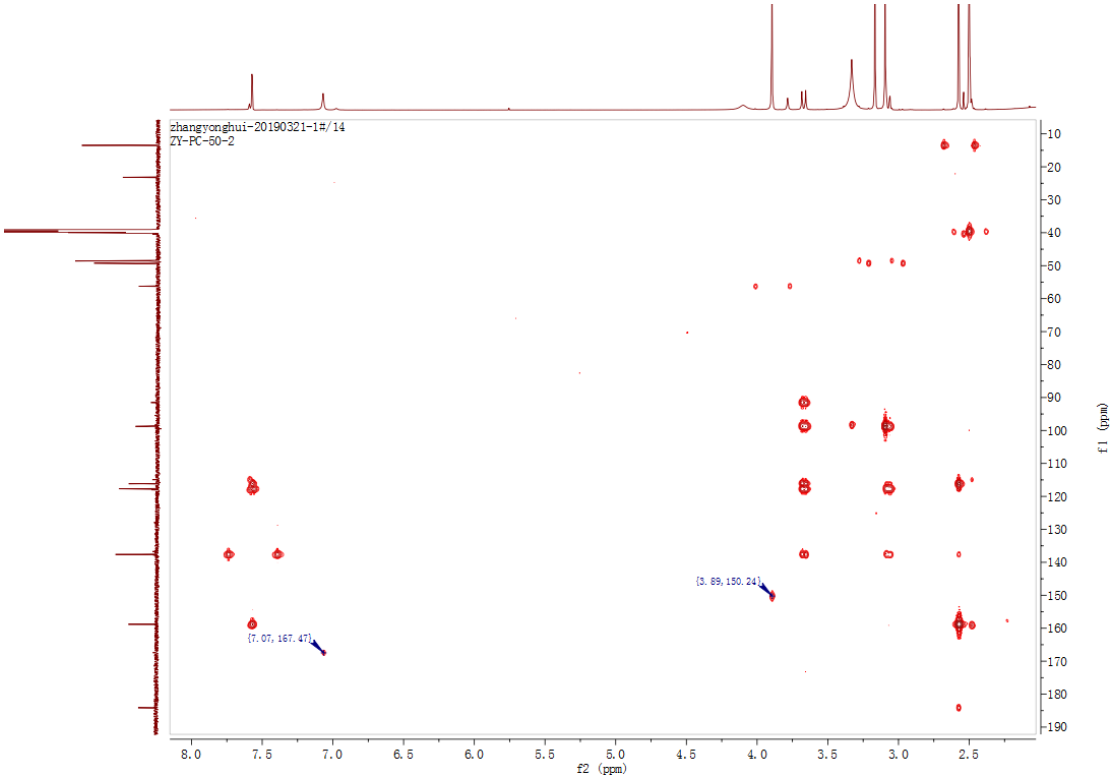

Figure S29. HMBC spectrum of canescone D (**4**) in DMSO-d_6.

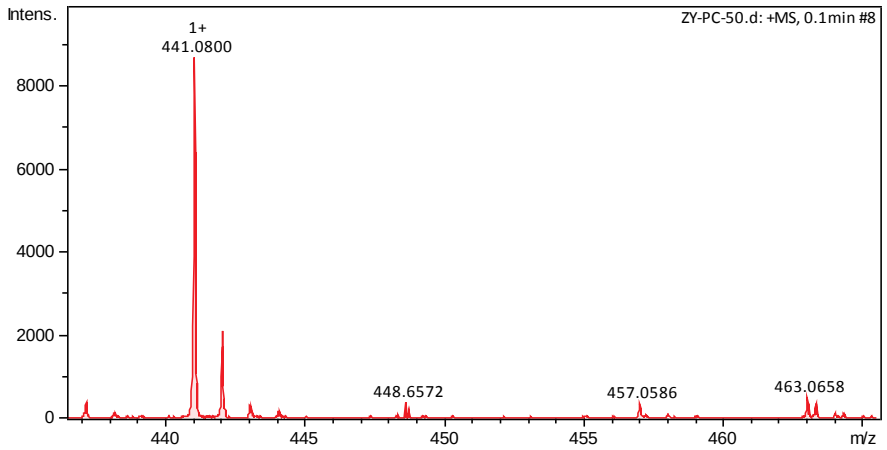

Figure S30. (+) ESI-MS spectrum of canescone D (**4**).

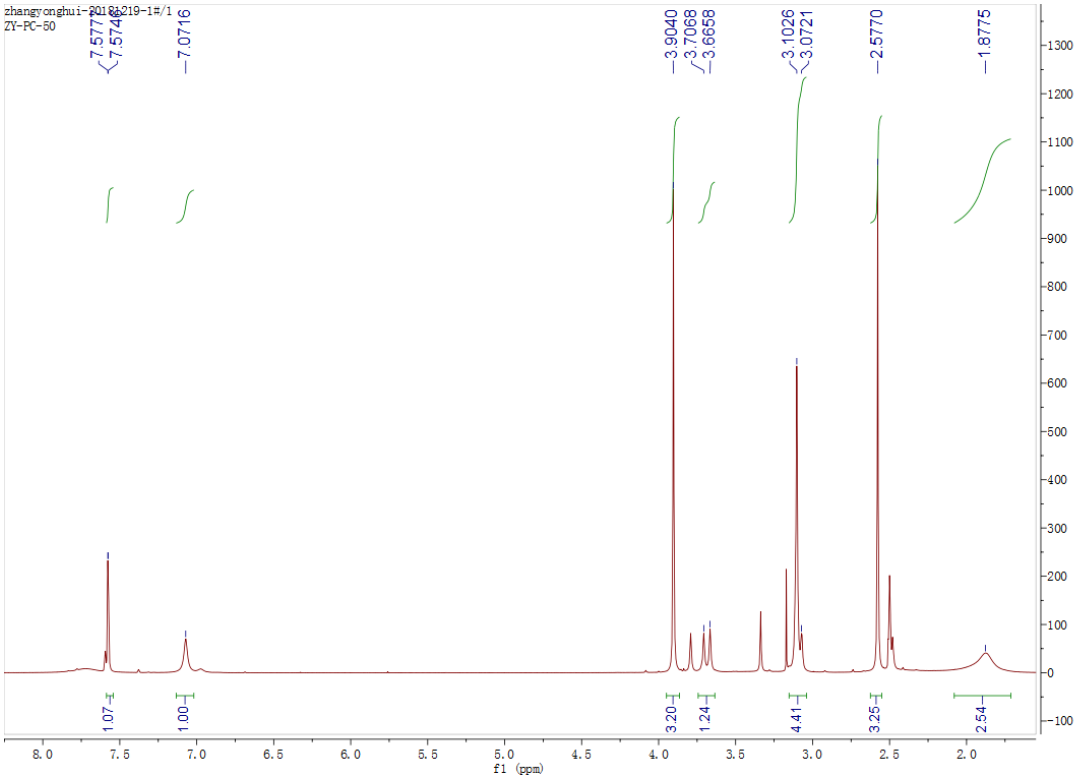

Figure S31. ^{1}H NMR spectrum of canescone E (**5**) in DMSO-d_6.

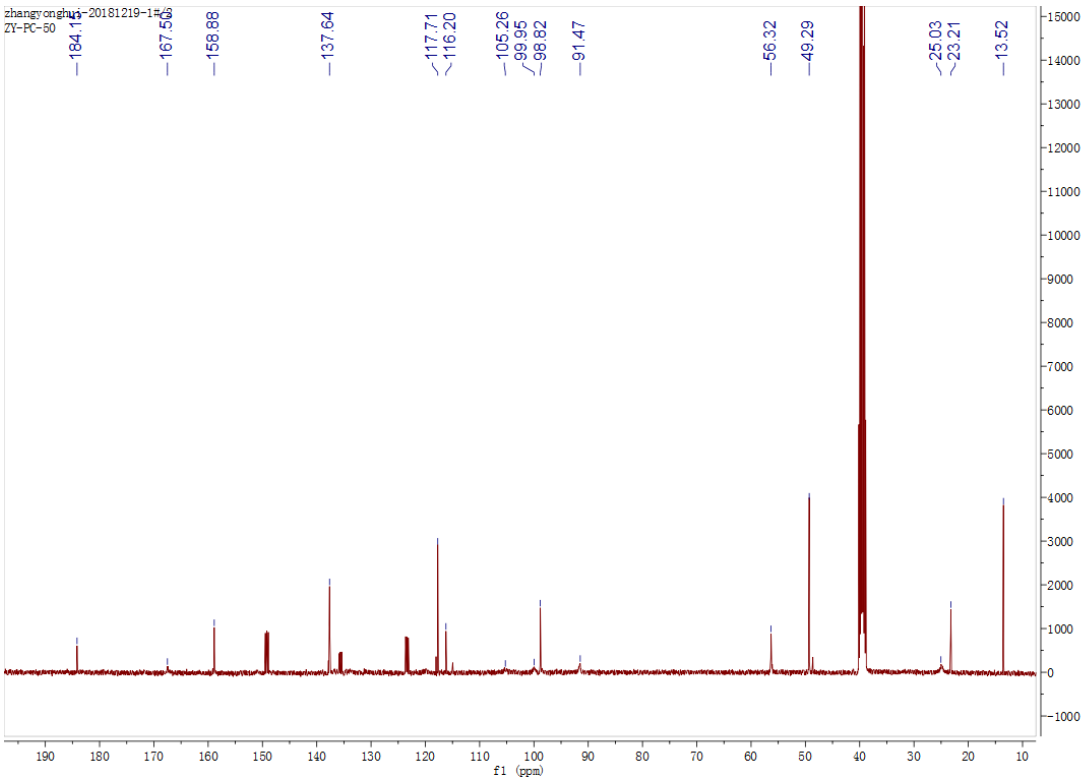

Figure S32. ^{13}C NMR spectrum of canescone E (**5**) in DMSO-d_6.

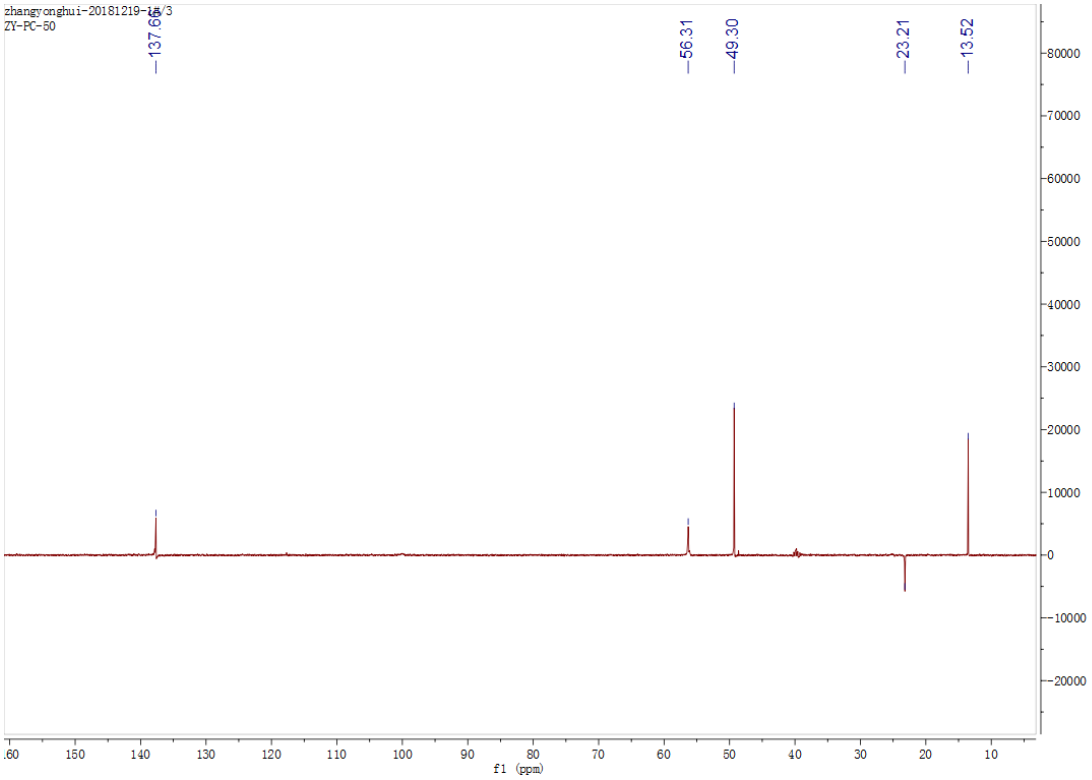

Figure S33. DEPT-135° spectrum of canescone E (**5**) in DMSO-d_6.

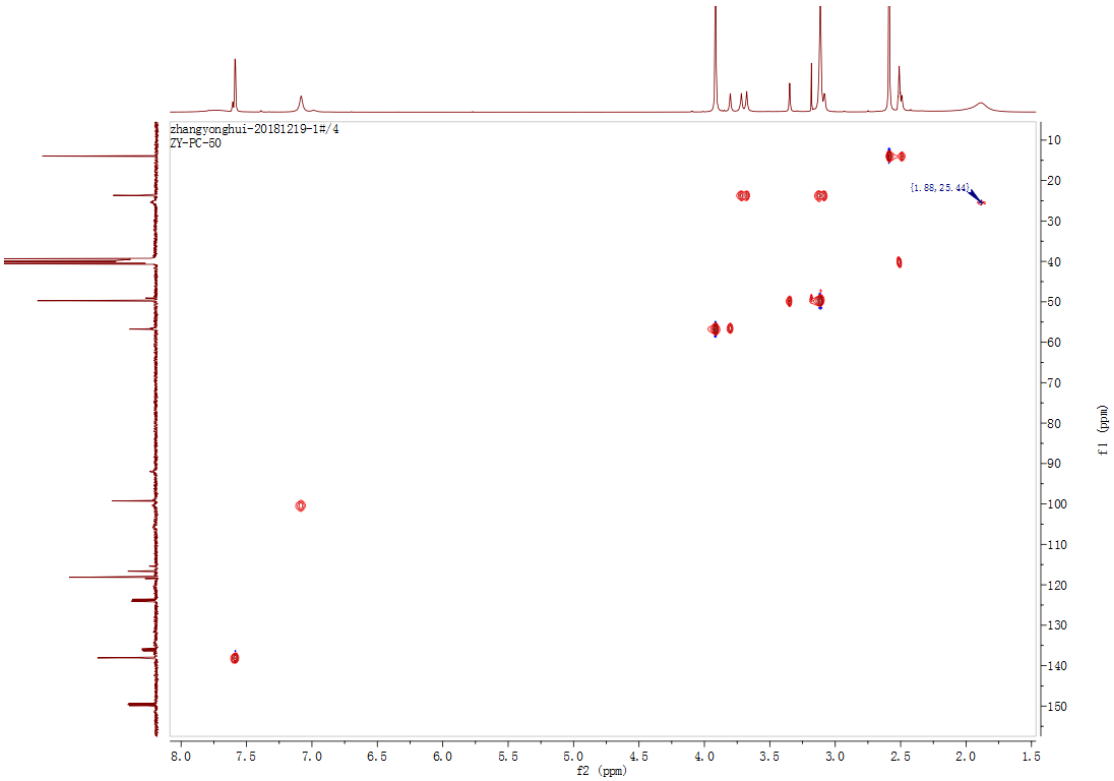

Figure S34. HSQC spectrum of canescone E (**5**) in DMSO-d_6.

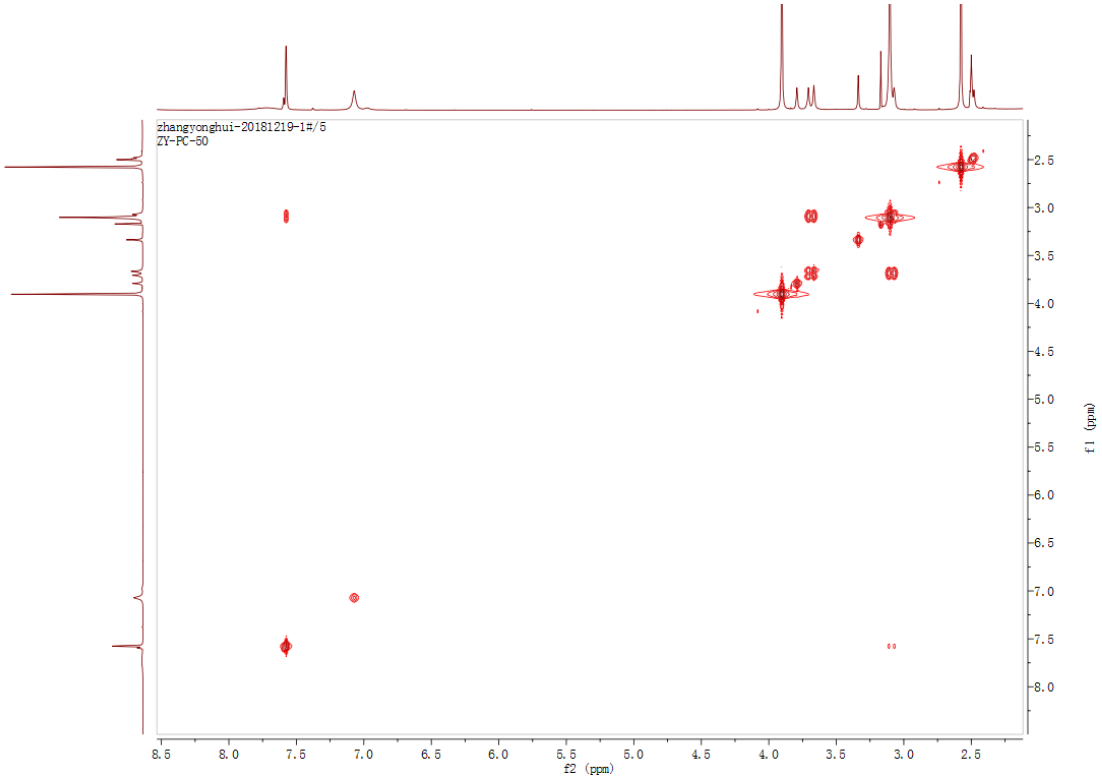

Figure S35. COSY spectrum of canescone E (**5**) in DMSO-d_6.

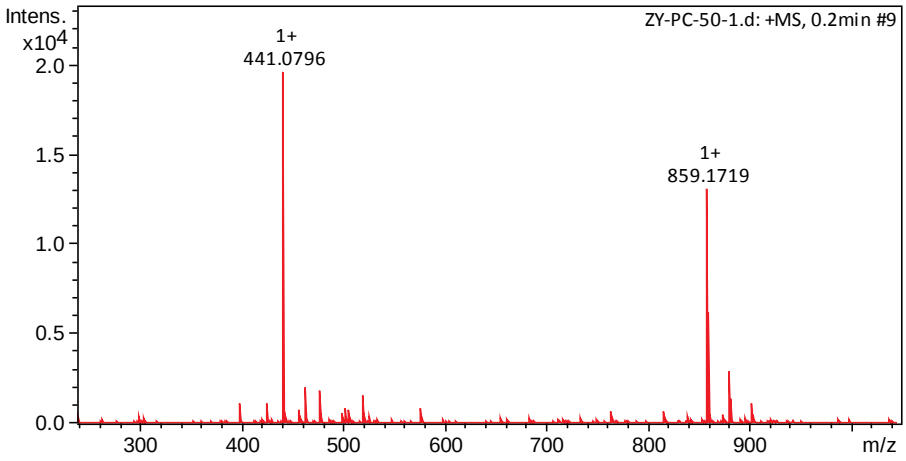

Figure S36. (+) ESI-MS spectrum of canescone E (**5**).

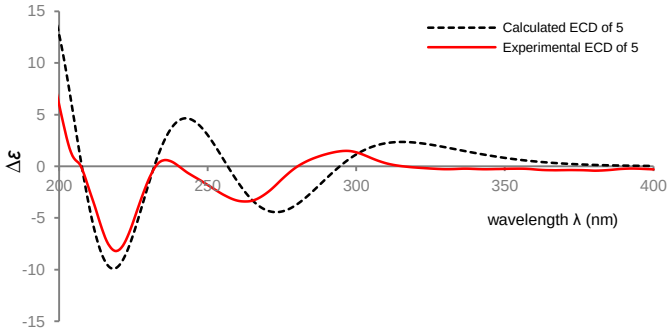

Figure S37. Comparison of calculated and experimental ECD spectra of **5**.

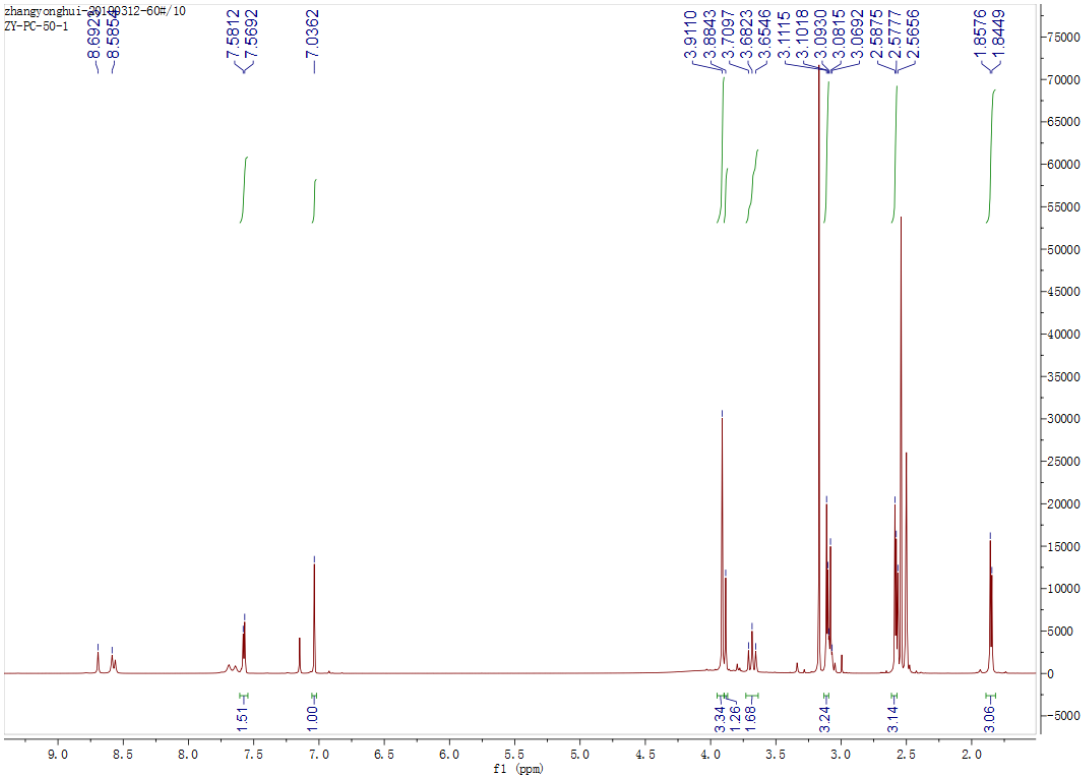

Figure S38. ^{1}H NMR spectrum of the mixture of **4** and **5** in DMSO-d_6.

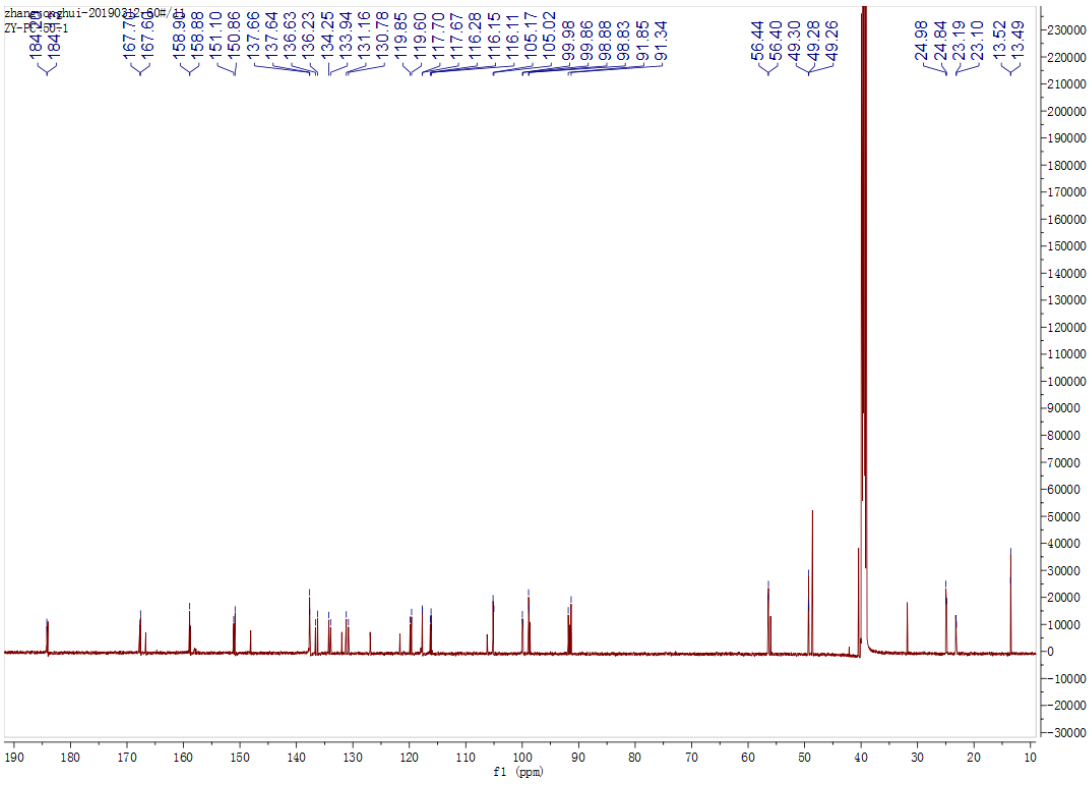

Figure S39. ^{13}C NMR spectrum of the mixture of **4** and **5** in DMSO-d_6.

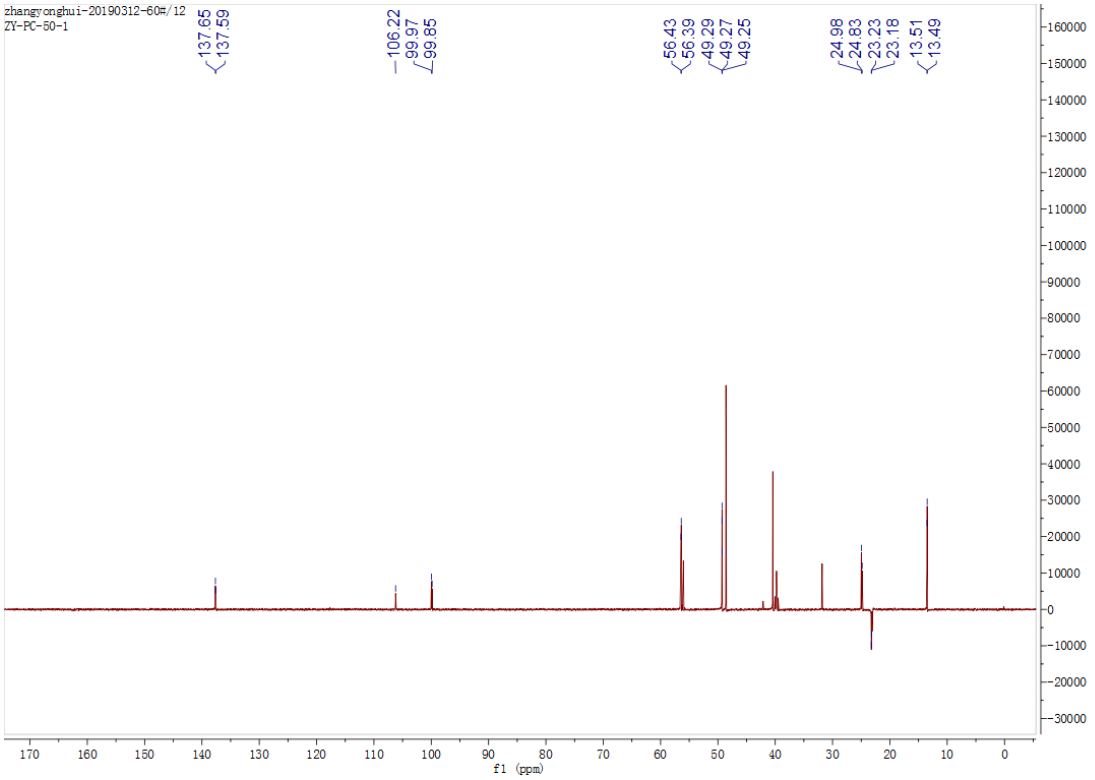

Figure S 40. DEPT-135° spectrum of the mixture of **4** and **5** in DMSO-d_6.

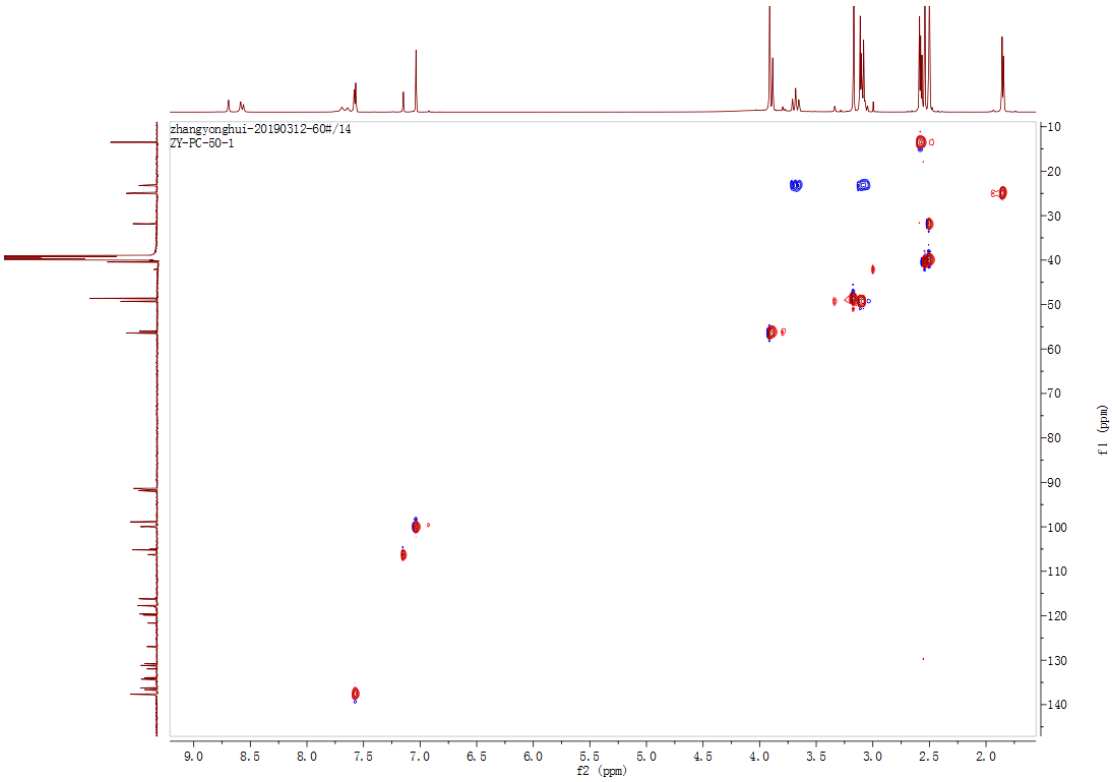

Figure S41. HSQC spectrum of the mixture of **4** and **5** in DMSO-d_6.

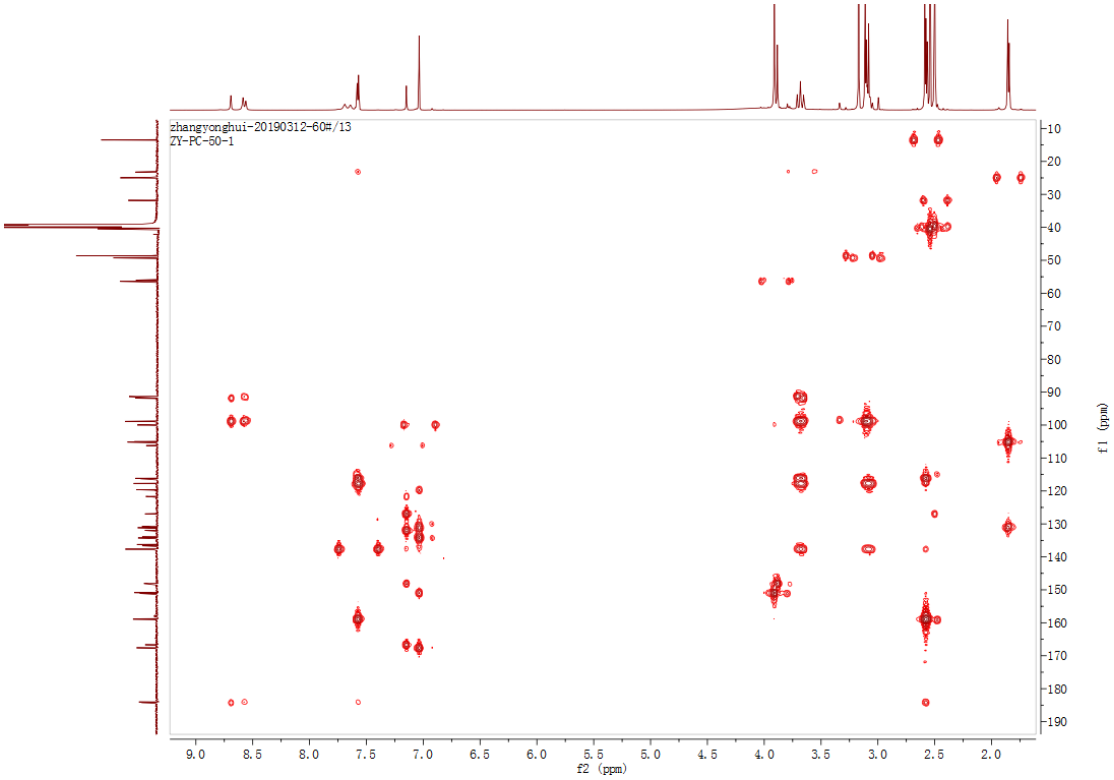

Figure S42. HMBC spectrum of the mixture of **4** and **5** in DMSO-d_6.

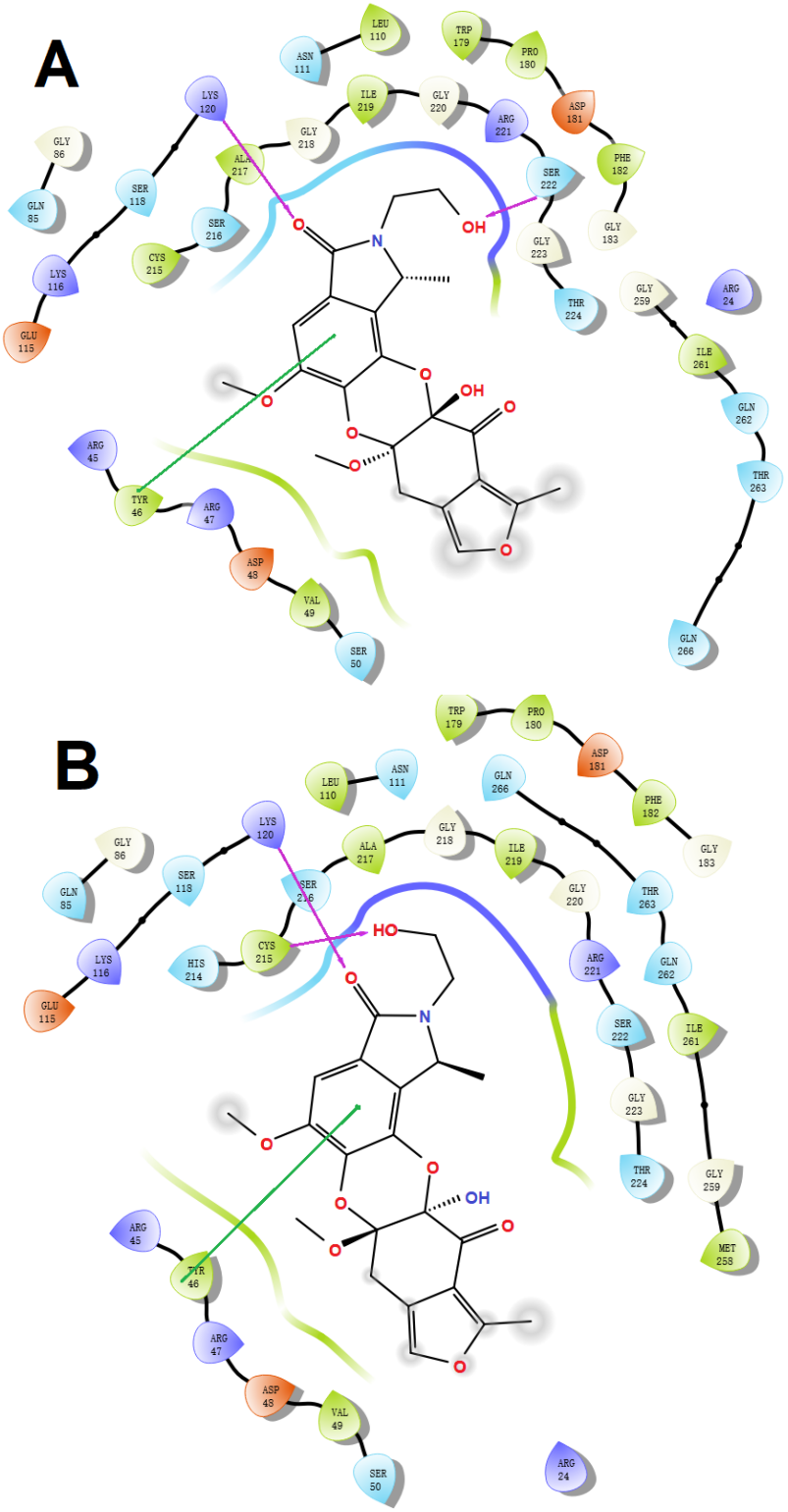

Figure S43. The enlargement view of annotated amino acids. Low-energy binding conformations of (+)-**3** (A) and (−)-**3** (B) bound to PTP1B enzyme generated by virtual ligand docking. Purple and green lines indicate hydrogen bonds and π−π interactions, respectively.