5-hydroxy-3-(4-hydroxyphenyl)-8,8-dimethyl-6-(3-methylbut-2-enyl)pyrano[2,3-h]chromen-4-one

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- SUPPLEMENTARY MATERIAL –

^{1}H NMR Spectra

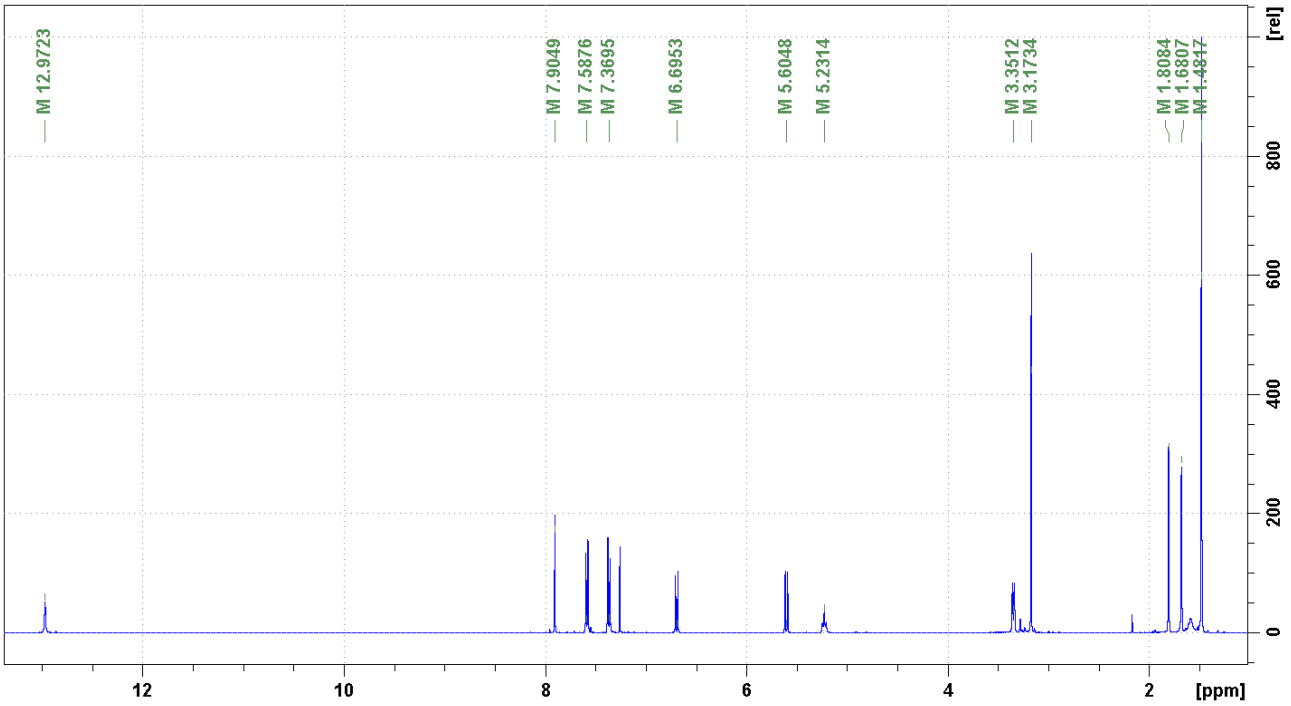


Figure S1. ^{1}H ($CDCl_3$, 400 MHz) spectrum of compound **2**.

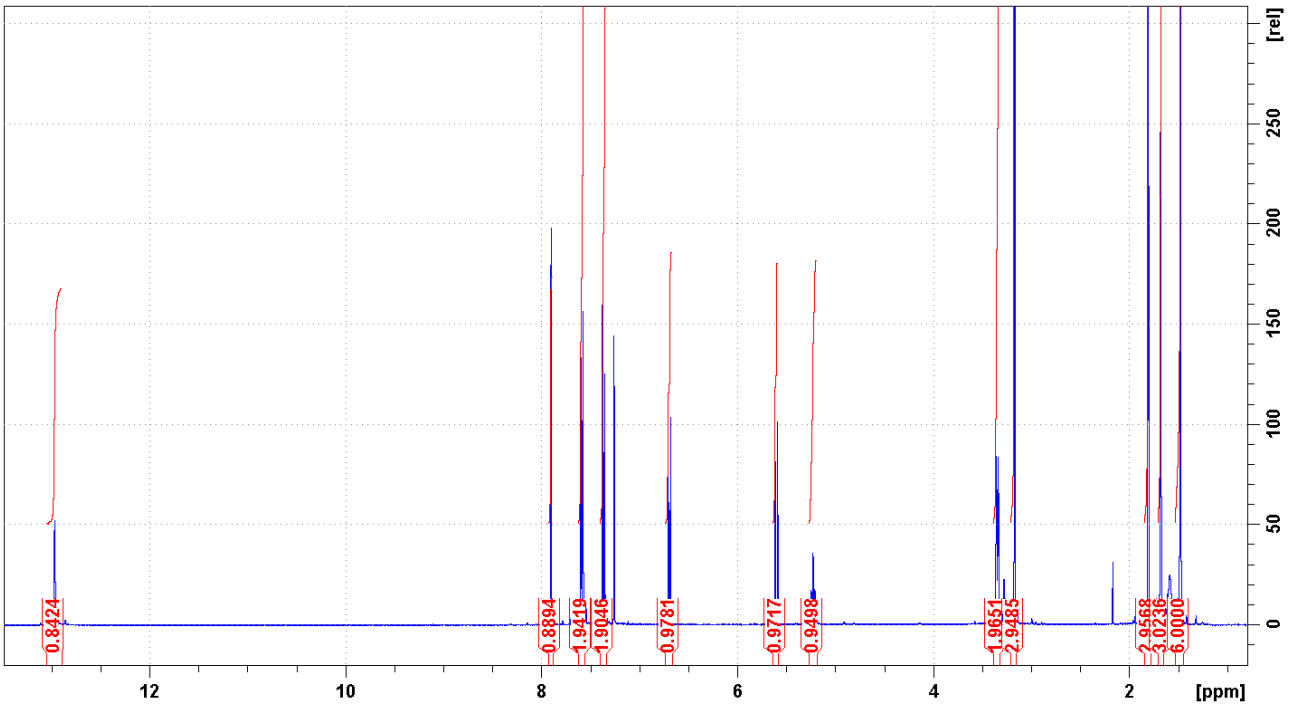


Figure S2. ^{1}H ($CDCl_3$, 400 MHz) spectrum of compound **2** with peaks integration.

^{13}C NMR Spectra

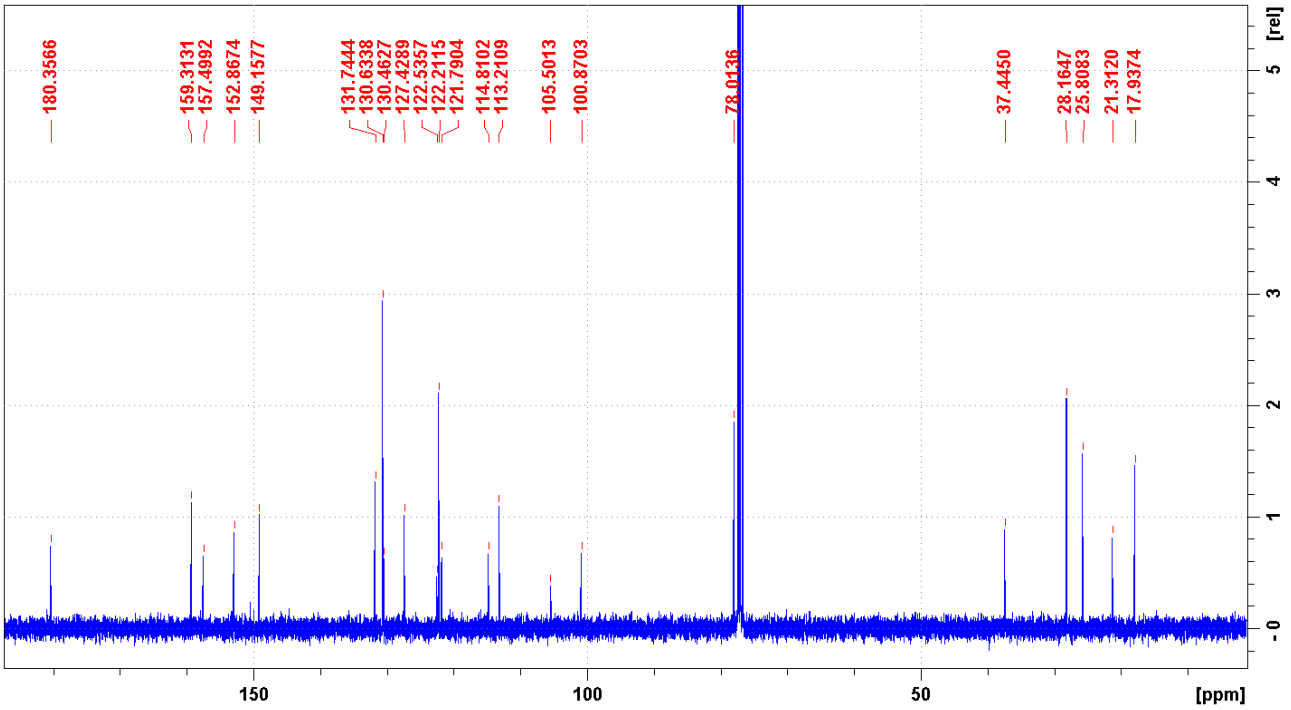


Figure S3. ^{13}C ($CDCl_3$, 100 MHz) spectrum of compound **2**.

NOESY

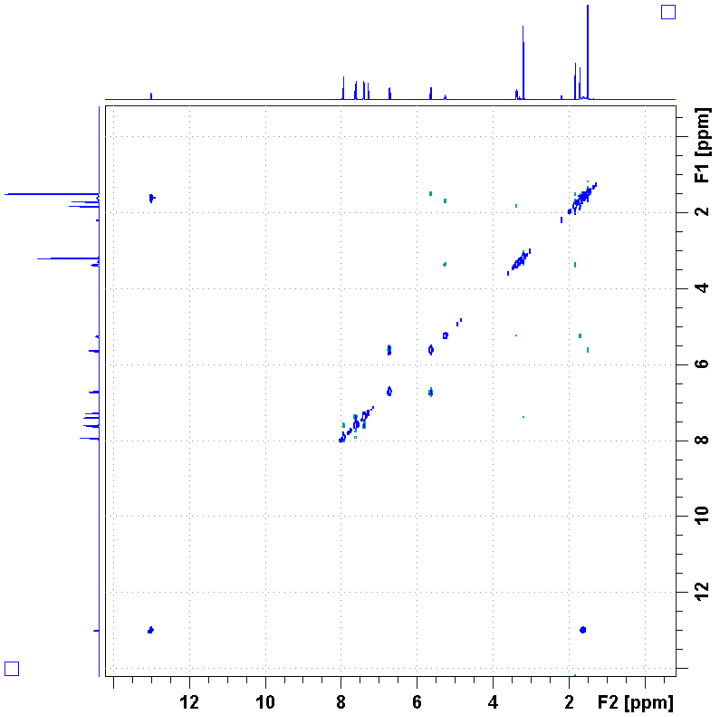


Figure S4. NOESY ($CDCl_3$, 400 MHz) spectrum of compound **2**.

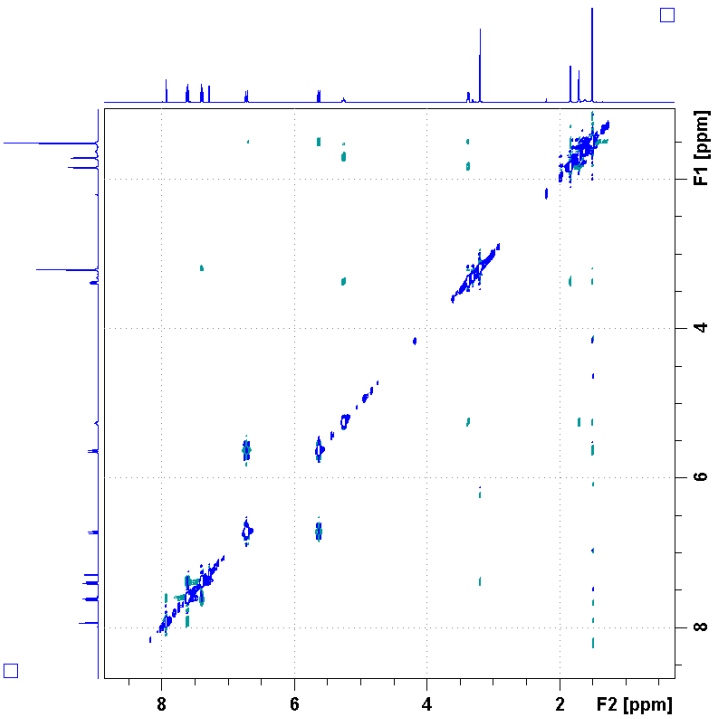


Figure S5. NOESY ($CDCl_3$, 400 MHz) spectrum of compound **2**, detail of the 0-8 ppm region.

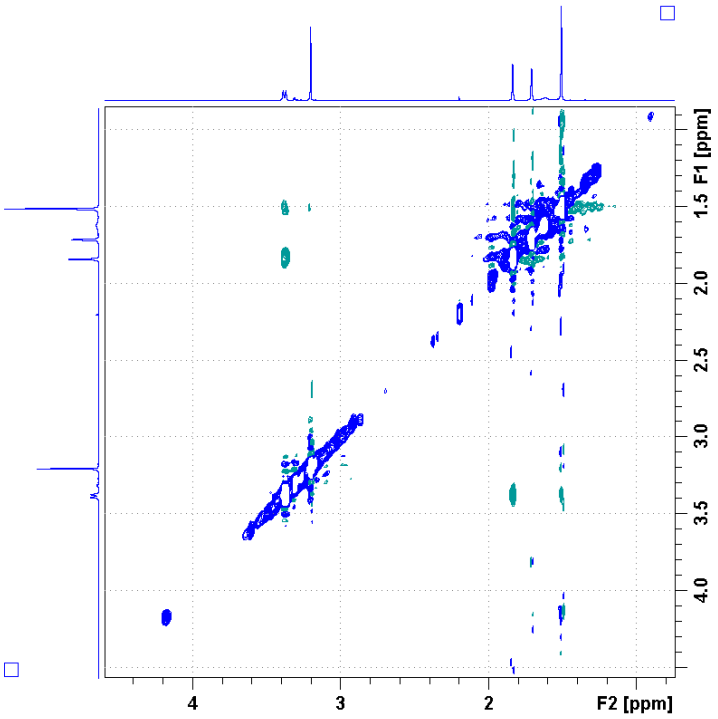


Figure S6. NOESY ($CDCl_3$, 400 MHz) spectrum of compound **2**, detail of the 0-4 ppm region.

HSQC

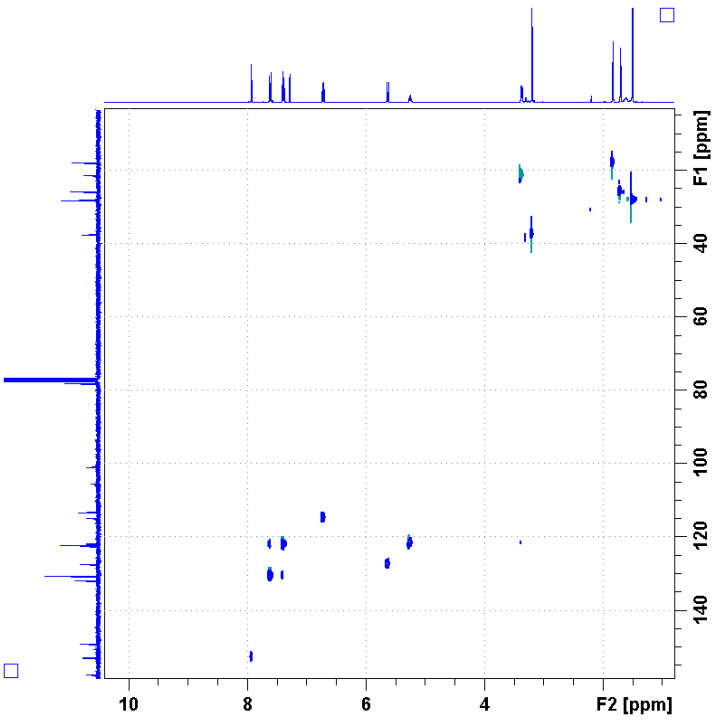


Figure S7. HSQC ($CDCl_3$, 400 MHz) spectrum of compound **2**.

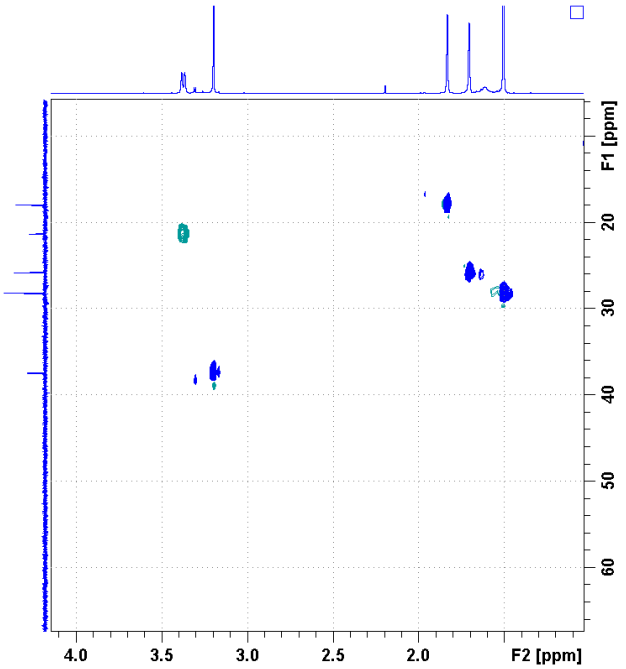


Figure S8. HSQC detail ($CDCl_3$, 400 MHz) spectrum of compound **2**.

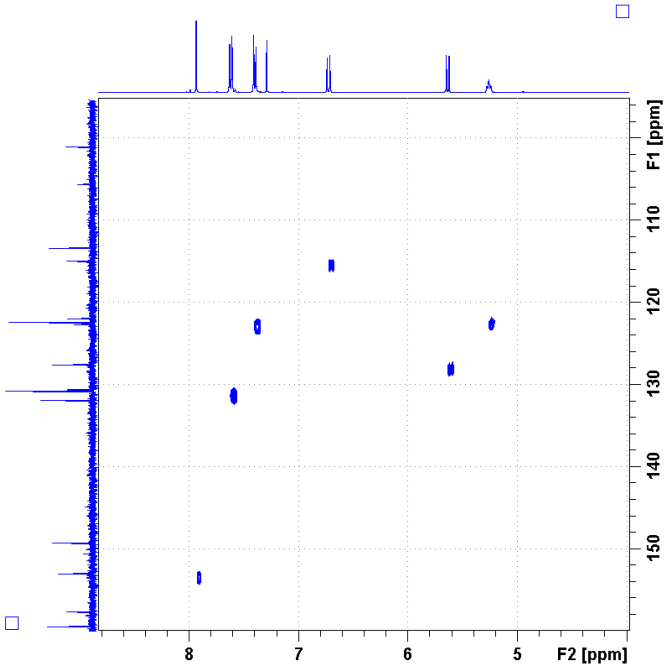


Figure S9. HSQC detail ($CDCl_3$, 400 MHz) spectrum of compound **2**.

HMBC

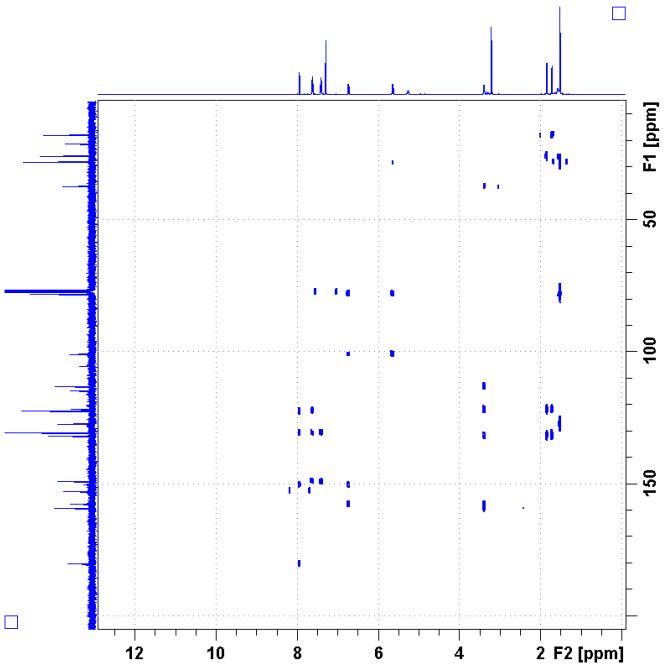


Figure S10. HMBC ($CDCl_3$, 400 MHz) spectrum of compound **2**.

MASS SPECTROMETRY

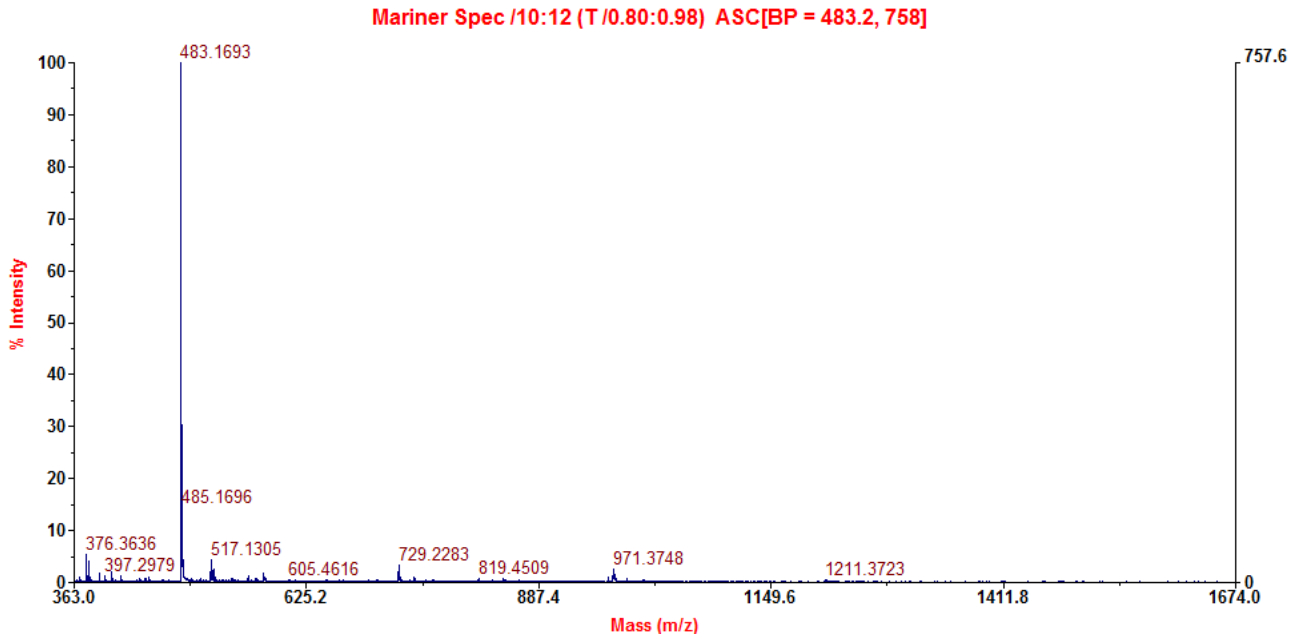
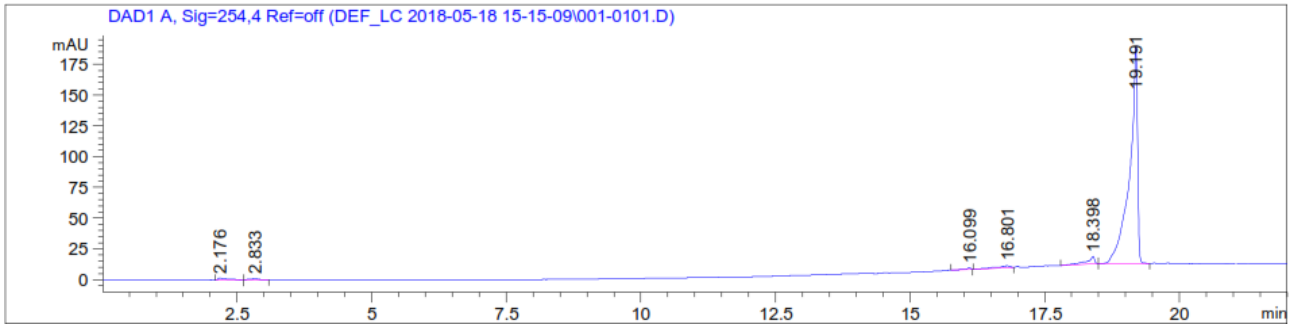


Figure S11. Mass spectrum of compound **2**. The spectrum was recorded in positive ionization mode (ESI).

HPLC AND UV CHARACTERIZATION



Signal 1: DAD1 A, Sig=254,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	2.176	BB	0.1771	23.89660	1.68867	1.2188
2	2.833	BB	0.1951	14.01157	1.01455	0.7147
3	16.099	BB	0.0702	7.67188	1.59288	0.3913
4	16.801	BV	0.2465	32.24067	1.64595	1.6444
5	18.398	BB	0.1316	62.62463	6.21021	3.1941
6	19.191	BB	0.1365	1820.16760	176.26939	92.8367
Totals :				1960.61296	188.42165	

Figure S12. HPLC chromatogram and peaks table of compound **2.**

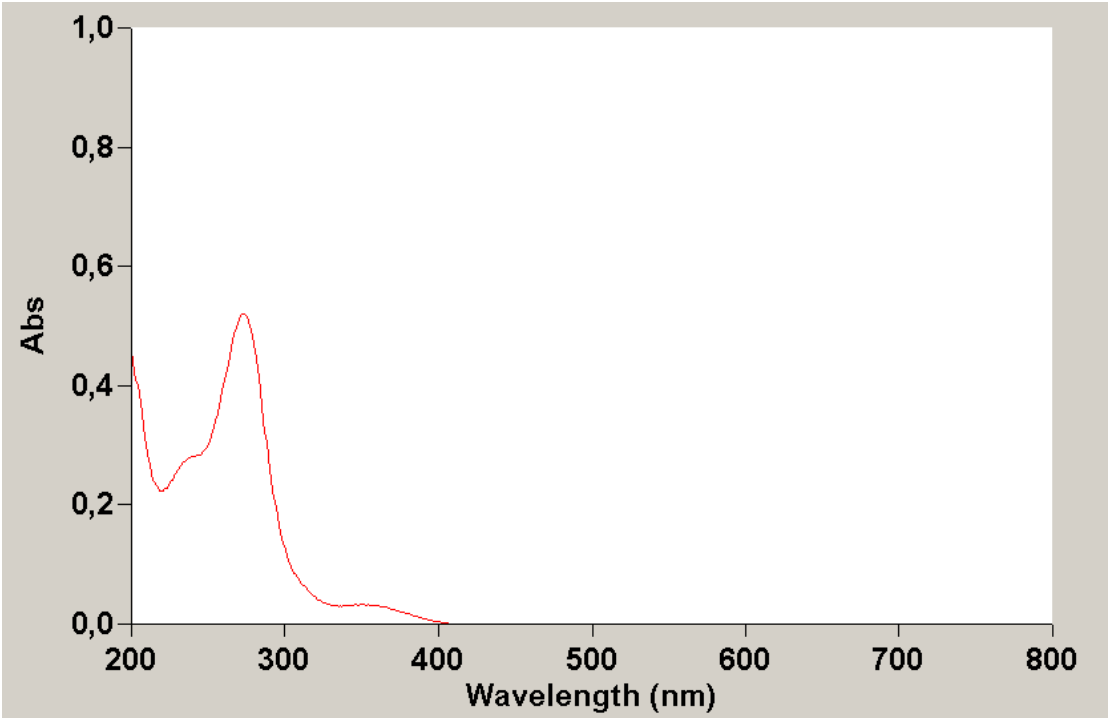


Figure S13. UV spectrum of compound **2.**

DOCKING STUDIES

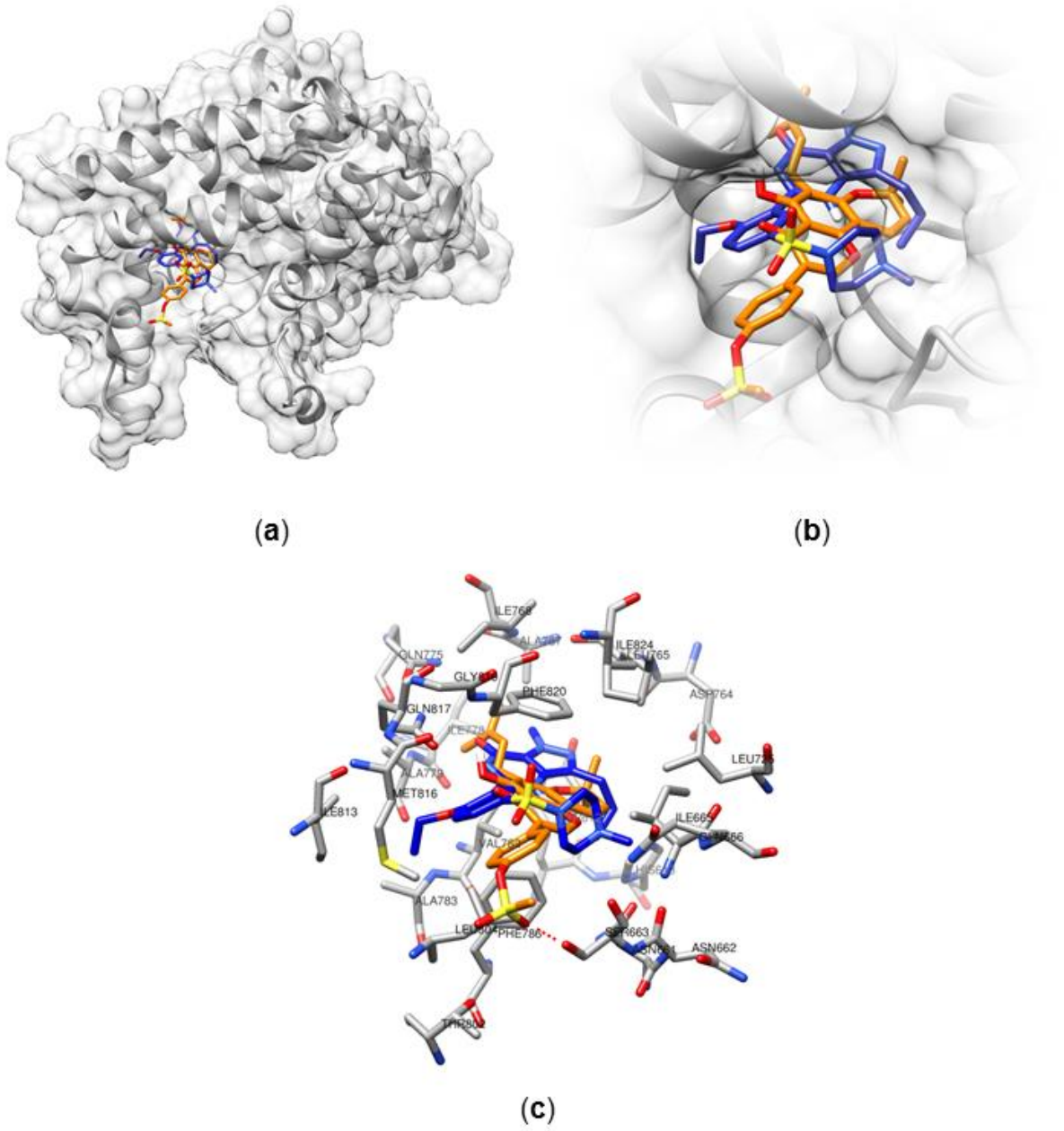


Figure S14. 3D interaction poses of sildenafil (blue) and **2** (orange) docked to PDE5 (PDB ID: 2H42): (**a**) Compound **2** preferentially binds the catalytic site of PDE5 were sildenafil exploits its action; (**b**) Comparison between the poses of sildenafil and **2**; (**c**) Detailed representation of the molecular interactions between the compounds and the residues of the catalytic site of PDE5. H-bond between Ser663 and **2** is highlighted in red.

Table S1. Estimated ΔG (kcal/mol) values for the computed interactions for the compounds and interacting residues with PDE5 (PDB ID: 2H42).

Compound	Estimated ΔG (kcal/mol)	Interacting residues of PDE5
osajin (**1**)	-8.4	Tyr612, His613, His617, Ile665, Asp764, Leu804, Met816, Gln817, Phe820
2	-10.7	Leu604, Ser663, Ile665, Leu725, Val782, Phe786, Phe820
sildenafil	-9.7	Leu604, Ile665, Leu725, Val782, Phe786, Phe820