

Supporting Information

Platinum(II) Terpyridyl Acetylide Complexes on Platinized TiO₂: Towards the Photogeneration of H₂ in Aqueous Media

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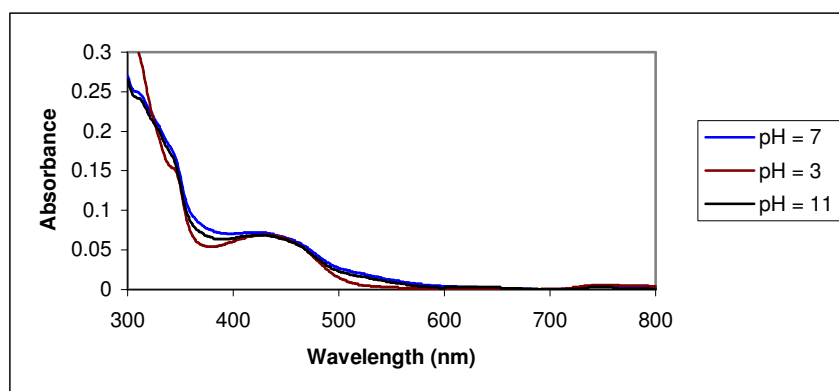


Figure S1. Room temperature absorption spectra of **1** in DMF/H₂O (1:1) at 1×10^{-5} M, adjusted to various pH values.

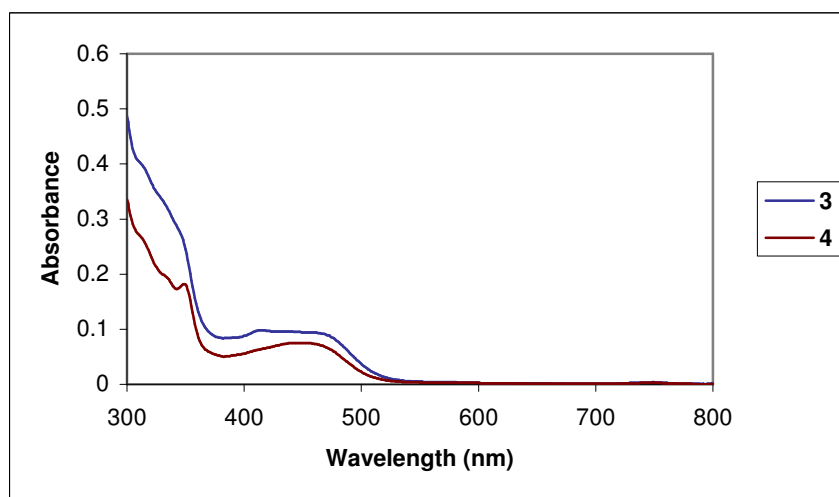


Figure S2. Room temperature absorption spectrum of **3** and **4** in DMF at 1×10^{-5} M.

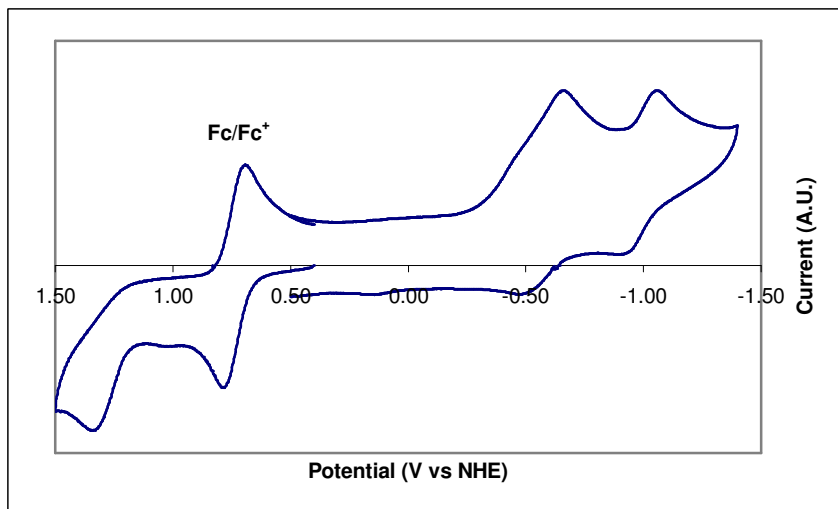


Figure S3. Cyclic voltammogram of complex **1a** in DMF consisting of an oxidation (0.5 – 1.5 V) and a reduction (0.5 - -1.4V) scan with ferrocene as an internal standard.

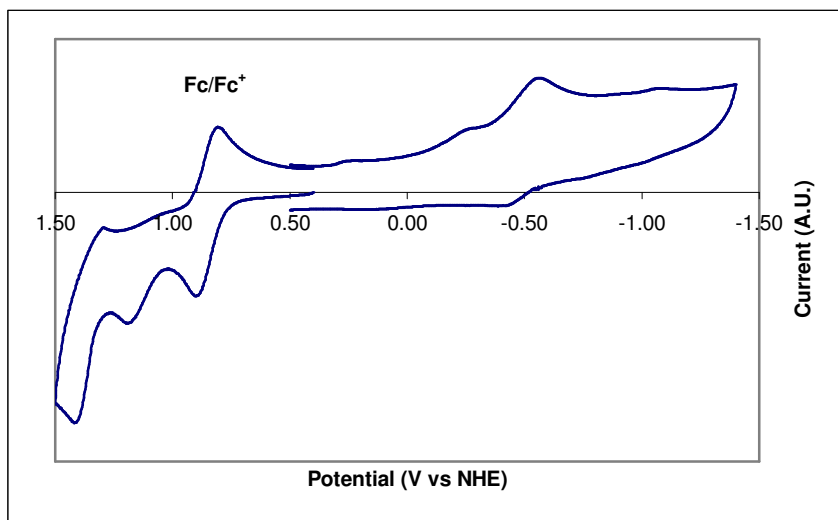
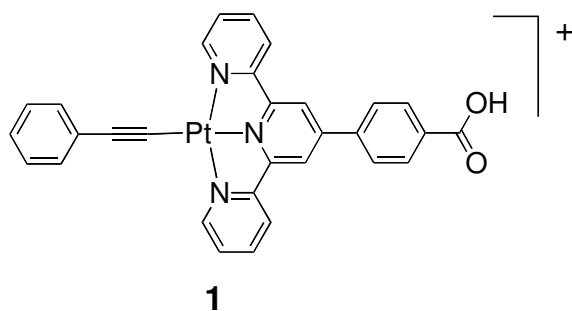
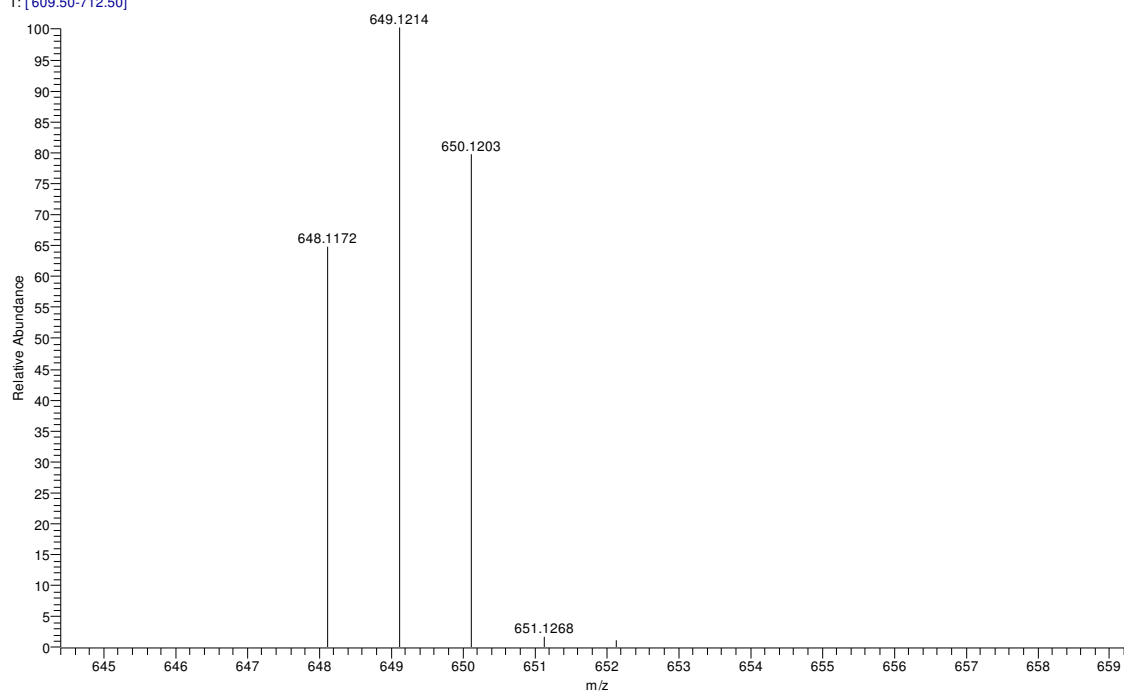


Figure S4. Cyclic voltammogram of complex **2a** in DMF consisting of an oxidation (0.5 – 1.5 V) and a reduction (0.5 - -1.4V) scan with ferrocene as an internal standard.



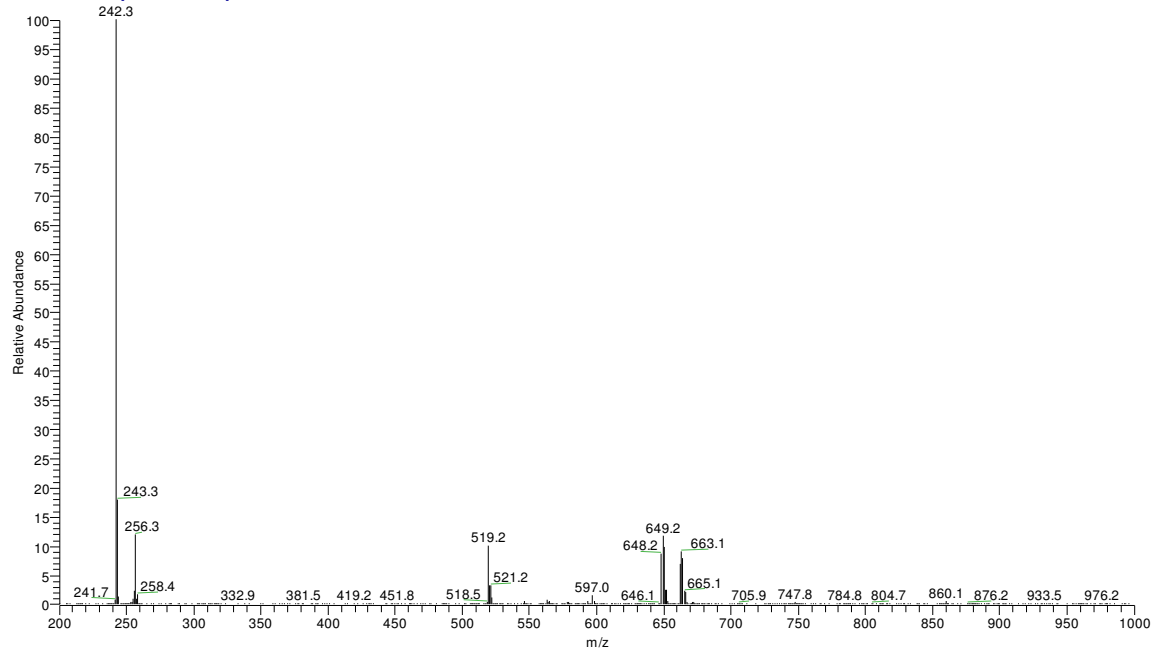
roc-pjctcooh-esihr-av1-c1 #1 RT: 3.31 AV: 1 NL: 7.47E5
T: [609.50-712.50]



SPECTRUM - List: Clipboard Mode

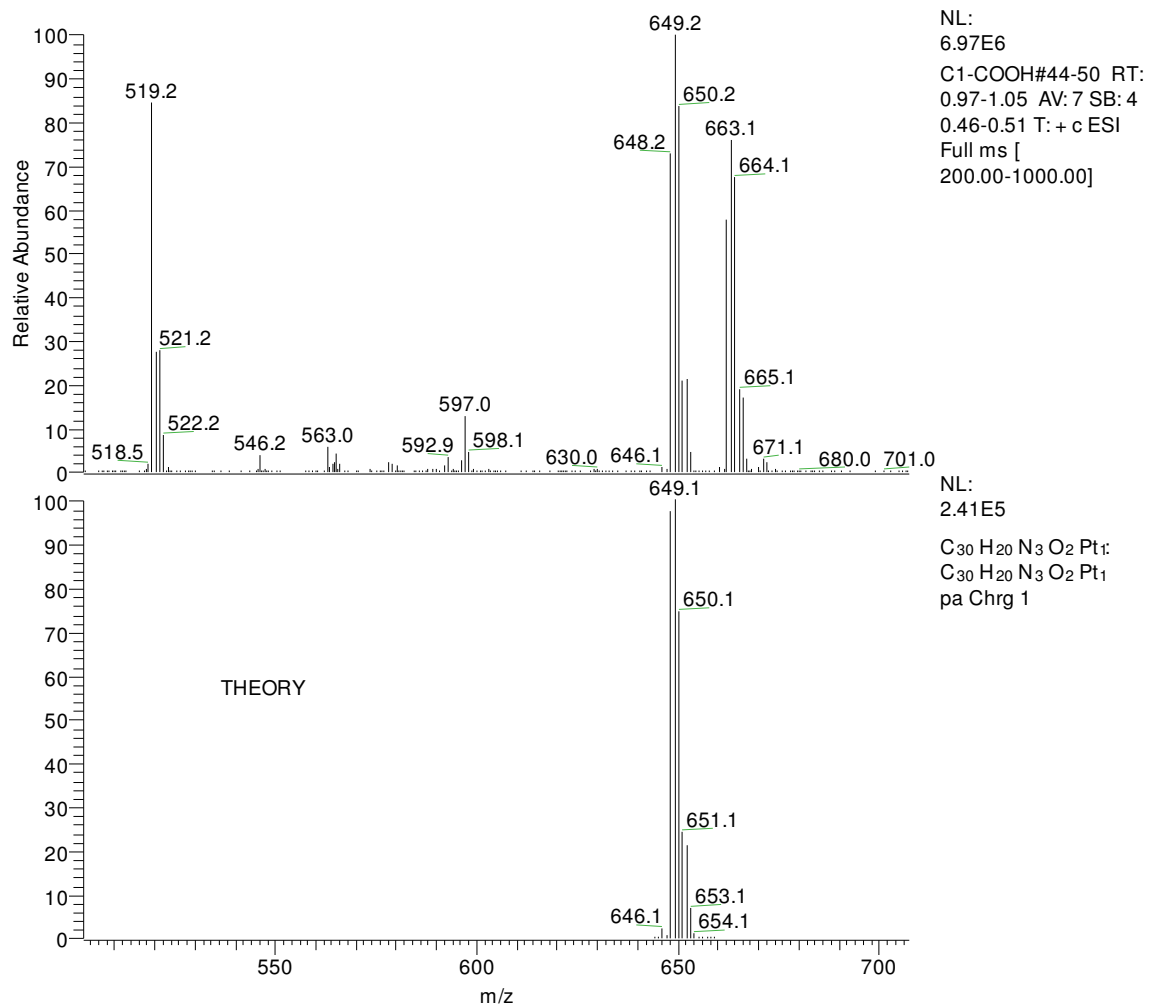
Mass	Relative Intensity	Mass	Theoretical [ppm]	Delta	RDB	Composition
648.11725	37.1	648.1177	-0.6	22.5	<<C30 H20 O2 N3 [194]Pt1 >>	
		648.1160	2.0	27.0	<<C35 H19 N1 Pt1 >>	
		648.1192	-3.0	6.5	<<C15 H23 N4 [194]Pt1 Pt1 >>	
		648.1205	-5.0	6.0	<<C17 H25 O1 N1 [194]Pt1 Pt1 >>	
649.12134	57.4	649.1210	0.6	43.0	<<C48 H15 O1 N3 >>	
		649.1198	2.4	22.5	<<C30 H20 O2 N3 Pt1 >>	
		649.1238	-3.8	26.5	<<C35 H20 N1 Pt1 >>	

C1-COOH #44-50 RT: 0.97-1.05 AV: 7 SB: 4 0.46-0.51 NL: 5.94E7
T: + c ESI Full ms [200.00-1000.00]

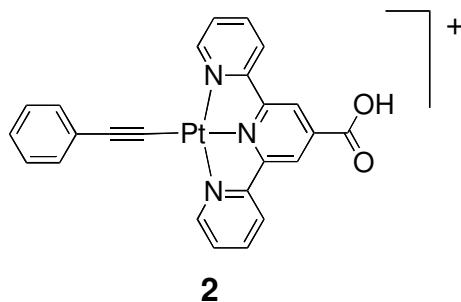


m/z Intensity Relative

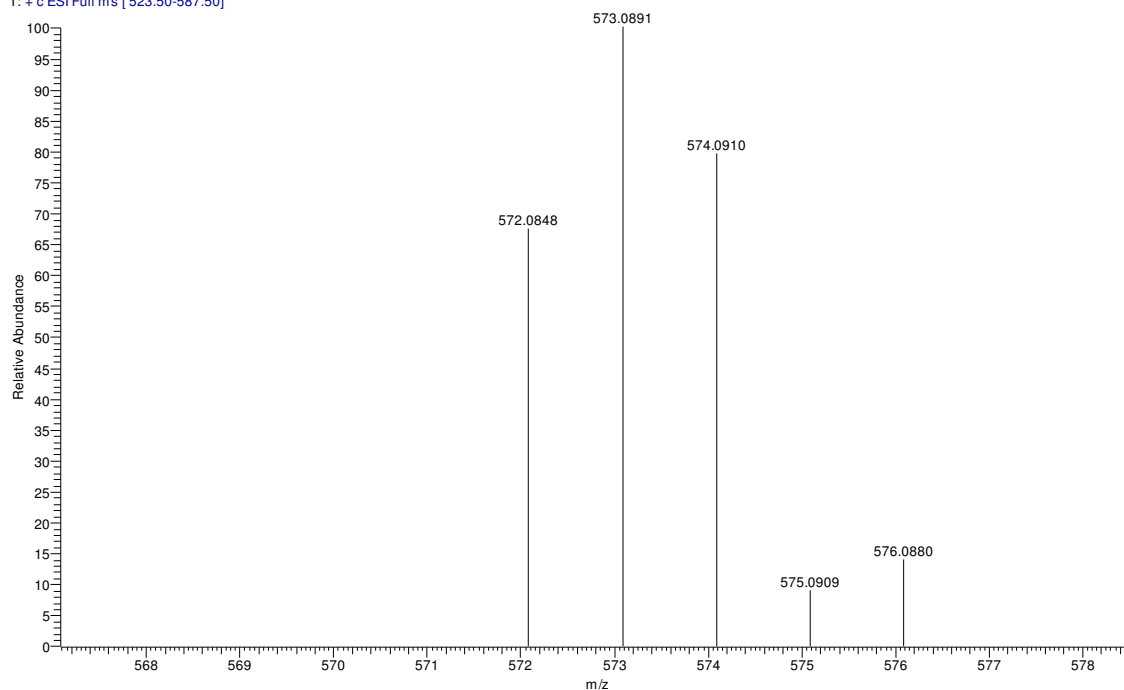
242.3	59350920.9	100.00
243.3	10637819.0	17.92
255.9	1342677.5	2.26
256.3	6995757.6	11.79
256.6	837889.0	1.41
258.4	999455.1	1.68
519.2	5881362.0	9.91
520.3	1912921.4	3.22
521.2	1938784.9	3.27
597.0	867507.1	1.46
648.2	5053199.3	8.51
649.2	6970895.9	11.75
650.2	5818856.6	9.80
651.2	1436451.1	2.42
652.1	1460353.1	2.46
662.1	4012768.5	6.76
663.1	5282819.3	8.90
664.1	4679983.7	7.89
665.1	1323792.1	2.23
666.1	1187390.6	2.00



1a is also seen with **1**.



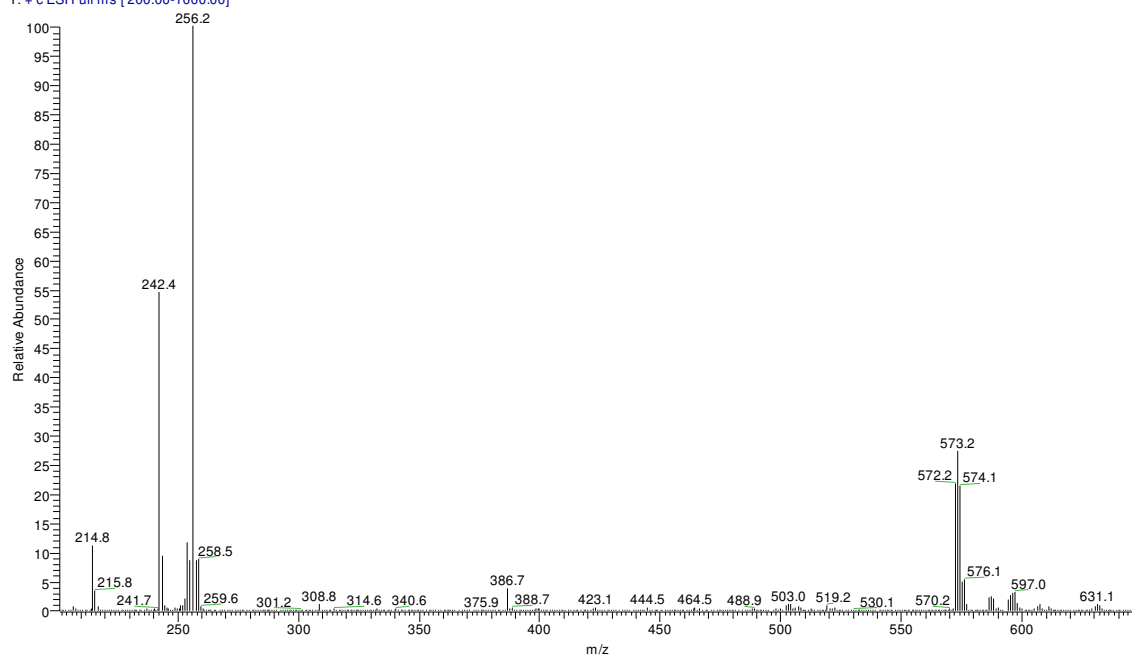
roc-pj-4-primeCOOHESIHR-c1.HRAW #118-304 RT: 6.35-16.27 AV: 187 SB: 71 10.61-14.35 NL: 7.58E4
T: + c ESI Full ms [523.50-587.50]



SPECTRUM - List: Clipboard Mode

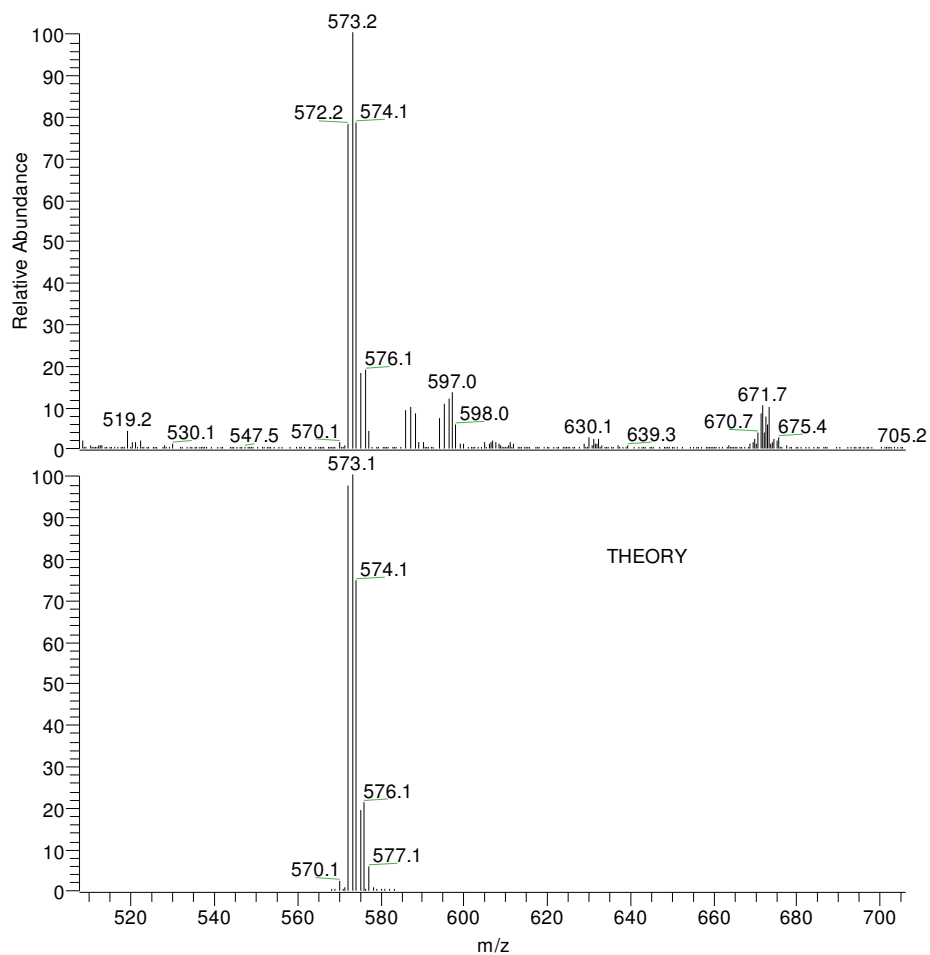
Mass	Relative Intensity	Mass	Theoretical [ppm]	Delta	RDB	Composition
572.08478	67.5	572.0847		0.2	23.0	<<C29 H15 N1 Pt1 >>
		572.0864		-2.8	18.5	<<C24 H16 O2 N3 [194]Pt1 >>
		572.0818		5.1	39.5	<<C42 H10 O1 N3 >>
		572.0879		-5.4	2.5	<<C9 H19 N4 [194]Pt1 Pt1 >>
>>						
573.08911	100.0	573.0897		-1.0	39.0	<<C42 H11 O1 N3 >>
		573.0885		1.1	18.5	<<C24 H16 O2 N3 Pt1 >>
		573.0925		-5.9	22.5	<<C29 H16 N1 Pt1 >>

4prime-COOH #166-175 RT: 3.88-4.02 AV: 10 NL: 2.07E7
T: + c ESI Full ms [200.00-1000.00]



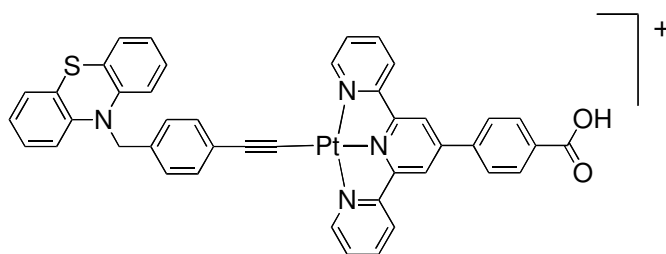
m/z Intensity Relative

214.8	2307621.5	11.16
215.8	686533.4	3.32
242.4	11276758.6	54.53
243.4	1944427.2	9.40
253.7	2405423.8	11.63
254.8	1788738.6	8.65
256.2	20681366.4	100.00
257.6	1792519.4	8.67
258.5	1817122.2	8.79
386.7	791917.5	3.83
572.2	4480251.4	21.66
573.2	5664302.3	27.39
574.1	4430967.4	21.42
575.1	1007328.8	4.87
576.1	1085656.6	5.25
586.1	452592.7	2.19
587.2	489918.9	2.37
595.1	537404.4	2.60
596.2	607825.5	2.94
597.0	640234.1	3.10

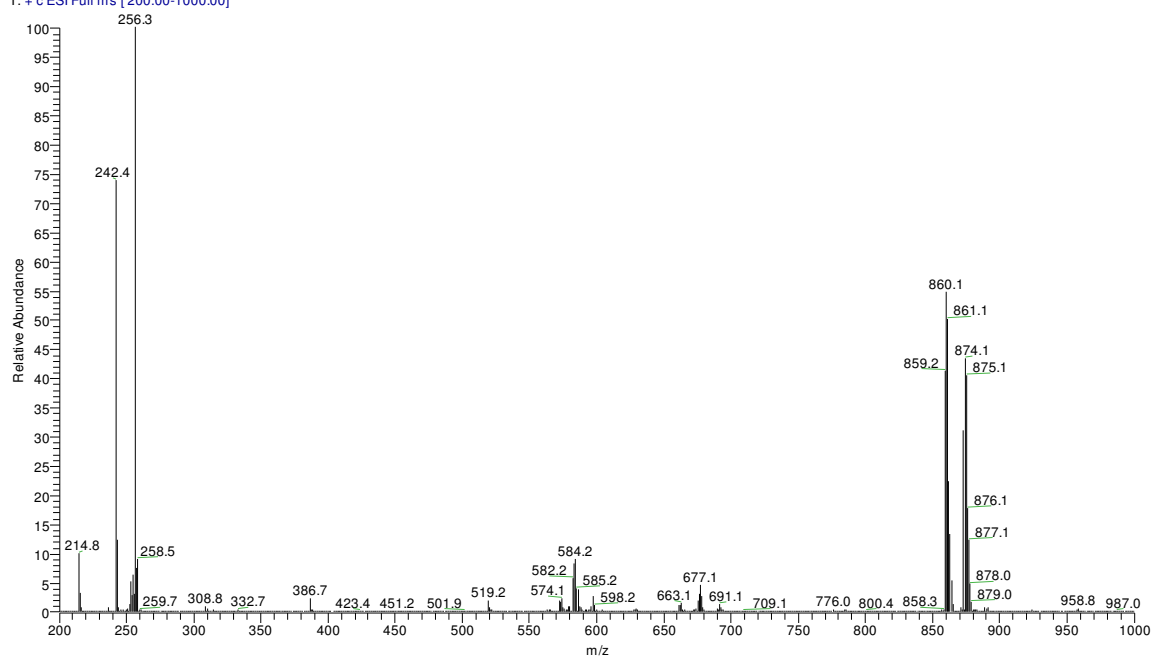


NL:
6.45E6
4prime-COOH#166-172
RT: 3.88-3.98 AV: 7 SB:
44 2.49-3.52 T: + c ESI
Full ms [
200.00-1000.00]

NL:
2.57E5
C₂₄ H₁₆ N₃ O₂ Pt₁
C₂₄ H₁₆ N₃ O₂ Pt₁
pa Chrg 1

**3**

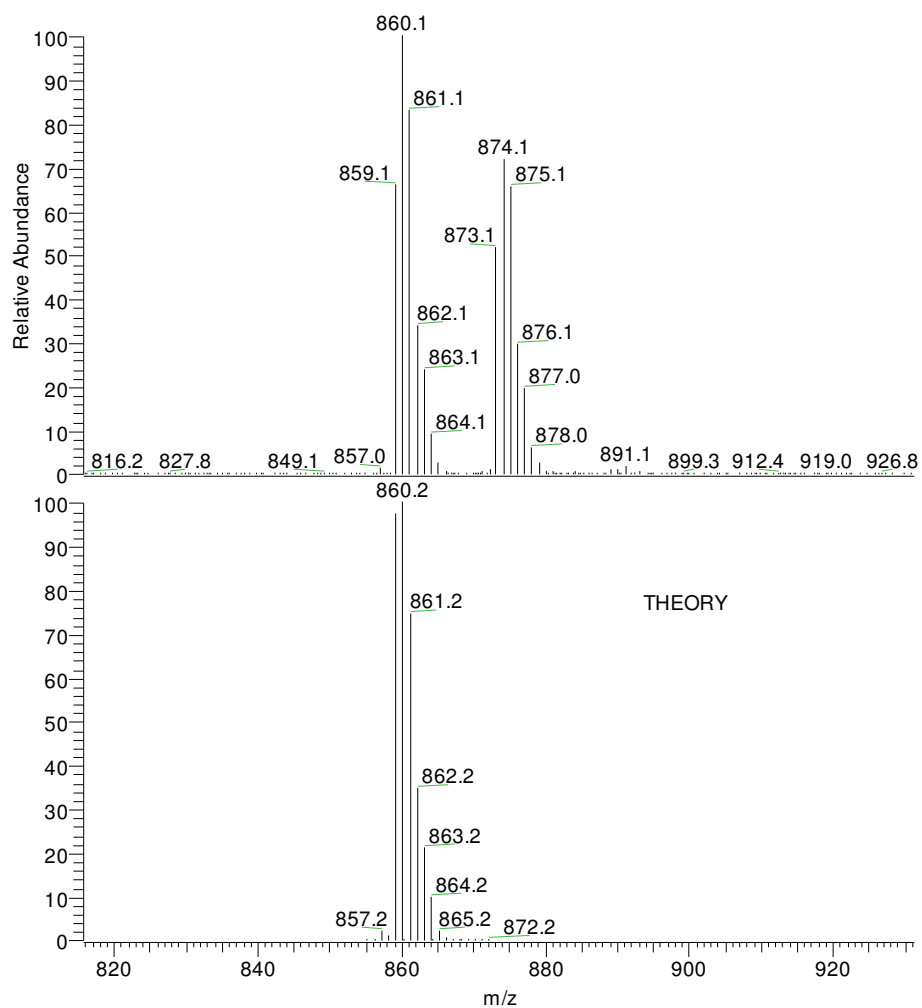
PTZ-C1-COOH #136-146 RT: 3.14-3.30 AV: 11 NL: 1.55E7
T: + c ESI Full ms [200.00-1000.00]



m/z Intensity Relative

214.8	1546939.5	9.96
242.4	11463578.1	73.79
243.4	1898243.7	12.22
254.6	898952.4	5.79
254.9	978803.5	6.30
256.3	15535779.5	100.00
257.7	1154468.2	7.43
258.5	1389819.3	8.95
583.2	1260931.5	8.12
584.2	1390089.6	8.95
859.2	6406074.2	41.23
860.1	8504672.9	54.74
861.1	7792624.3	50.16
862.1	3453690.8	22.23
863.1	2068288.2	13.31

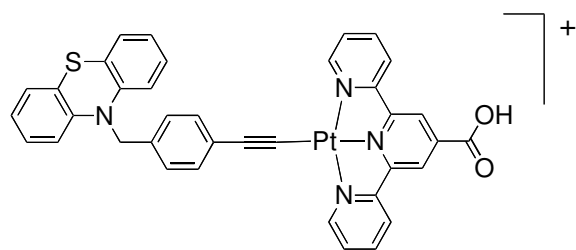
873.1	4812284.1	30.98
874.1	6744011.0	43.41
875.1	6277313.2	40.41
876.1	2736639.5	17.62
877.1	1901856.3	12.24



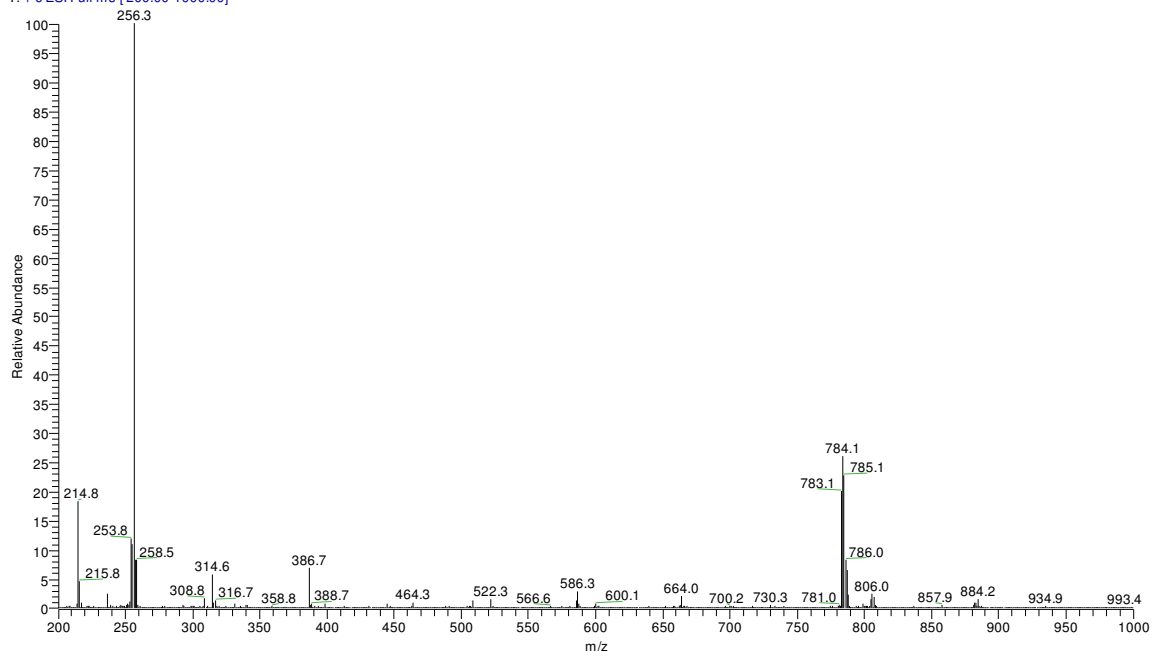
NL:
1.03E7
PTZ-C1-COOH#36-
43 RT: 0.85-0.96 AV:
8 T: + c ESI Full ms [
200.00-1000.00]

NL:
1.98E5
C₄₃H₂₉N₄O₂S₁Pt₁:
C₄₃H₂₉N₄O₂S₁Pt₁:
pa Chrg 1

Can not see on high resolution instrument. See 873,874 group only.

**4**

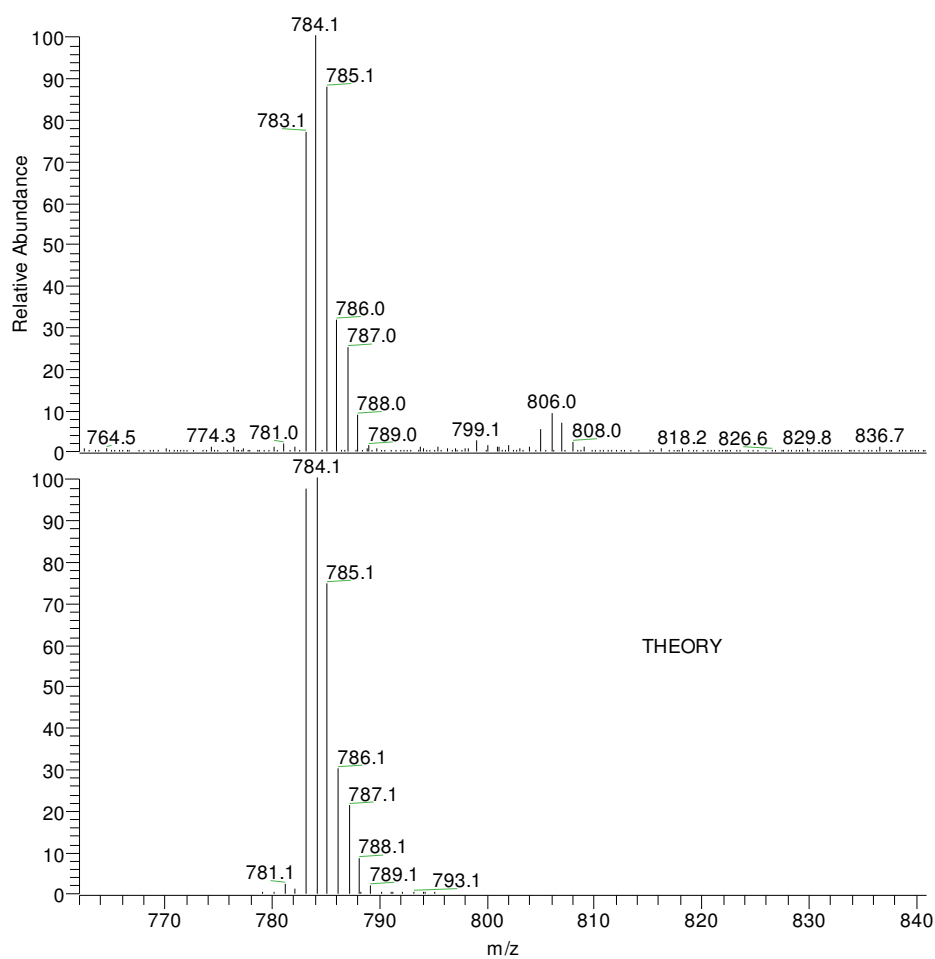
ptz-4prime-COOH #443-450 RT: 13.93-14.07 AV: 8 NL: 6.13E6
T: + c ESI Full ms [200.00-1000.00]



m/z Intensity Relative

214.8	1117672.6	18.23
215.8	282986.5	4.62
236.8	143483.6	2.34
253.8	732425.6	11.95
254.8	669952.5	10.93
256.3	6131236.5	100.00
257.7	505594.5	8.25
258.5	506358.3	8.26
314.6	349974.0	5.71
386.7	417421.1	6.81
586.3	168787.1	2.75
664.0	118555.1	1.93
783.1	1221198.8	19.92
784.1	1590270.1	25.94
785.1	1394724.3	22.75

786.0	504521.3	8.23
787.0	397182.6	6.48
788.0	137066.8	2.24
806.0	142538.1	2.32
807.0	110237.8	1.80



NL:
1.59E6
ptz-4prime-
COOH#443-450 RT:
13.93-14.07 AV: 8 T:
+ c ESI Full ms [
200.00-1000.00]

NL:
2.11E5
C₃₇H₂₅N₄O₂S₁Pt₁:
C₃₇H₂₅N₄O₂S₁Pt₁:
pa Chrg 1

Can not see on high resolution instrument.