

Supporting Information

ESIPT solvatochromic fluorescent and colorimetric probe for sensitive and selective detection of copper ions in environmental samples and cell lines

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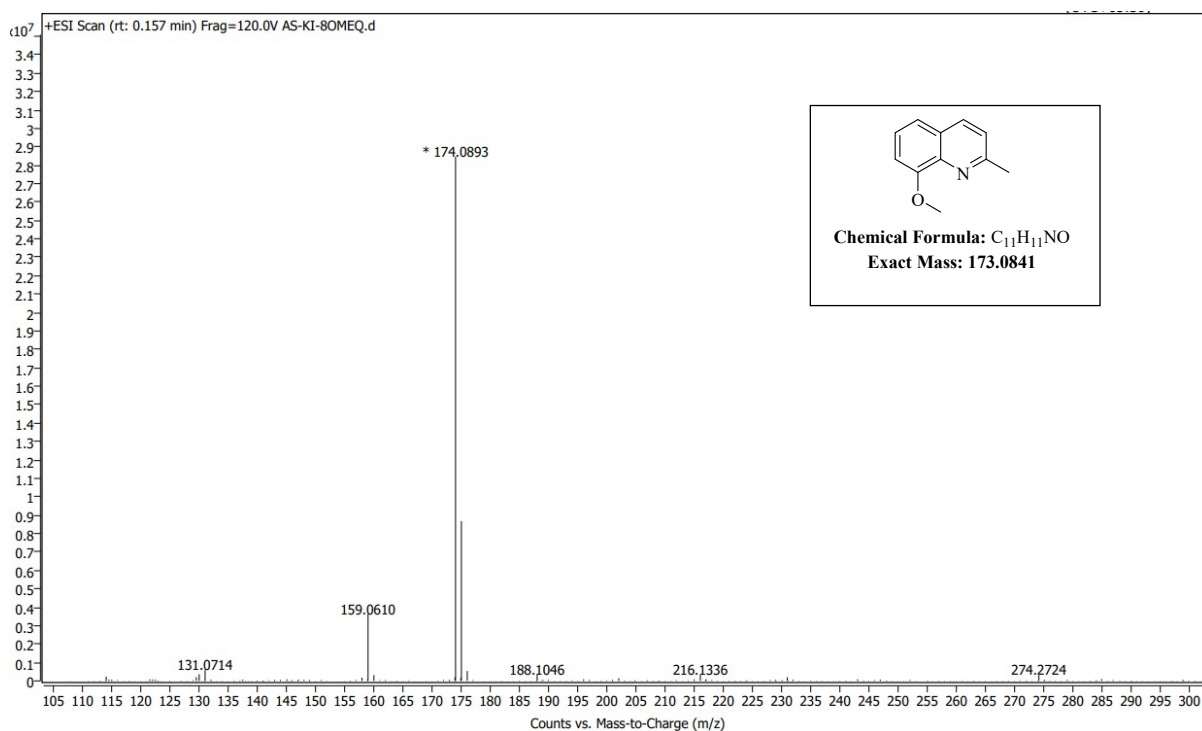


Fig S1. HR-MS Spectra of 8-Methoxy-2-Methyl Quinoline.

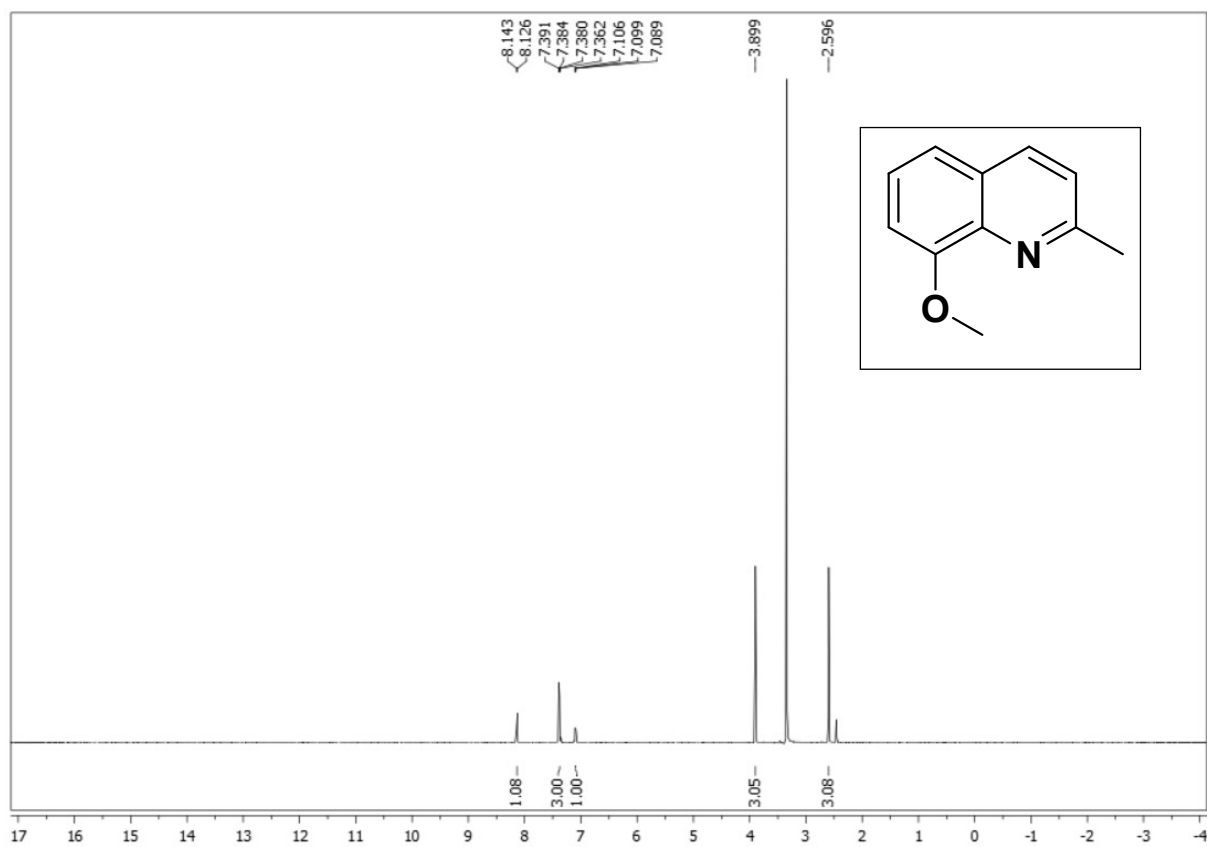


Fig S2. ¹H Spectra of 8-Methoxy-2-Methyl Quinoline.

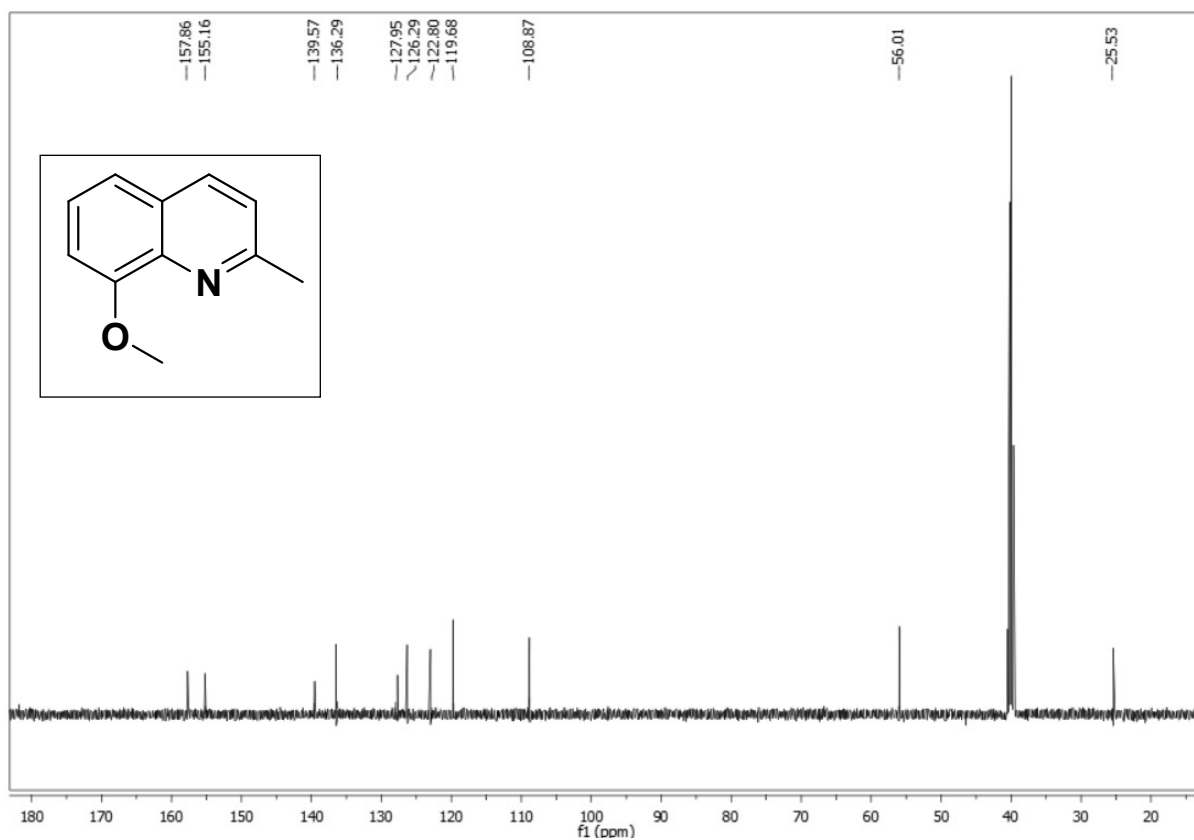


Fig S3. ^{13}C Spectra of 8-Methoxy-2-Methyl Quinoline.

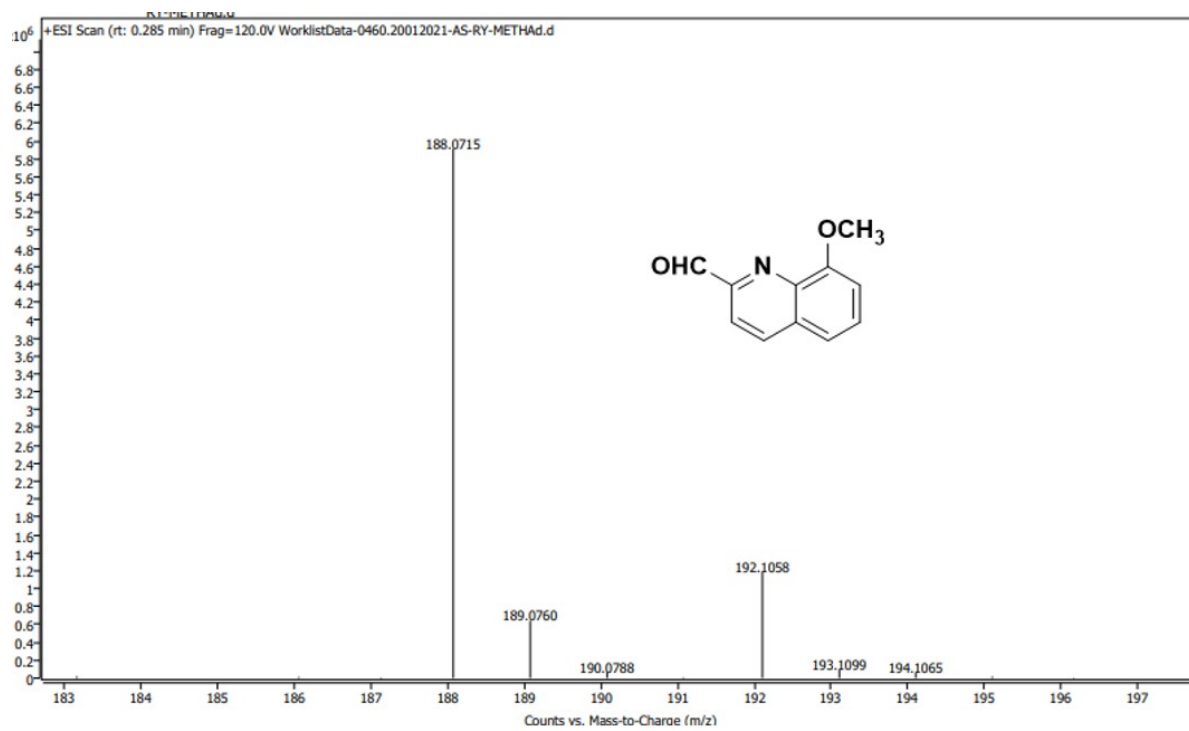


Fig S4. HR-MS Spectra of 8-methoxyquinoline-2-carbaldehyde.

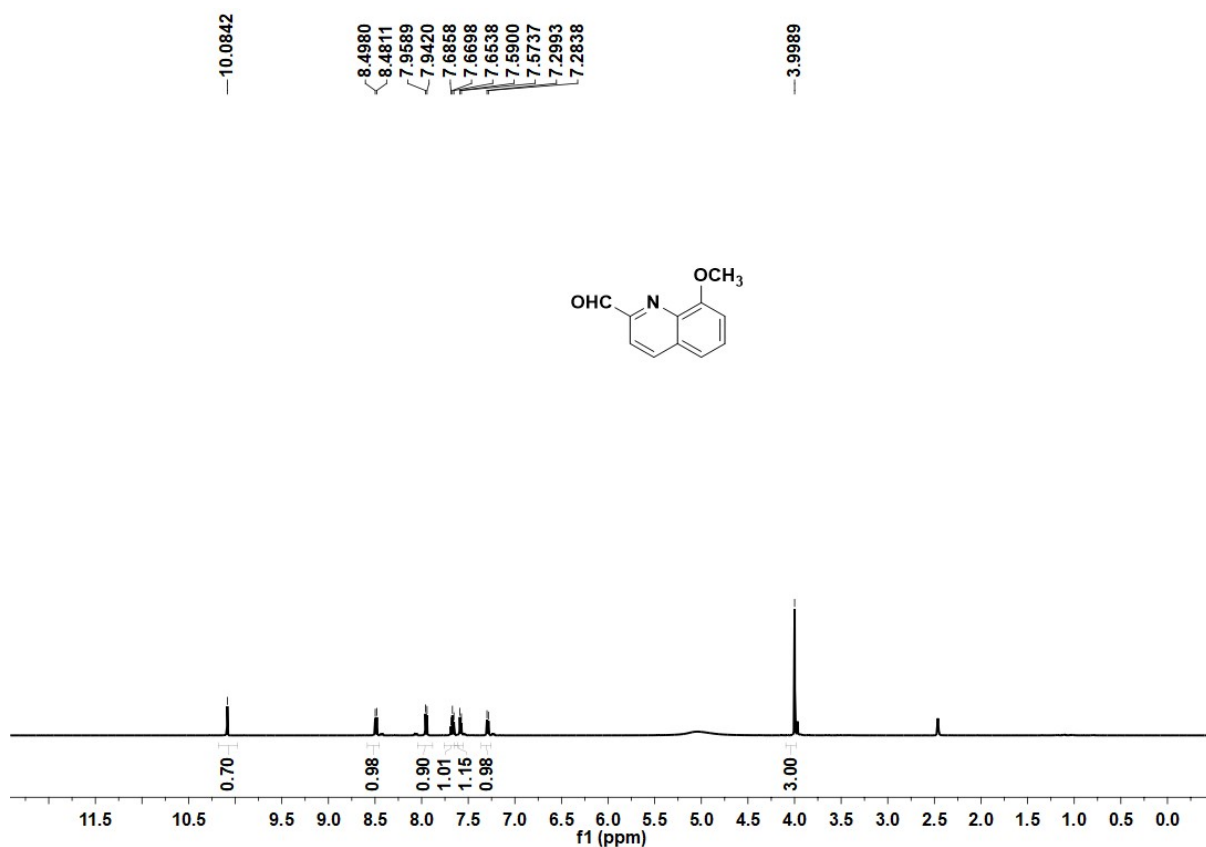


Fig S5. ^1H Spectra of 8-methoxyquinoline-2-carbaldehyde.

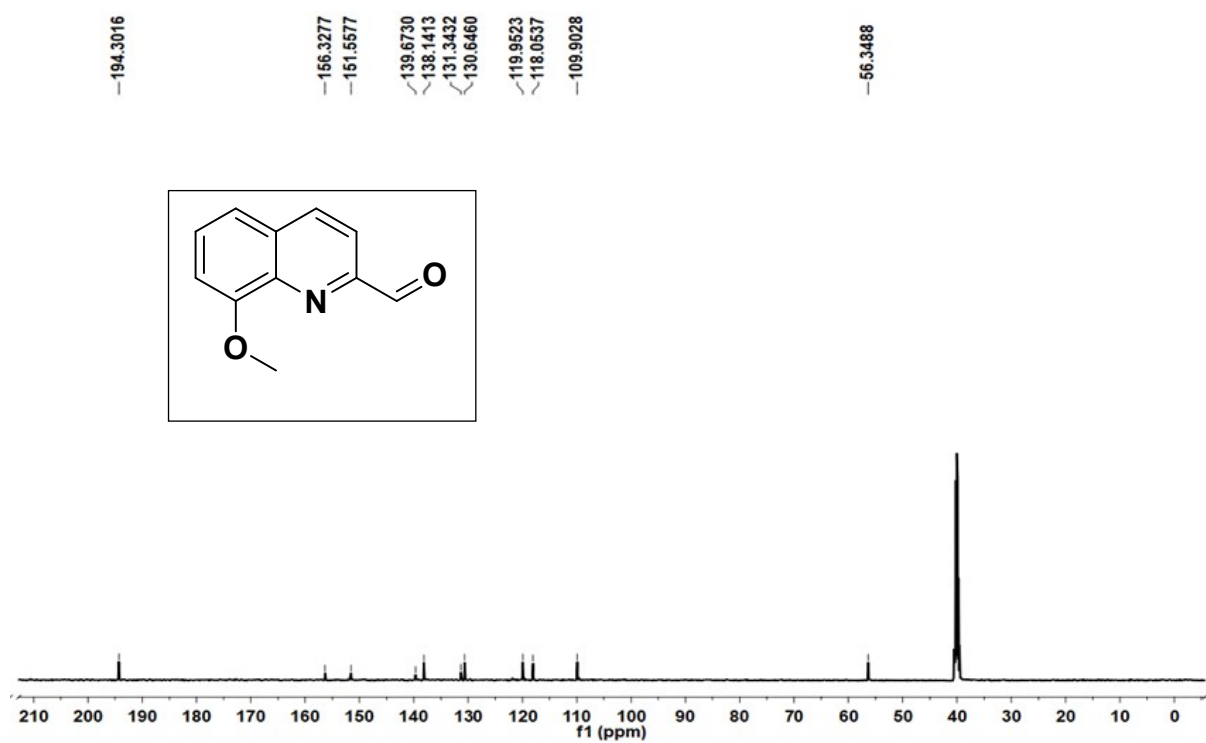


Fig S6. ^{13}C Spectra of 8-methoxyquinoline-2-carbaldehyde.

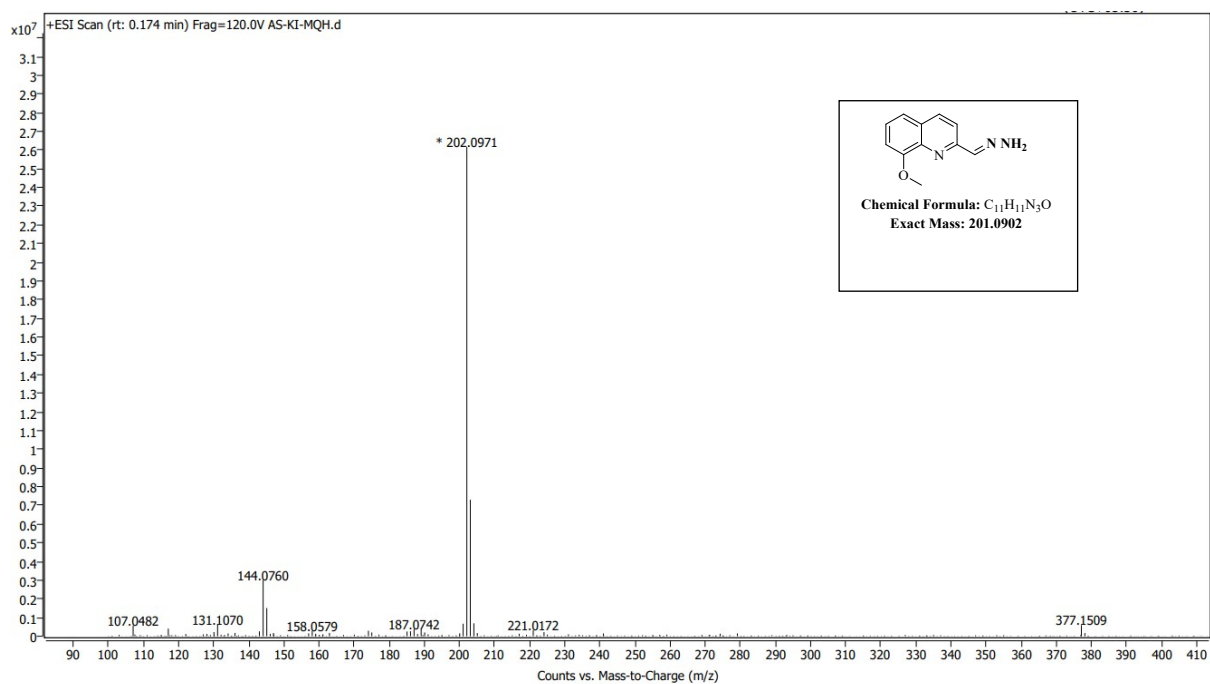


Fig S7. HR-MS spectra of 2-(hydrazineylidenemethyl)-8-methoxyquinoline.

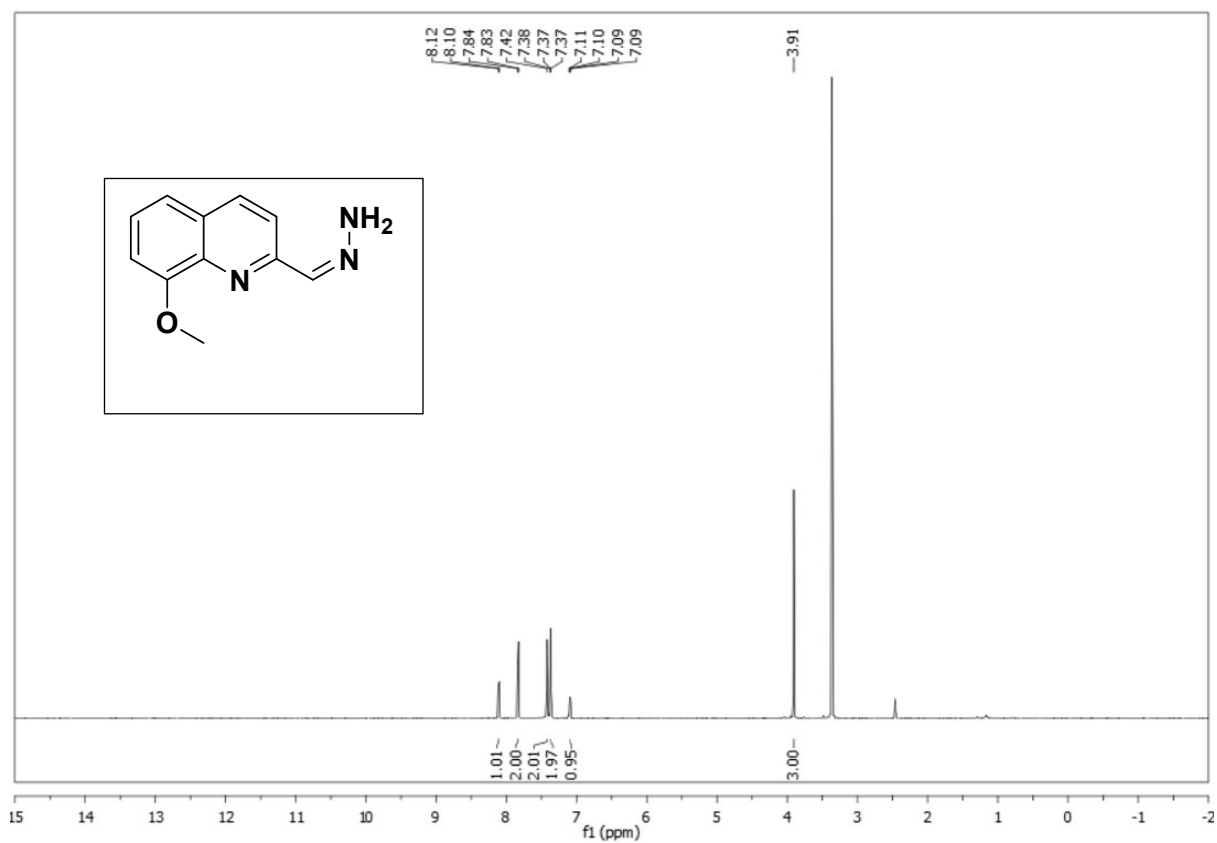


Fig S8. ¹H NMR spectra of 2-(hydrazineylidenemethyl)-8-methoxyquinoline.

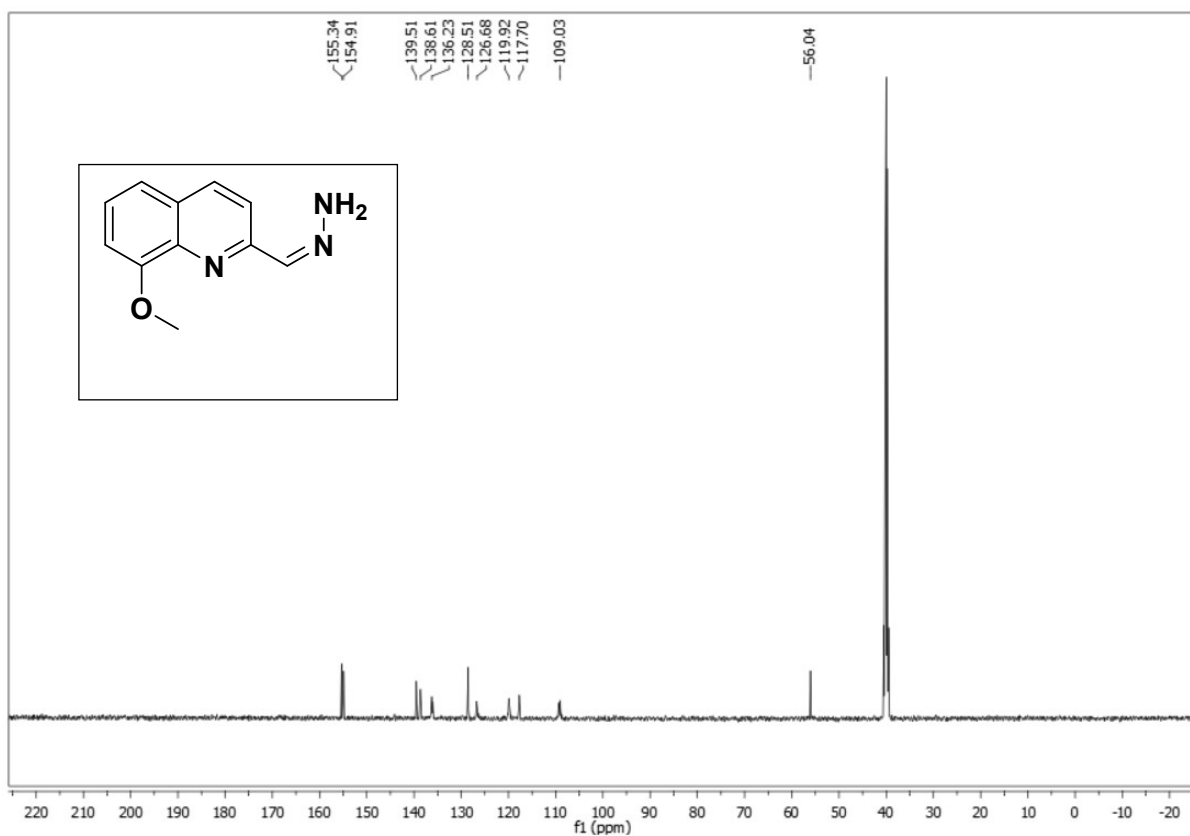


Fig S9. ¹³C spectra of (hydrazineylidenemethyl)-8-methoxyquinoline.

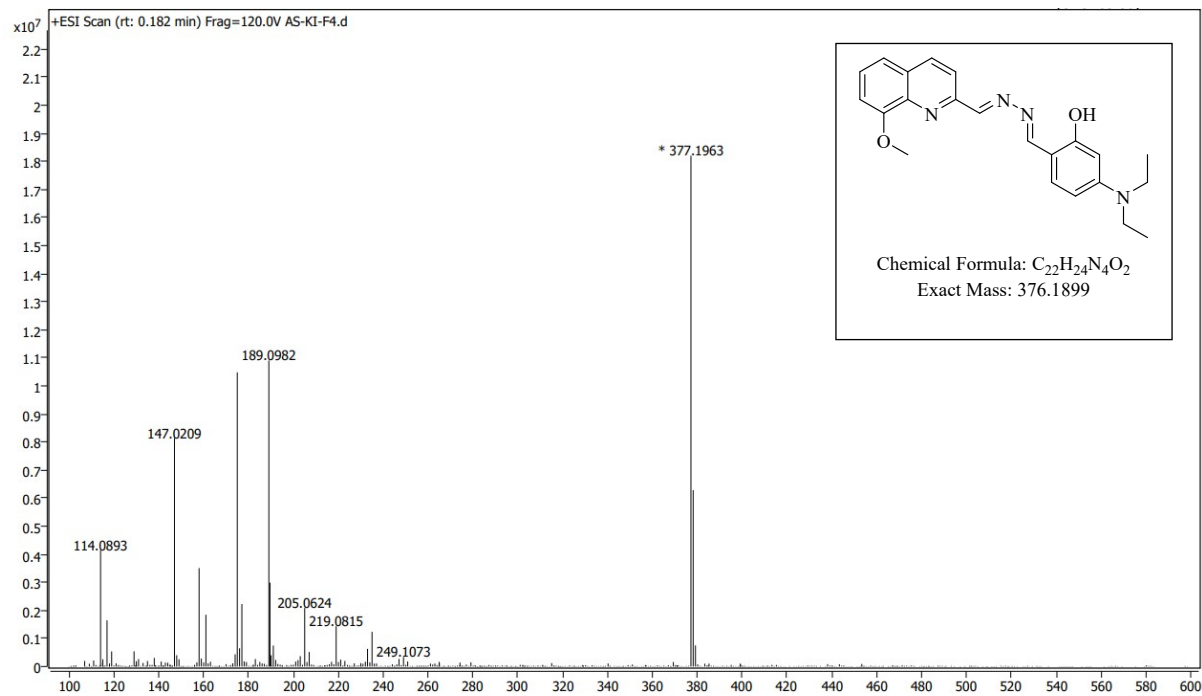


Fig S10. HR-MS spectra of QHS compound.

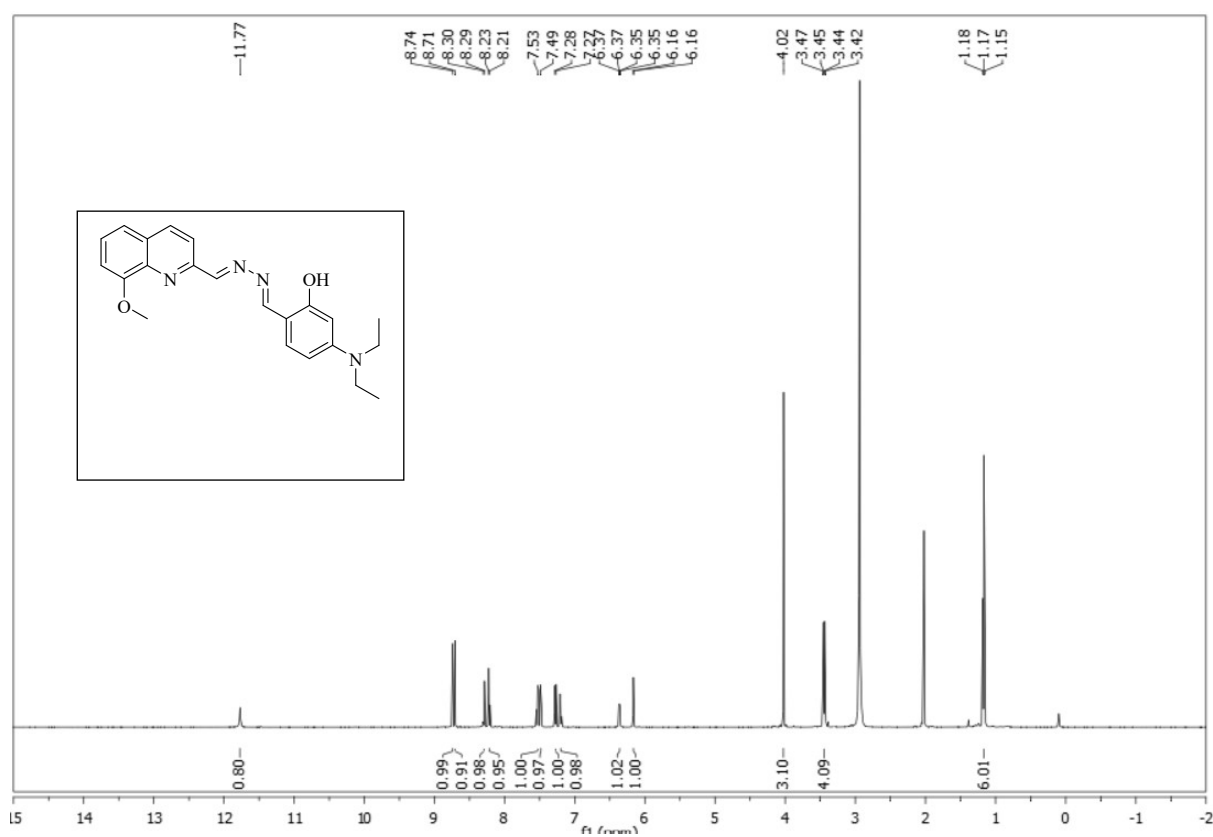


Fig S11. ^1H NMR spectra of QHS compound.

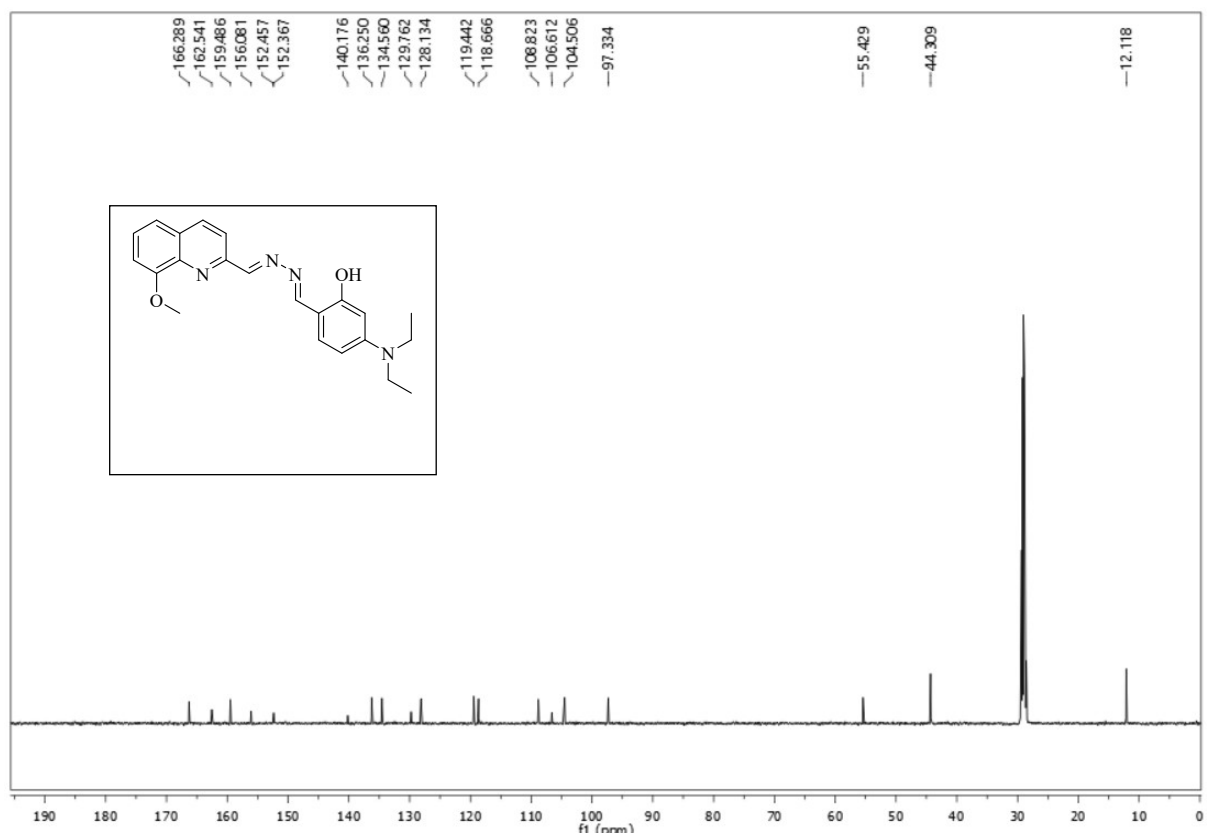


Fig S12. ^{13}C NMR spectra of QHS compound.

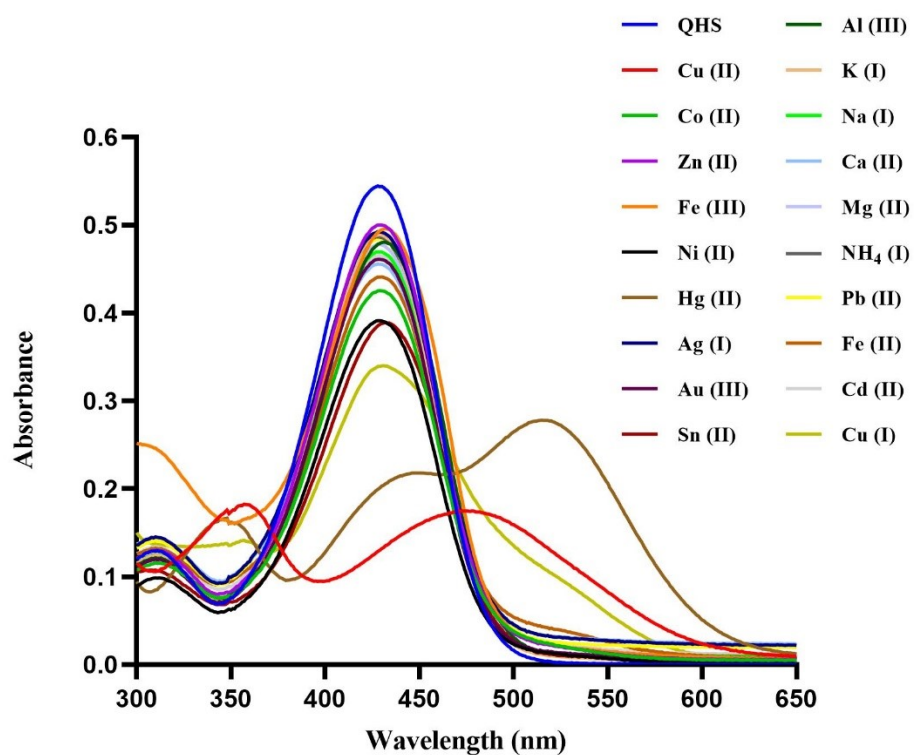


Fig S13. UV spectra of selectivity QHS (10 μM) against other analytes (100 μM).

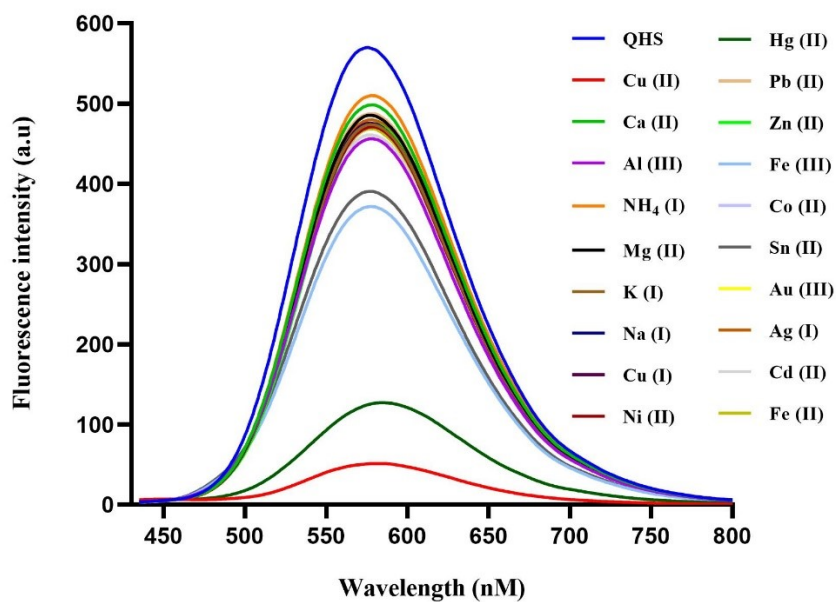
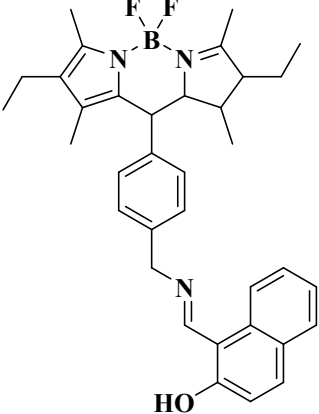
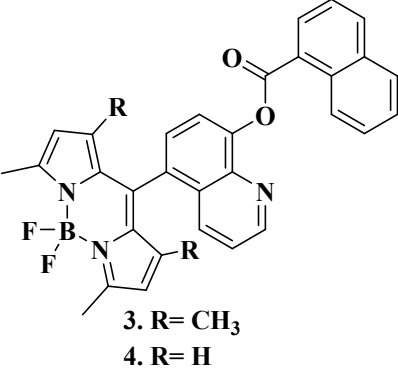
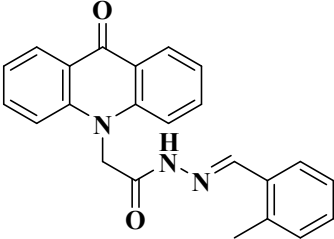
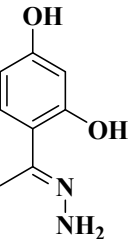
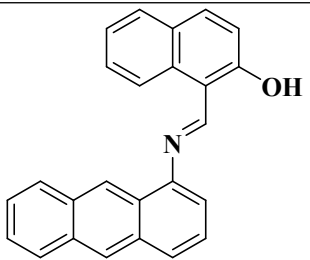
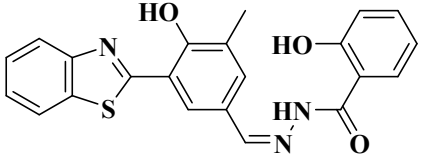
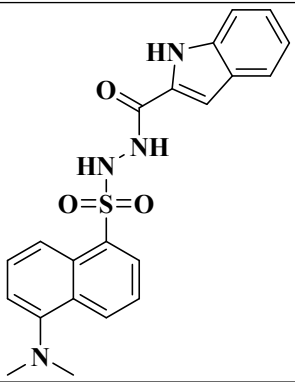
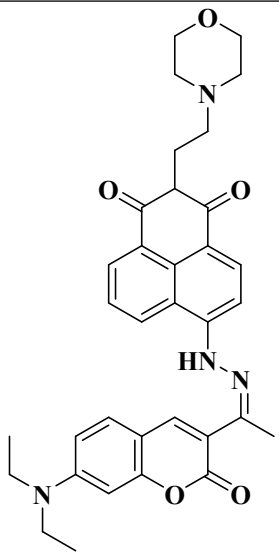
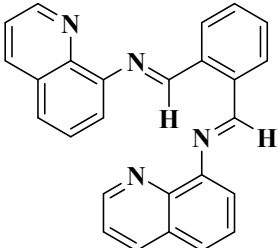
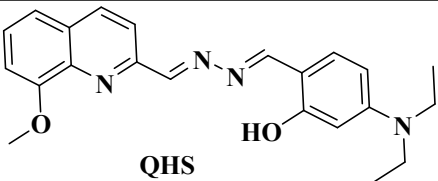
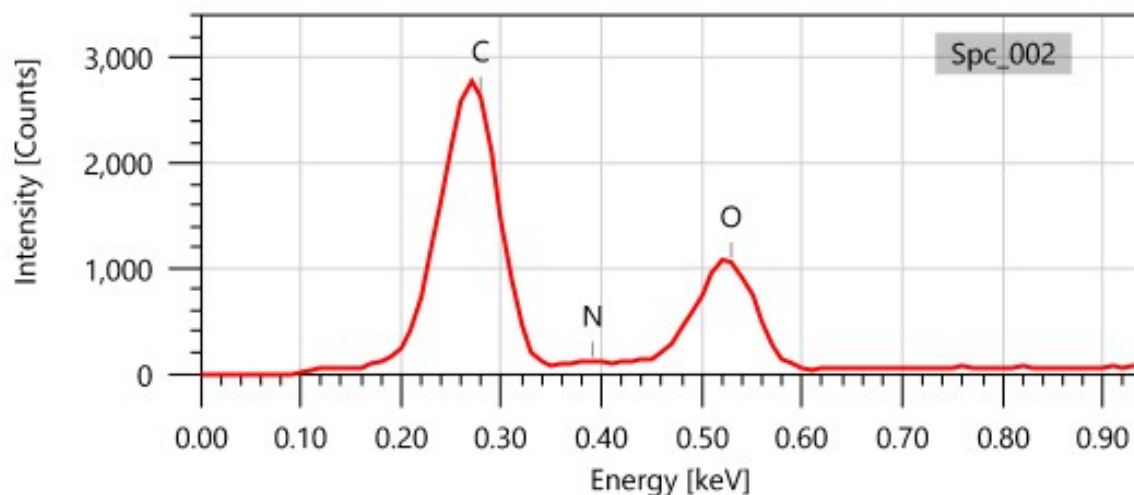


Fig S14. Fluorescence spectra of selectivity QHS (10 μM) against other analytes (100 μM).

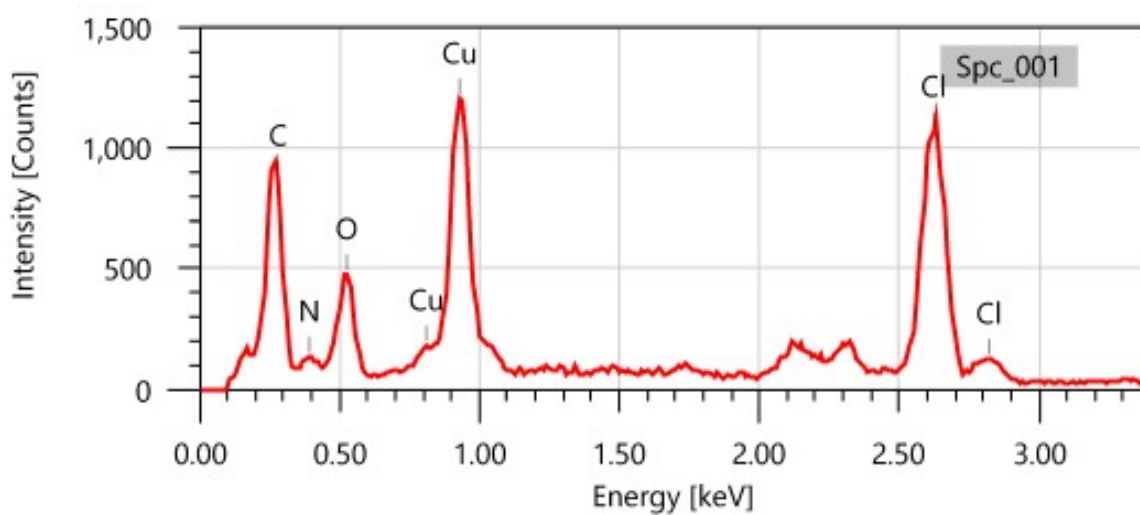
Table S1. Various probes reported for the detection of Cu (II) ions

S. No	Chemo sensor	Solvent system	LOD (nM)	Binding Ratio (Sensor: Metal)	Ref .
1		CH ₃ CN: H ₂ O (8:2)	1280	2:1	1
2	 <p>3. R= CH₃ 4. R= H</p>	H ₂ O: MeOH (1:1)	5360	1:1	2
3		3970	1:1		
4		DMSO: H ₂ O (4:1)	800	1:2	3
5		EtOH: water (1:2)	3000	2:1	4

6		CH ₃ CN	2050	2:1	5
7		DMF: H ₂ O (3:7)	1350	1:2	6
8		-	155530	1:2	7
9		HEPES buffer (0.01 M, pH = 7.4, containing 50% CH ₃ CN,	5800	-	8
10		H ₂ O-CH ₃ CN (2:8)	1030	1:1	9
11		EtOH-H ₂ O (1:1)	493	1:1	This work



a



b

Fig S15. a) EDX data of QHS, b) EDX data of QHS in combination with CuCl₂.

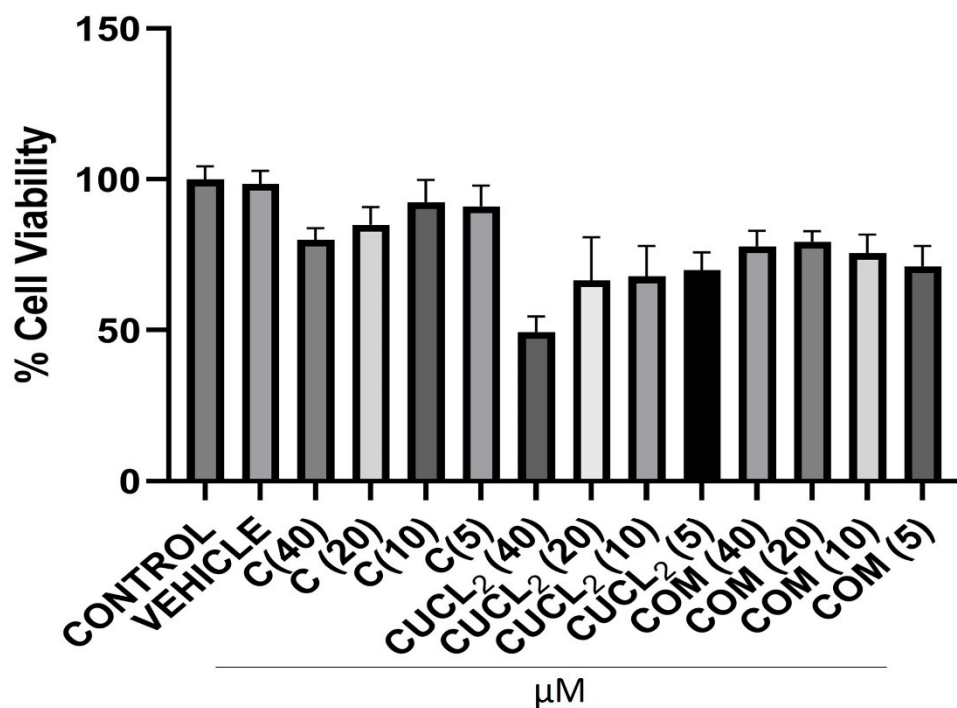


Fig S16. Cell viability assay at 6h for QHS (C) and copper chloride and their combinations of different concentrations denoted by μM respectively.

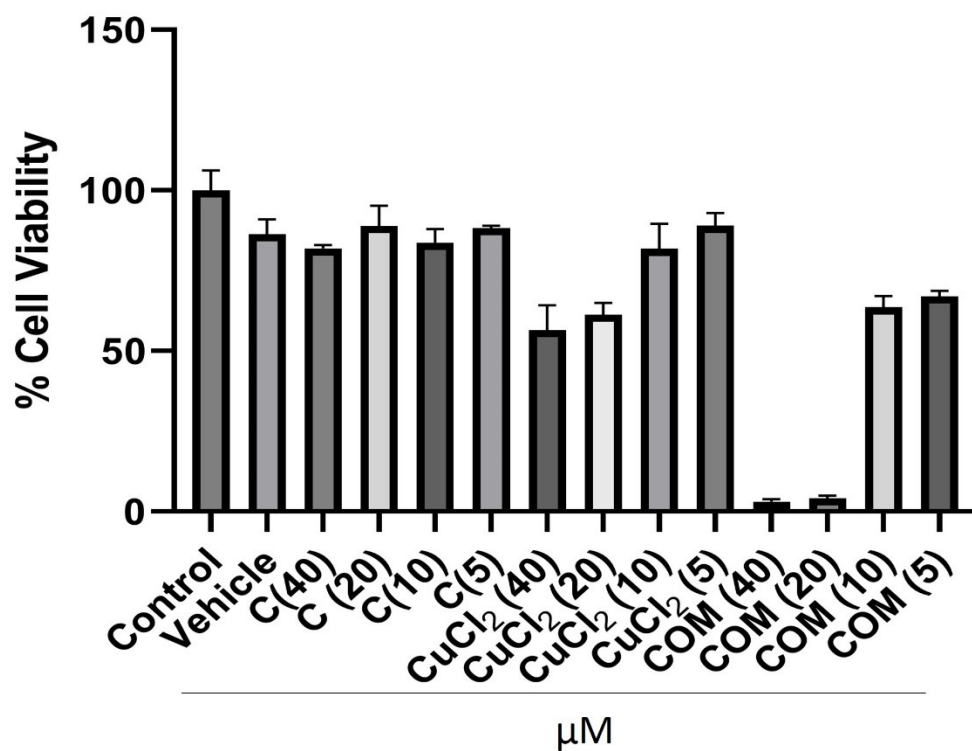


Fig S17. Cell viability assay at 24h for QHS (C) and copper chloride and their combinations of different concentrations denoted by μM respectively.

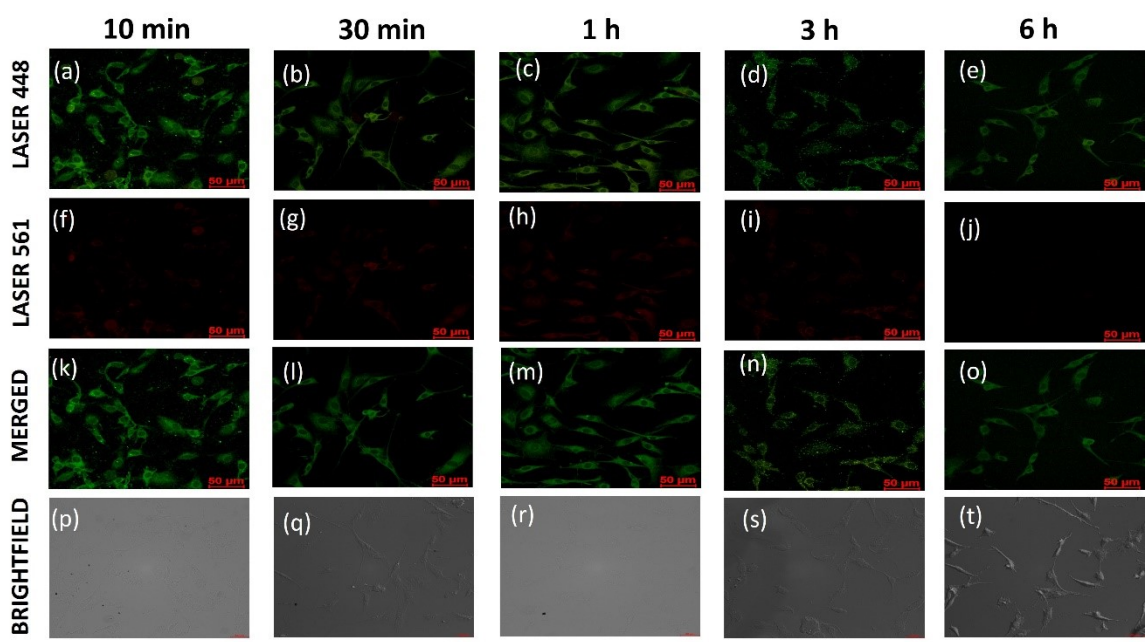


Fig S18. Epifluorescence images of C6 cells: (a-e) represents the fluorescent images of cells incubated with QHS only ($5 \mu\text{M}$) for 10min, 30min, 1, 3 and 6 hour respectively and excited at Laser 448, (f-j) are the images taken on Laser 561 for the same treatment and (k-o) are there merged images and (p-t) are images taken at 40X. Scale Bar: $50 \mu\text{m}$.

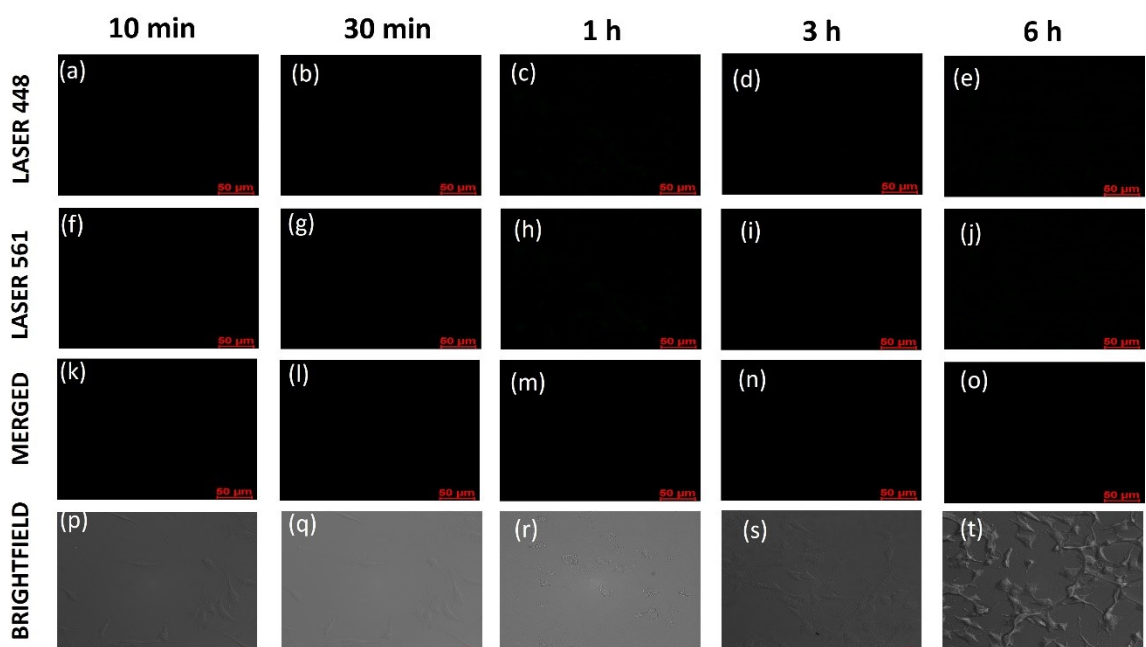


Fig S19. Epifluorescence images of C6 cells: (a-e) represents the fluorescent images of cells incubated with CuCl_2 only ($5 \mu\text{M}$) for 10min, 30min, 1, 3 and 6 hour respectively and excited at Laser 448, (f-j) are the images taken on Laser 561 for the same treatment and (k-o) are there merged images and (p-t) are images taken at 40X. Scale Bar: $50 \mu\text{m}$.

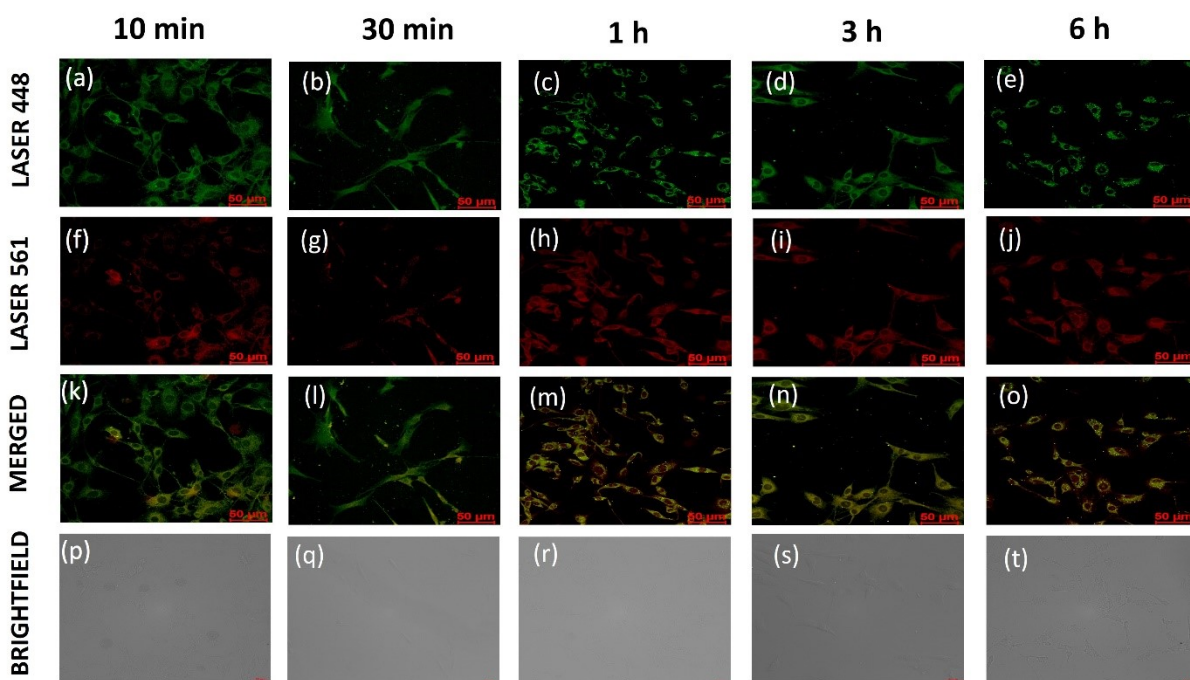


Fig S20. Epifluorescence images of C6 cells: (a-e) represents the fluorescent images of cells incubated with QHS and CuCl_2 combination ($5 \mu\text{M}$) for 10min, 30min, 1, 3 and 6 hour respectively and excited at Laser 448, (f-j) are the images taken on Laser 561 for the same treatment and (k-o) are there merged images and (p-t) are images taken at 40X. Scale Bar: $50 \mu\text{m}$.

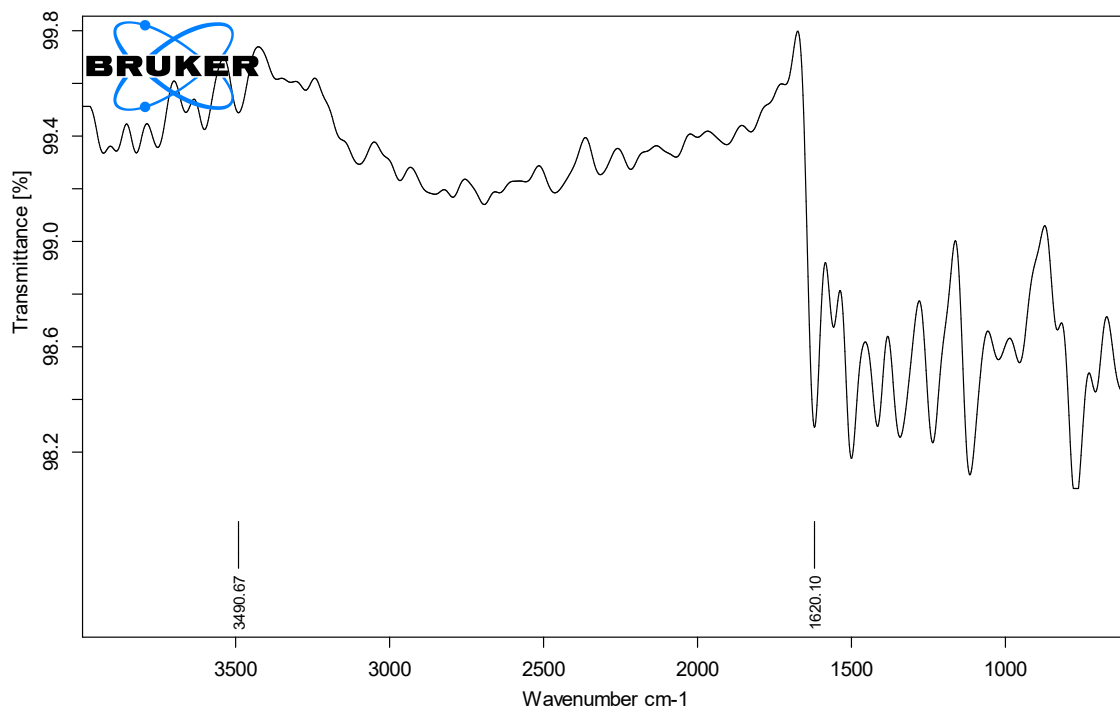


Fig S21. FTIR spectra of QHS.

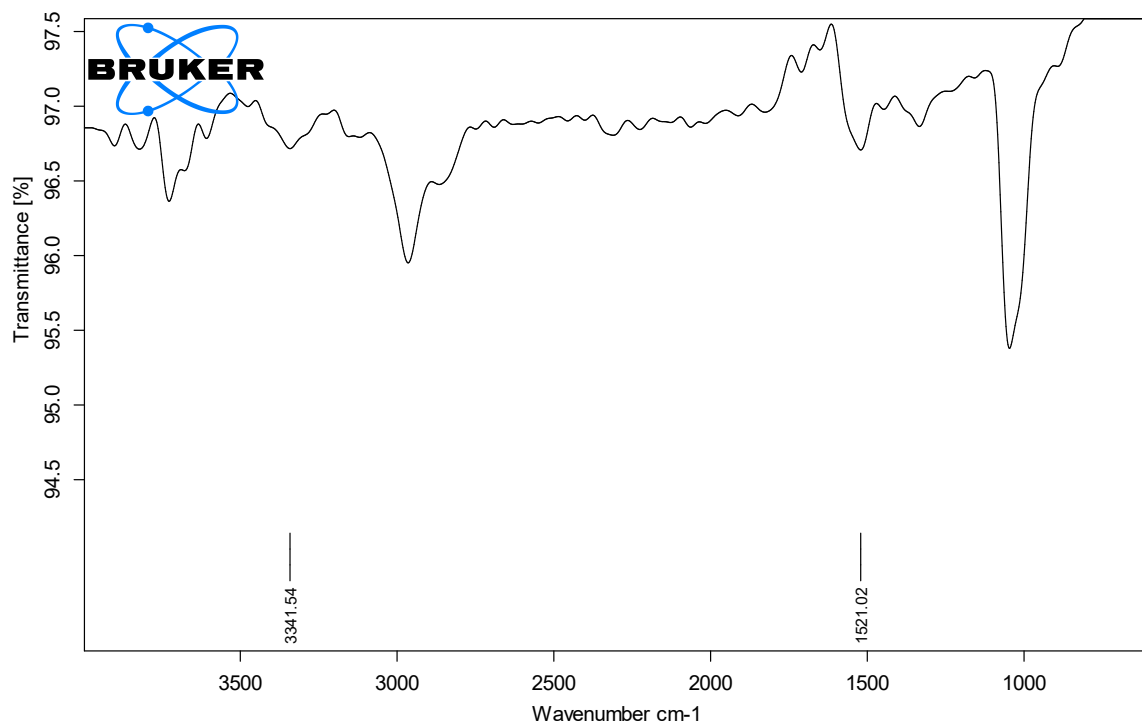


Fig S22. FTIR spectra of QHS in combination of Cu (II).

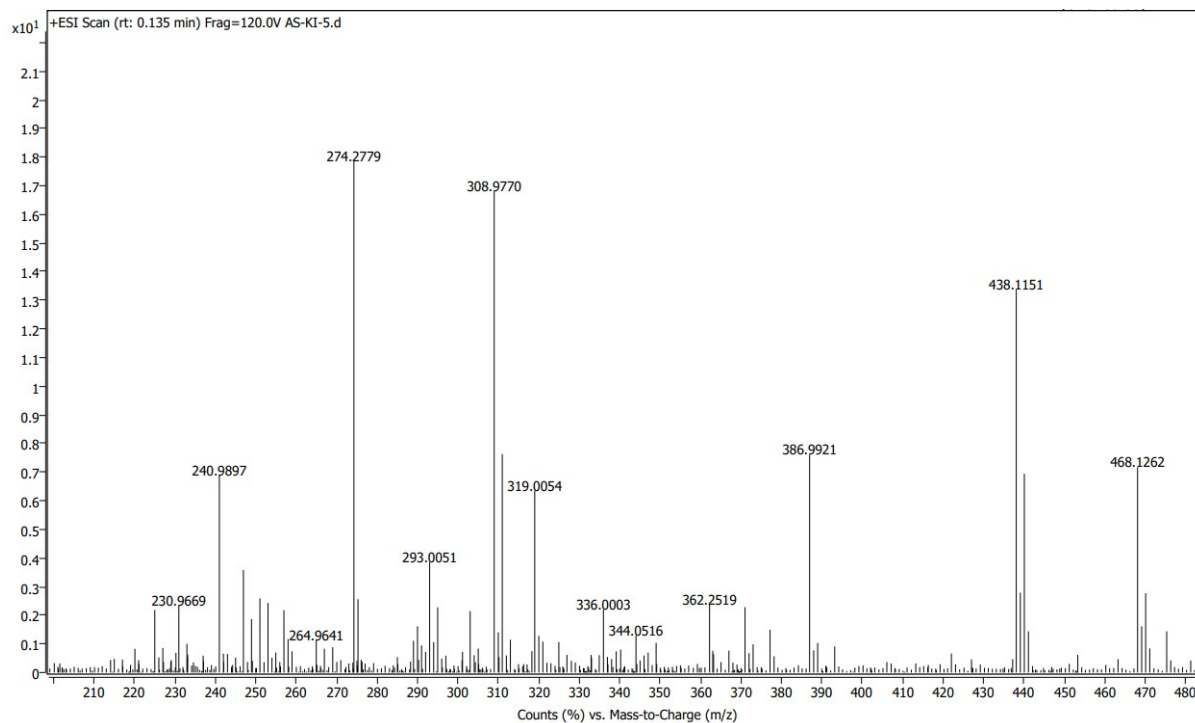


Figure S23. Mass spectra of QHS + Cu (II) complex.

References

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