Supplementary Information (SI) for Analytical Methods.
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Electronic Supplementary Information (ESI)

First-in-class hydrazone-pyrazoline sensors for selective detection of Zn^{2+}, Cd^{2+}, and Hg^{2+} in aqueous environments

Alexander Ciupa*

General Experimental

Chemicals, solvents and reagents were purchased from commercial sources and used without further purification. PE refers to petroleum ether, bp 40-60 °C. Spectroscopy was performed with CHROMASOLV® gradient grade acetonitrile for HPLC, ≥99.9%, from Sigma-Aldrich.

The metal complexes used in this study were: LiCl, NaCl, KCl, $CaCl_2$, $MgCl_2$, $CuCl_2$, $NiCl_2$, $ZnCl_2$, $CdCl_2$, $RuCl_3$, $CoCl_2$, $MnCl_2$, $PbCl_2$, $ZnCl_2$ and HgI_2.

TLCs were carried out on Merck Aluminium backed TLC plates Silica Gel 60 F254 and viewed using UV light of wavelength 254 nm. Merck Silica Gel (0.040-0.063 mm) was used for column chromatography. Compounds were loaded as an oil, CH_2Cl_2 solution or dry loaded by adsorption onto silica.

NMR spectra were obtained on a Bruker Avance III (400 MHz) spectrometer and processed via TopSpin® software. The chemical shifts are recorded in parts per million (ppm) with reference to tetramethylsilane. The coupling constants J are quoted to the nearest 0.5 Hz and are not corrected.

High resolution Mass spectroscopy was performed on Bruker Quadrupole Time-of-Flight (qToF) mass spectrometer.

UV/Vis spectroscopy was performed on an Agilent Cary5000 in quartz cuvettes with a 1 cm pathlength using HPLC grade MeCN, 250-500 nm range with 0.2 sec dwell time. Detector switchover occurred at 350 nm.

FTIR spectroscopy was performed on a Bruker VERTEX 70 spectrometer.

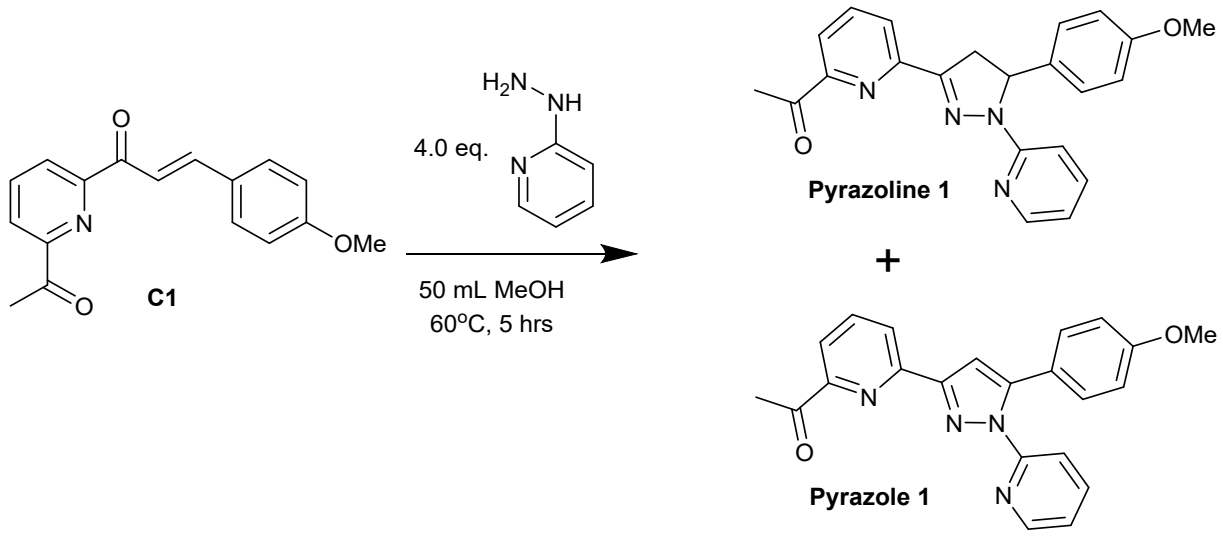
Fluorescence spectroscopy was performed on an Edinburgh Instruments FLS1000 with a xenon excitation source, 2 nm bandwidths for both excitation and emission monochromator, scan speed of 1 nm and dwell time of 0.2 sec. Fluorescence quartz cuvettes with a 1 cm pathlength were used throughout with HPLC grade MeCN.

A 100 Watt 365 nm Analytikjena High intensity UV lamp was used to image the sensors in cuvettes with 5.0 equivalent indicated metal, sensor concentration was 20 µM, solvent was MeCN.

All figures were plotted using SigmaPlot® 14.5 software.

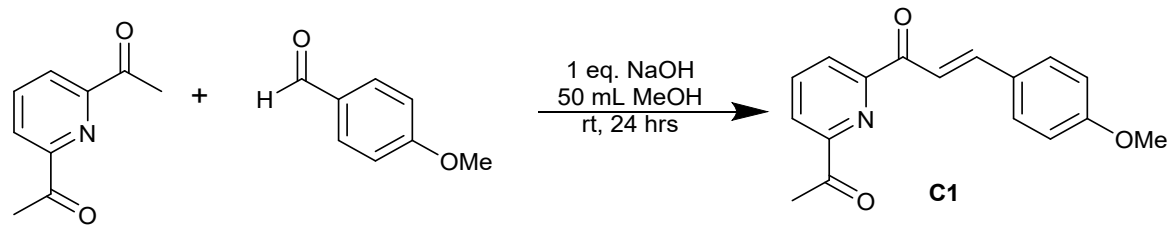
Preliminary Pyrazoline synthesis Screening (S1)

In our search for new pyrazoline and pyrazole fluorescent sensors, we synthesised pyrazoline 1 and pyrazole 2 below and discovered an unexpected 3rd product, the hydrazone pyrazoline (**P1**) which was isolated and discovered to have useful properties. While pyrazoline 1 and pyrazole did display "turn on" fluorescent properties, they are not the subject of this study and therefore will not be discussed further.



General Synthesis (S2)

Synthesis of chalcone **C1**



Using a method adapted from a previous synthesis (*RSC Adv*., 2024, **14**, 3519-3524), 6 mmol 2,6-acetylpyridine was added to a stirred solution of 3.0 mmol aldehyde in MeOH followed by the addition of 3.0 mmol NaOH and stirring continued at room temperature. After 24 hours the precipitate was filtered, washed with copious amounts of cold H_2O and collected and dried to afford the desired chalcone without further purification.

Yield 0.442g (52%);

Vmax (Solid)/cm^{-1} 1701, 1666, 1216 and 952;

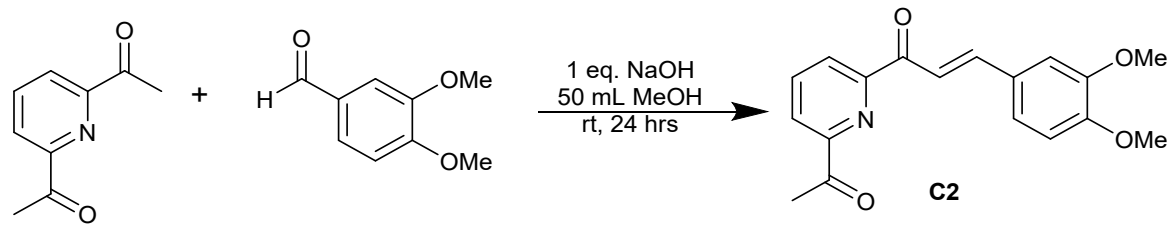
^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.90 (3 H, s, CH_3), 3.90 (3 H, s, OCH_3), 6.98-7.00 (2 H, m, CH), 7.70-7.72 (2 H, m, CH), 7.98-8.06 (3 H, m, CH=CH and CH), 8.24-8.28 (2 H, m, CH=CH and CH) and 8.38-8.40 (1 H, m, CH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 25.8, 55.5, 114.5, 118.0, 124.4, 125.6, 126.1, 127.8, 130.5, 138.1, 145.1, 152.6, 161.9, 188.5 and 199.5;

HRMS m/z (qToF) Found 282.1152 ($M+H^+$). $C_{17}H_{16}NO_3$ requires 282.1130.

Above in agreement with previous data from *RSC Adv*., 2024, **14**, 3519-3524.

Synthesis of chalcone **C2**



Using a method adapted from a previous synthesis (*RSC Adv*., 2024, **14**, 3519-3524), 10 mmol 2,6-acetylpyridine was added to a stirred solution of 5.0 mmol aldehyde in MeOH followed by the addition of 5.0 mmol NaOH and stirring continued at room temperature. After 24 hours the precipitate was filtered, washed with copious amounts of cold H_2O and collected and dried to afford the desired chalcone without further purification.

Yield 0.65g (41%);

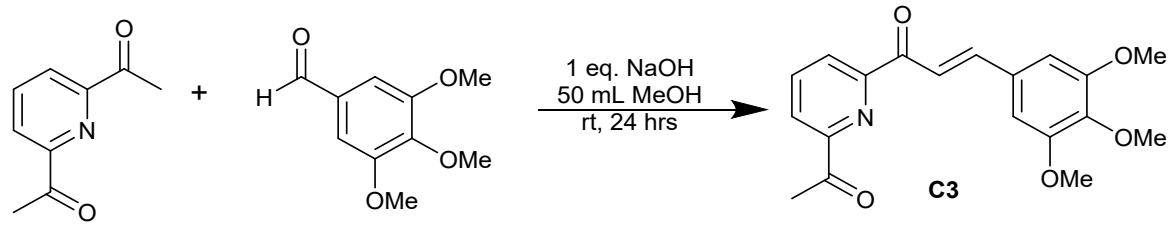
Vmax (Solid)/cm^{-1} 1593, 1512, 1429, 1162, 1072 and 991;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.88 (3 H, s, CH_3), 3.96 (3 H, s, CH_3), 4.00 (3 H, s, CH_3), 6.91-6.97 (1 H, m, CH), 7.24-7.27 (1 H, m, CH), 7.34-7.37 (1 H, m, CH), 7.98 (1 H, d, *J* = 16 Hz, CH=CH), 8.03-8.07 (1 H, m, CH), 8.21-8.26 (2 H, m, CH) and 8.38-8.40 (1 H, m, CH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 26.6, 55.9, 56.1, 110.6, 111.2, 118.3, 123.0, 124.5, 126.1, 128.1, 128.2, 145.4, 149.3, 151.7, 152.5, 153.6, 188.4 and 199.5;

HRMS m/z (qToF) Found 312.1356 ($M+H^+$). $C_{18}H_{18}NO_4$ requires 312.1236.

Synthesis of chalcone **C3**



Using a method adapted from a previous synthesis (*RSC Adv*., 2024, **14**, 3519-3524), 10 mmol 2,6-acetylpyridine was added to a stirred solution of 5.0 mmol aldehyde in MeOH followed by the addition of 5.0 mmol NaOH and stirring continued at room temperature. After 24 hours the precipitate was filtered, washed with copious amounts of cold H_2O and collected and dried to afford the desired chalcone without further purification.

Yield 1.02g (60%);

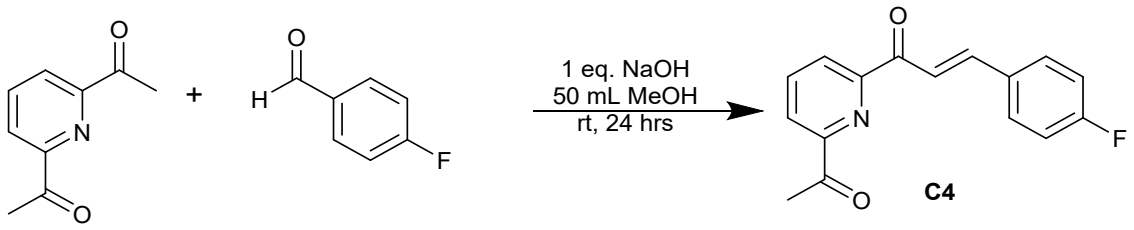
Vmax (Solid)/cm^{-1} 1699, 1593, 1430 and 1234;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.88 (3 H, s, CH_3), 3.94 (3 H, s, CH_3), 3.96 (6 H, s, CH_3), 6.98 (2 H, s, CH), 7.94 (1 H, d, *J* = 16 Hz, CH=CH), 8.06 (1 H, t, *J* = 7.6 Hz, CH), 8.24-8.28 (2 H, m, CH), 8.38-8.40 (1 H, m, CH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 25.6, 56.2, 61.1, 105.9, 119.7, 124.6, 126.1, 130.5, 138.2, 140.8, 145.3, 152.4, 153.4, 153.5, 188.4 and 199.3;

HRMS m/z (qToF) Found 342.1461 ($M+H^+$). $C_{19}H_{20}NO_5$ requires 342.1341.

Synthesis of chalcone **C4**



Using a method adapted from a previous synthesis (*RSC Adv*., 2024, **14**, 3519-3524), 6 mmol 2,6-acetylpyridine was added to a stirred solution of 3.0 mmol aldehyde in MeOH followed by the addition of 3.0 mmol NaOH and stirring continued at room temperature. After 24 hours the precipitate was filtered, washed with copious amounts of cold H_2O and collected and dried to afford the desired chalcone without further purification.

Yield 0.174g (22%);

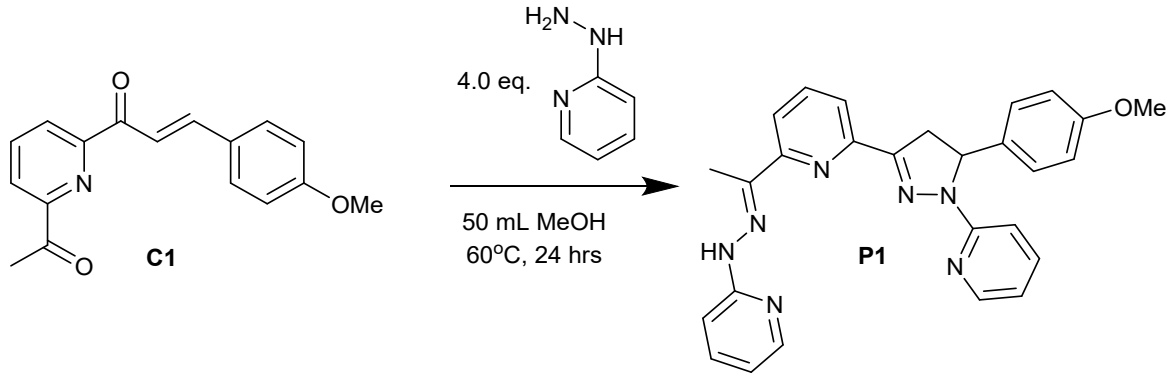
Vmax (Solid)/cm^{-1} 1593, 1439, 1257 and 1138;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.90 (3 H, s, CH_3), 7.15-7.19 (2 H, m, CH), 7.72-7.76 (2 H, m, CH), 7.98 (1 H, d, *J* = 16.0 Hz, CH=CH), 8.04-8.08 (1 H, m, CH), 8.26-8.32 (2 H, m, CH) and 8.38-8.41 (1 H, m, CH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 25.8, 116.1, 116.3, 120.0, 124.7, 126.2, 130.6, 138.2, 143.9, 143.9, 152.6, 153.3, 163.1, 165.5, 188.4 and 199.3;

HRMS m/z (qToF) Found 270.1068 ($M+H^+$). $C_{16}H_{13}FNO_2$ requires 270.0930.

Synthesis of pyrazoline **P1**



4.0 mmol of 2-hydrazinopyridine was added to a stirred solution of 1.0 mmol **C1** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.23g (50%);

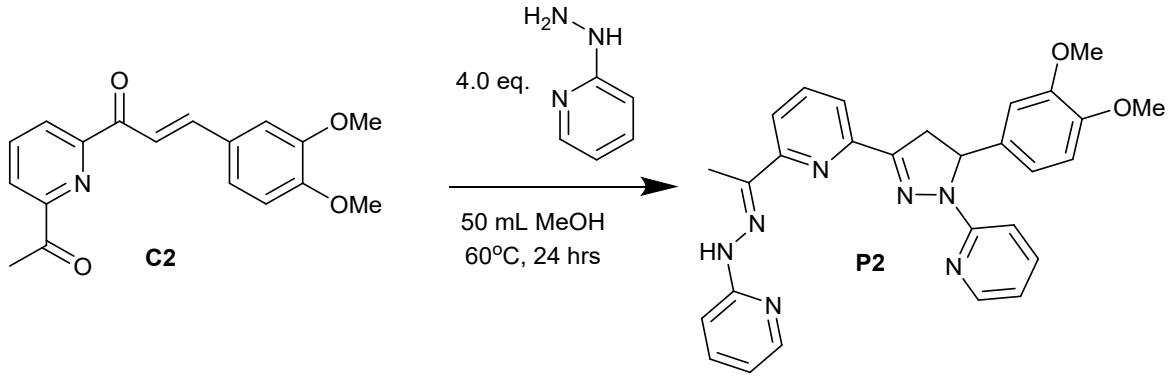
Vmax (Solid)/cm^{-1} 1494, 1454, 847 and 664;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.30 (3 H, s, CH_3), 3.32-3.38 (1 H, m, CH), 3.68 (3 H, s, OCH_3), 3.82-3.90 (1 H, m, CH), 5.67-5.72 (1 H, m, CH), 5.69-5.72 (1 H, m, CH), 6.56-6.60 (1 H, m, CH), 6.74-6.76 (3 H, Ar CH and CH), 7.15-7.18 (2 H, m, Ar CH and CH), 7.34-7.37 (2 H, m, CH), 7.42-7.44 (1 H, m, CH), 7.56-7.63 (3 H, m, CH), 7.96-8.02 (3 H, m, CH), 8.07-8.08 (1 H, m, CH), 8.21 (1 H, Br s, NH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 42.5, 55.2, 61.6, 107.7, 109.1, 114.0, 114.7, 116.3, 119.1, 119.5, 127.1, 130.5, 135.4, 136.0, 137.1, 138.3, 144.2, 147.7, 150.5, 151.2, 155.3, 156.6 and 158.6;

HRMS m/z (qToF) Found 464.2219 ($M+H^+$). $C_{27}H_{26}N_7O$ requires 464.2199.

Synthesis of pyrazoline **P2**



4.0 mmol of 2-hydrazinopyridine was added to a stirred solution of 1.0 mmol **C2** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.21g (43%);

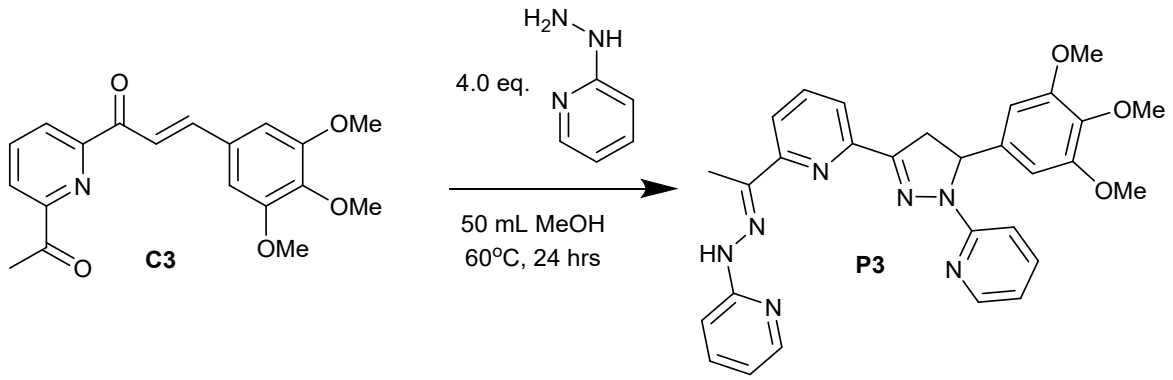
Vmax (Solid)/cm^{-1} 2926, 1592, 1511, 1432, 1257 and 1234;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.40 (3 H, s, CH_3), 3.43-3.49 (1 H, m, CH), 3.85 (6 H, s, CH_3), 3.99-4.01 (1 H, m, CH), 5.75-7.80 (1 H, m, CH), 6.69-6.80 (1 H, m, CH), 6.81-6.87 (5 H, m, CH), 7.45-7.47 (3 H, m, CH), 7.53-7.55 (1 H, m, CH), 7.66-7.74 (1 H, m, CH), 8.11-8.12 (3 H, m, CH), 8.18- 8.19 (1 H, m, CH),8.25 (1 H, br s, NH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 42.5, 55.9, 62.0, 65.9, 107.7, 109.1, 109.2, 111.3, 114.85, 116.3, 117.8, 119.5, 121.9, 123.1, 135.9, 136.0, 137.1, 138.2, 144.0, 144.6, 147.8, 147.9, 148.0, 149.1, 150.5, 151.26, 155.3 and 156.6;

HRMS m/z (qToF) Found 494.2349 ($M+H^+$). $C_{28}H_{28}N_7O_2$ requires 494.2304.

Synthesis of pyrazoline **P3**



4.0 mmol of 2-hydrazinopyridine was added to a stirred solution of 1.0 mmol **C3** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.320g (61%);

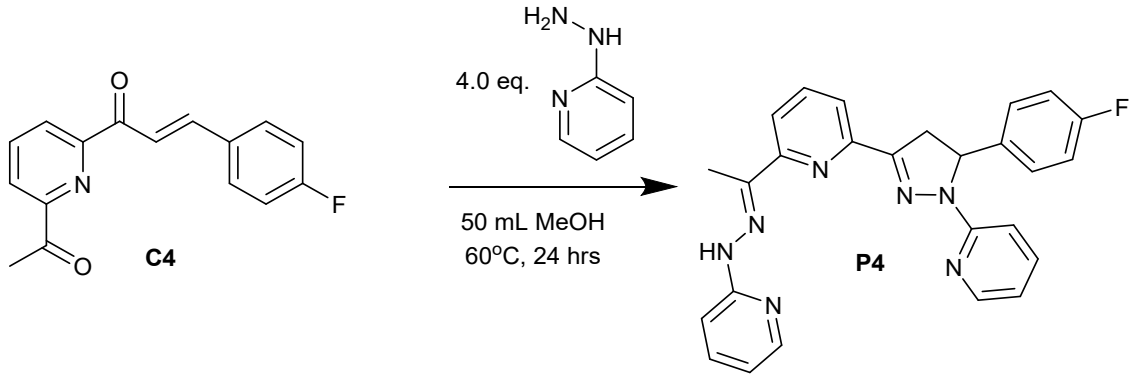
Vmax (Solid)/cm^{-1}2928, 1592, 1432, 1257, 1161 and 1137;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.41 (3 H, s, CH_3), 3.42-3.48 (1 H, m, CH), 3.82 (9 H, s, CH_3), 3.99-4.15 (1 H, m, CH), 5.32-5.78 (1 H, m, CH), 6.53 (2 H, s, CH), 6.72-6.73 (1 H, m, CH), 6.83-6.86 (1 H, m, CH), 7.44-7.49 (2 H, m, CH), 7.55-7.59 (1 H, m, CH), 7.65-7.68 (1 H, m, CH), 7.72-7.76 (1 H, m, CH), 8.09-8.150 (3 H, m, CH), 8.18-8.20 (1 H, m, CH) and 8.25 (1 H, br s, NH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$) 42.6, 56.1, 60.8, 62.4, 102.5, 107.7, 109.2, 114.9, 116.4, 119.3, 119.5, 136.9, 137.2, 138.2, 139.0, 143.9, 147.8, 147.9, 150.4, 151.4, 153.5, 155.3, 155.4 and 156.6;

HRMS m/z (qToF) Found 524.6547 ($M+H^+$). $C_{29}H_{30}N_7O_3$ requires 524.6050.

Synthesis of pyrazoline **P4**



2.2 mmol of hydrazine was added to a stirred solution of 0.55 mmol **C4** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.06g (24%);

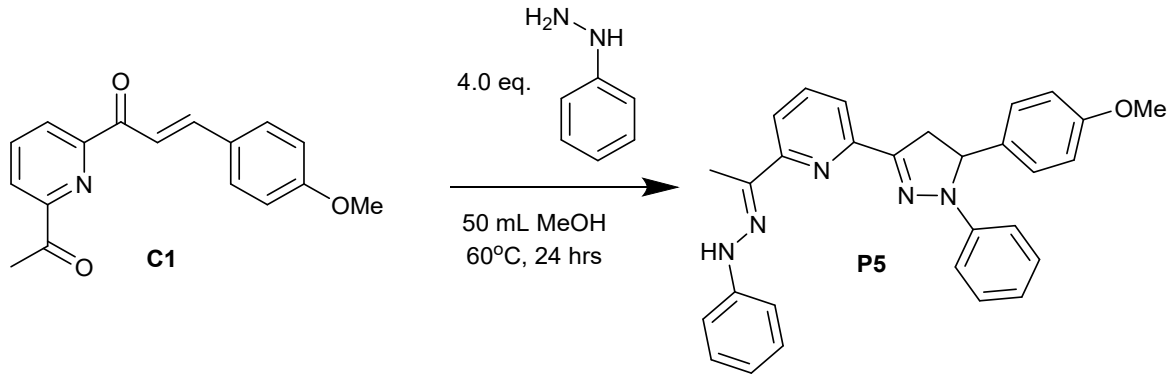
Vmax (Solid)/cm^{-1} 2927, 1592, 1432, 1257 and 1138;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.30 (3 H, s, CH_3), 3.30-3.34 (1 H, m, CH), 3.85-3.92 (1 H, m, CH), 5.72-5.74 (1 H, m, CH), 6.57-6.59 (1 H, m, CH), 6.74-7.77 (1 H, m, CH), 6.87-8.91 (2 H, m, CH), 7.19-7.21 (1 H, m, CH), 7.33-7.39 (2 H, m, CH), 7.40-7.45 (1 H, m, CH), 7.55-7.56 (1 H, m, CH), 7.62-7.66 (1 H, m, CH), 7.96-8.09 (3 H, m, CH), 8.08-8.09 (1 H, m, CH) and 8.13 (1 H, br s, NH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$); 42.4, 61.5, 107.7, 109.2, 114.9, 115.4, 115.6, 116.3, 119.3, 119.5, 127.5, 127.6, 136.0, 137.1, 138.2, 144.0, 147.7, 150.4, 151.1, 155.2, 155.3 and 156.6;

HRMS m/z (qToF) Found 452.2185 ($M+H^+$). $C_{26}H_{23}FN_2$ requires 452.5174.

Synthesis of pyrazoline **P5**



4.0 mmol of phenylhydrazone was added to a stirred solution of 1.0 mmol **C1** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.09g (21%);

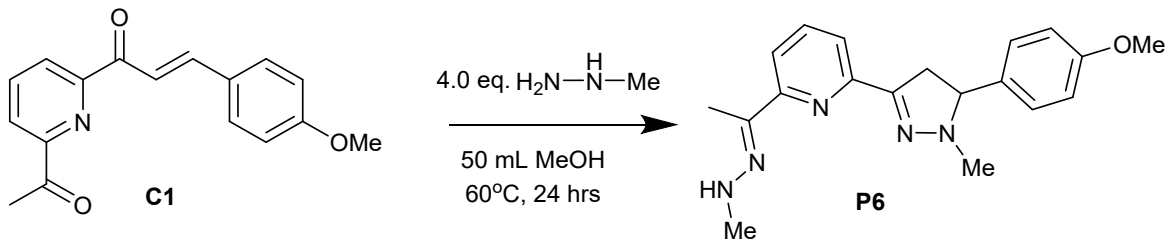
Vmax (Solid)/cm^{-1} 2928, 1595, 1434 and 1244;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.37 (3 H, s, CH_3), 3.35-3.41 (1 H, m, CH), 3.81 (3 H, s, CH_3), 3.99-4.06 (1 H, m, CH), 5.20-5.23 (1 H, m, CH), 6.83-6.93 (4 H, m, CH), 7.12-7.22 (2 H, m, CH), 7.23-7.24 (5 H, m, CH), 7.27-7.35 (3 H, m, CH), 7.54-7.57 (1 H, m, CH), 7.70-7.29 (1 H, m, CH), 8.04-8.10 (1 H, m, CH) and 8.10- 8.12 (1 H, m, CH);

^{13}C NMR δ_c (100 MHz; $CDCl_3$); 43.5, 55.3, 64.2, 113.3, 113.6, 114.5, 118.7, 118.9, 119.4, 120.6, 122.4, 127.1, 128.9, 129.3, 134.8, 135.9, 142.1, 144.6, 148.7, 150.7, 155.6 and 159.0;

HRMS m/z (qToF) Found 432.5376 ($M+H^+$). $C_{28}H_{26}N_5$ requires 432.5510.

Synthesis of pyrazoline **P6**



4.0 mmol of methylhydrazine was added to a stirred solution of 1.0 mmol **C1** in 50 mL MeOH and heated to 60 °C. After 24 hours the solvent was removed under reduced pressure, 100 mL H_2O added and extracted into 3 x 50 mL EtOAc. The EtOAc fractions were combined and the solvent removed under reduced pressure to give an oil which was then purified by column chromatography 6:4 EtOAc: PE to afford the desired product.

Yield 0.06g (18%);

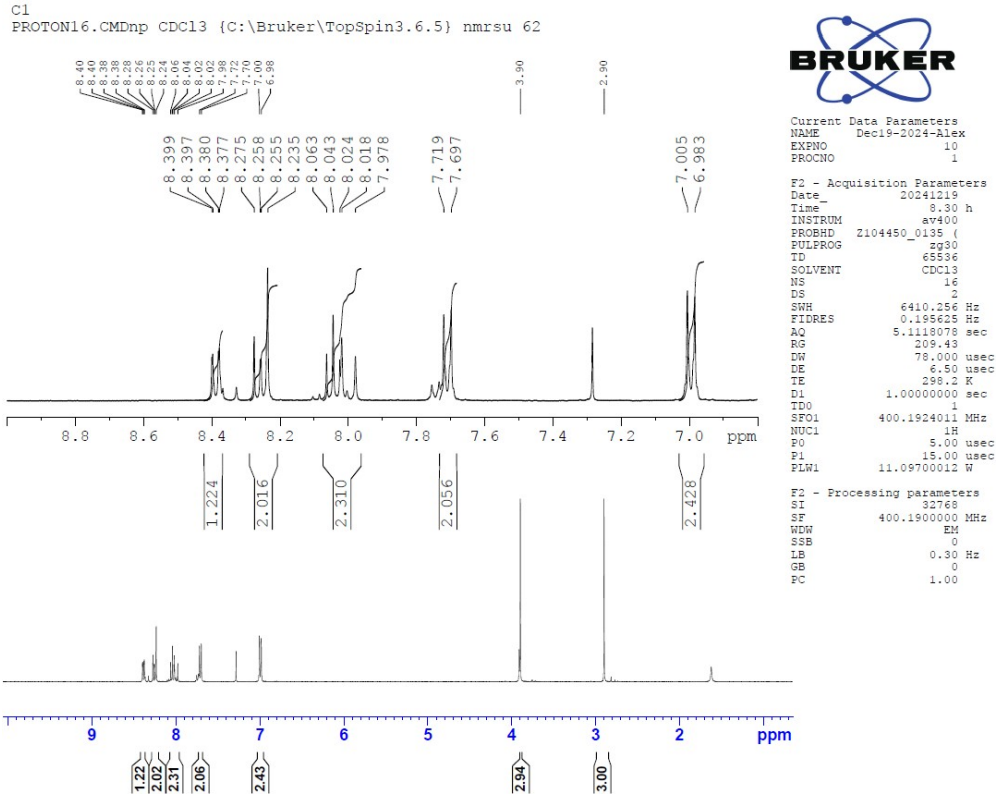
Vmax (Solid)/cm^{-1} 2921, 1165, 1341 and 1141;

^{1}H NMR δ_H (400 MHz; $CDCl_3$) 2.20 (3 H, s, CH_3), 2.89 (3 H, s, CH_3), 1.90 (1 H, m, CH), 3.72 (3 H, s, CH_3), 3.85 (1 H, m, CH), 3.98 (1 H, m, CH), 5.20 (1 H, br s, NH), 6.93-6.95 (2 H, m, CH), 7.41-7.43 (2 H, m, CH),7.62 (1 H, m, CH),7.81-7.82 (1 H, m, CH) and 7.61-7.93 (1 H, br s, NH);

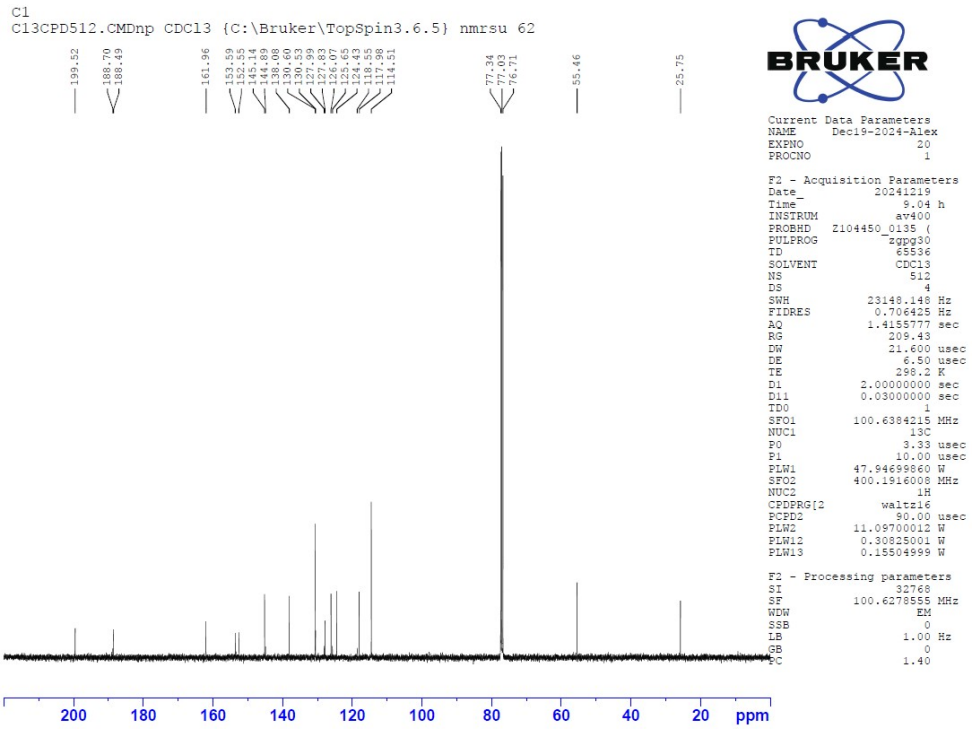
^{13}C NMR δ_c (100 MHz; $CDCl_3$); 41.2, 42.9, 55.3, 114.0, 114.1, 114.4, 118.4, 118.4, 118.5, 118.9, 120.3, 121.1, 122.6, 130.4, 132.4, 151.6 and 159.3;

HRMS m/z (qToF) Found 338.4387 ($M+H^+$). $C_{19}H_{24}N_5O$ requires 338.4350.

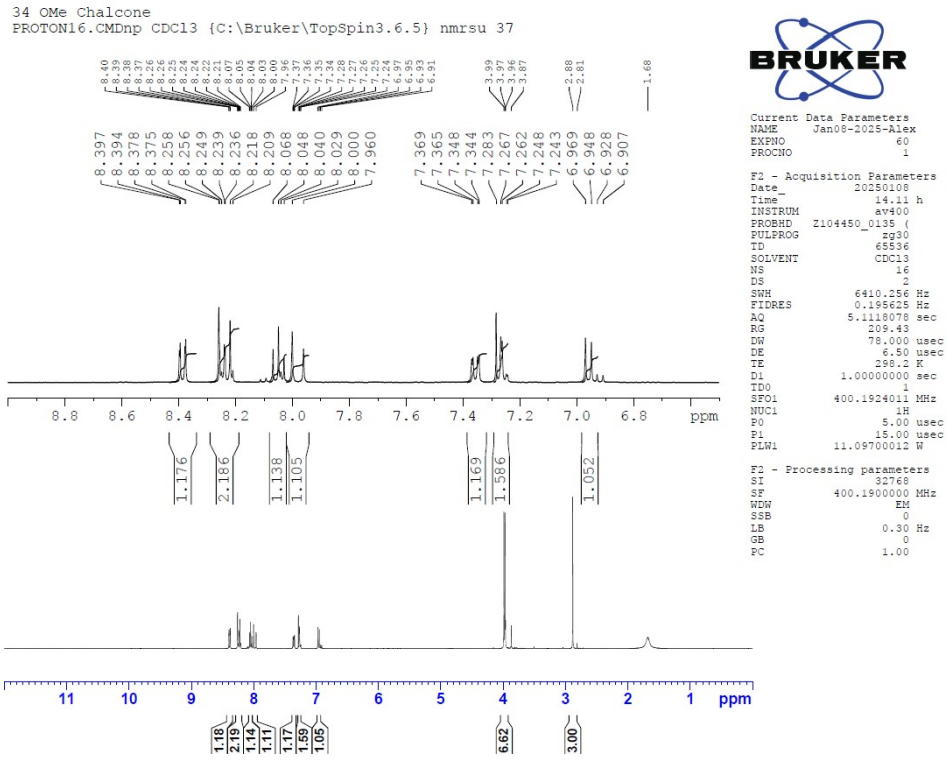
NMR Spectra (S3)



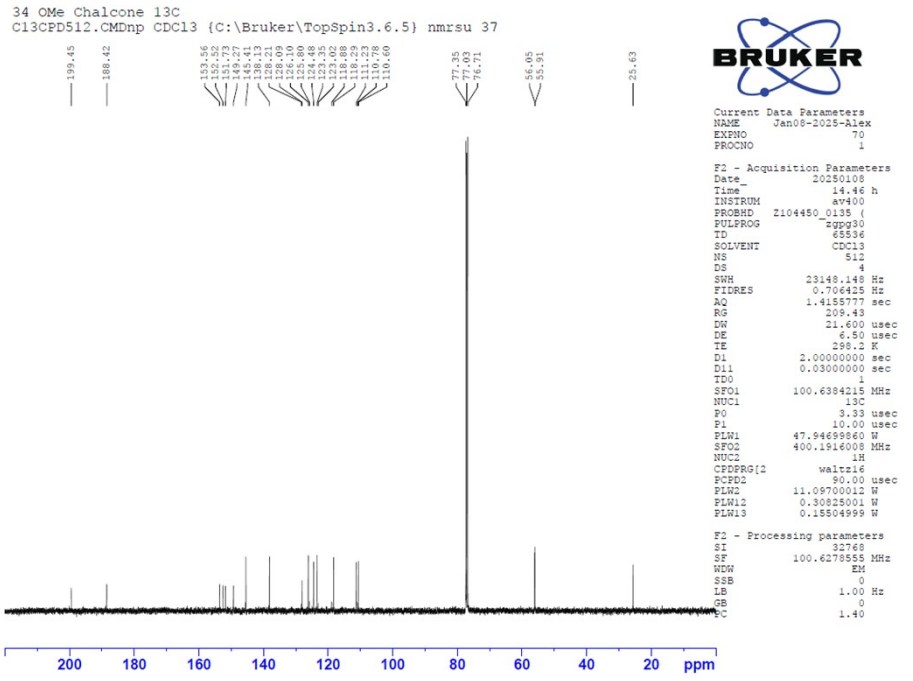
^{1}H NMR (400 Mhz) of **C1** in $CDCl_3$



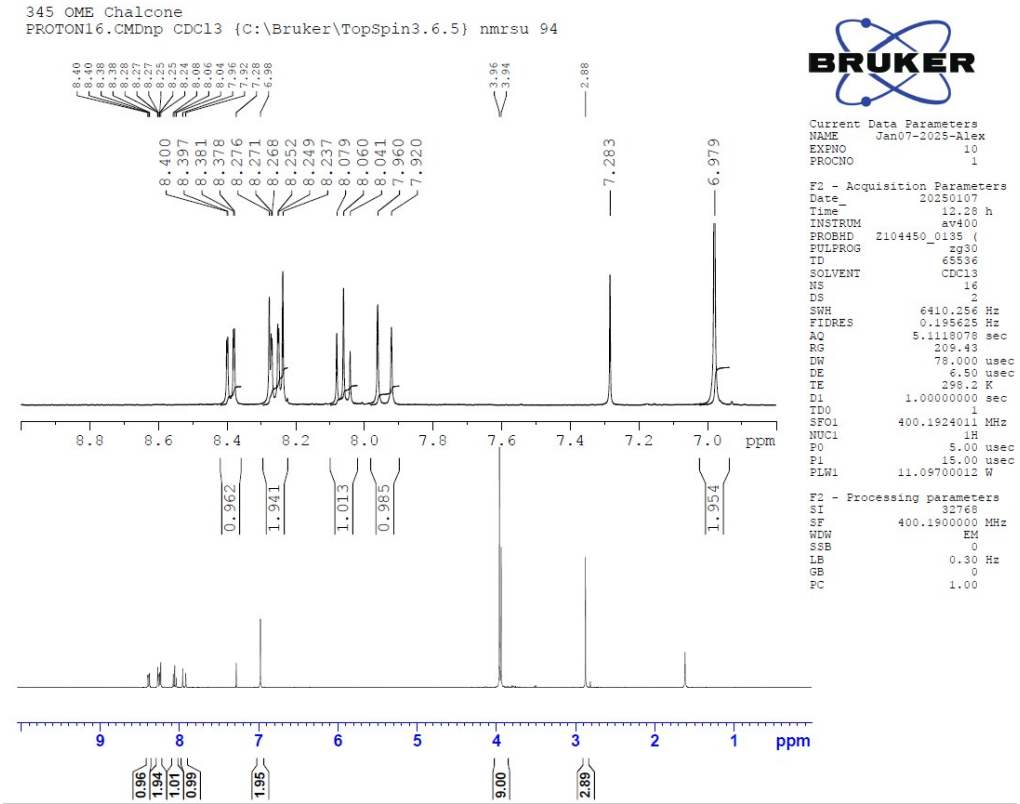
^{13}C NMR (100 Mhz) of **C1** in $CDCl_3$



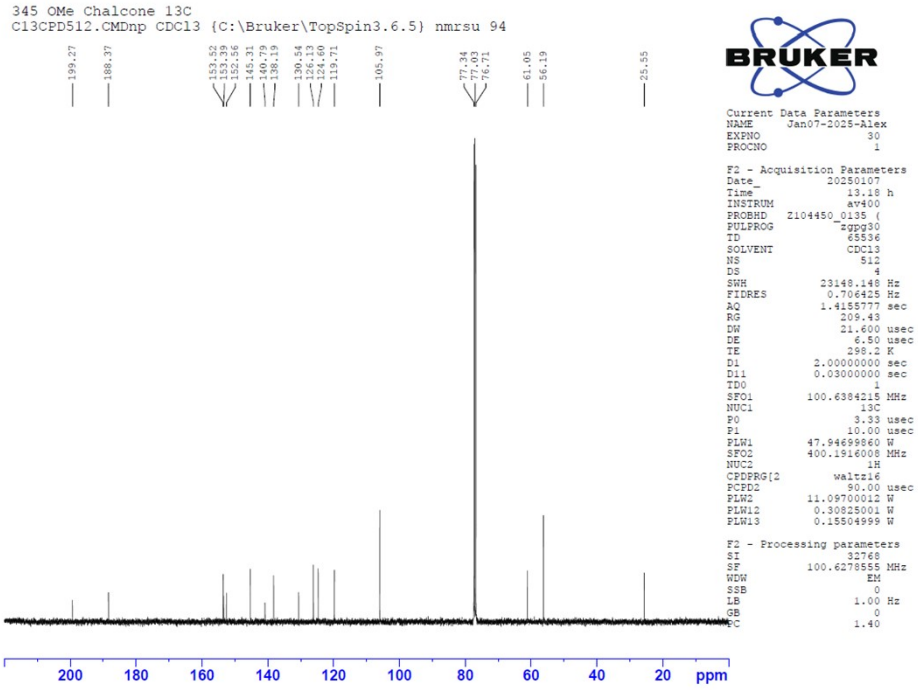
^{1}H NMR (400 Mhz) of **C2** in $CDCl_3$



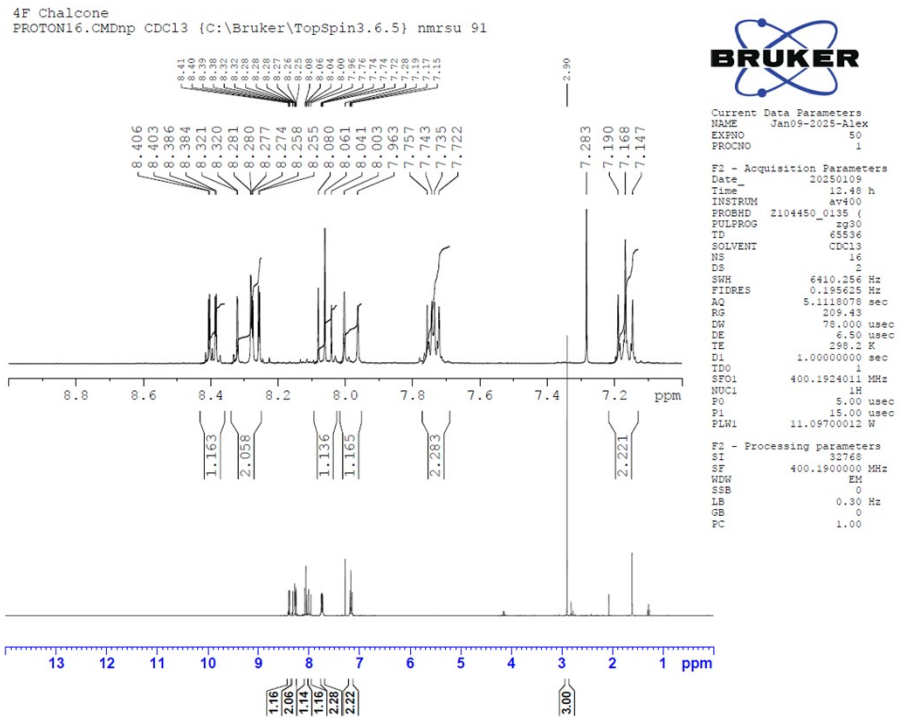
^{13}C NMR (100 Mhz) of **C2** in $CDCl_3$



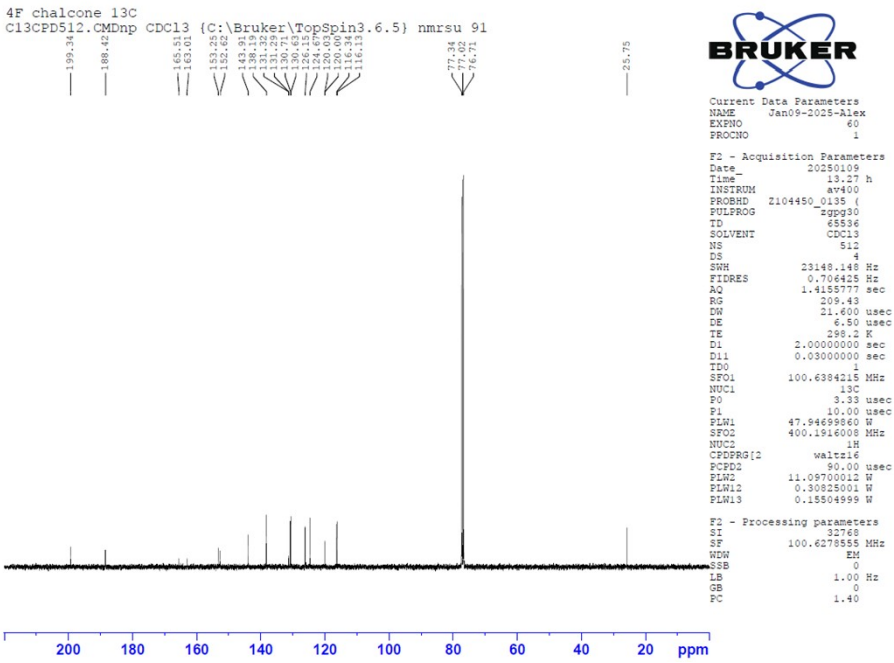
^{1}H NMR (400 Mhz) of **C3** in $CDCl_3$



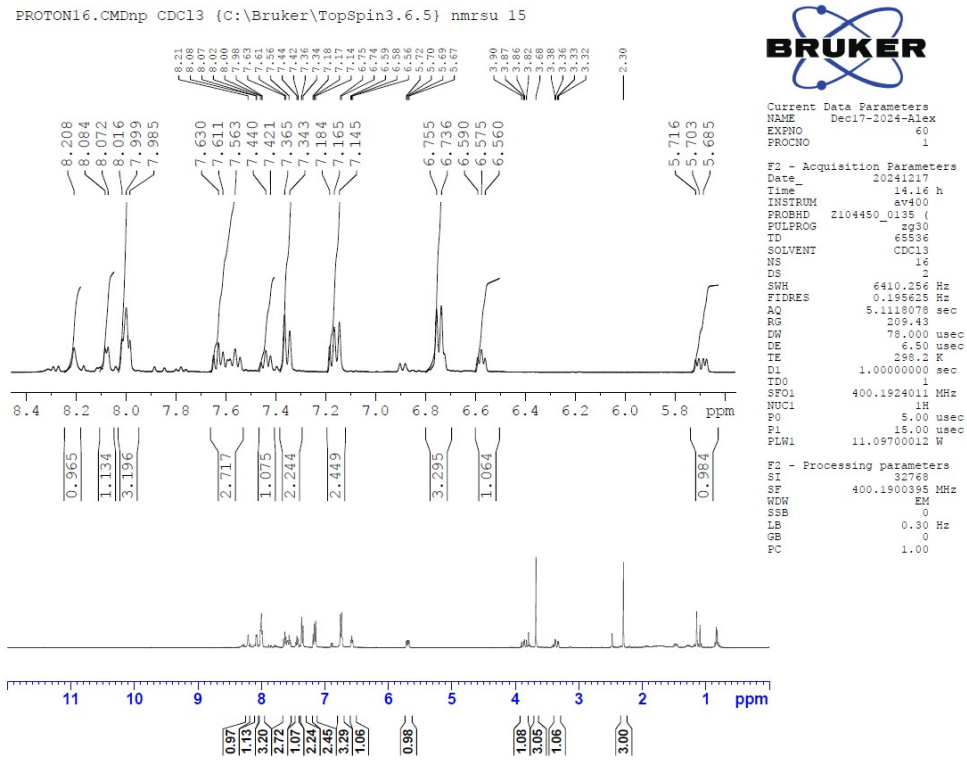
^{13}C NMR (100 Mhz) of **C3** in $CDCl_3$



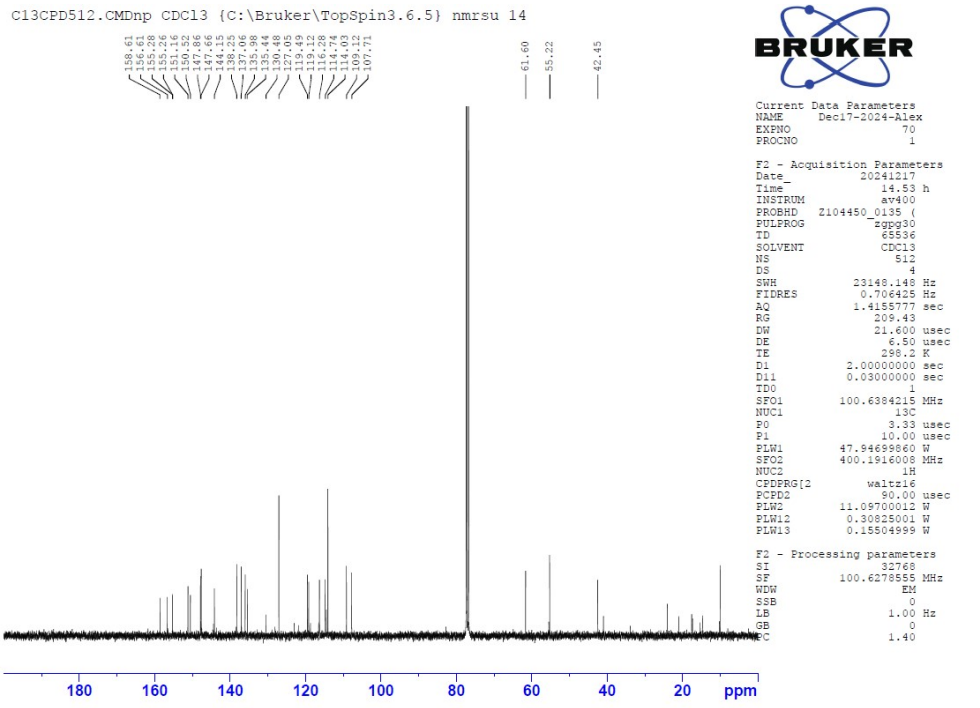
^{1}H NMR (400 Mhz) of **C4** in $CDCl_3$



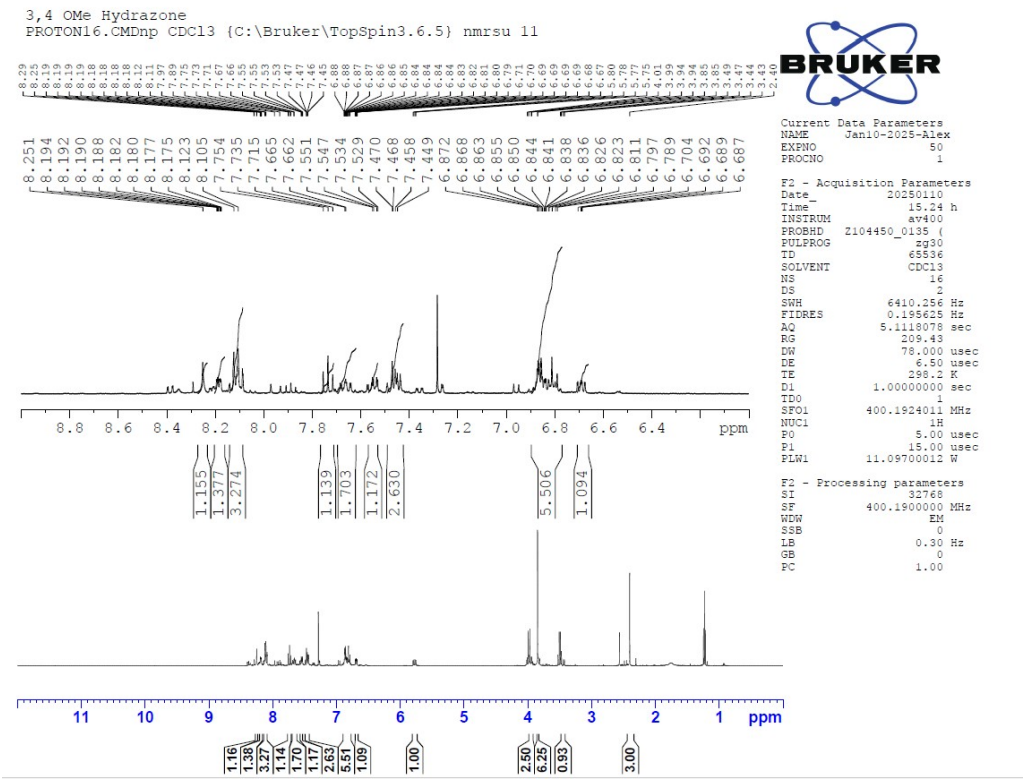
^{13}C NMR (100 Mhz) of **C4** in $CDCl_3$



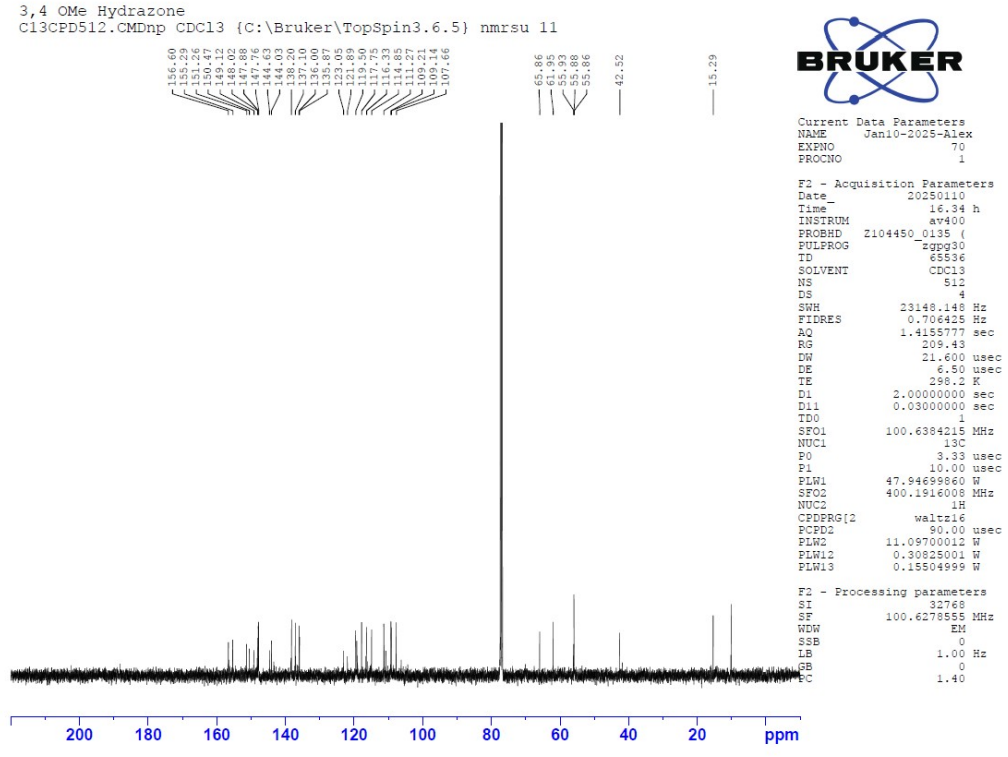
^{1}H NMR (400 Mhz) of **P1** in $CDCl_3$



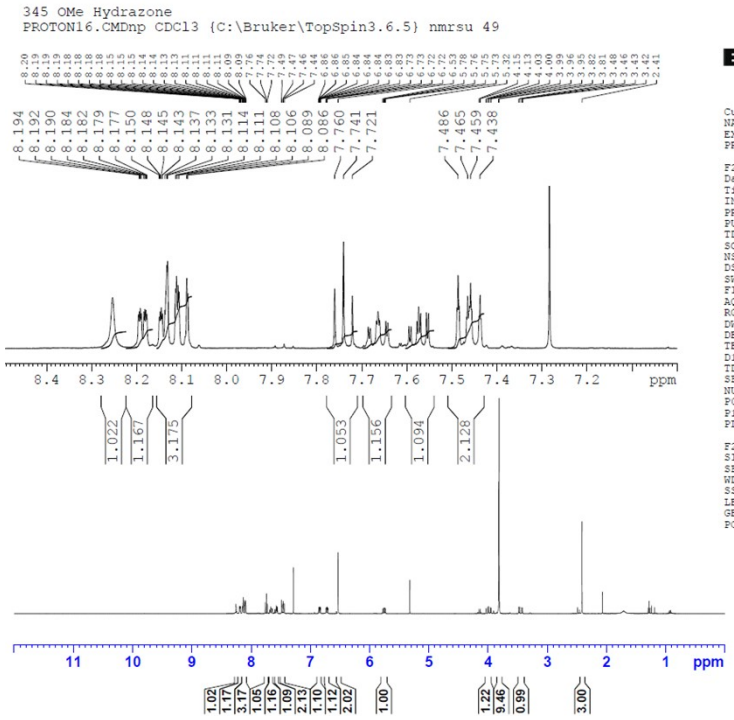
^{13}C NMR (100 Mhz) of **P1** in $CDCl_3$



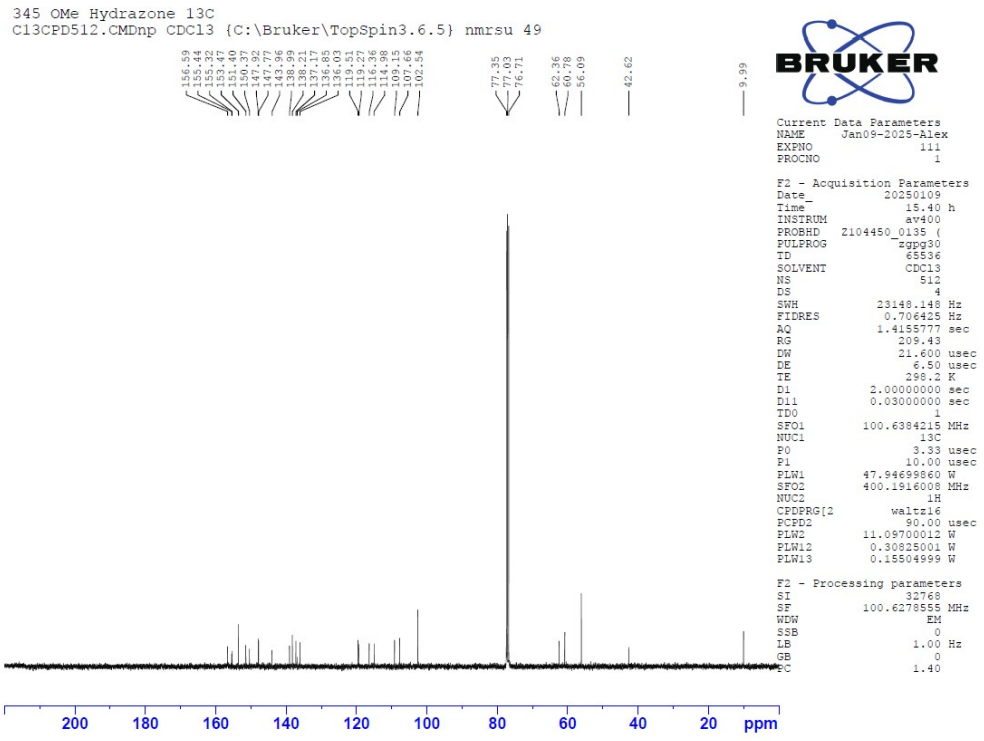
^{1}H NMR (400 Mhz) of **P2** in $CDCl_3$



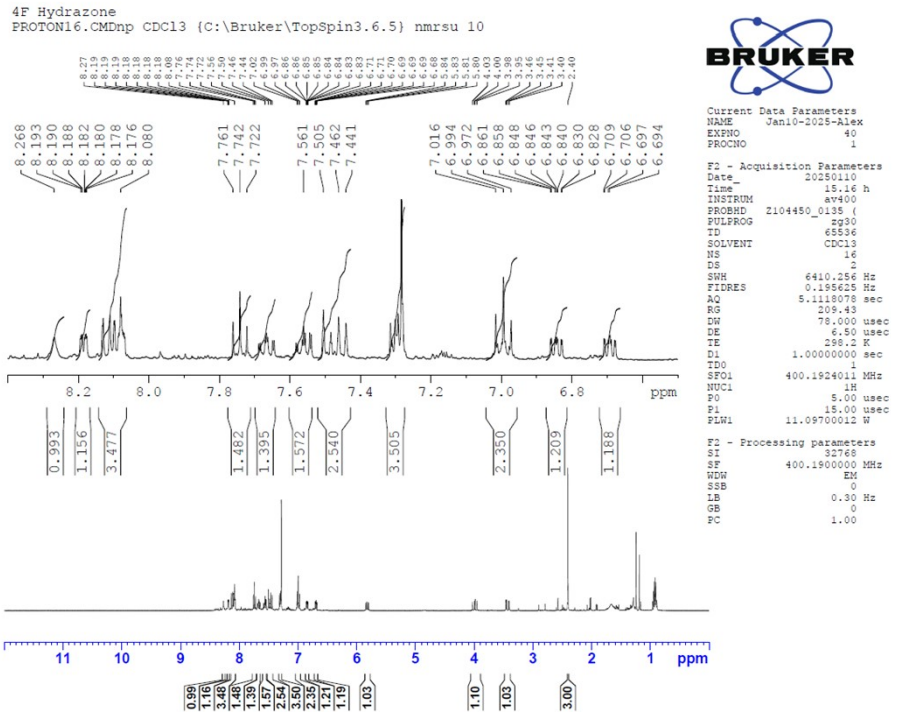
^{13}C NMR (100 Mhz) of **P2** in $CDCl_3$



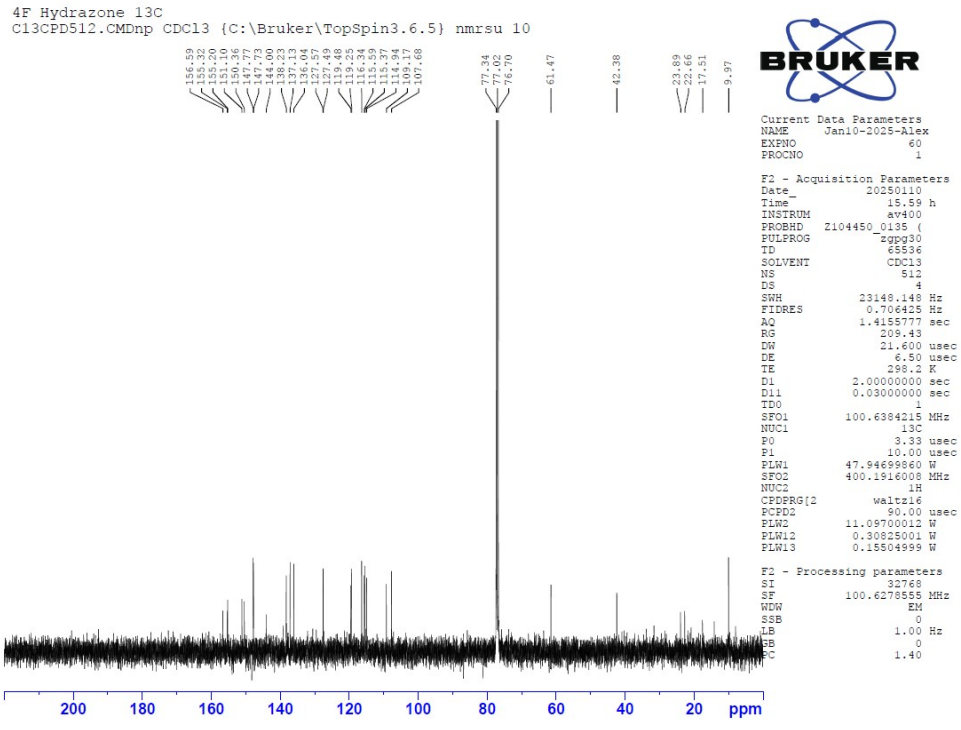
^{1}H NMR (400 Mhz) of **P3** in $CDCl_3$



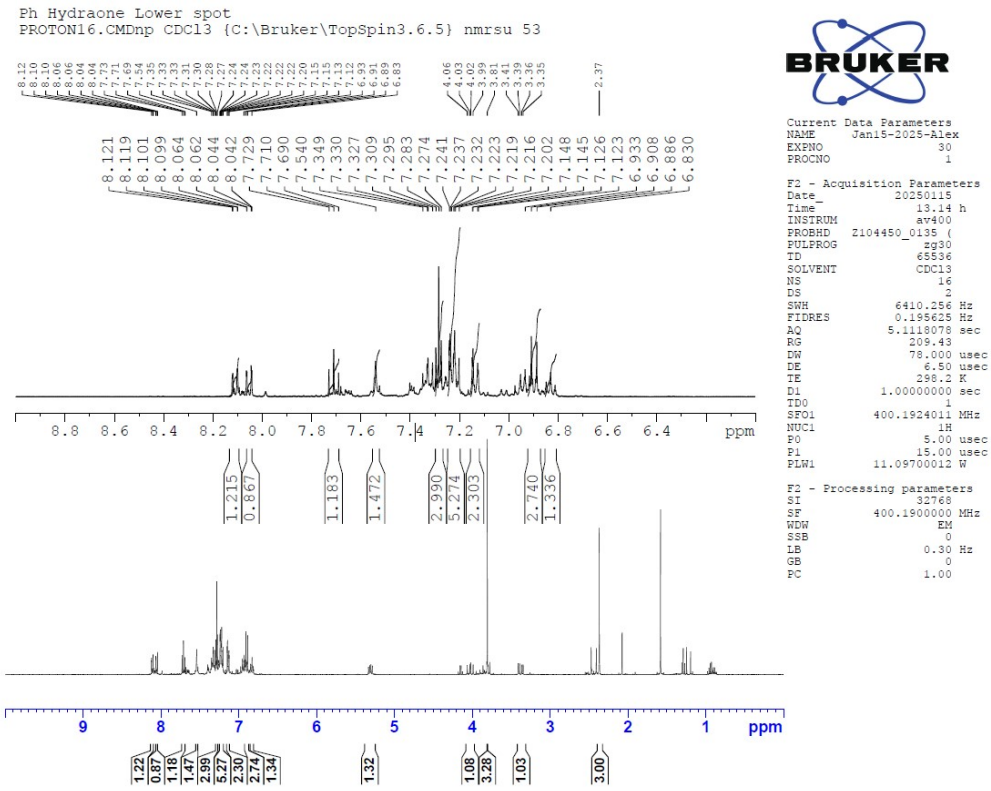
^{13}C NMR (100 Mhz) of **P3** in $CDCl_3$



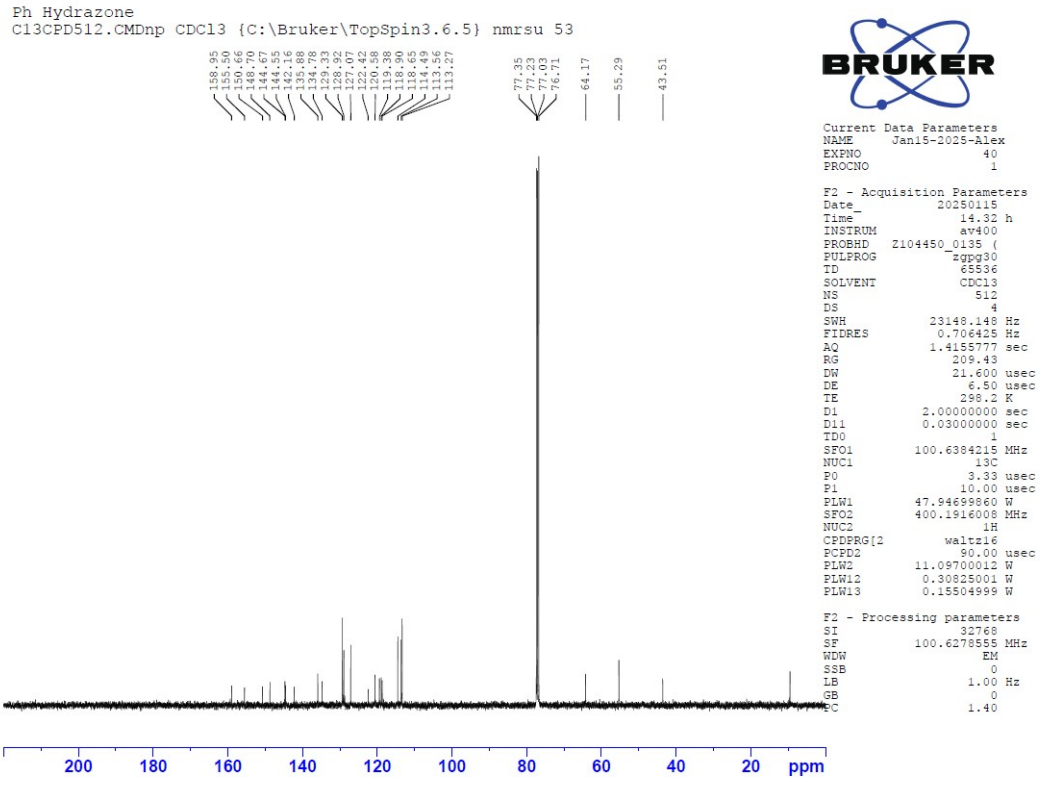
^{1}H NMR (400 Mhz) of **P4** in $CDCl_3$



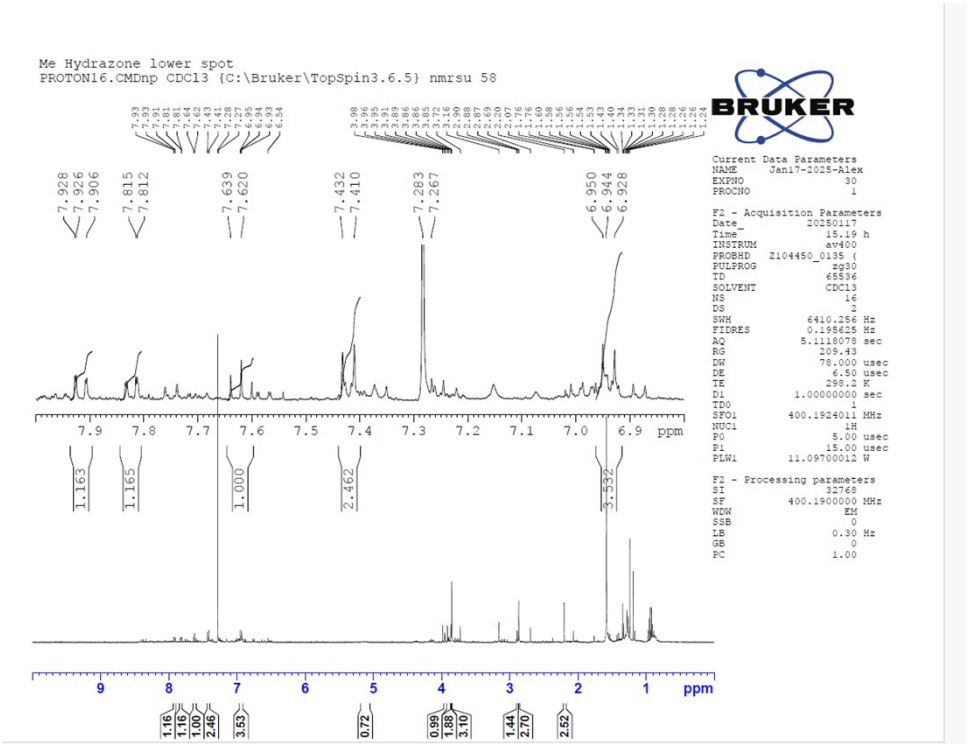
^{13}C NMR (100 Mhz) of **P4** in $CDCl_3$



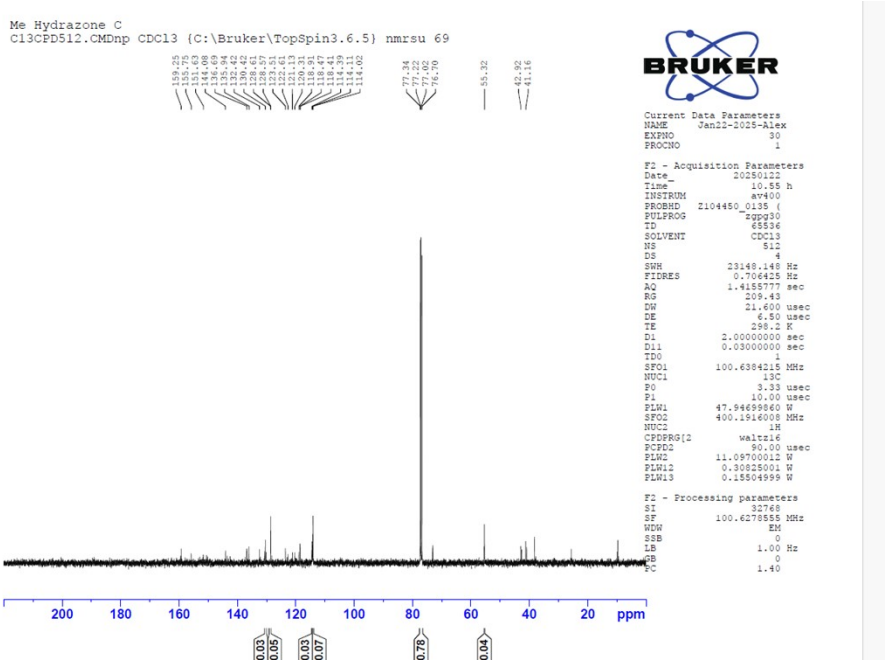
^{1}H NMR (400 Mhz) of **P5** in $CDCl_3$



^{13}C NMR (100 Mhz) of **P5** in $CDCl_3$



^{1}H NMR (400 Mhz) of **P6** in $CDCl_3$



^{13}C NMR (100 Mhz) of **P6** in $CDCl_3$

Limit of Detection (LoD) Studies (S4)

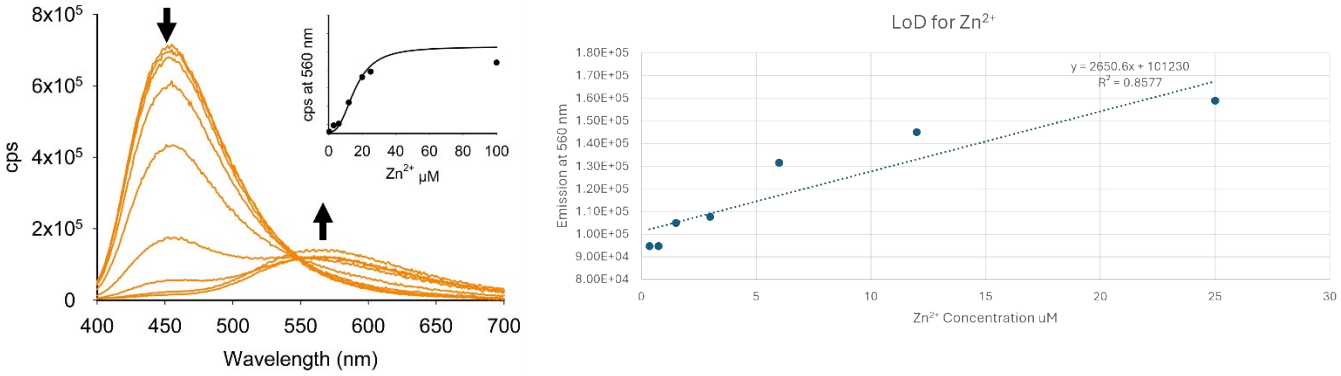
The method reported by Lee *et al* was used to calculate limit of detection (LoD) for **P1** (λ_{ex} 285 nm) in 7:3 MeCN:H_2O with the average from two replicates used.

$$LoD = 3\sigma_{bi}/m$$

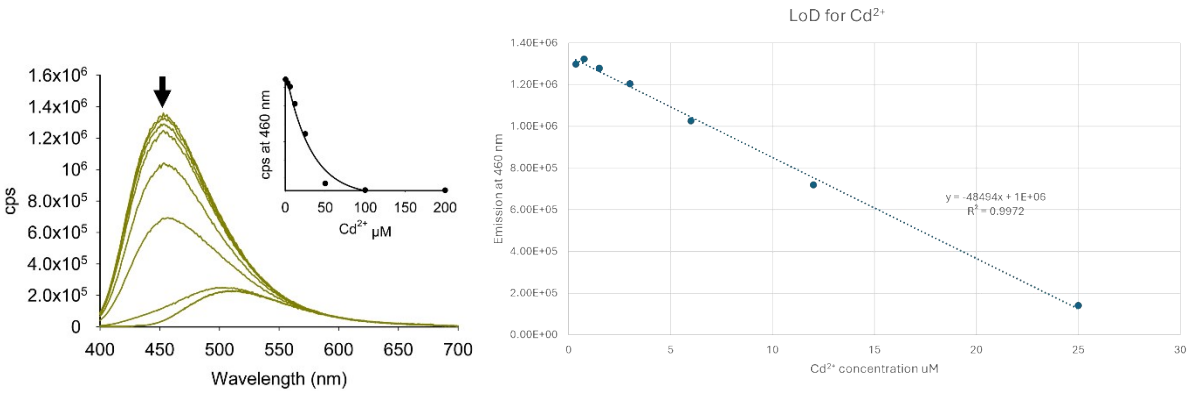
σ_{bi} = standard deviation of sensor only (n=10)

m = gradient of the slope

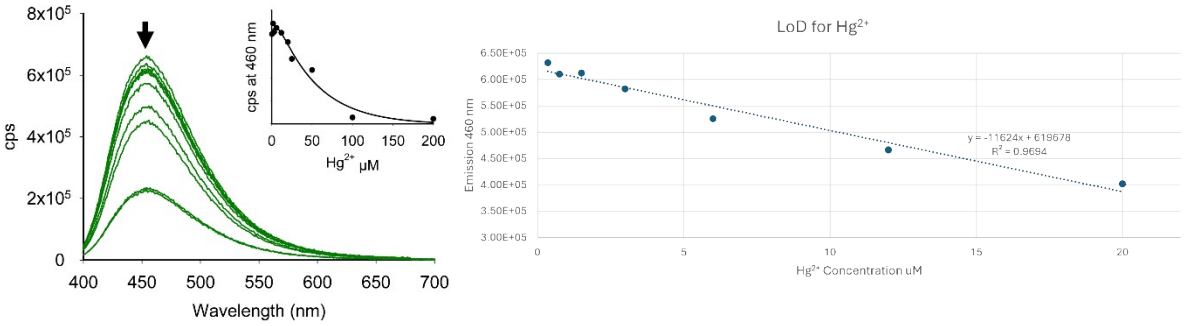
B. P. Joshi, J. Park, W. I. Lee and K.-H. Lee, Talanta, 2009, 78, 903.



Limit of detection study for **P1** with Zn^{2+} (0.35, 0.7, 1.5, 3, 6, 12, 25 µM) with λ_{em} 560 nm. Values are the average of two independent experiments. Standard deviation of blanks (n= 10) at 560 nm = 5705. Zn^{2+} LoD calculated at 6.4 µM.

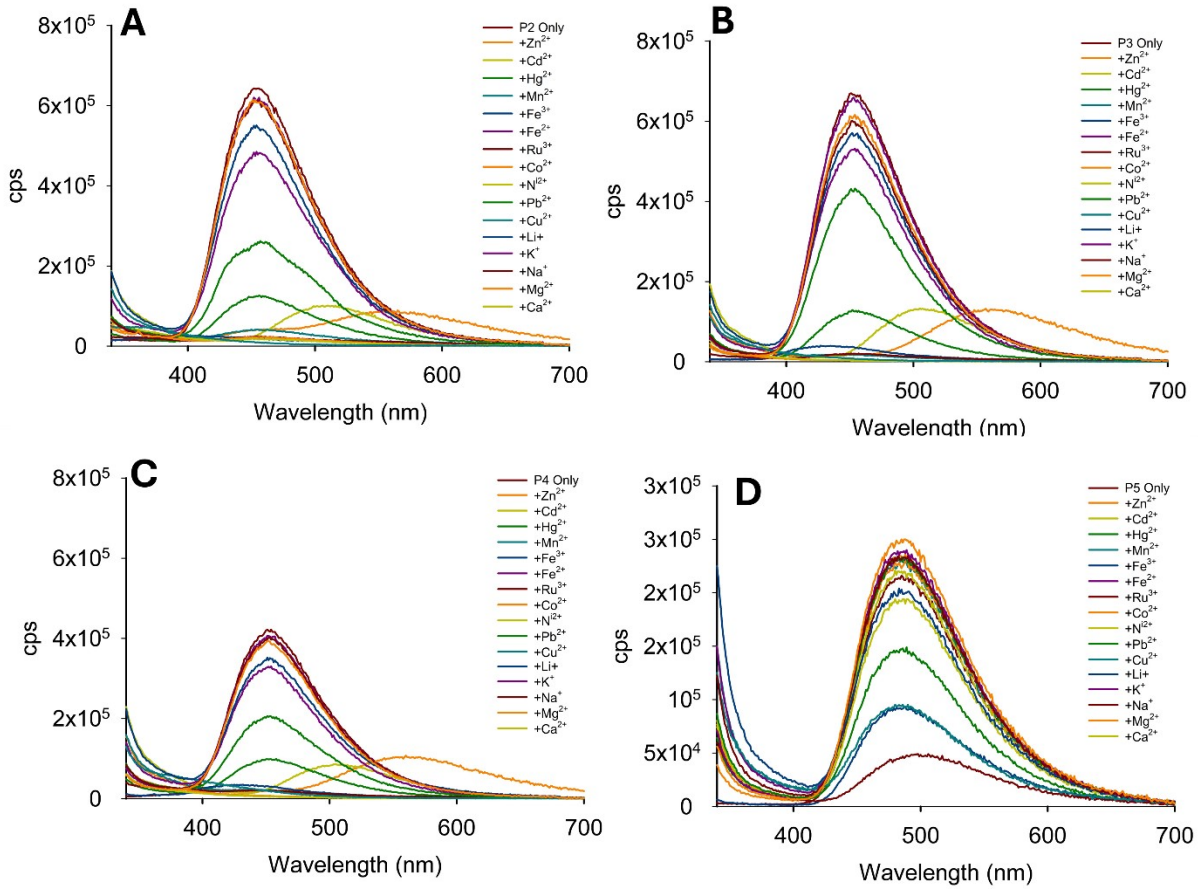


Limit of detection study for **P1** with Cd^{2+} (0.35, 0.7, 1.5, 3, 6, 12, 25 µM) with λ_{em} 460 nm. Values are the average of two independent experiments. Standard deviation of blanks (n= 10) at 460 nm = 39048. Cd^{2+} LoD calculated at 2.4 µM.

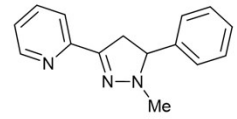
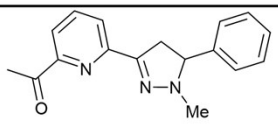
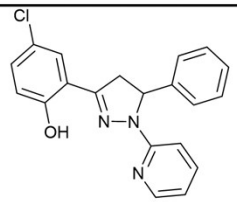
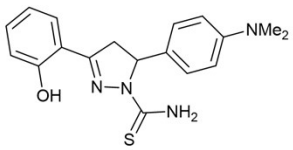
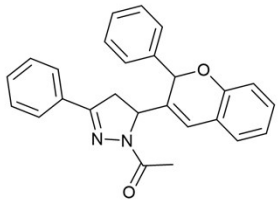
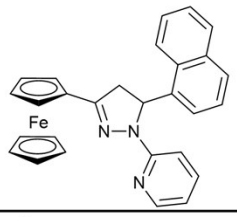
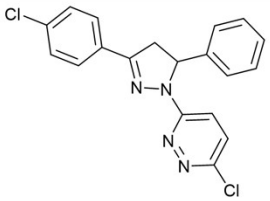
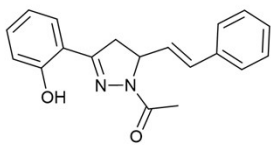


Limit of detection study for **P1** with Hg^{2+} (0.35, 0.7, 1.5, 3, 6, 12, 20 µM) with λ_{em} 460 nm. Values are the average of two independent experiments. Standard deviation of blanks (n= 10) at 460 nm = 39048. Hg^{2+} LoD calculated at 10.0 µM.

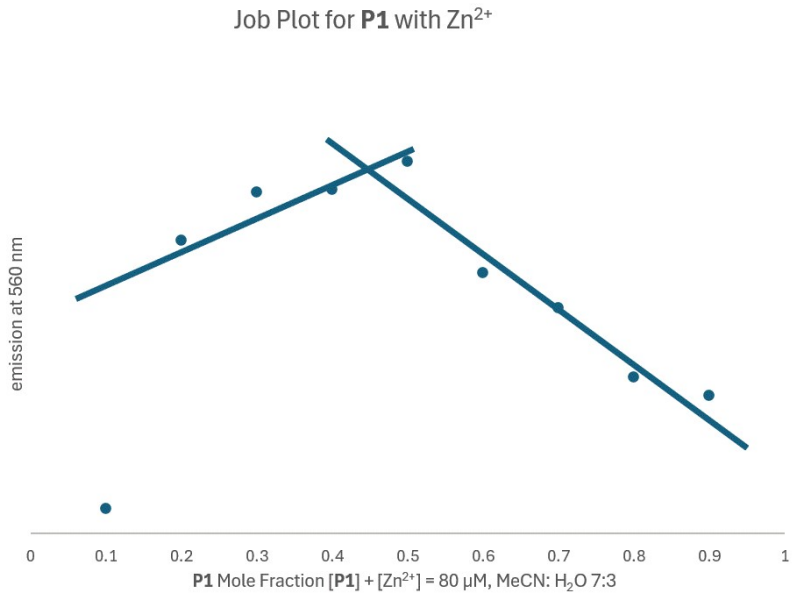
Metal Screen for P2-P5 (S5)



Limit of Detection (LoD) for literature pyrazolines (S6)

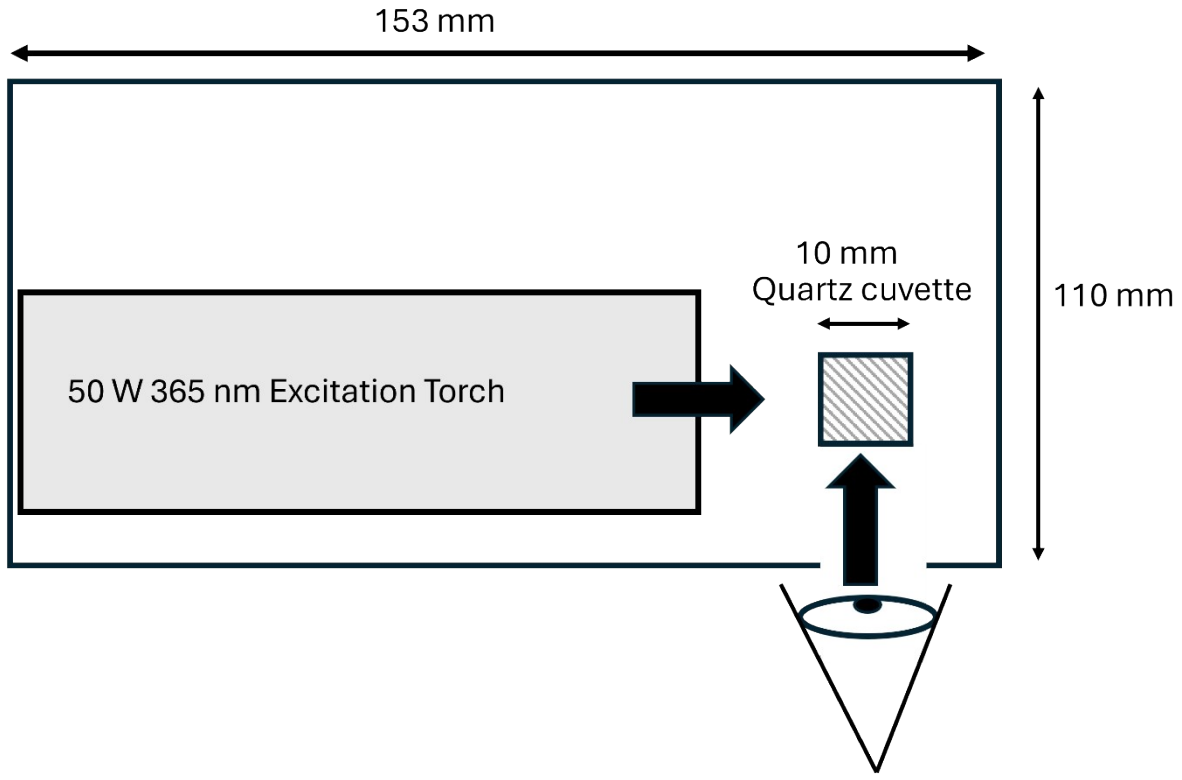
Sensor	Solvent	Zn^{2+} LoD	Cd^{2+} LoD	Reference
S1 	100% MeCN	0.2 μM	0.12 μM	*Org. Biomol. Chem.*, 2012,**10**, 8753
S2 	100% MeCN	0.03 μM	-	*RSC Adv.*, 2024,**14**, 3519
S3 	50% H_2O 50% MeCN	0.12 μM	-	*Sensors and Actuators B*, 2011, **159**, 148
S4 	50% H_2O 50% EtOH	0.93 μM	0.82 μM	*Inorganic Chemistry Communications*, 2021, **130**, 108735
S5 	50% H_2O 50% EtOH	0. 16 μM	-	*Inorganica Chimica Acta, 2018,* **479**,128
S6 	CH_2Cl_2	1.4 μM	-	*Eur. J. Inorg. Chem.* 2013, 6019
S7 	90% MeCN 10% EtOH	0.4 μM	-	*Journal of Photochemistry and Photobiology A: Chemistry, 2011,* **218**, 6
S8 	50% H_2O 50% EtOH	0.03 μM	-	*Anal. Methods*, 2018, **10**, 1833

Job Plot for P1 with Zn^{2+} (S7)



Job Plot for **P1** with Zn^{2+}, λ_{ex} 295 nm, λ_{em} 560 nm, total concentration was 80 µM in a 7:3 MeCN: H_2O.

In situ monitoring using prototype portable device (S8):



Torch used:

Roll over image to zoom in

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Light source type	UV
Material	Aluminium

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- Professional filtered uv 365nm light: Equipped with hard toughened black filter optical lens that can filter out disturbing visible light, and release purer invisible UV365 light, which is suitable for more professional detection needs.