

Schiff Bases and their Copper(II) Complexes Derived from Cinnamaldehyde and Different Hydrazides: Synthesis and Anti-Bacterial Properties

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Supplementary Information

Table S1. Summary of colours and yields for synthesized Schiff base ligands and the corresponding metal complexes.

Compound	Colour	Yield, %
L ¹	White	63.82
L ²	Pale brown	65.56
L ³	Pale yellow	62.79
Cu(L ¹) ₂	Dirty Green	85.15
Cu(L ²) ₂	Green	83.11
Cu(L ³) ₃	Dark green	88.9

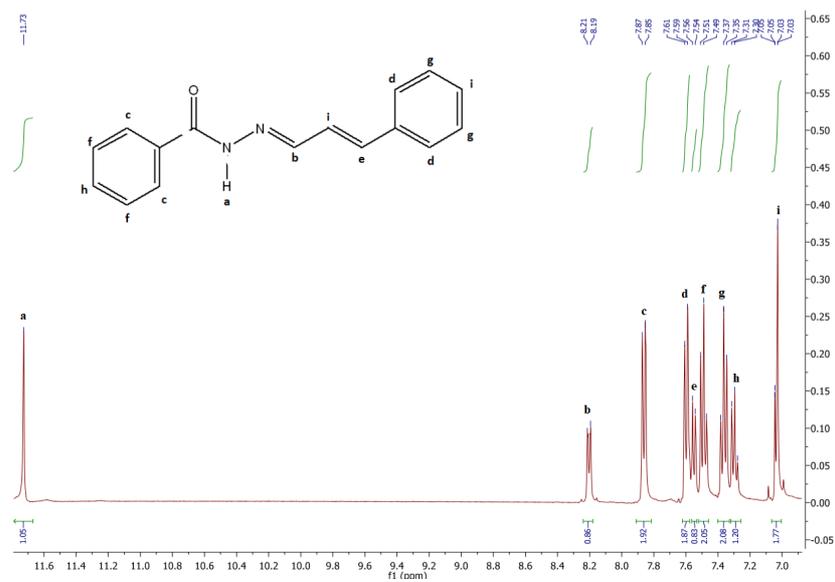


Figure S1: Experimental ¹H NMR for Schiff base ligand L¹.

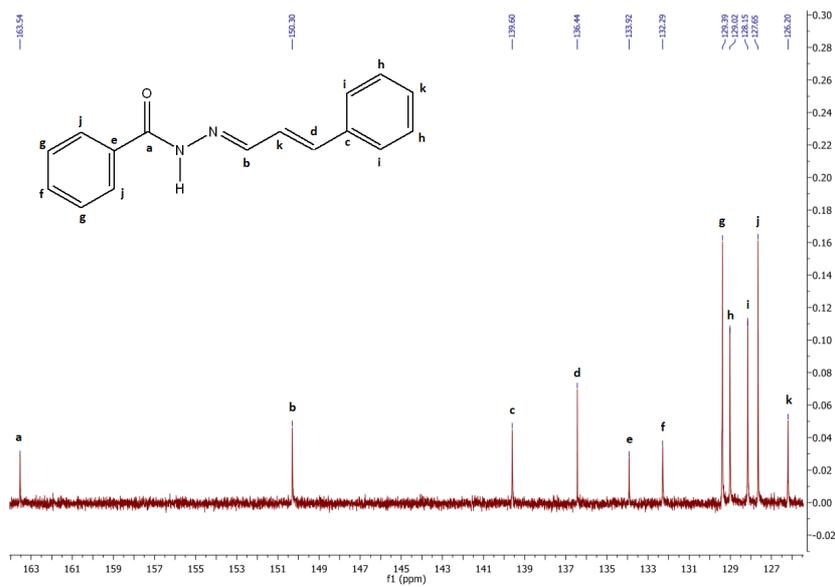


Figure S2: Experimental ¹³C NMR for Schiff base ligand L¹.

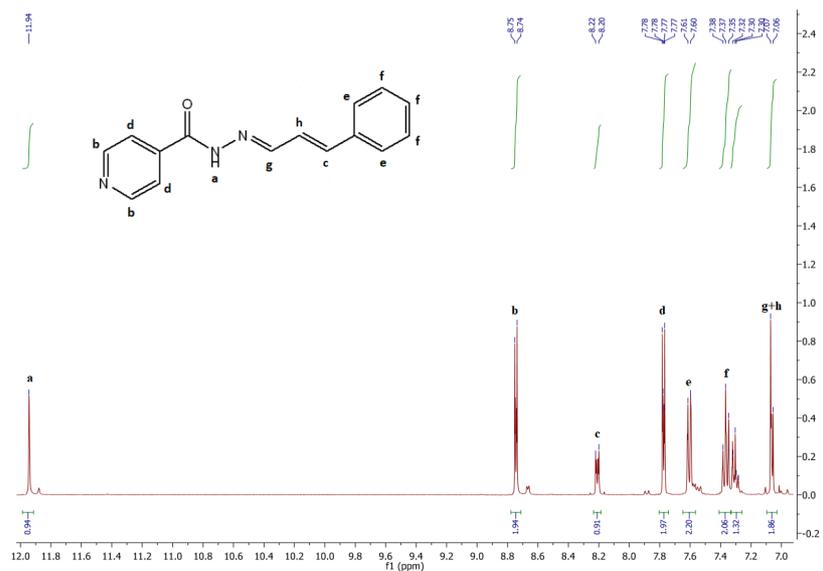


Figure S3: Experimental ^1H NMR for Schiff base ligand L^2 .

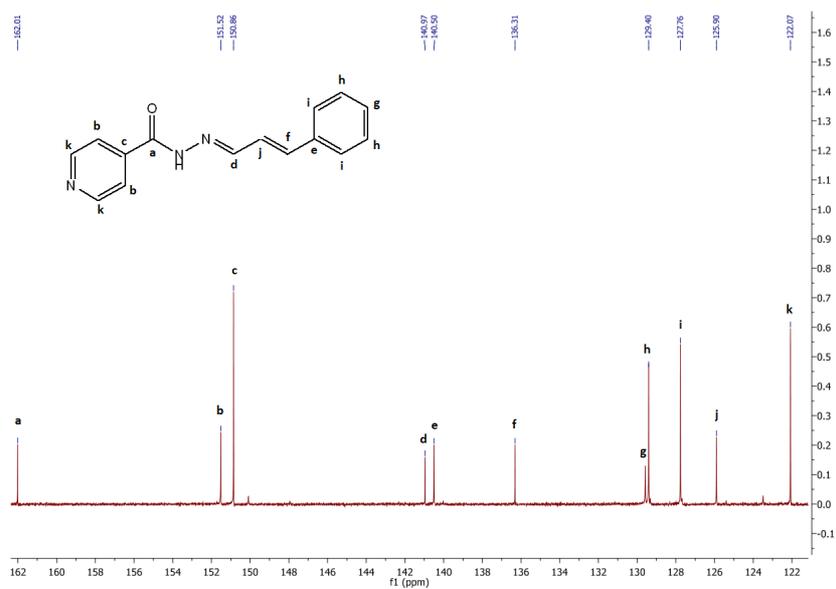


Figure S4: Experimental ^{13}C NMR for Schiff base ligand L^2 .

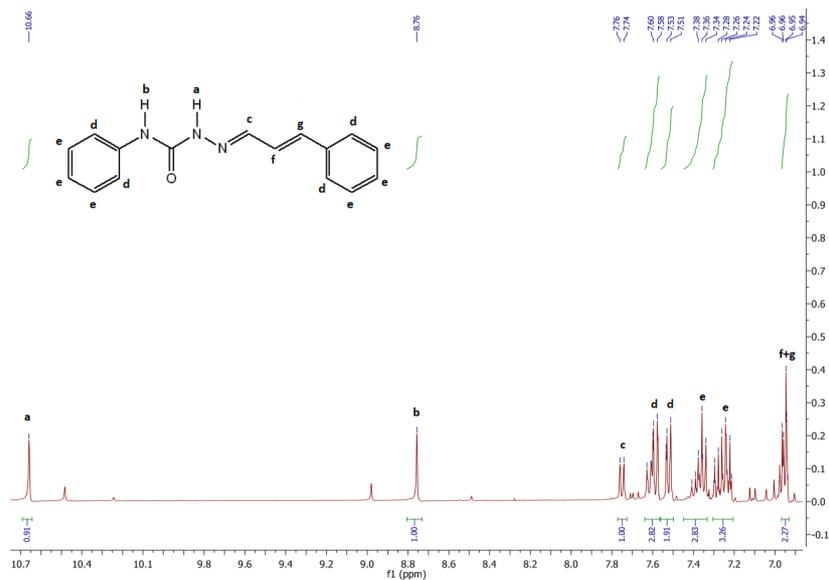


Figure S5: Experimental ^1H NMR for Schiff base ligand L^3 .

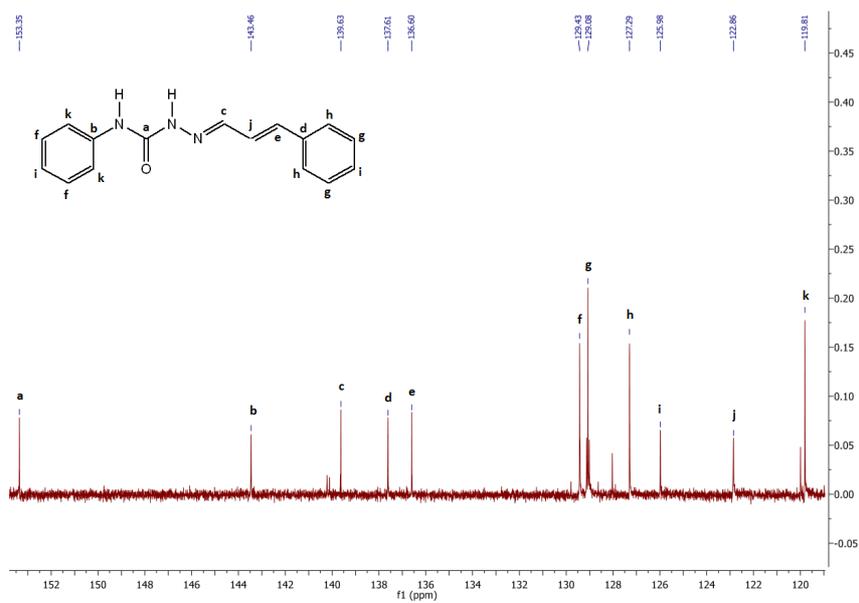


Figure S6: Experimental ^{13}C NMR for Schiff base ligand L^3 .

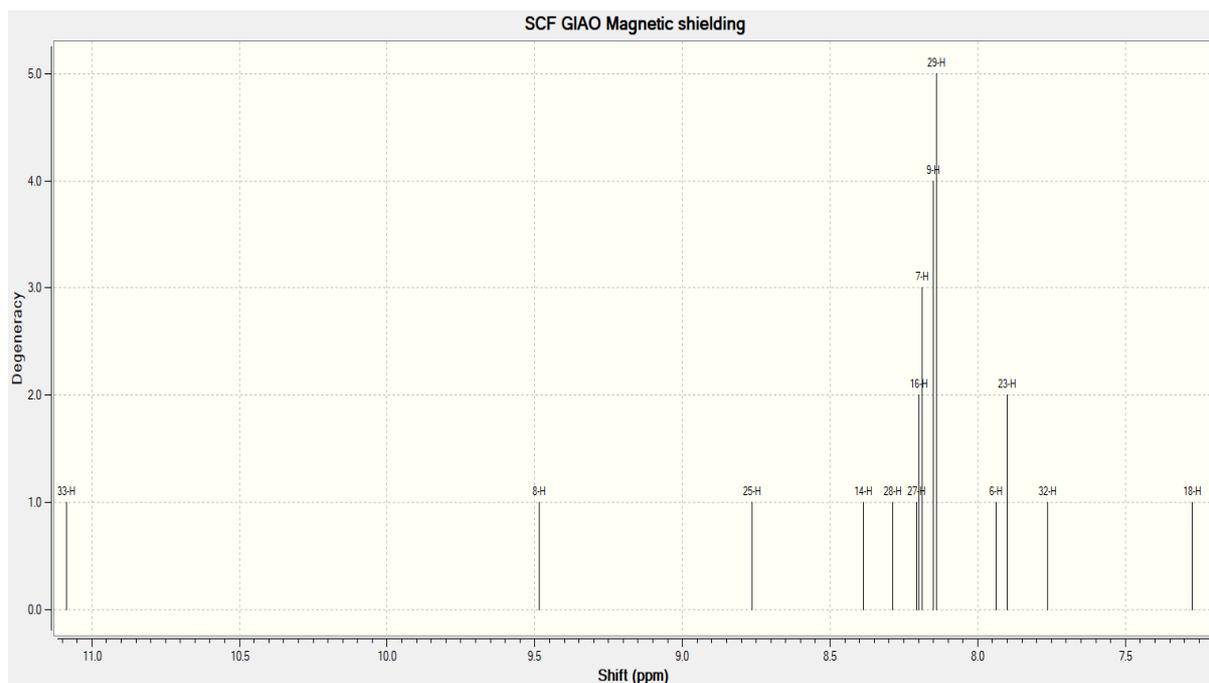


Figure S7: Calculated ^1H NMR for Schiff base ligand L^1 .

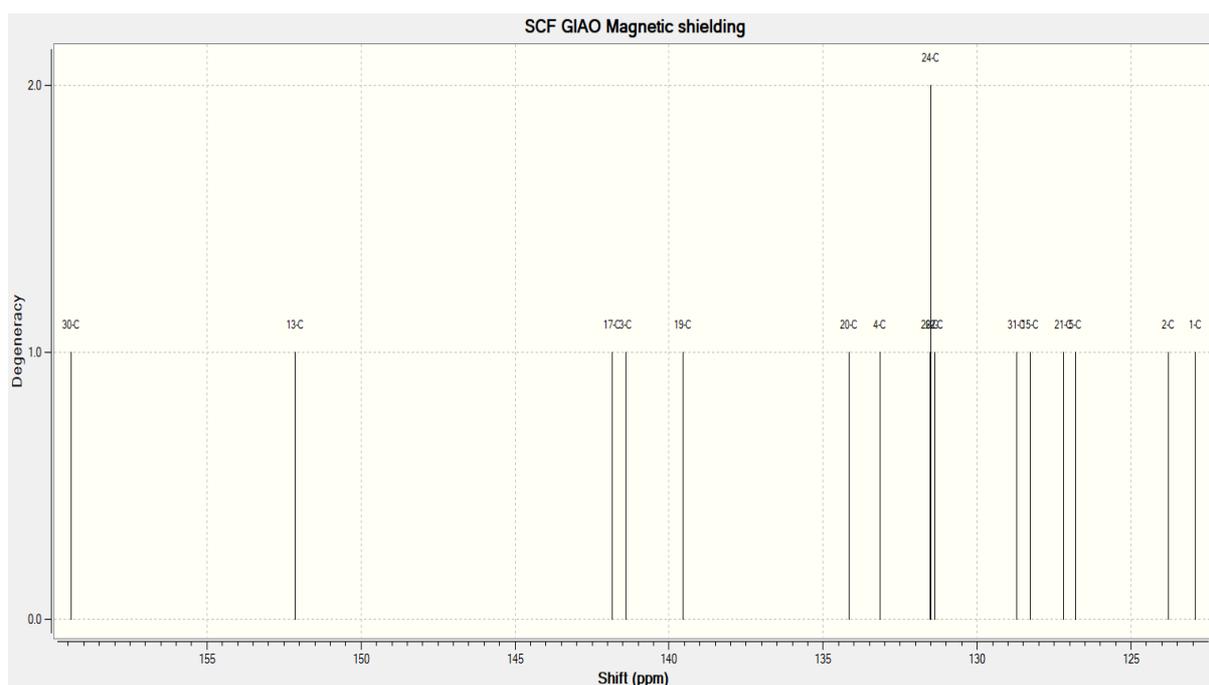


Figure S8: Calculated ^{13}C NMR for Schiff base ligand L^1 .

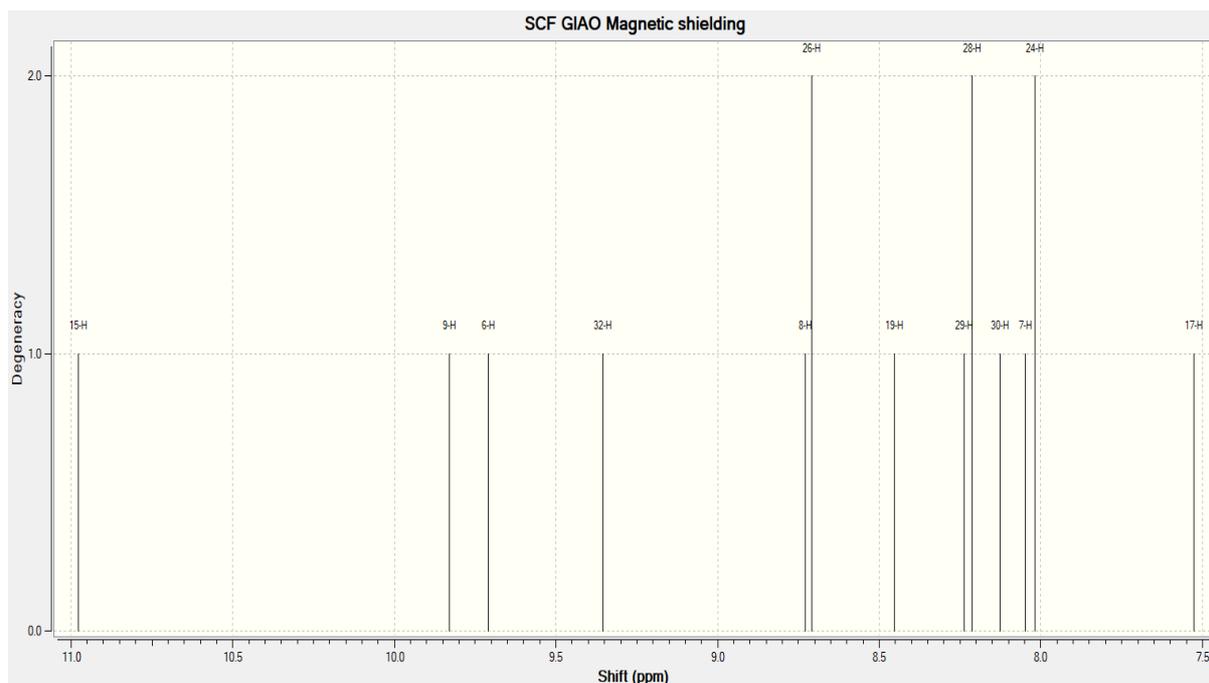


Figure S9: Calculated ^1H NMR for Schiff base ligand L^2 .

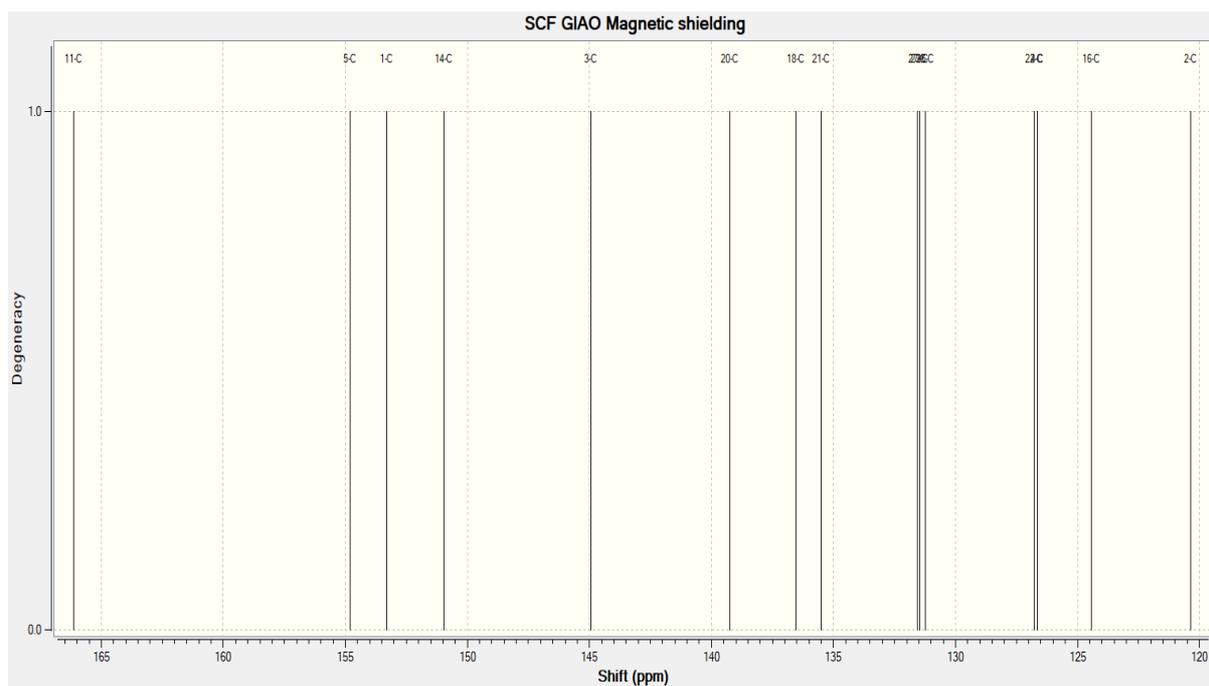


Figure S10: Calculated ^{13}C NMR for Schiff base ligand L^2 .

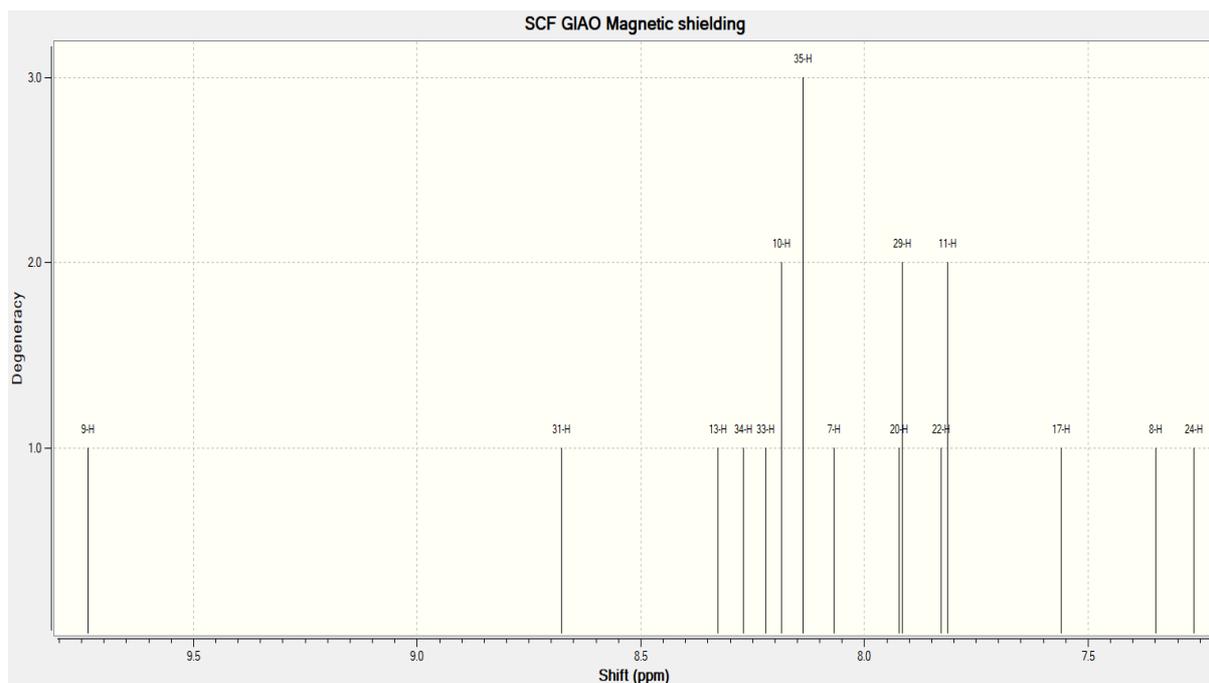


Figure S11: Calculated ^1H NMR for Schiff base ligand L^3 .

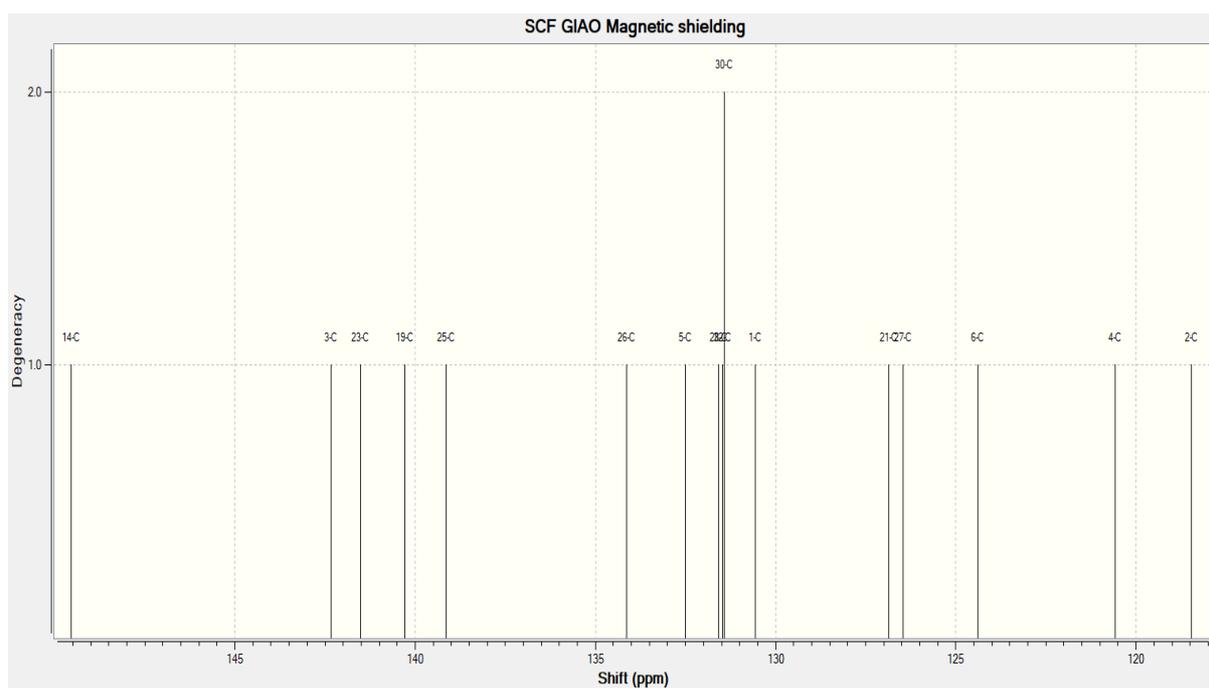


Figure S12: Calculated ^{13}C NMR for Schiff base ligand L^3 .

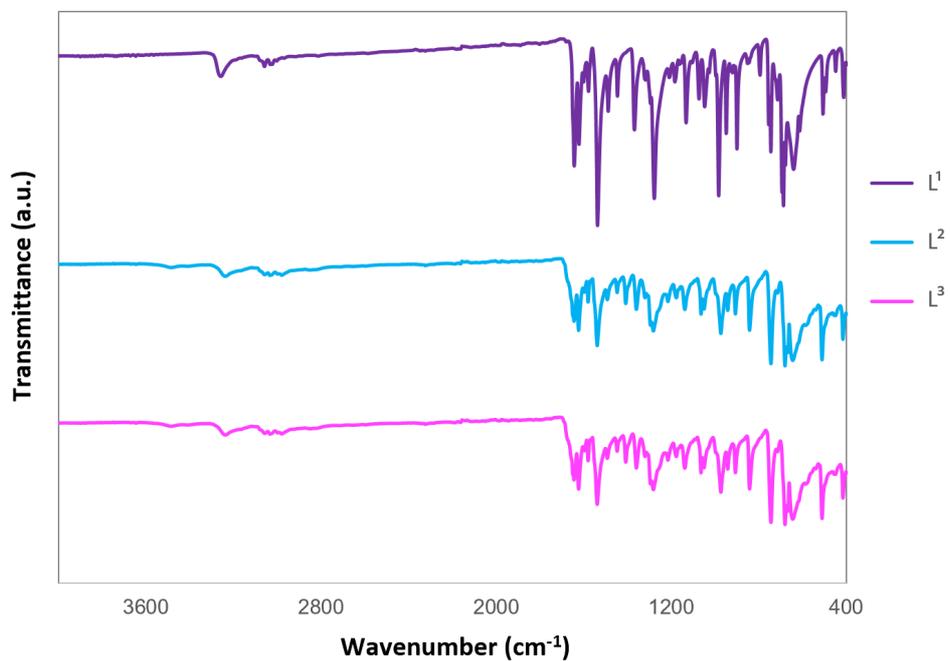


Figure S13: Experimental FTIR spectra for Schiff base ligands L¹ to L³.

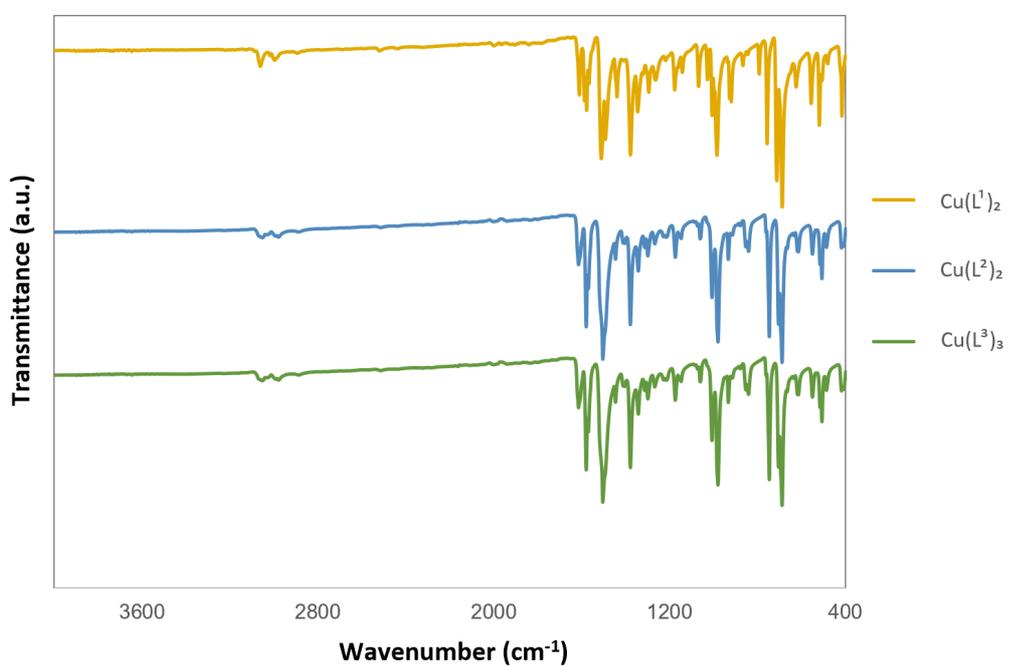


Figure S14: Experimental FTIR spectra for Schiff base copper(II) complexes.

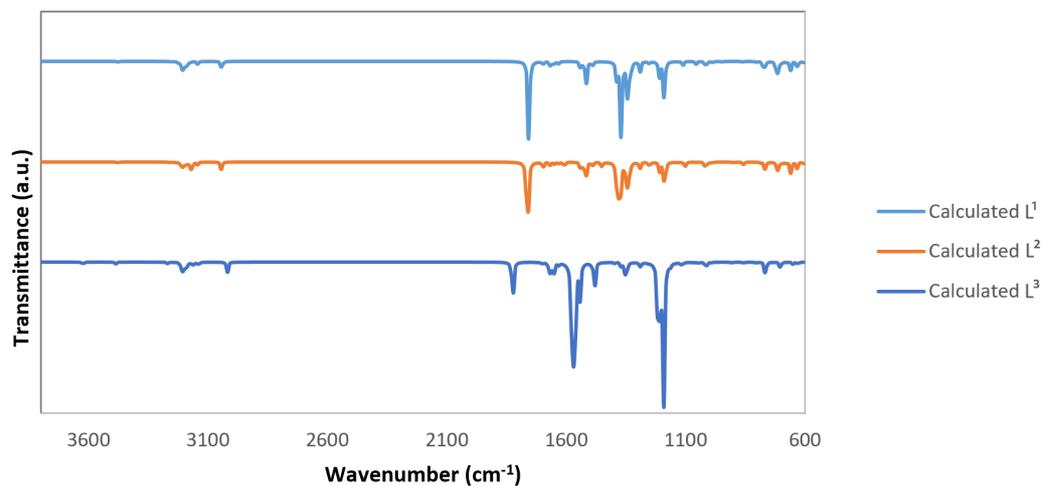


Figure S15: Calculated FTIR spectra for Schiff base ligands L¹ to L³.

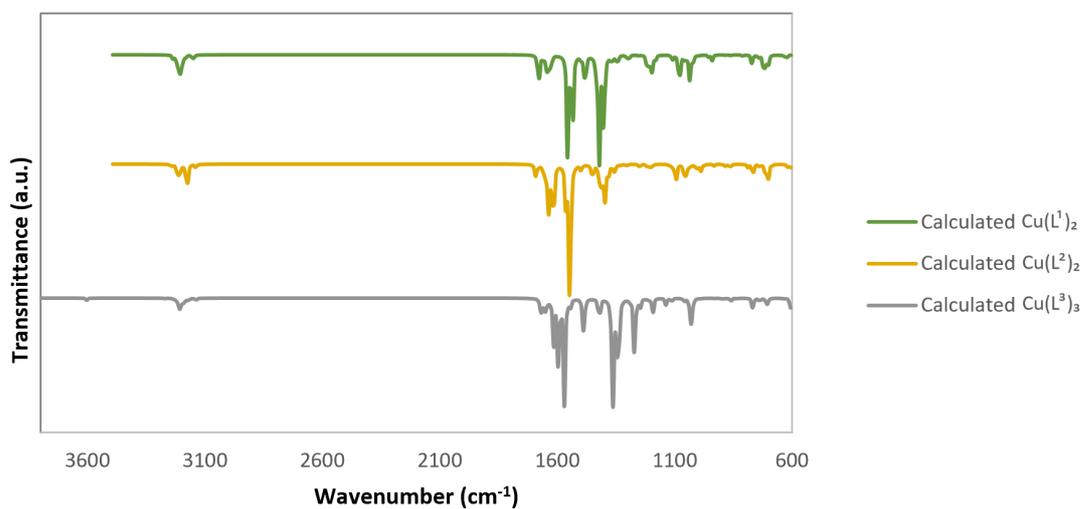


Figure S16: Calculated FTIR spectra for Schiff base copper(II) complexes.

Table S2. Calculated vibrational frequencies for Schiff base-copper(II) complexes.

Complex	Calculated frequency			
	Amine N-H Stretch	Imine C=N Stretch	Aromatic C=C stretch	Alkenyl C=C Stretch
Cu(L ₁) ₂	-	1624	1661	1680
Cu(L ₂) ₂	-	1613	1651	1692
Cu(L ₃) ₃	3604	1615	1569	1630

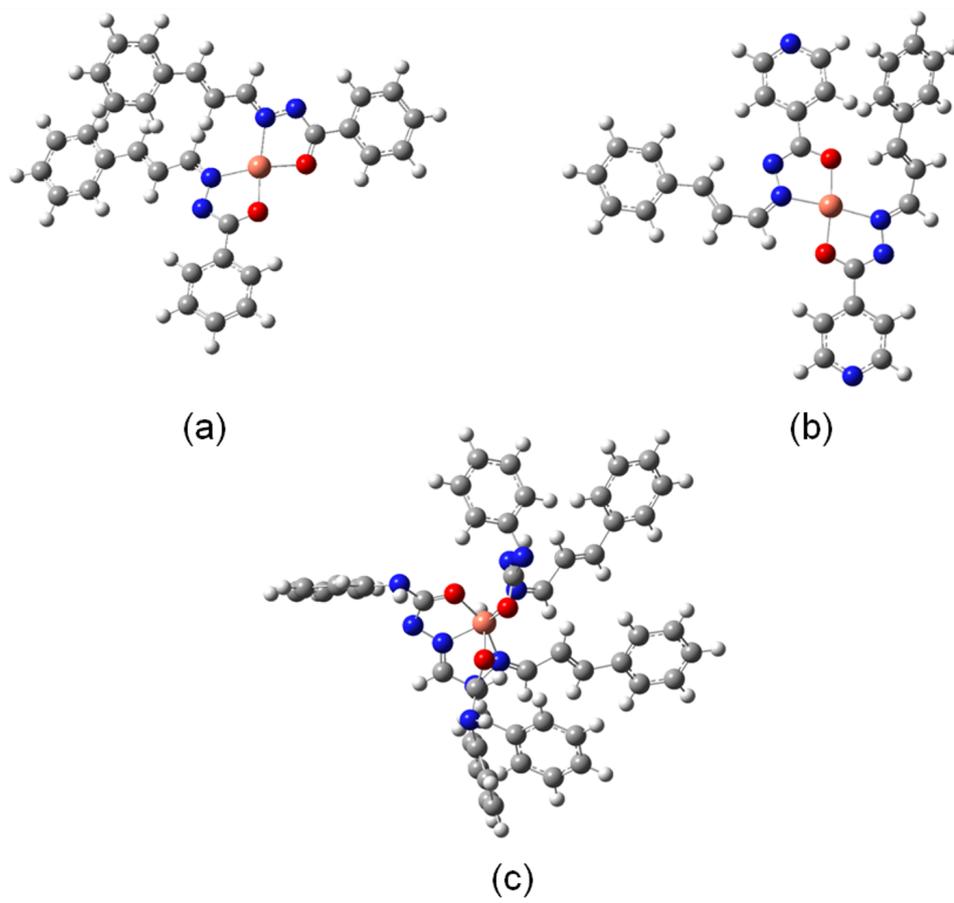


Figure S17: Optimised structures for Schiff base copper(II) complexes: (a) $\text{Cu}(\text{L}^1)_2$, (b) $\text{Cu}(\text{L}^2)_2$ and (c) $\text{Cu}(\text{L}^3)_3$.