SUPPLIMENTARY INFORMATION

Cutting-Edge Green Synthesis and Characterization of Novel Ni(II) and Co(II) Fluoroimine Complexes: A Multifaceted Evaluation of Anticancer, Antioxidant, and Antimicrobial Activities

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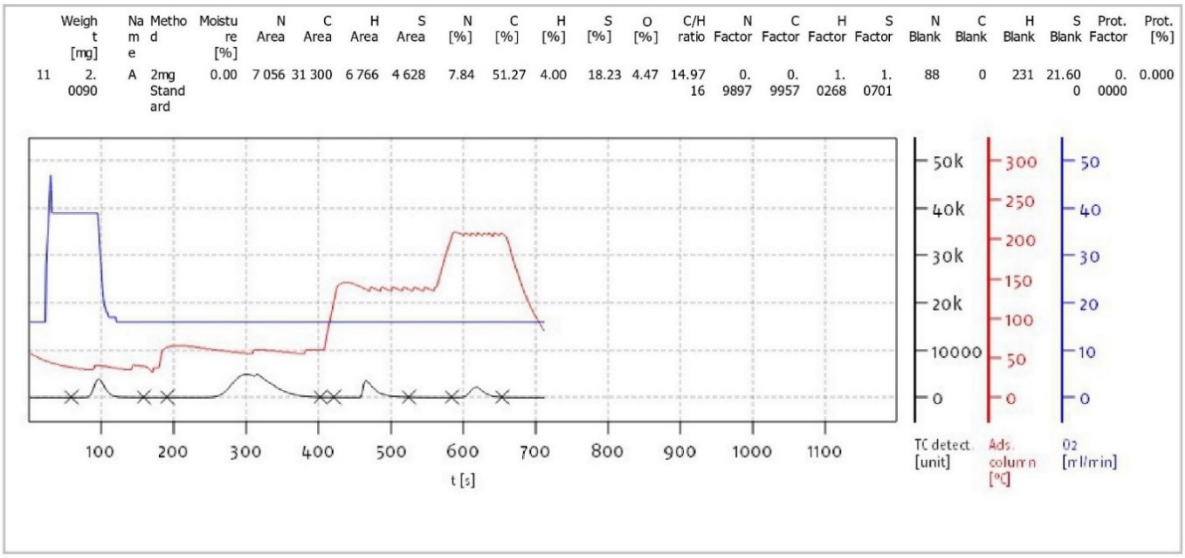
Fig. S1- Elemental analysis data of $[Ni(L_1)(OAc)(H_20)_3]$

analytic functional testing
UNICUBE 2021
serial number: 0400.191001

	Weight [mg]	Name	Method	Moisture [%]	N Area	C Area	H Area	S Area	N [%]	C [%]	H [%]	S [%]	O [%]	C/H ratio	N Factor	C Factor	H Factor	S Factor	N Blank	C Blank	H Blank	S Blank	Prot. Factor	Prot. [%]
11	2.0090	A	2mg Standard	0.00	7 056	31 300	6 766	4 628	7.84	51.27	4.00	18.23	4.47	14.9716	0.9897	0.9957	1.0268	1.0701	88	0	231	21.600	0.0000	0.000



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Page 2 (from 6)

Fig. S2- Elemental analysis data of $[Ni(L_1)_2\ (H_20)_2]$

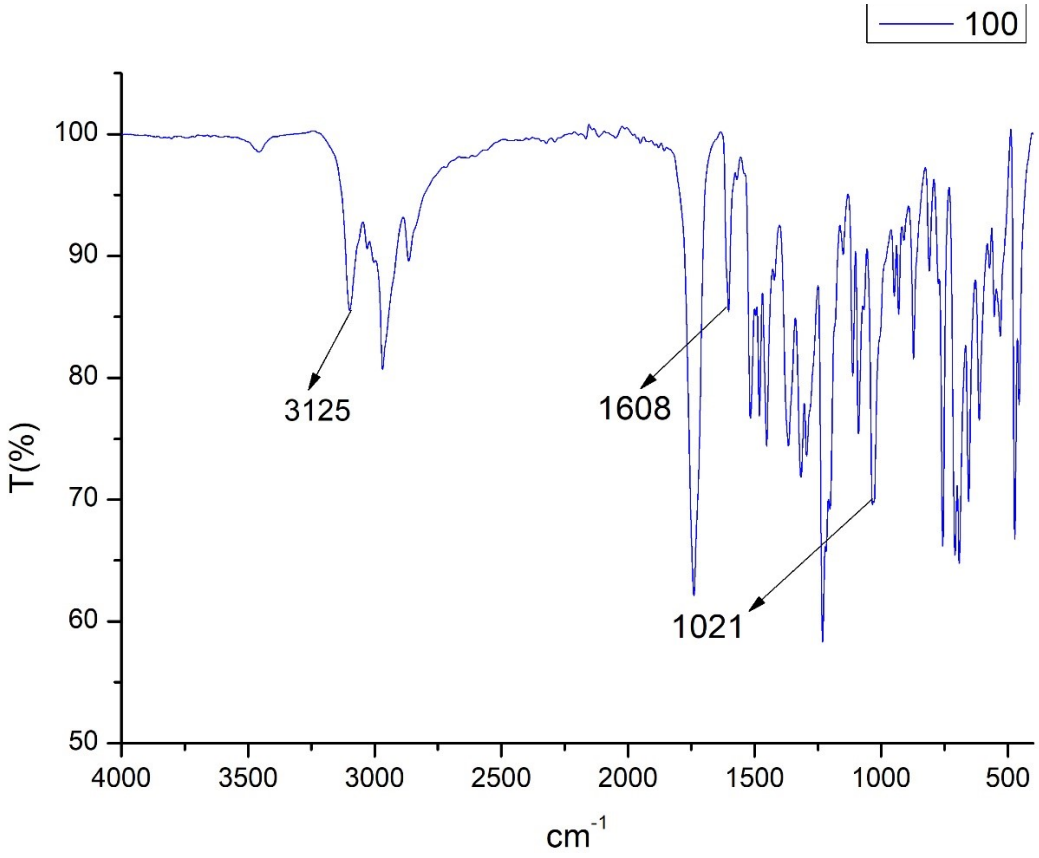

Fig. S3- FT-IR spectrum of ligand L_1H

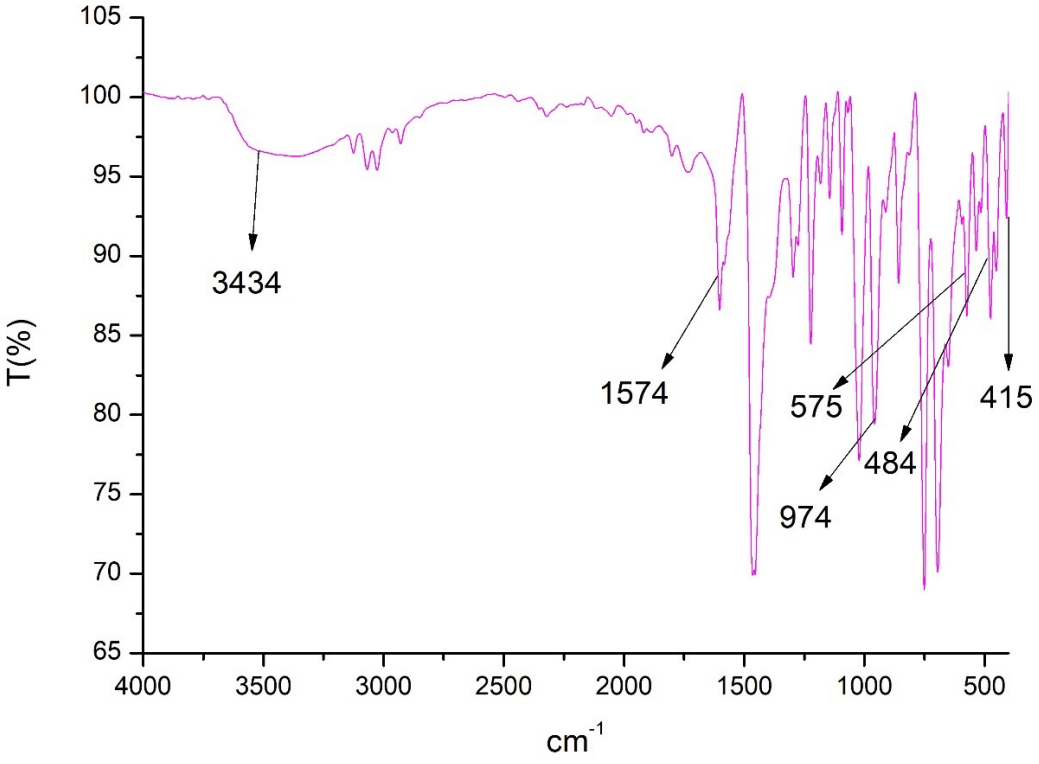

Fig. S4- FT-IR spectrum of complex $[Ni(L_1)(OAc)(H_2O)_3]$

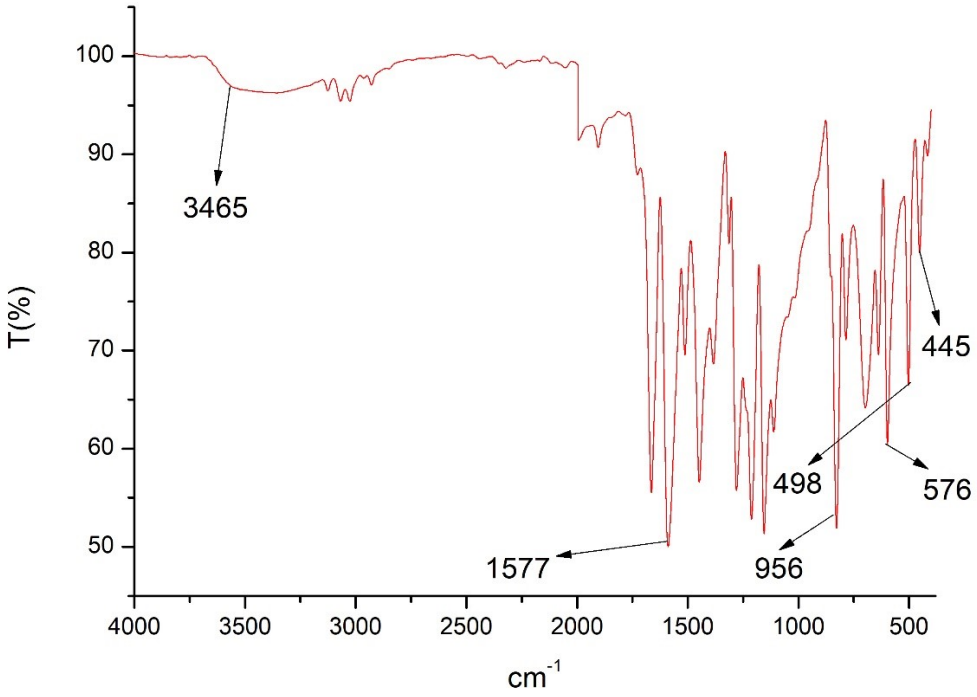

Fig. S5- FT-IR spectrum of complex $[Ni(L_1)_2 (H_20)_2]$

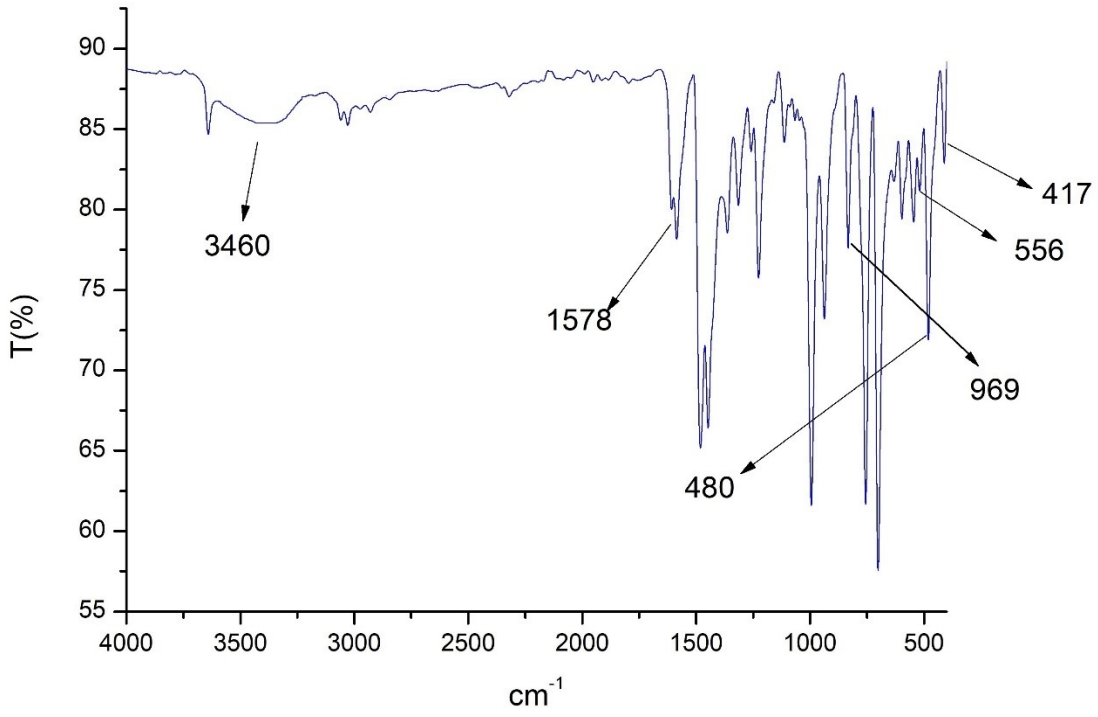

Fig. S6- FT-IR spectrum of complex $[Co(L_1)(OAc)(H_20)_3]$

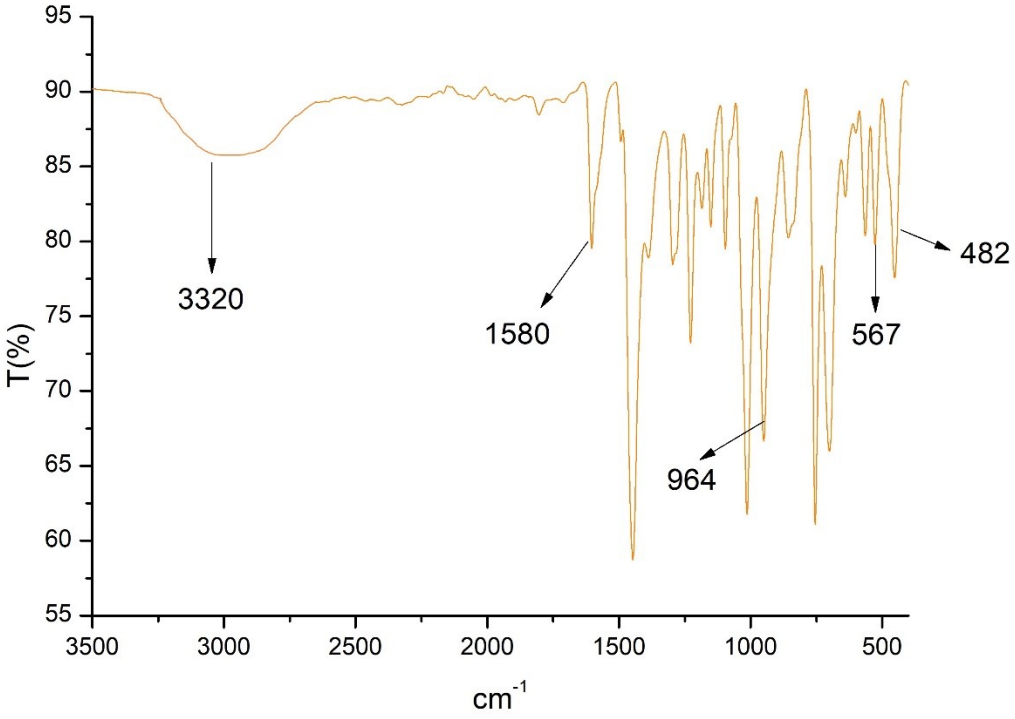

Fig. S7- FT-IR spectrum of complex $[Co(L_1)_2 (H_20)_2]$

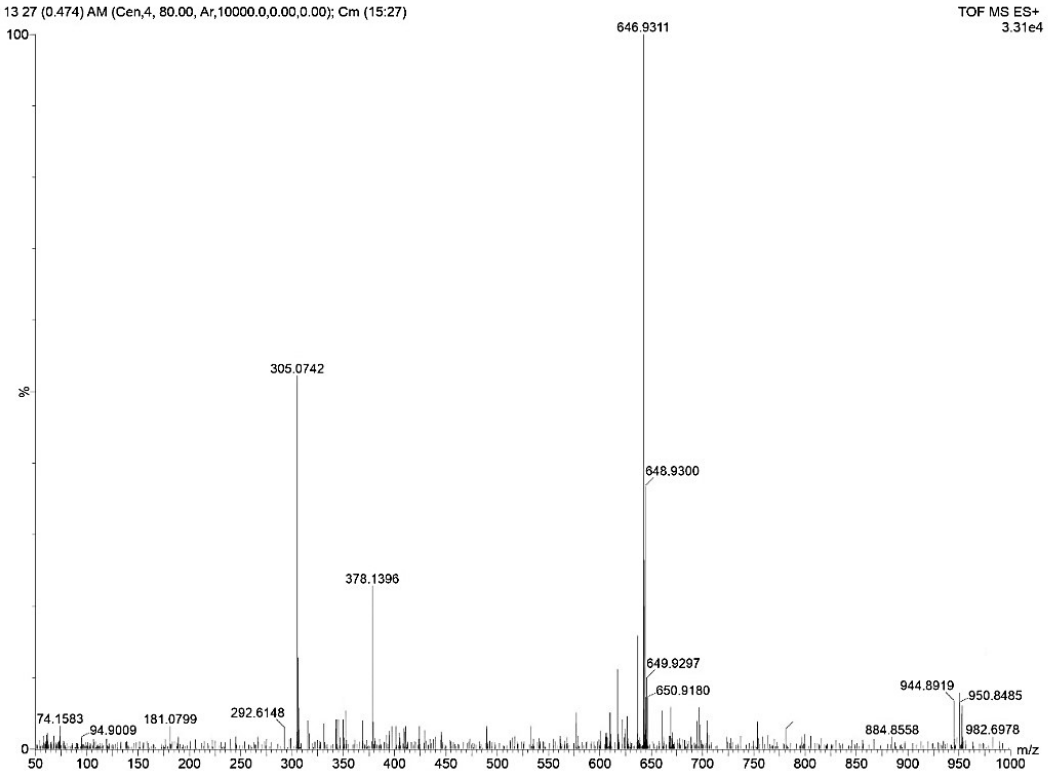

Fig. S8- GSI-MS spectrum of ligand L_1H

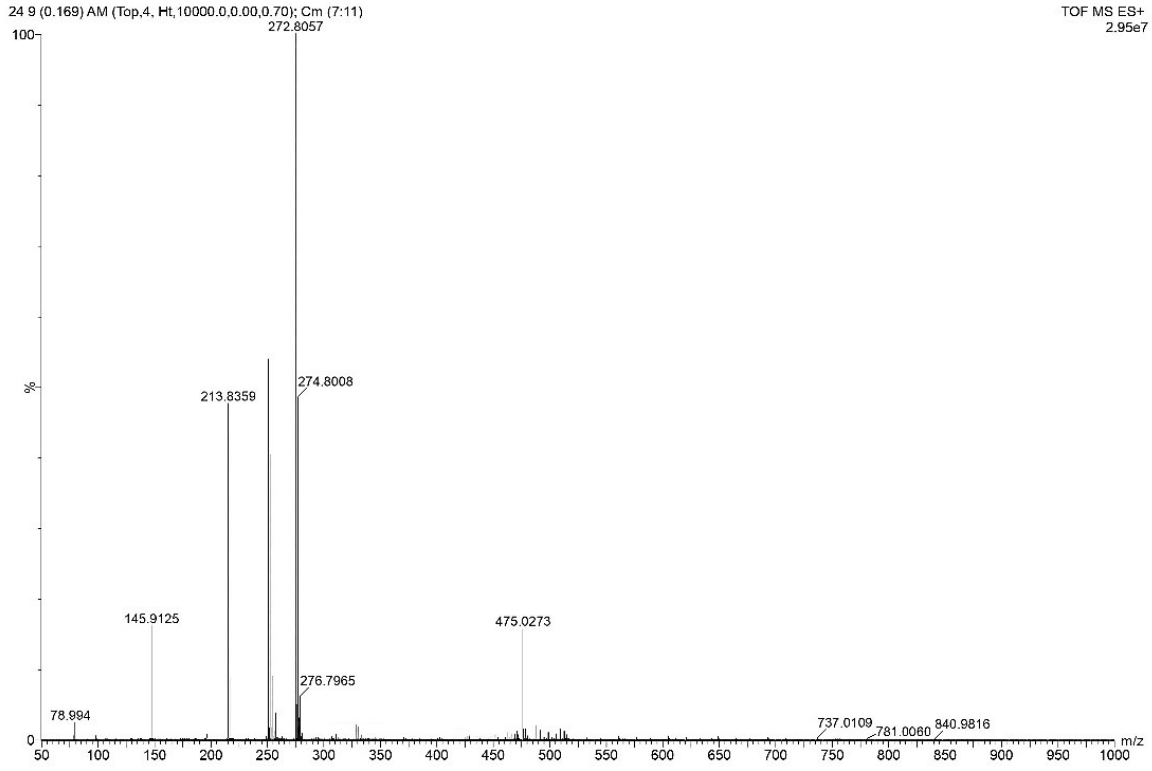

Fig. S9- GSI-MS spectrum of complex $[Ni(L_1)(OAc)(H_20)_3]$

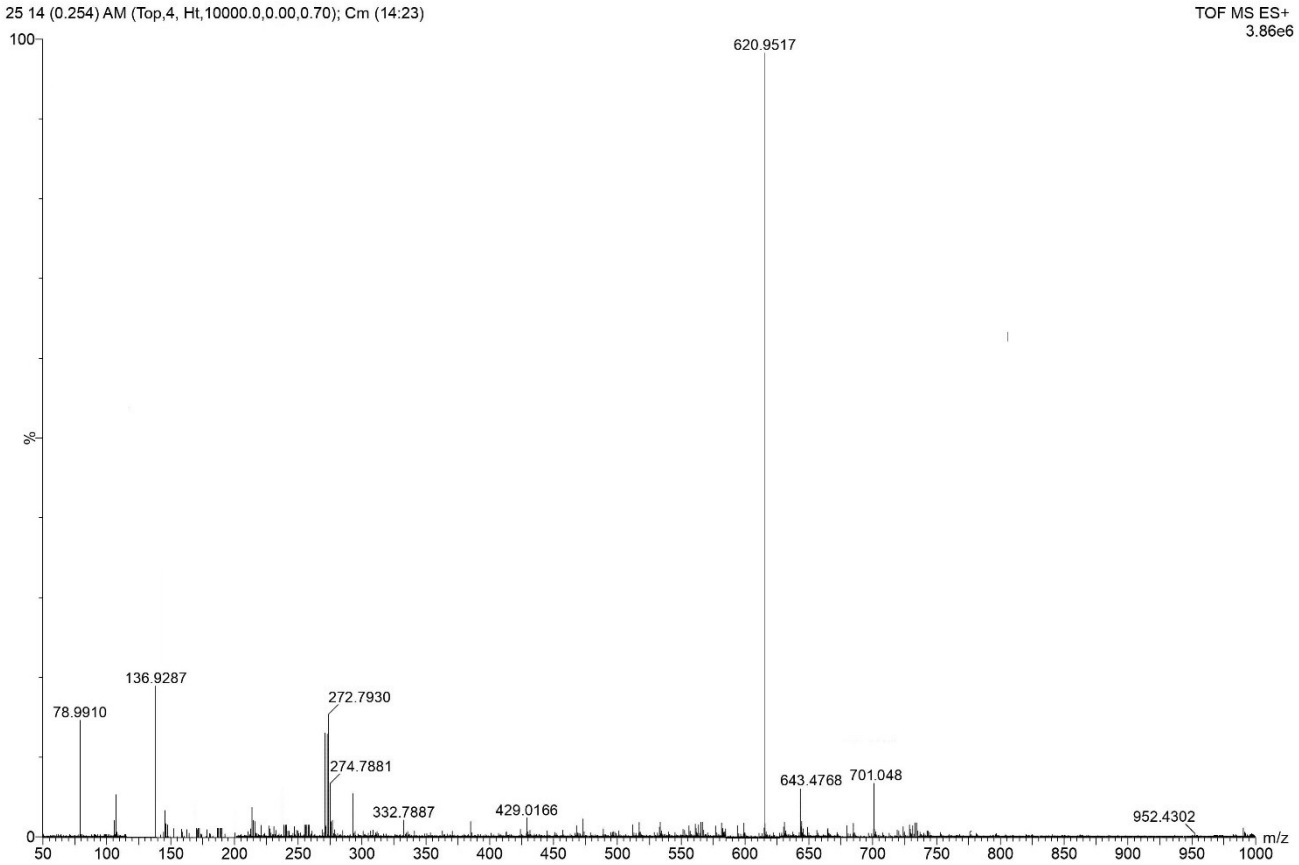

Fig. S10- GSI-MS spectrum of complex $[Ni(L_1)_2\ (H_20)_2]$

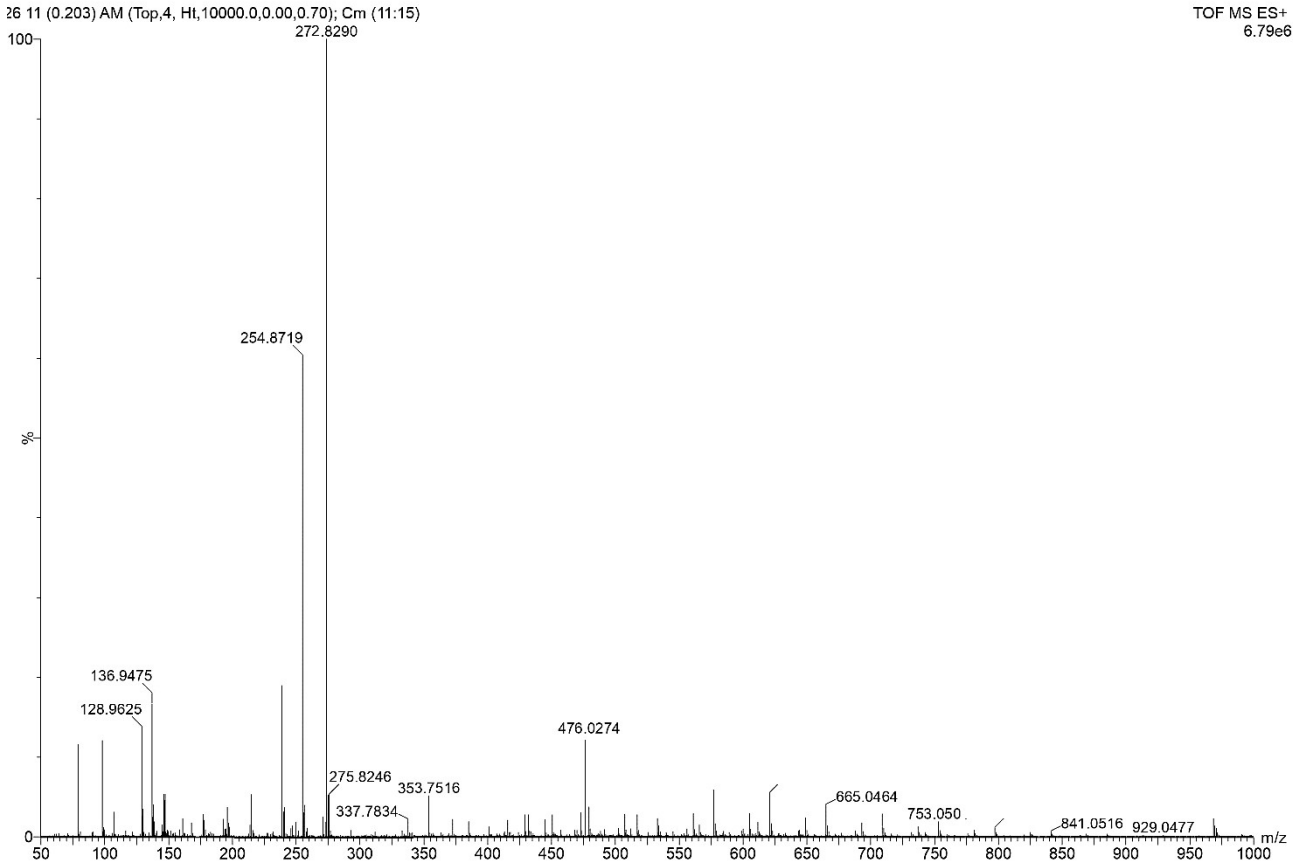

Fig. S11- GSI-MS spectrum of complex $[Co(L_1)(OAc)(H_20)_3]$

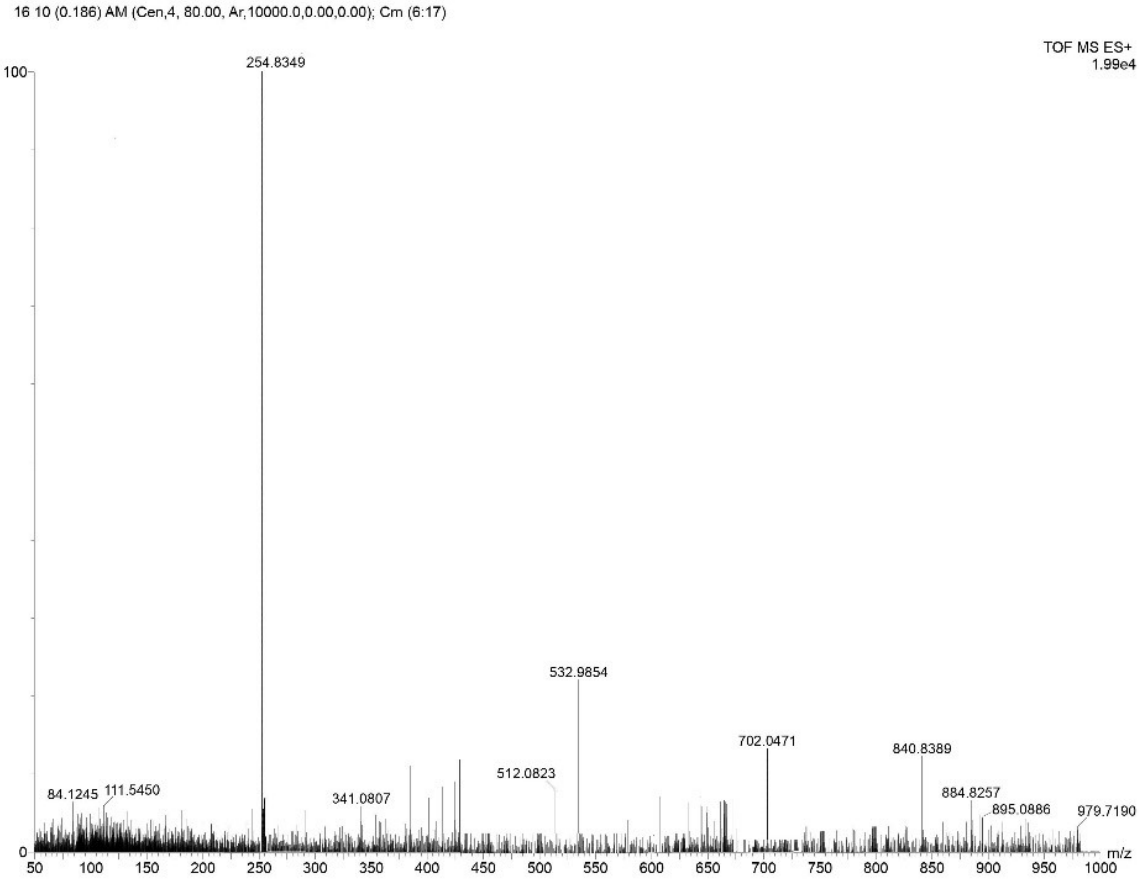

Fig. S12- GSI-MS spectrum of complex $[Co(L_1)_2\ (H_20)_2]$

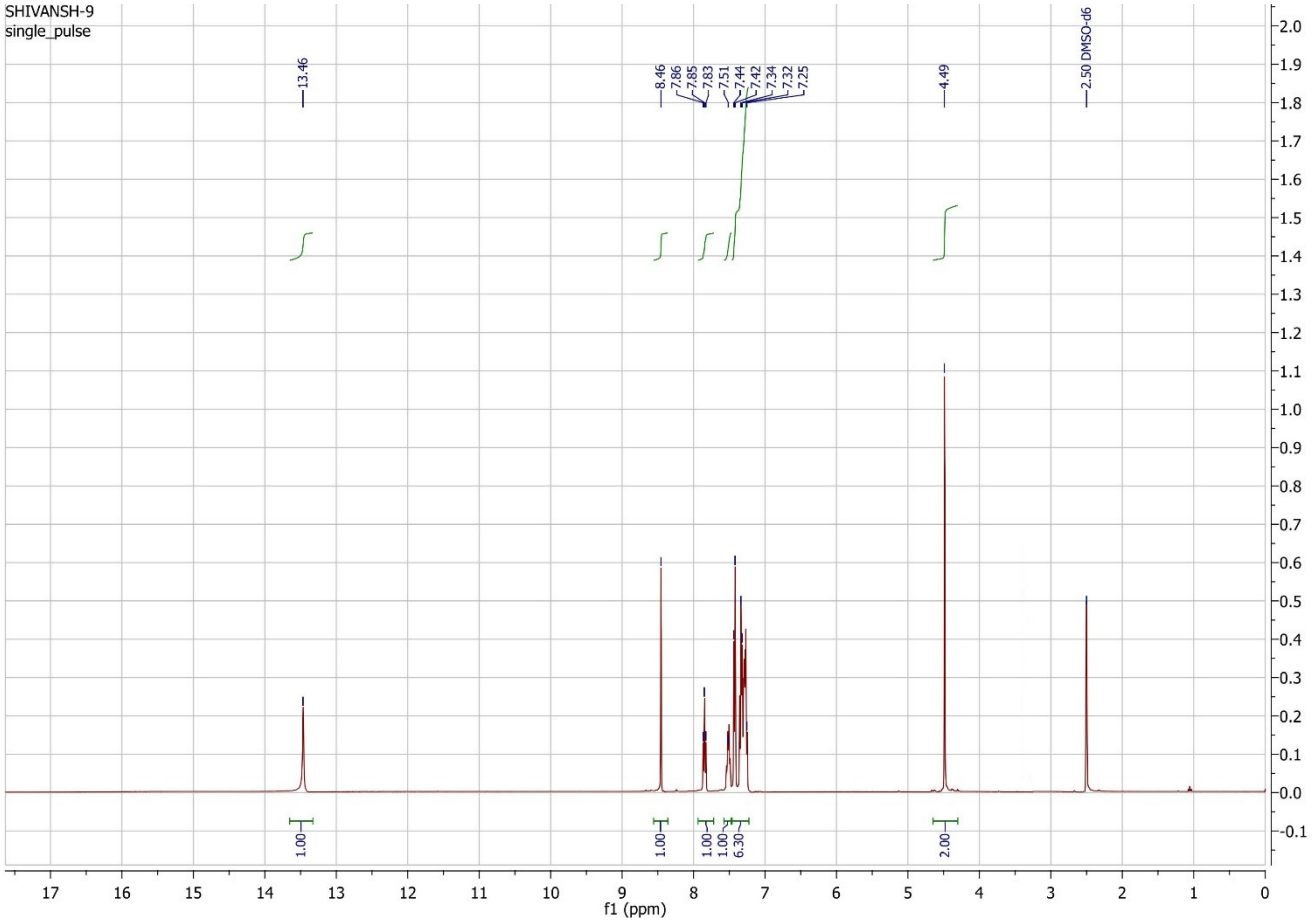

Fig. S13- ^{1}H-NMR spectrum of ligand L_1H

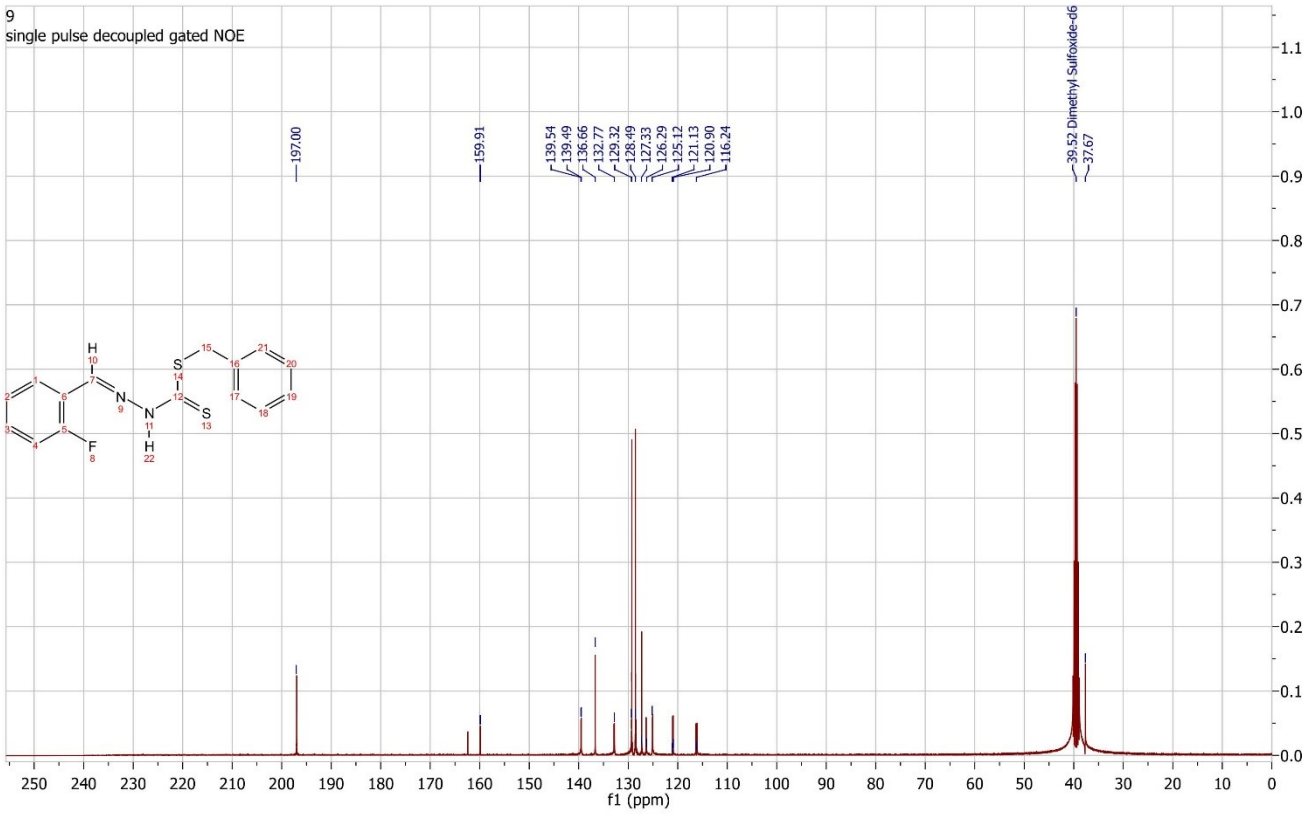

Fig. S14- ^{13}C-NMR spectrum of ligand L_1H

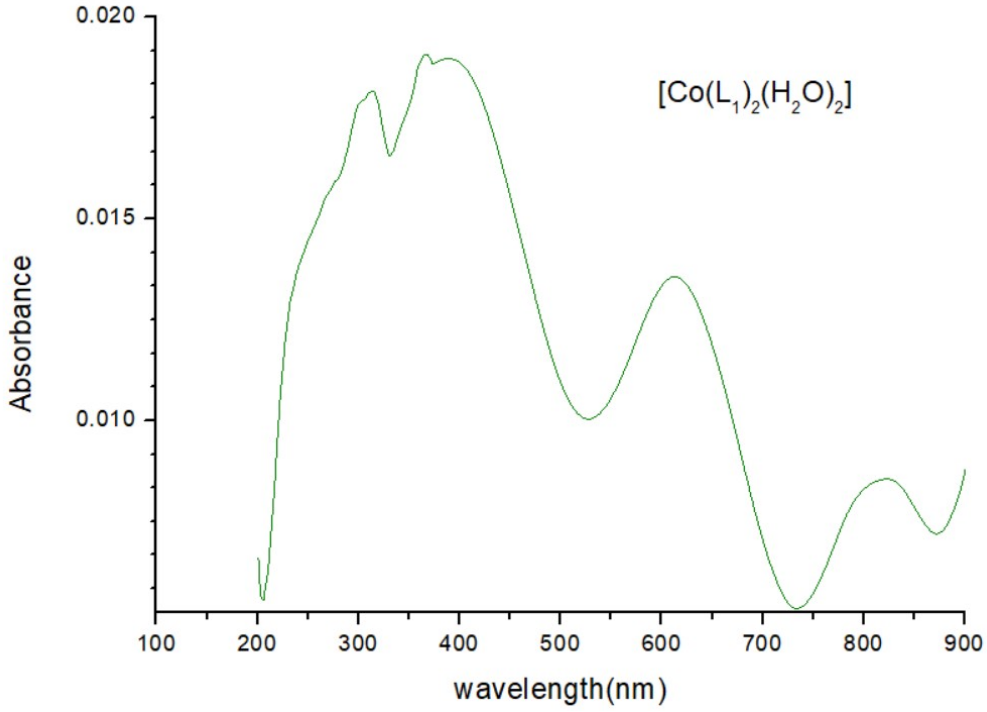

Fig. S15- Electronic absorbtion spectrum(UV-Visible) of Co(II) complex

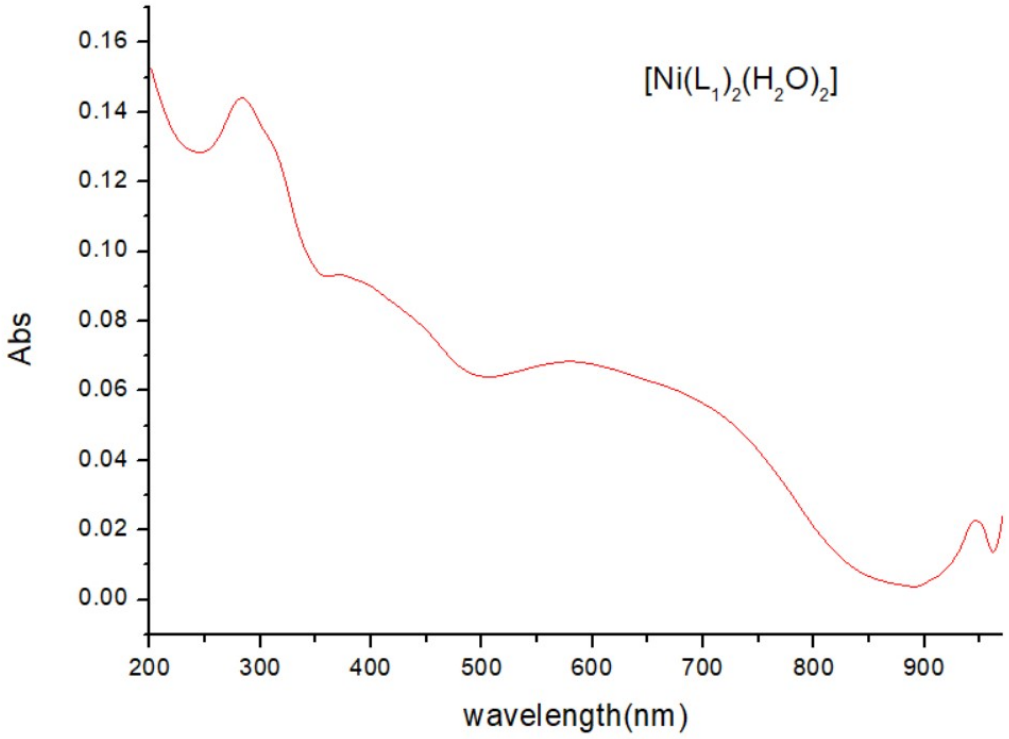

Fig. S16- Electronic absorbtion spectrum(UV-Visible) of Ni(II) complex

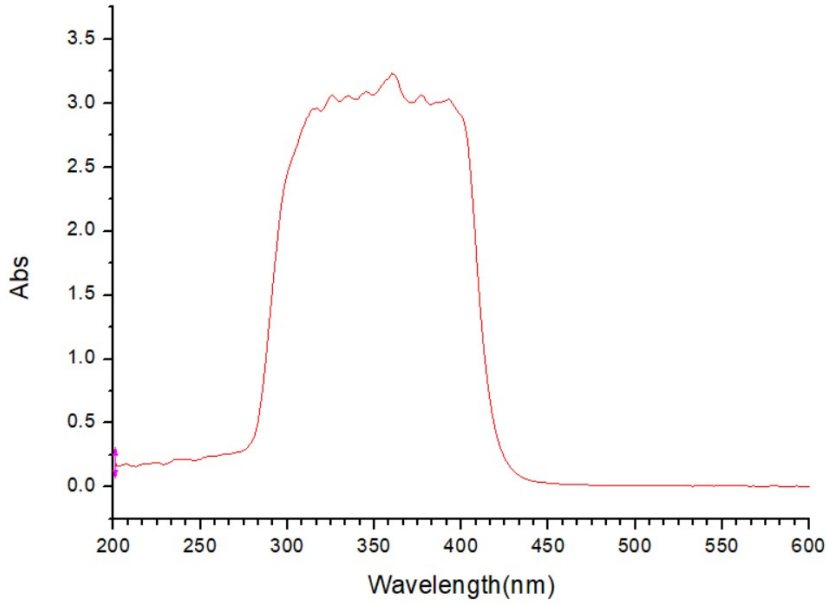

Fig. S17- Electronic absorbtion spectrum(UV-Visible) of ligand L_1H

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.492	4.65	95.35	
10	0.464	10.07	89.93	
25	0.395	23.44	76.56	
50	0.332	35.65	64.35	
100	0.247	52.13	47.87	
Untreated	0.516	0	100	
Blank	0	0	0	89.24

Table-1 Cytotoxicity screening data for complex L_1H against MCF-7 cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC_{50} (µg)
5	0.609	3.02	96.98	
10	0.584	7	93	
25	0.523	16.71	83.29	
50	0.422	32.8	67.2	
100	0.275	56.21	43.79	
Untreated	0.628	0	100	
Blank	0	0	0	86.1

Table-2 Cytotoxicity screening data for complex L_1H against HeLa cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC_{50} (µg)
5	0.965	2.12	97.88	
10	0.934	5.27	94.73	
25	0.897	9.02	90.98	
50	0.868	11.96	88.04	
100	0.827	16.12	83.88	
Untreated	0.986	0	100	
Blank	0	0	0	344.73

Table-3 Cytotoxicity screening data for complex L_1H against normal human HEK293 cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.496	3.87	96.13	
10	0.457	11.43	88.57	
25	0.385	25.38	74.62	
50	0.254	50.77	49.23	
100	0.129	75	25	
Untreated	0.516	0	100	
Blank	0	0	0	60.48

Table-4 Cytotoxicity screening data for complex $[Ni(L_1)_2 (H_20)_2]$ against MCF-7 cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.585	6.84	93.16	
10	0.546	13.05	86.95	
25	0.419	33.28	66.72	
50	0.273	56.52	43.48	
100	0.145	76.91	23.09	
Untreated	0.628	0	100	
Blank	0	0	0	55.28

Table-5 Cytotoxicity screening data for complex $[Ni(L_1)_2 (H_20)_2]$ against HeLa cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.971	1.52	98.48	
10	0.952	3.44	96.56	
25	0.913	7.4	92.6	
50	0.886	10.14	89.86	
100	0.853	13.48	86.52	
Untreated	0.986	0	100	
Blank	0	0	0	399.22

Table-6 Cytotoxicity screening data for complex $[Ni(L_1)_2 (H_20)_2]$ against normal human HEK293 cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.965	2.12	97.88	
10	0.934	5.27	94.73	
25	0.897	9.02	90.98	
50	0.868	11.96	88.04	
100	0.827	16.12	83.88	
Untreated	0.986	0	100	
Blank	0	0	0	344.73

Table-7 Cytotoxicity screening data for complex $[Co(L_1)_2 (H_20)_2]$ against MCF-7 cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.503	2.51	97.49	
10	0.486	5.81	94.19	
25	0.449	12.98	87.02	
50	0.341	33.91	66.09	
100	0.238	53.87	46.13	
Untreated	0.516	0	100	
Blank	0	0	0	88.99

Table-8 Cytotoxicity screening data for complex $[Co(L_1)_2 (H_20)_2]$ against HeLa cell line

Concentration (µg)	Absorbance at 570nm	% Inhibition	% Viability	IC50 (µg)
5	0.593	5.57	94.43	
10	0.566	9.87	90.13	
25	0.437	30.44	69.56	
50	0.294	53.18	46.82	
100	0.168	73.24	26.76	
Untreated	0.628	0	100	
Blank	0	0	0	59.67

Table-9 Cytotoxicity screening data for complex $[Co(L_1)_2 (H_20)_2]$ against normal human HEK293 cell line

Concentration(ppm)	**L_1H**	**$[Ni(L_1)(OAc)(H_20)_3]$**	**$[Ni(L_1)_2(H_20)_2]$**	**$[Co(L_1)(OAc)(H_20)_3]$**	**$[Co(L_1)_2(H_20)_2]$**
20	12.64	36.45	23.78	32.67	17.11
40	16.78	44.67	30.87	37.6	23.01
60	22.67	49.54	36.09	43.58	29.86
80	28.45	54.34	40.05	48.44	34.78
100	32.56	56.23	43.31	51.22	37.63

Table-10 Mean % Radical Scavenging activity of compounds against DPPH free radical

Concentration(ppm)	**L_1H**	**$[Ni(L_1)(OAc)(H_20)_3]$**	**$[Ni(L_1)_2(H_20)_2]$**	**$[Co(L_1)(OAc)(H_20)_3]$**	**$[Co(L_1)_2(H_20)_2]$**
20	14.26	41.32	25.45	34.54	19.67
40	19.34	46.45	32.54	39.47	25.57
60	25.68	52.54	37.76	45.45	31.64
80	31.38	57.45	42.39	51.56	36.56
100	36.56	61.67	45.65	54.34	39.41

Table-11 Mean % Radical Scavenging activity of compounds against ABTS free radical

Compounds	***Penicillium* (50ppm)**	***Penicillium* (100ppm)**	***Penicillium* (150ppm)**	***Penicillium* (200ppm)**	***A.niger* (50ppm)**	***A.niger* (100ppm)**	***A.niger* (150ppm)**	***A.niger* (200ppm)**
L_1H	6	9	11	12	6	8	10	12
$[Ni(L_1)(OAc)(H_20)_3]$	10	14	16	19	10	12	16	18
$[Ni(L_1)_2(H_20)_2]$	8	11	12	14	6.5	9	11	14
$[Co(L_1)(OAc)(H_20)_3]$	8	10	13	13.5	7	8	9	13
$[Co(L_1)_2(H_20)_2]$	11	12	14	15	8	10	13	15

Ketoconazole	24	26	28	30	22	24	26	27

Table 12- Antifungal screening data of compounds in terms of mean radii of inhibition zone(mm)

Compounds	***E.coli*** **(50ppm)**	***E.coli*** **(100ppm)**	***E.coli*** **(150ppm)**	***E.coli*** **(200ppm)**	***S.aureus*** **(50ppm)**	***S.aureus*** **(100ppm)**	***S.aureus*** **(150ppm)**	***S.aureus*** **(200ppm)**
L_1H	8	10	12	13	6	9	11	13
$[Ni(L_1)(OAc)(H_20)_3]$	14	17	18	20	16	18	19	21
$[Ni(L_1)_2(H_20)_2]$	9.5	10	12	13	11	12	13	15
$[Co(L_1)(OAc)(H_20)_3]$	9	10.5	13	15	8	11	12	14
$[Co(L_1)_2(H_20)_2]$	11	12	14	18	9	15	16	18
Ciprofloxacin(stand.)	24	27	29	31	26	28	30	32

Table 13- Antibacterial screening data of compounds in terms of mean radii of inhibition zone(mm)

h	**K**	**L**	**2θ (Exp.) (Degree)**	**2θ (Calc.) (Degree)**	**2θ (Diff.) (Degree)**	**d (Exp.) (Å)**	**d (Calc.) (Å)**	**Intensity (Exp.)**
0	2	2	22.8565	22.6547	0.2018	3.886128	4.06150	1950
1	1	1	24.4751	24.4231	0.052	3.63267	3.67723	1802
1	2	0	28.8009	28.9876	-0.1867	3.096131	3.11234	1344
1	1	2	29.5314	29.5761	-0.0447	3.021184	3.15432	1292
2	1	0	30.7633	30.8765	-0.1132	2.902951	2.91611	1434
1	3	0	32.7543	32.4567	0.2976	2.730895	2.70767	1640
2	2	1	39.1571	39.3256	-0.1685	2.297829	2.26341	1222
3	1	2	45.0702	45.1234	-0.0532	1.982378	1.98421	1345
2	3	2	56.1998	56.3067	-0.1069	1.63240	1.64047	1113
4	0	0	56.9889	56.7689	0.2200	1.61579	1.62460	1324

Table 14- h,k,l value and other lattice parameters for complex $[Co(L_1)_2 (H_20)_2]$

h	K	L	2θ (Exp.) (Degree)	2θ (Calc.) (Degree)	2θ (Diff.) (Degree)	d (Exp.) (Å)	d (Calc.) (Å)	Intensity (Exp.)
1	0	0	13.0016	13.3456	0.344	6.801094	6.68251	1178
1	0	1	14.9210	14.7654	-0.1556	5.930255	5.910255	2011
1	1	0	17.6855	17.8965	0.211	5.009005	5.109002	1350
1	1	1	19.6766	19.4356	-0.241	4.506398	4.406396	941
2	0	0	20.3498	20.4567	0.1069	4.358814	4.258812	1242
2	1	0	22.1689	22.2345	0.0656	4.005084	4.002085	1544
2	1	1	24.0284	24.2345	0.2061	3.699182	3.38324	1222
2	2	0	26.4948	26.7345	0.2397	3.360153	3.260156	1278
2	2	1	28.8296	28.6978	-0.1318	3.093114	3.043116	1113
2	2	2	29.6894	28.8976	-0.7918	3.005465	3.005503	1324
3	0	0	30.8976	30.5783	0.1193	2.890638	2.712215	1950
3	1	0	35.0605	35.2315	0.1710	2.556362	2.456363	450
3	2	0	41.1481	41.4567	0.3086	2.191125	2.091126	490

Table 15- h,k,l value and other lattice parameters for complex $[Ni(L_1)_2 (H_20)_2]$