Supplementary Information
Asymmetric Friedel-Crafts Addition of Indoles to *N*-Sulfonyl Aldimines Catalyzed by Cu(II) Chiral Amino Alcohols Based Schiff base Complexes

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A. General information

All reactions were performed in oven-dried (150 °C) glassware under an atmosphere of nitrogen and 4Å MS was activated at 150 °C for overnight. Commercial reagents were used as received without further purification unless otherwise noticed. All the solvents used in the present study were dried following known purification technique[1]. ^{1}H and ^{13}C spectra were taken in $CDCl_3$ and in CD_3COCD_3 in special cases. For ^{1}H NMR (200 and 500 MHz), tetramethylsilane (TMS) served as internal standard (δ = 0 ppm) and data are reported as follows: chemical shift (in ppm), multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad), coupling constant (in Hz), and integration. For ^{13}C NMR (50 MHz and 125 MHz), $CDCl_3$, CD_3SOCD_3 were used as internal standard and spectra were obtained with complete proton decoupling. Enantiomeric excess (*ee*) were determined by HPLC using OD-H, OD, IA, IB and IC chiral columns with 2-propanol/hexane as eluent.

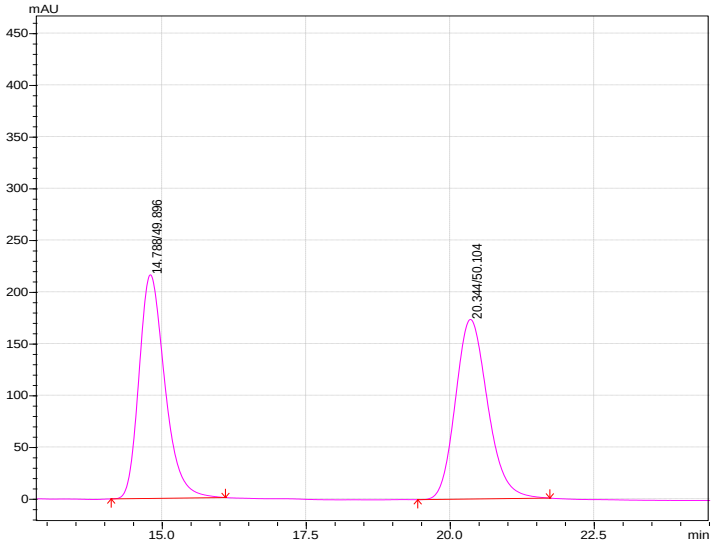
B. General procedure for asymmetric Friedel-Crafts reaction of addition of indoles to *N*-sulfonyl imine

Under an N_2 atmosphere, $Cu(OTf)_2$ (2.71 mg, 0.0075 mmol), and (*S*)-**L$_2$** (18.5 mg, 0.0041 mmol) were dissolved in DCM (2 mL) The solution was stirred at room temperature for 2 h, then 4 Å molecular sieves (100 mg) were added and stirred for another 10 min. Next, *N*-(3-nitrobenzylidene)-4-methylbenzenesulfonamide **2a** (91.2 mg, 0.30 mmol) and indole (70.29 mg, 0.6 mmol) were added, and the reaction mixture was stirred at 20 ^{o}C. After the reaction was complete, the solvent was removed under vacuum and the residue was purified by flash column chromatography on silica gel eluted with ethyl acetate/petroleum ether (1:3, v/v)] to afford the product *N*-[Indol-3-yl-(3-nitrophenyl)methyl]-4-methyl benzenesulfonamide as White powder.

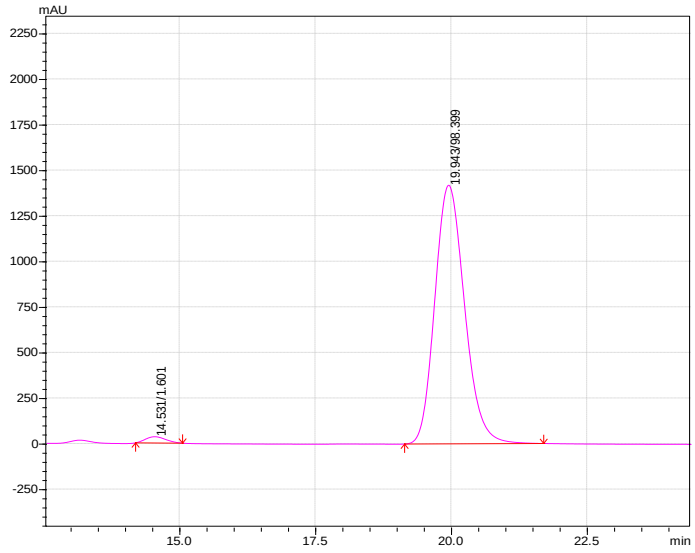
C. Characterization data and HPLC profiles of the products:

N-[Indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3a[2,3]:

White powder, yield 96%, 97% ee [Daicel Chiralpak IA column, n-hexane/*i*-PrOH = 70:30, 0.7 mL/min ; t_r (minor) = 14.53 min, t_r (major) = 19.97 min]; ^{1}H NMR (500 MHz, DMSO-d_6): δ 2.24 (s, 3H), 5.91 (d, *J* = 8.5 Hz, 1H), 6.77 (s, 1H), 6.94 (t, *J* = 20.5 Hz, 1H), 7.06–7.09 (m, 3H), 7.32 (d, *J* = 8 Hz,1H), 7.39 (d, *J* = 8 Hz, 1H), 7.45–7.47 (m, 3H), 7.72 (d, *J* = 8 Hz, 1H), 7.98 (d, *J* = 8 Hz, 1H), 8.06 (s, 1H), 8.67 (d, *J* = 8.5 Hz 2H), 10.989s, 1H).^{13}C NMR (125 MHz, DMSO-d_6): δ 21.2, 54.2, 112.0, 115.1, 119.2, 121.9, 122.0, 122.1, 124.5, 125.7, 126.8, 129.4, 129.8, 134.4, 136.8, 138.7, 142.5, 143.9, 147.9.



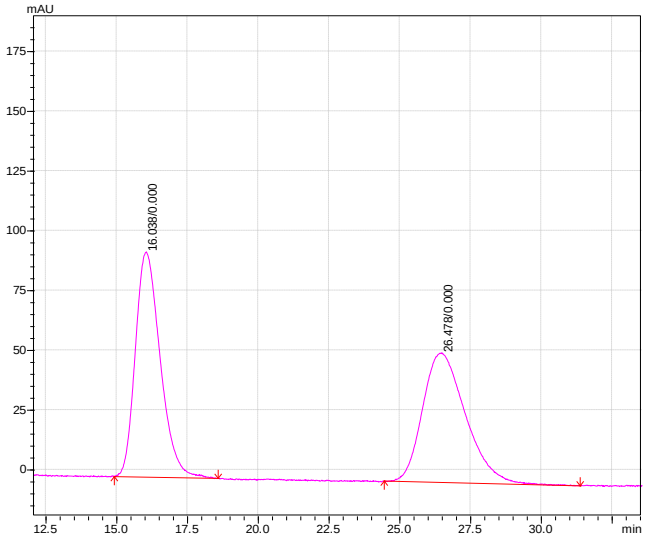
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	14.788	6730292	14.112	16.096	49.8962
2	20.344	6758290	19.435	21.728	50.1038



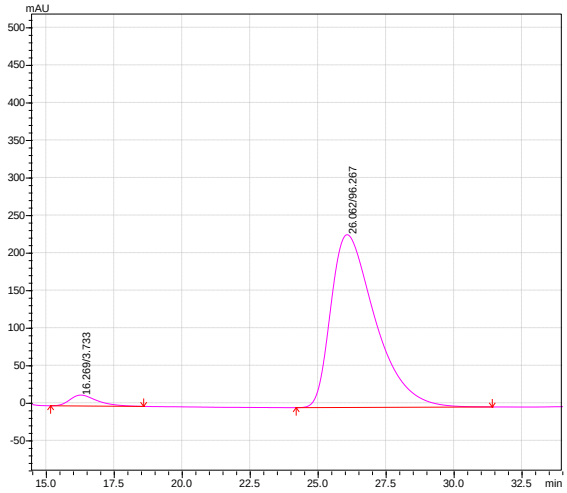
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	14.531	878200	14.187	15.051	1.601
2	19.943	53966216	19.136	21.696	98.399

_N_-[Indol-3-yl-(4-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3b[2,3]:

(*S*)-*N*-[indol-3-yl-(4-nitrophenyl) methyl]-4-methylbenzenesulfonamide **3b** White solid, yield 98%, 93% ee) [Daicel Chiralcel OD column, n-hexane/ *i*-PrOH = 80:20, 1.0 mL/min ; t_r (minor) = 16.25 min, t_r (major) = 26.06 min]; ^{1}H NMR (200 MHz, CD_3COCD_3): δ 2.34 (s, 3H), 6.02 (d, *J* = 6.2 Hz, 1H), 6.83 (d, *J* = 1.8 Hz, 1H), 6.93 (d, *J* = 14.8 Hz, 1H), 7.09 (t, *J* = 15, 1H), 7.20 (d, *J* = 8.2 Hz, 2H), 7.28 – 7.38 (m, 3H), 7.64 (t, *J* = 15.8 Hz, 4H), 8.09 (d, *J* = 8.8 Hz, 2H), 10.23 (s, 1H); ^{13}C NMR (50 MHz, DMSO-d_6): δ 20.9, 54.0, 111.7, 114.4, 118.8, 118.9, 121.6, 123.2, 124.2, 125.4, 126.7, 128.5, 129.2, 136.5, 138.5, 142.4, 146.3, 149.5.



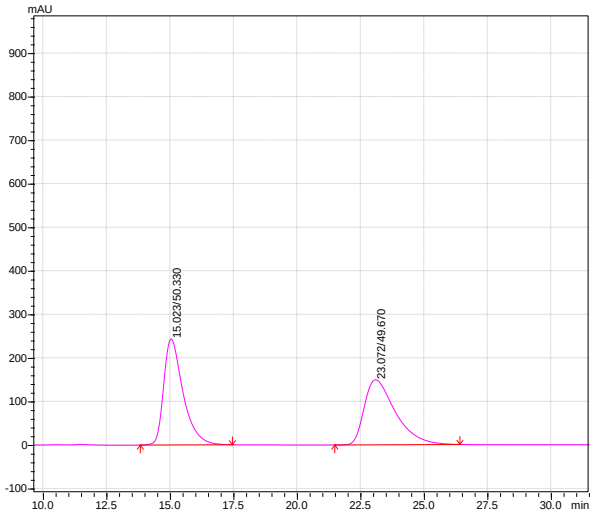
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	16.038	5754408	14.912	18.581	50.1661
2	26.478	5716307	24.448	31.371	49.8339



Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	16.269	1011747	15.157	18.581	3.7328
2	26.062	26092841	24.192	31.403	96.2672

(*S*)-*N*-[Indol-3-yl-(4-bromophenyl)methyl]-4-methylbenzenesulfonamide **3c**[2,3]: White powder, yield 90%, 95% ee [Daicel Chiralcel OD column, n-hexane/*i*-PrOH = 76:24, 1.0 mL/min, t_r (minor) = 15.88 min, t_r (major) = 22.31 min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.40 (s, 3H), 4.99 (d, *J* = 6 Hz, 1H), 5.80 (d, *J* = 6.4 Hz, 1H), 6.63 (s, 1H), 7.01 (t, *J* = 14.8 Hz 1H), 7.13–7.22 (m, 6H), 7.31–7.35 (m, 3H), 7.56 (d, *J* = 8 Hz, 2H), 8.01 (s, 1H); ^{13}C NMR

(50 MHz, DMSO-d_6): δ 21.3, 54.3, 111.9, 115.5, 119.1, 119.2, 121.8, 124.2, 125.7, 126.9, 129.7, 131.1, 136.8, 138.9, 141.3, 142.5.



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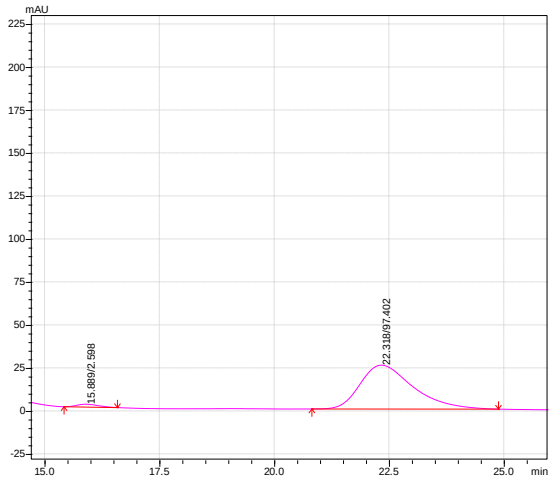
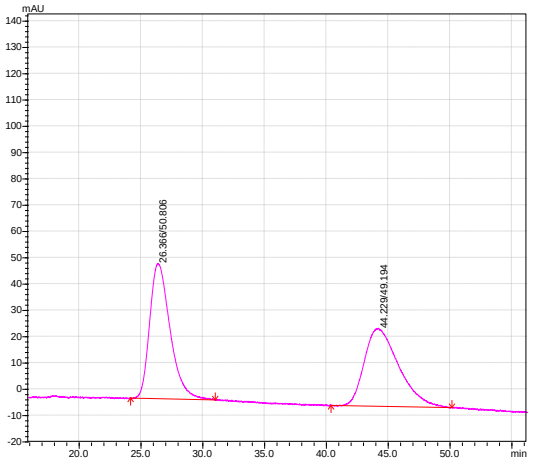
1	15.023	12901184	13.813	17.440	50.330
2	23.072	12732165	21.472	26.400	49.670



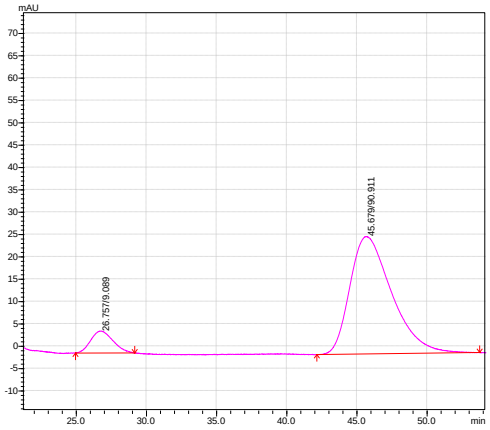
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	15.889	54441	15.413	16.576	2.5984
2	22.318	2040735	20.811	24.875	97.4016

***N*-[Indol-3-yl-(4-cyanphenyl)methyl]-4-methylbenzenesulfonamide 3d**[2,3]**:** White powder, 82%ee [Daicel Chiralcel OD-H column, n-hexane/*i*-PrOH = 80:20, 1.0 mL / min, t_r (minor) = 25.75 min, t_r (major) = 45.6 min]; ^{1}H NMR (500 MHz, $CDCl_3$): δ 2.41 (s, 3H), 5.15 (d, *J* = 6

Hz, 1H), 5.86 (d, *J* = 6 Hz, 1H), 6.57 (d, *J* = 2.5 Hz, 1H), 7.01 (t, *J* = 15.5 Hz, 1H), 7.1 (d, *J* = 8, 1H) 7.17 – 7.21(m, 3H), 7.32 (d, *J* = 8.5 Hz, 1H), 7.44 (d, *J* = 8 Hz, 2H), 7.52 (d, *J* = 8 Hz, 2H), 7.59 (d, *J* = 8 Hz, 2H), 8.01 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 21.3, 54.5, 109.7, 112.0, 114.9, 119.2, 121.9, 124.3, 125.7, 126.9, 128.5, 129.5, 132.3, 136.7, 138.7, 142.6, 147.5.

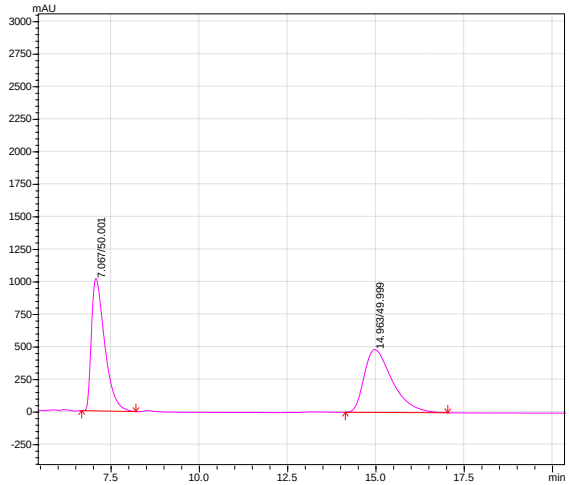


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	26.366	5904205	24.160	31.008	50.8058
2	44.229	5716912	40.373	50.155	49.1942

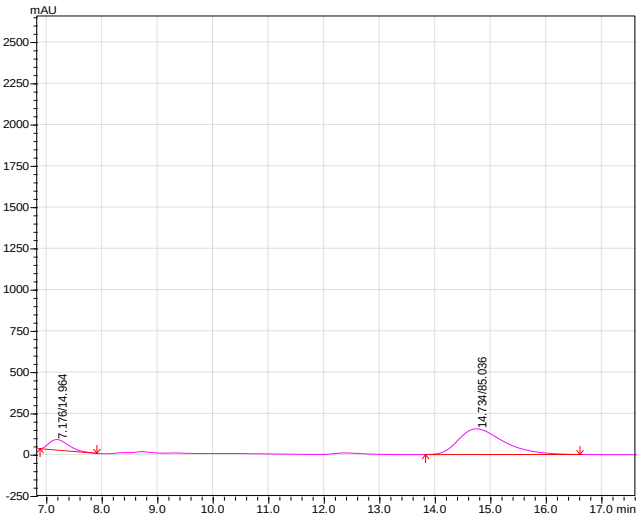


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	26.757	543804	24.939	29.163	9.0888
2	45.679	5439445	42.144	53.749	90.9112

***N*-[Indol-3-yl-(2-chlorophenyl)methyl]-4-methylbenzenesulfonamide 3e**: White powder, yield 75%, 72% ee [Daicel Chiralcel OD column , *n*-hexane/*i*-PrOH = 70:30, 1.0 mL/min, t_r (minor) = 7.17 min , t_r (major) =14.73 min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.40 (s, 3H), 5.11 (d, *J* = 4.6 Hz, 1H), 6.21 (d, *J* = 5.2 Hz, 1H), 6.58 (s, 1H), 7.01(t, *J* = 13 Hz, 1H), 7.18 - 7.33(m, 8H), 7.50(d, *J* = 3.6 Hz, 1H), 7.67 (d, *J* = 7.4 Hz, 2H), 8.00 (s, 1H) ; ^{13}C NMR (125 MHz, DMSO-d_6): δ 21.3, 51.0, 112.0, 114.5, 118.9, 119.23, 121.9, 124.6, 126, 127.4, 128.7, 29.2, 129.5, 131.8, 136.1, 136.8, 138.7, 139.2, 142.6.

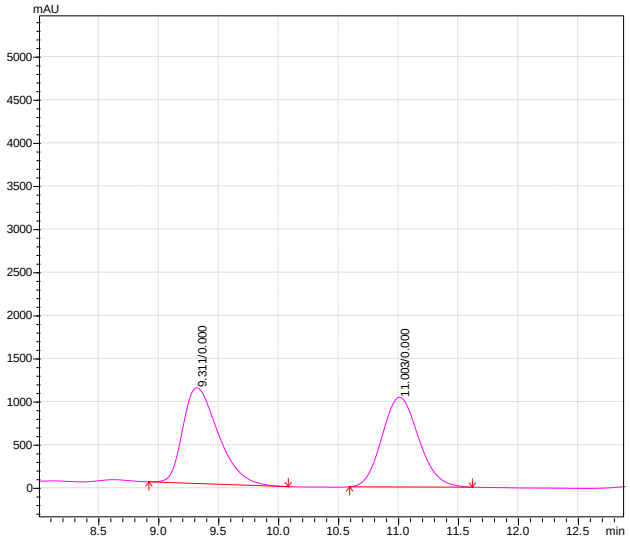


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	7.067	26637029	6.667	8.203	50.0005
2	14.963	26636485	14.133	17.035	49.9995

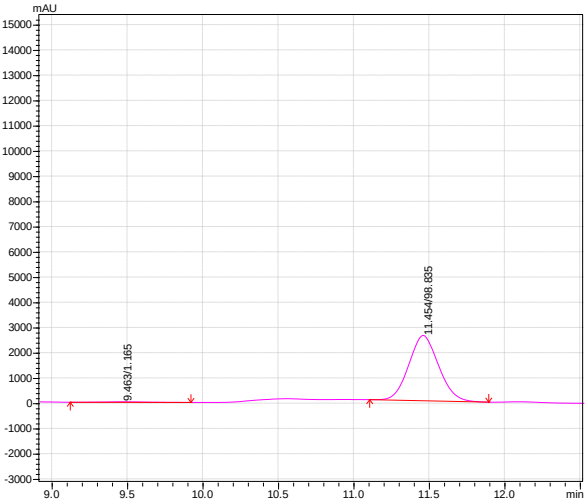


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	7.176	1544395	6.880	7.904	14.9644
2	14.734	8776041	13.824	16.608	85.0356

***N*-[Indol-3-yl-(3-chlorophenyl)methyl]-4-methylbenzenesulfonamide 3f**[2,3]: White powder, yield 85%, 97% ee [Daicel Chiralpak IA column, *n*-hexane/*i*-PrOH = 60:40, 0.5 mL/min, t_r (minor) = 9.46 min, t_r (major) = 11.45 (major) min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.39 (s, 3H), 5.12 (d, *J* = 5.8 Hz, 1H), 6.22 (d, *J* = 6 Hz, 1H), 6.57 (s, 1H), 7.00 (t, *J* = 13 Hz, 1H), 7.16-7.32 (m, 9H), 7.49 (d, *J* = 4.6 Hz, 1H), 7.66 (d, *J* = 7.8, 2H), 8.00 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 20.9, 53.8, 111.5, 114.9, 118.6, 121.4, 123.4, 123.6, 125.3, 125.6, 126.2, 126.5, 126.8, 128.7, 129.7, 132.7, 136.2, 138.3, 142.2, 143.9.

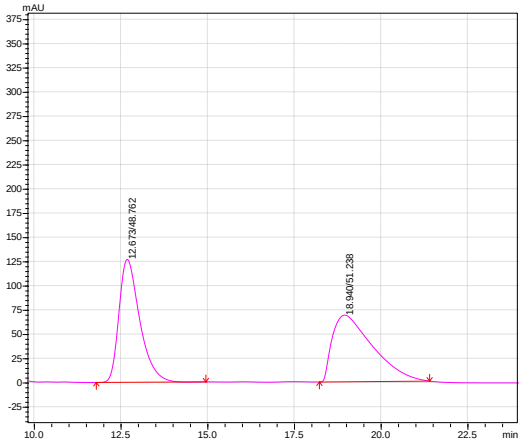


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	9.311	22885125	8.917	10.080	50.8253
2	11.003	22141928	10.592	11.616	49.1747

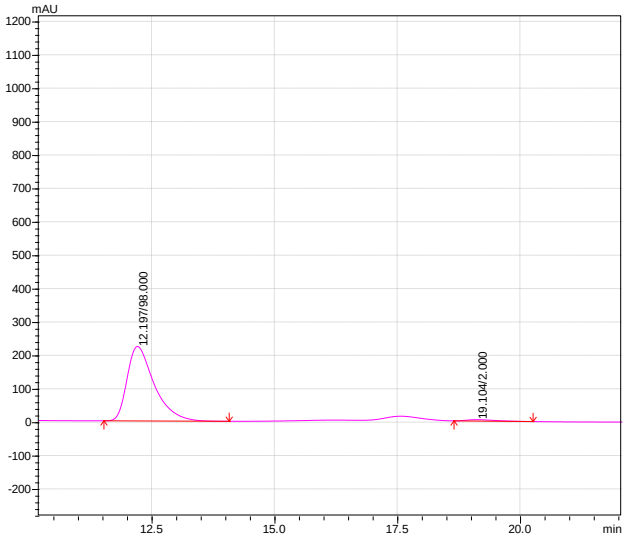


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	9.463	418680	9.120	9.920	1.1650
2	11.454	35518694	11.104	11.893	98.8350

***N*-[Indol-3-yl-(4-chlorophenyl)methyl]-4-methylbenzenesulfonamide 3g**[2,3]**:**White powder, yield 89%, 96% ee [Daicel Chiralcel OD column, n-hexane/*i*-PrOH = 80:20, 1.0 mL/min, t_r (major) = 12.30 min, t_r (minor) = 18.62 min]; ^{1}H NMR (500 MHz, $CDCl_3$): δ 2.38 (s, 3H), 5.18 (d, *J* = 5.5 Hz, 1H), 5.93 (d, *J* = 5.5 Hz, 1H), 6.61 (s, 1H), 7.03 (t, *J* = 15 Hz,1H), 7.15–7.20 (m, 4H), 7.37 (d, *J* = 8 Hz, 1H), 7.43(t, *J* = 15.5 Hz, 2H), 7.71 (d, *J* = 7.5 Hz, 1H), 8.05 (d, *J* = 9 Hz, 2H), 8.11(s,1H); ^{13}C NMR (50 MHz, DMSO-d_6): δ 20.7, 53.9, 111.5, 115.3, 118.7, 118.9, 121.3, 123.6, 125.5, 126.6, 127.8, 128.9, 131.3, 136.5, 138.7, 140.6, 141.8.



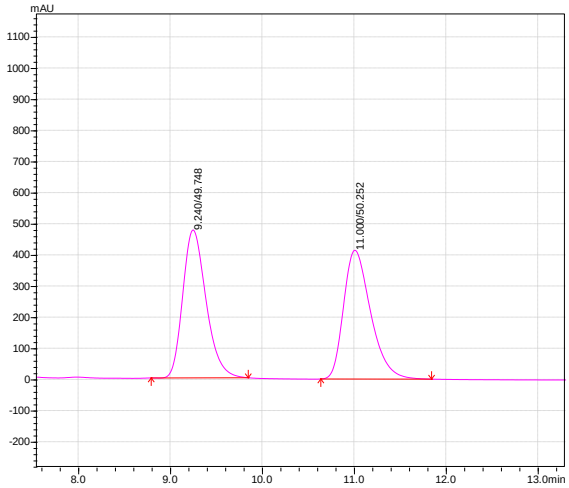
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	12.673	5276838	11.787	14.944	48.7617
2	18.940	5544851	18.219	21.397	51.2383



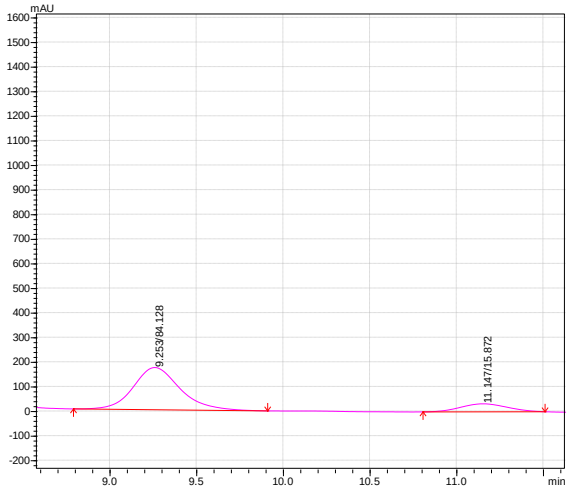
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	12.197	8529052	11.520	14.069	98.0004
2	19.104	174026	18.645	20.256	1.9996

_N_-[Indol-3-yl-(2-trifluoromethylphenyl)methyl]-4-methylbenzenesulfonamide 3h[2,3]:

White powder, yield 70%, 65% ee [Daicel Chiralpak IA column, n-hexane/*i*-PrOH = 60:40, 0.7 mL/min, t_r (major) = 9.25 min, t_r (minor) = 11.14 min]; ^{1}H NMR (200 MHz, DMSO-d_6): δ 2.29 (s, 3H), 6.12 (d, *J* = 8.2 Hz, 1H), 6.33 (s, 1H), 6.95 (t, *J* = 14.6 Hz, 1H), 7.06 – 7.17 (m, 3H), 7.28 (d, *J* = 11 Hz, 2H), 7.36- 7.49 (m, 4H), 7.57 (d, *J* = 7.6 Hz, 1H), 7.76 (d, *J* = 7.6 Hz, 1H), 8.62 (d, *J* = 8.2 Hz, 1H), 10.91 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 26.0, 54.9, 116.7, 116.8, 120.1, 123.4, 123.5, 124.0, 126.7, 128.3, 129.8, 130.6, 130.8, 131.4, 131.5, 132.4, 132.4, 134.1, 134.2, 134.5, 137.4, 141.5, 143.4, 144.8, 147.4.



Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	9.240	8365082	8.789	9.845	49.7479
2	11.000	8449856	10.635	11.840	50.2521

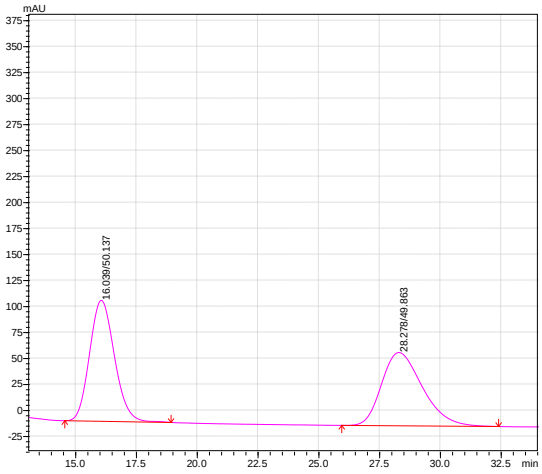


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	9.255	5893947	8.789	10.144	82.6014
2	11.146	1241462	10.837	11.584	17.3986

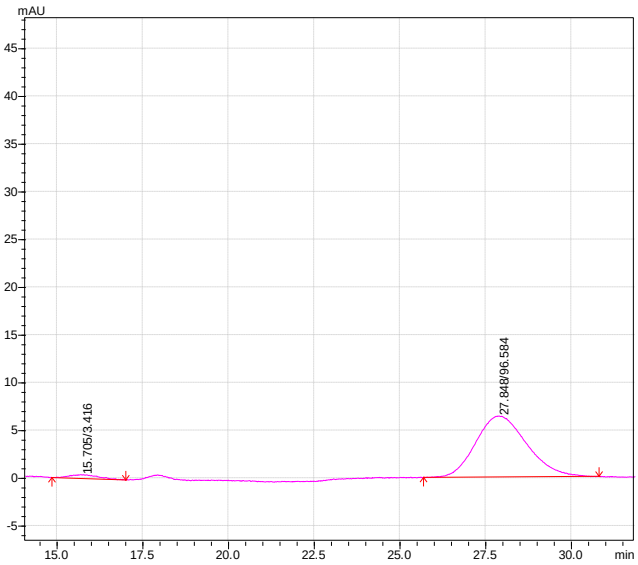
_N_-[Indol-3-yl-(4-trifloromethylphenyl)methyl]-4-methylbenzenesulfonamide 3i[2,3] :

White powder, yield 85%, 94% ee [Daicel Chiralcel OD-H column, n-hexane/ i-PrOH = 80:20, 1.0 mL/min, t_r (minor) = 15.69 min, t_r (major) = 27.86 min]; ^{1}H NMR (200 MHz, DMSO-d_6): δ 2.26 (s, 3H), 5.84 (d, J = 8.8 Hz, 1H), 6.79 (s, 1H), 6.93 (t, J = 14.6 Hz, 1H), 7.04–7.11 (m, 3H), 7.31–7.40 (m, 2H), 7.45–7.47 (m, 6H), 8.61 (d, J = 8.8 Hz, 1H), 10.97 (s,

1H); ^{13}C NMR (100 MHz, DMSO-d_6): δ 21.1, 54.6, 112.0, 115.1, 119.2, 121.9, 124.3, 125.1, 125.3, 126.9, 128.3, 129.3, 136.8, 138.8, 142.4, 143.6, 146.4.



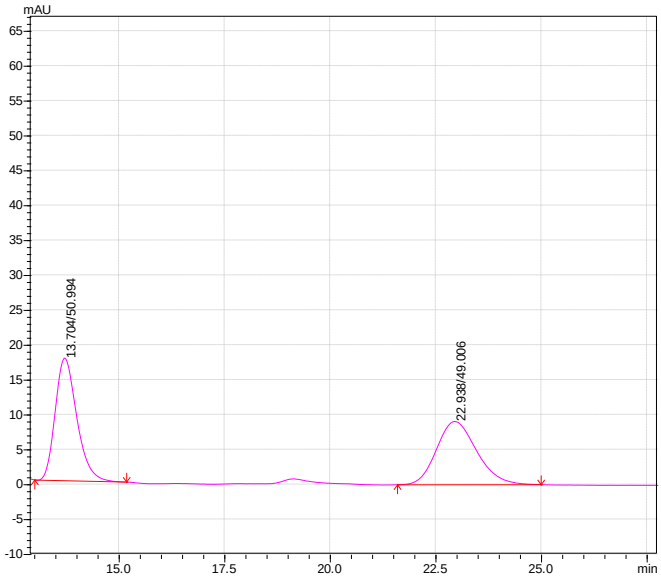
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	16.039	8275353	14.549	18.923	50.1369
2	28.278	8230170	25.941	32.395	49.8631



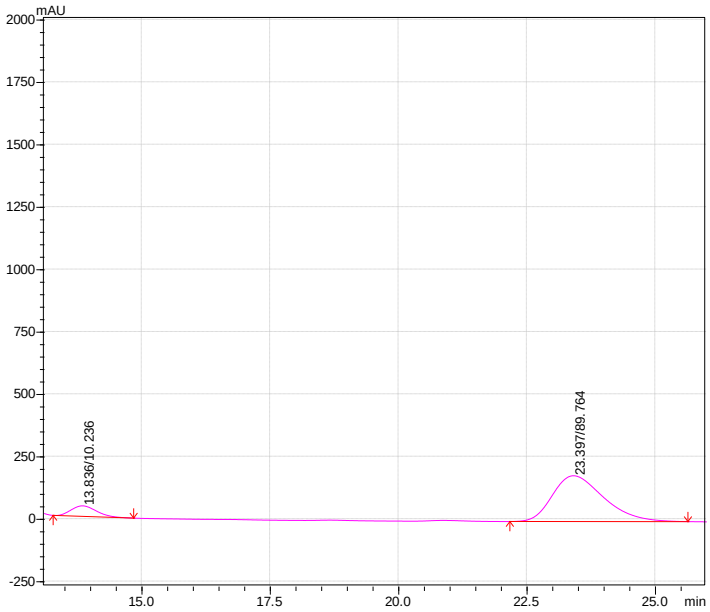
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	15.697	24295	14.784	17.088	3.6665
2	27.866	638333	26.059	30.731	96.3335

***N*-(Indol-3-yl-phenylmethyl)-4-methylbenzenesulfonamide 3j**[2,3] **:** White powder, yield 84, 81% ee [Daicel Chiralcel OD-H column, n-hexane/*i*-PrOH = 70:30, 0.6 mL/min; t_r (minor) = 13.75 min, t_r (major) = 23.12 min]; ^{1}H NMR (200 MHz, Acetone-d6): δ 2.33 (s, 3H), 5.89 (d,

J = 8.2 Hz, 1H), 6.81 (s, 1H), 6.90 (t, *J* = 15.4 Hz, 1H), 7.03–7.07 (m, 1H), 7.11–7.20 (m, 5H), 7.31–7.35 (m, 4H), 7.58 (d, *J* = 8.2 Hz, 2H), 8.47 (d, *J* = 8.8 Hz, 1H), 10.86 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 21.1,54.5, 111.5, 115.8, 118.5, 119.2, 121.3, 123.8, 125.6, 126.7, 126.8,127.2, 128.0, 129.2, 136.7, 139.0, 141.9, 141.9.

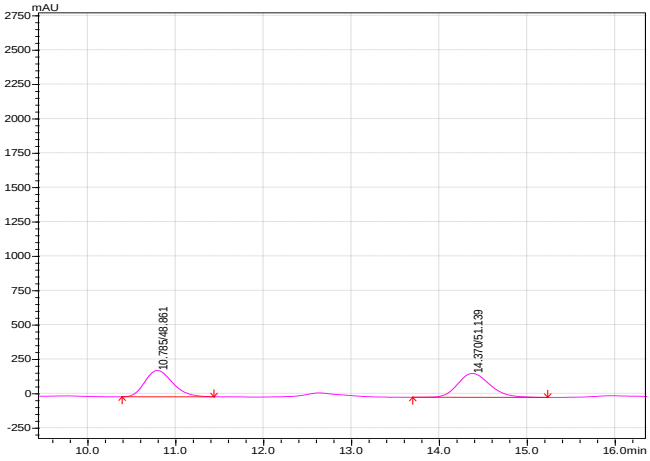


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	13.704	626017	13.003	15.179	50.9937
2	22.938	601619	21.589	24.992	49.0063

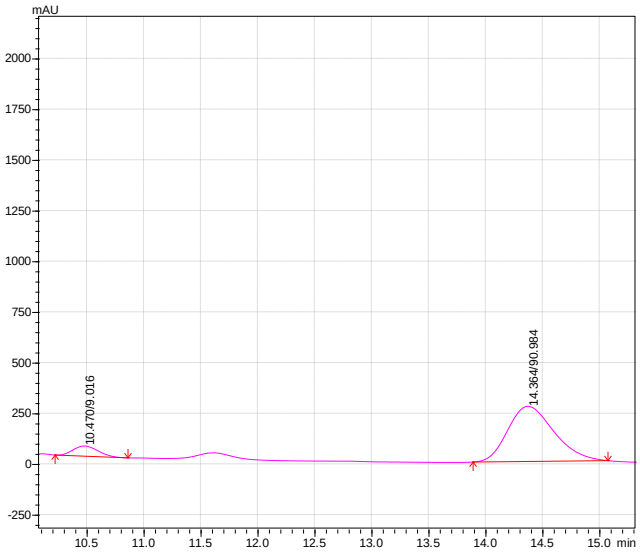


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	13.836	1437859	13.280	14.752	10.1549
2	23.397	12721338	22.112	25.888	89.8451

***N*-[Indol-3-yl-(4-methylphenyl)methyl]-4-methylbenzenesulfonamide 3k[4]:** White powder with 70% yield after chromatography (silica gel: petroleum ether/ethyl acetate = 3/1) and 81% ee as determined by HPLC [Daicel Chiralpak IC, Hexanes/ IPA =70/30, 0.7ml/min, t_r (minor) = 10.46 min, t_r (minor) = 14.36min]. ^{1}H NMR (200M Hz, $CDCl_3$) δ2.29 (s, 3H) 2.37 (s,3H), 5.11 (d, *J* = 6.78 Hz, 1H), 5.79 (d, *J* = 6.57 Hz, 1H), 6.71 (s, 1H), 6.98-7.29 (m, 10H), 7.55 (d, *J* = 7.68 Hz, 2H), 8.00 (s, 1H); ^{13}C NMR (100M Hz, $CDCl_3$) δ 21.0, 21.5, 54.9, 111.2, 116.5, 119.3,119.8, 122.4, 123.7, 125.4, 127.1, 128.9, 129.1, 136.6, 137.0, 137.3, 137.6, 142.9.

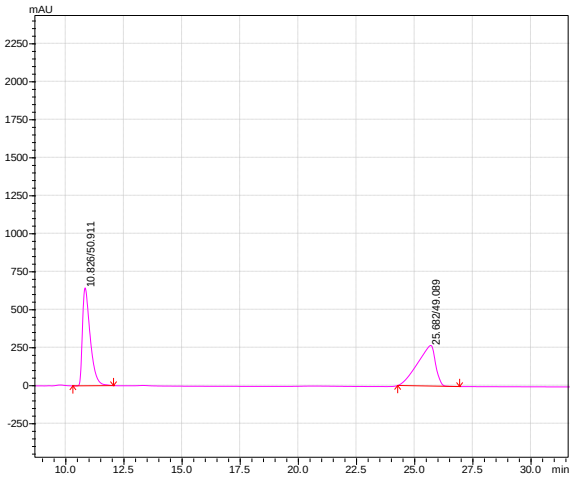


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.785	4207047	10.389	11.435	48.8613
2	14.370	4403142	13.696	15.232	51.1387

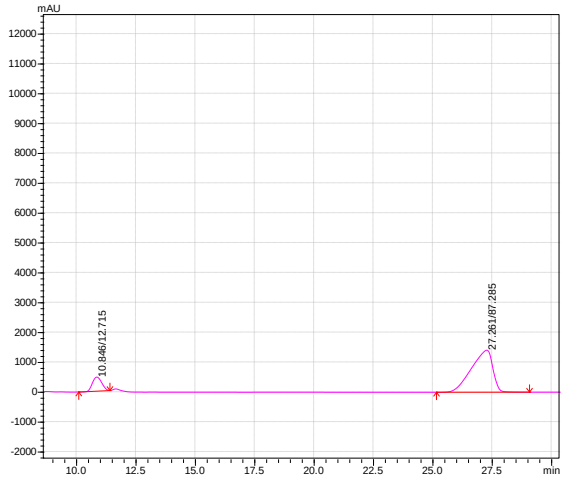


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.470	759314	10.219	10.859	9.0164
2	14.364	7662140	13.888	15.072	90.9836

***N*-[Indol-3-yl-(3-methylphenyl)methyl]-4-methylbenzenesulfonamide 3l[4]:** White solid, 68% yield, m.p. 158-159 ℃, 75% ee [Daicel Chiralpak IA column, n-hexane/*i*-PrOH = 70 : 30, 0.7 mL/min, t_r (minor) = 10.83 min, t_r (major) = 27.26 min]; ^{1}H NMR（500 MHz,$CDCl_3$）δ 7.98 (br, 1H), 7.55 (d, *J* = 8.0 Hz, 2H), 7.34 – 6.90 (m, 10H), 6.69 (d, *J* = 2.5 Hz, 1H), 5.81 (d, *J* = 6.9 Hz, 1H), 5.06 (d, *J* = 6.9 Hz, 1H), 2.37 (s, 3H), 2.20 (s, 3H); ^{13}C NMR (50 MHz, CDCl3) δ 142.8, 140.0, 137.8, 137.4, 136.5, 129.1, 128.2, 128.0, 127.8, 127.1, 125.4, 124.3, 123.8, 122.3, 119.8, 119.2, 116.3, 111.2, 55.0, 21.4, 21.2.

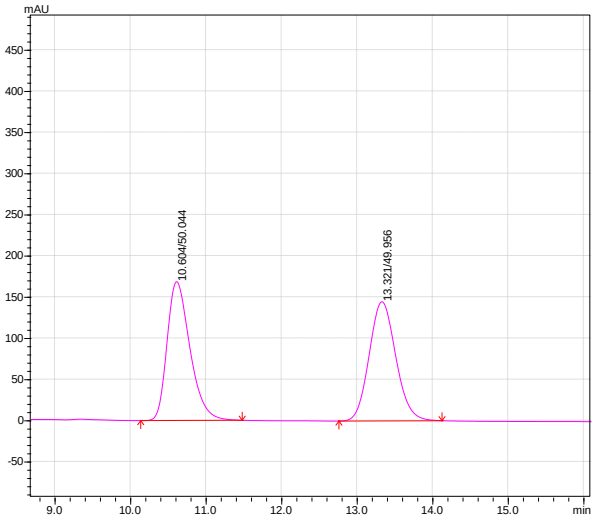


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.826	14903677	10.304	12.053	50.9108
2	25.682	14370409	24.267	26.933	49.0892

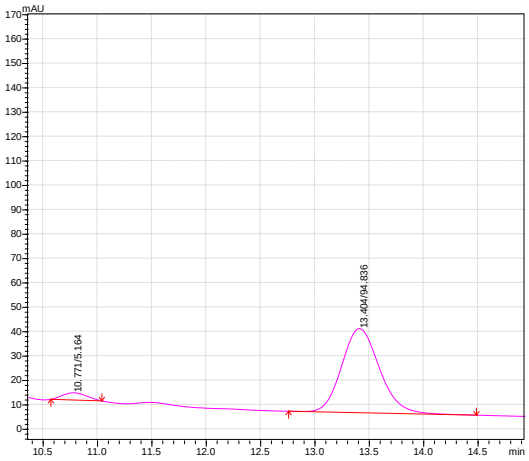


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.846	12865432	10.091	11.403	12.7147
2	27.261	88320130	25.152	29.067	87.2853

***N*-[Indol-3-yl-(3-bromophenyl)methyl]-benzenesulfonamide 3m:** White powder, yield = 85%, 89% ee [Chiral pak IA column, n-hexane/*i*-PrOH = 70:30, 0.75 mL/min, t_r (minor) = 10.60 min, t_r (major) = 13.32 min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 5.21(d, *J* = 5.9 Hz, 1H), 5.83 (d, *J* = 5.9 Hz, 1H), 6.59 (d, *J* = 2.4Hz, 1H), 7.02-7.10 (m 2H), 7.14-7.21(m, 2H), 7.24-7.37(m, 6H), 7.46 (d,1H), 7.85(d, 2H), 8.05 (s, 1H). ^{13}C NMR: δ 54.2, 111.2, 112.1, 118.4, 119.3, 121.7, 122.9, 123.0, 125.8, 127.4, 129.0, 129.3, 129.6, 130.3, 130.3, 131.5, 131.9, 136.5, 144.5, 145.7.

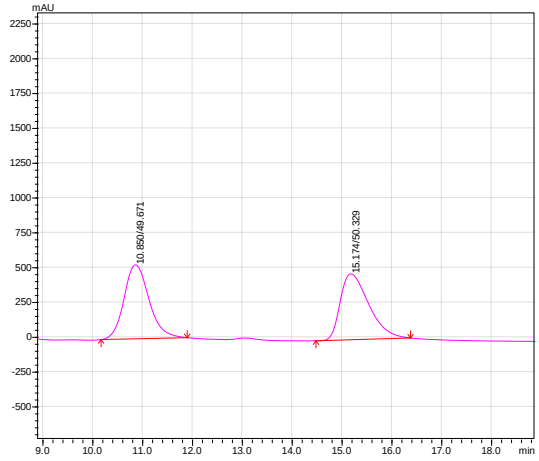


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.604	3551634	10.133	11.477	50.0440
2	13.321	3545382	12.757	14.123	49.9560

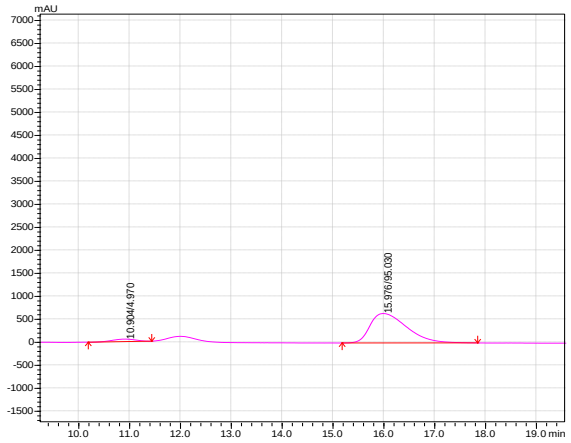


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.771	45341	10.571	11.040	5.1642
2	13.404	832647	12.757	14.485	94.8358

***N*-[Indol-3-yl-(4-bromophenyl)methyl]-benzenesulfonamide 3n :** White powder, 91% ee, [Chiral pak IB column, n-hexane/i-PrOH = 70:30, 0.7 mL/min, t_r (minor) = 10.60 min, t_r (major) = 13.32 min]; ^{1}H NMR (200 MHz, DMSO-d_6): δ 5.84 (d, J = 8.8 Hz, 1H), 6.7 (s,1H), 6.93 (t, J = 15.8Hz, 2H), 7.04-7.11 (m 3H), 7.31-7.47(m, 8H), 8.61(d, J = 8.8 Hz, 1H), 10.9(s, 1H). ^{13}C NMR: δ (125 MHz, DMSOd_6): δ 54.3, 111.3, 112.4, 118.4, 119.6, 121.3, 121.7, 123.3, 127.6, 129.1129.3, 131.2, 131.8, 137.4, 141.2, 147.6.



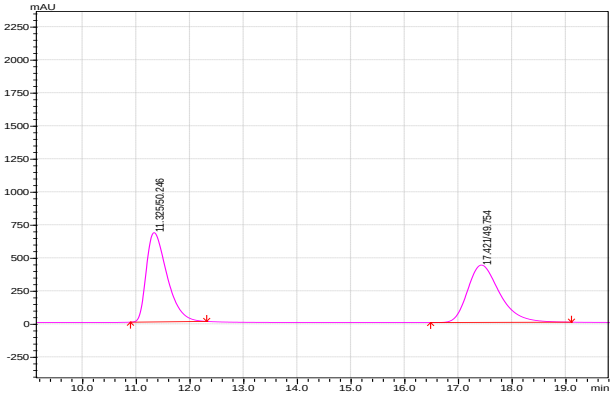
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.850	18521446	10.165	11.893	49.6711
2	15.174	18766693	14.475	16.373	50.3289



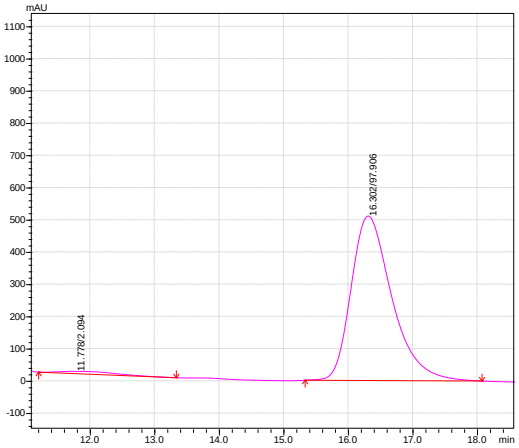
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.904	1679797	10.187	11.435	4.9702
2	15.976	32117811	15.179	17.845	95.0298

***N*-[Indol-3-yl-(4-bromophenyl)methyl]-4-nitrobenzenesulfonamide 3o :** White powder, 94% [chiralpak IA column, n-hexane/i-PrOH = 80:20, 0.8 mL/min, t_r (minor = 11.77, t_r (major) = 16.30]; ^{1}H NMR, (500MHz, DMSO-d_6): δ 5.81 (d, J = 9 Hz, 1H), 6.83 (d, J = 2 Hz, 1H), 6.91 (t, J = 15 Hz,^{1}H), 7.03 (t, J = 15 Hz, 1H),7.21(d, J = 8.5 Hz, 2H), 7.25 (d, J = 8 Hz, 1H), 7.35 (d, J = 8.5 Hz, 2H), 7.38 (d, J = 8 Hz,1H), 7.73 (d, J = 8.5 Hz, 2H), 8.05 (d, J = 8.5, 2H), 8.9 (d, J = 9 Hz, 1H), 10.9 (s, 1H). ^{13}C NMR (125MHz, DMSO-d_6):

δ 54.6, 111.9, 114.6, 119.2, 119.3, 120.5, 121.8, 124.0, 124.6, 125.5, 128.3, 129.9, 131.3, 136 .8, 140.4, 147.1, 149.0.



Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	11.325	18151077	10.891	12.309	50.2460
2	17.421	17973323	16.480	19.104	49.7540



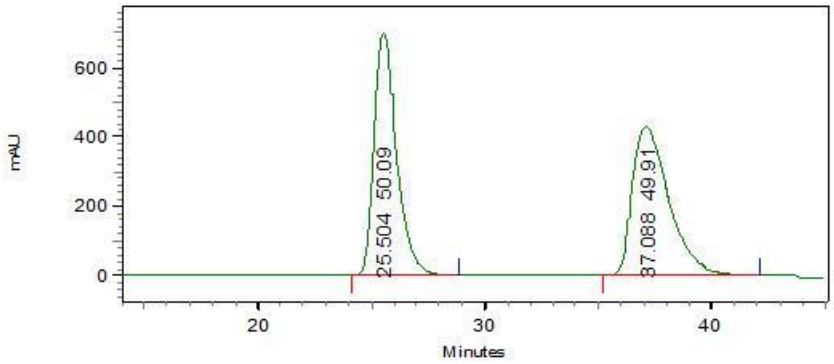
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	11.778	479871	11.200	13.333	2.0945
2	16.302	22431202	15.328	18.069	97.9055

***N*-[5-MeO-indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3p** :

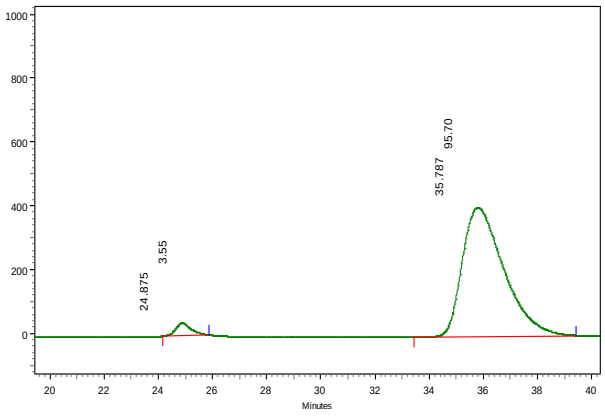
White powder, 93% ee [chiralpak IC column, n-hexane/i-PrOH = 70:30, 1.0 mL/min, t_r (minor) = 24.8 min, t_r (major) = 35.78 min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.33 (s, 3H), 3.75 (s, 3H), 5.20 (d, *J* = 5.9 Hz, 1H), 5.92 (d, *J* = 5.9 Hz, 1H), 6.54 (d, *J* = 2.4 Hz, 1H), 7.02–7.10 (m, 2H), 7.14–7.21 (m, 3H), 7.34 (d, *J* = 8.2 Hz, 1H), 7.39–7.47 (m, 1H), 7.60 (d, *J* = 8.3 Hz, 2H), 7.72 (d, *J* = 7.5 Hz, 1H), 7.81–7.93 (m, 2H), 8.06 (s, 1H); ^{13}C NMR (100

mHz, DMSO-d_6)

δ 21.2, 21, 54.2, 55.7, 101.2, 111.9, 112.7, 114.7, 122. 0, 122.1, 125.1, 126.1, 126.8 ,129.4, 1 29.8, 128.8, 131.9, 134.4, 138.8, 142.6, 144.2, 147.9, 153.6.



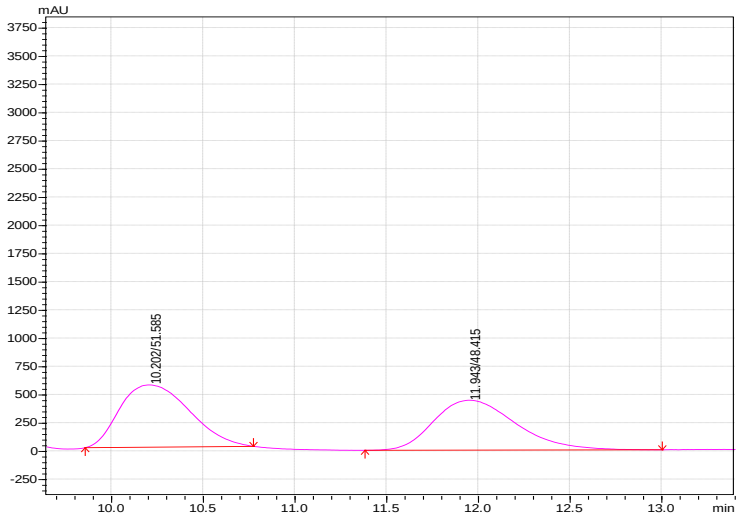
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	25.504	48532856	24.126	28.817	50.09
2	37.099	48367907	34.99	41.7433	49.91



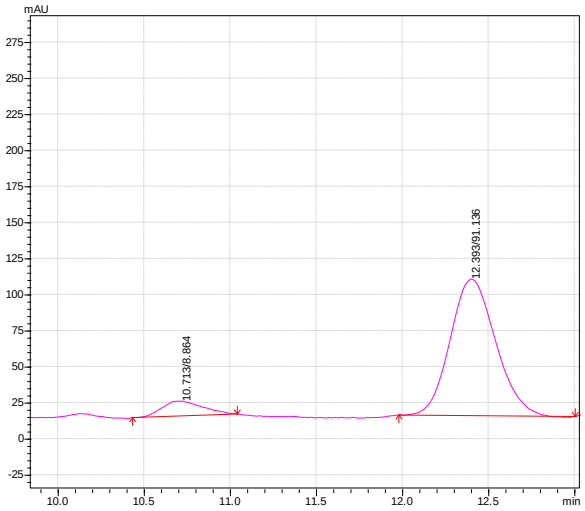
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	24.875	1514213	24.20	25.95	3.55
2	35.787	42932286	33.61	39.45	95.70

***N*-[2-Methyl-indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3q :**White powder ,80% ee [Chiralpak IC column, n-hexane/i-PrOH = 70:30, 0.7 mL/min, t_r (minor) = 21.66 min, t_r (major) = 23.68 min]; ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.32 (s, 3H), 3.57 (s, 3H),

5.02 (d, *J* = 5.8 Hz, 1H), 5.84 (d, *J* = 5.6Hz, 1H), 6.95 (*t*, *J* = 13.6Hz, 1H), 7.09 (d, *J* = 8.2 Hz, 2H) 7.16-7.21(m, 3H), 7.37 (*t*, *J* = 16.4 Hz, 2H), 7.52 (d, *J* = 8Hz, 1H), 7.66 (d, *J* = 7.4 Hz, 2H), 7.99 (d, *J* = 5.8 Hz 2H). ^{13}C NMR (50 MHz, DMSO-d_6): δ 13.3, 21.3, 55.3, 111.6, 113.0, 118.6, 119.6.2, 121.4 123.1, 126.8, 127.37, 129.1, 129.5, 130.9, 131.3, 133.5, 134.5, 136.2, 142.4, 147.5.



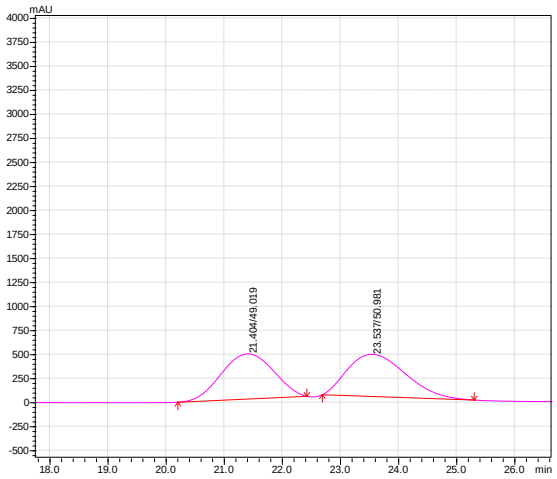
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.202	14645041	9.856	10.773	51.5848
2	11.943	13745183	11.381	13.003	48.4152



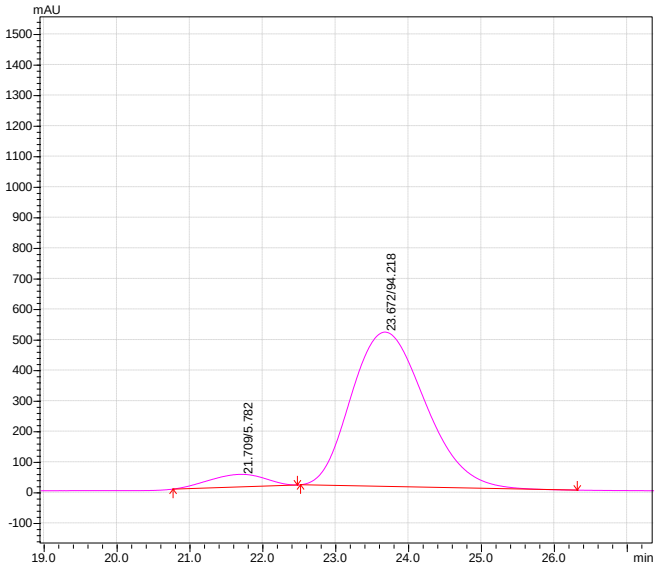
Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	10.713	168728	10.432	11.040	8.8641
2	12.393	1734772	11.979	13.003	91.1359

_N_-[5-Fluoro-indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3r :

White powder, 89% ee [Chiralpak IC column, n-hexane/i-PrOH = 80:20, 0.7 mL/min, t_r (minor) = 21.66 min, t_r (major) = 23.68 min]; ^{1}H NMR (500 MHz, DMSO-d_6): δ 2.24 (s, 3H), 5.88 (d, J = 9 Hz, 1H), 6.84 (s, 1H), 6.91 (t, J = 18 Hz, 1H), 7.03 (d, J = 9.5 Hz, 1H), 7.10 (d, J = 8, 2H), 7.30-7.37 (m, 2H), 7.48(d, J = 7.5 Hz, 1H), 7.69-7.75 (m, 2H), 8.0 (d, J = 8 Hz, 1H), 8.09 (s, 1H), 8.67(d, J = 9Hz, 1H), 11.0 (s, 1H); ^{13}C NMR (125 MHz, DMSO-d_6): δ 21.2, 53.9, 103.8, 104.0, 110.0, 113.0, 113.1, 115.33, 115.37, 122.1, 126.0, 126.9, 129.4, 129.9, 133.5, 134.4, 138.6, 142.7, 143.8, 147.9, 156.2, 158.



Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	21.404	29387620	20.203	22.421	49.0190
2	23.537	30563835	22.688	25.301	50.9810

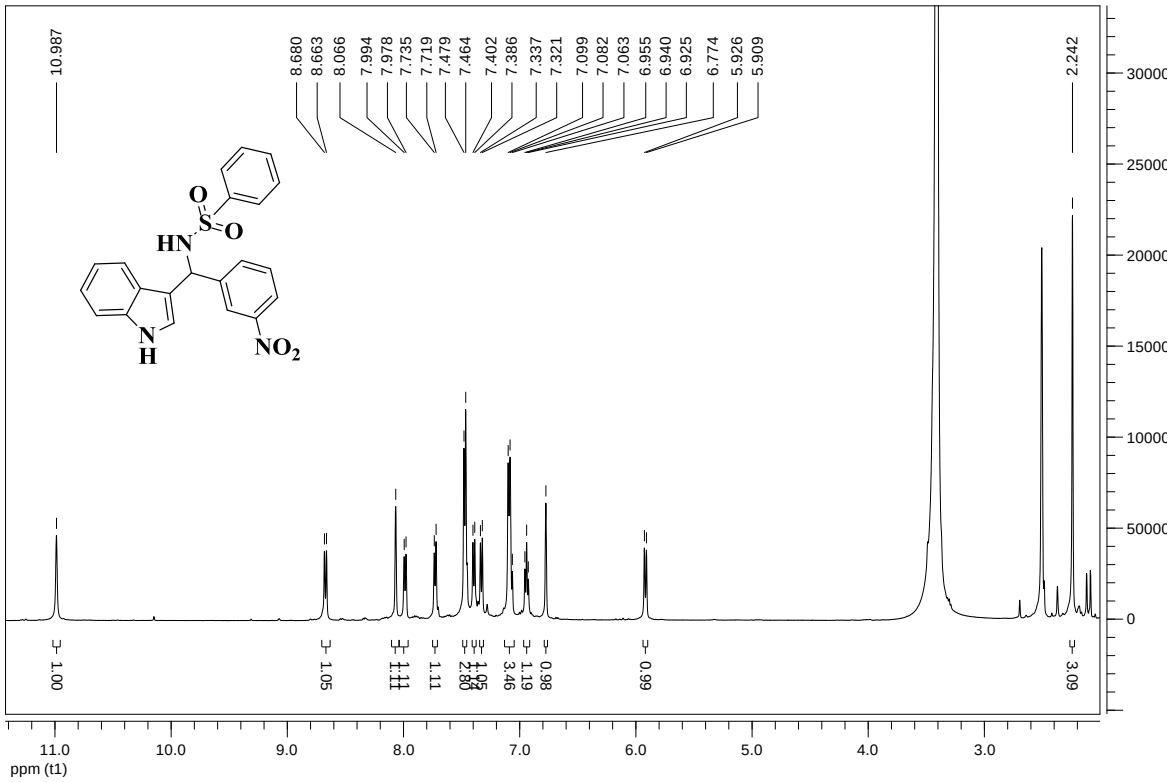


Peak	Ret. Time	Area	Peak Start	Peak End	Area%
1	21.709	2182754	20.768	22.475	5.7821
2	23.672	35567620	22.517	26.315	94.2179

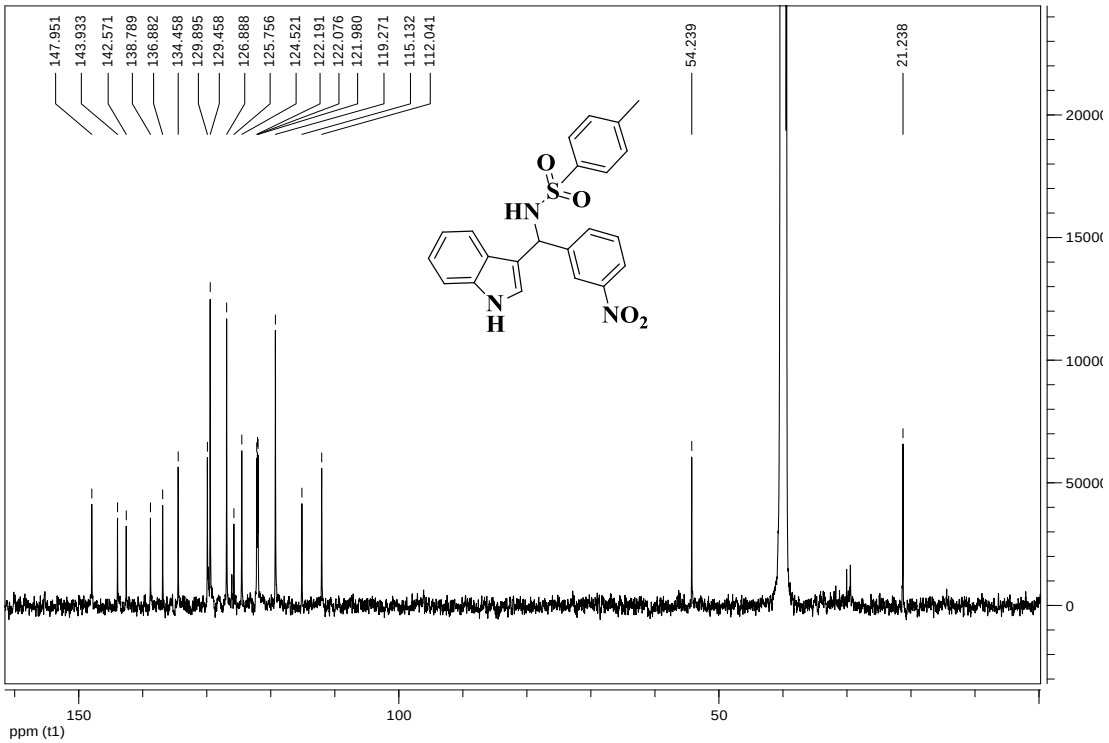
***N*-[*N*-Methyl-indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3s**[4] **:** White powder , ^{1}H NMR (200 MHz, $CDCl_3$): δ 2.32 (s, 3H), 3.57 (s, 3H), 5.02 (d, *J* = 5.8 Hz, 1H), 5.84 (d, *J* = 5.6 Hz, 1H), 6.95 (*t*, *J* = 13.6 Hz, 1H), 7.09 (d, *J* = 8.2 Hz, 2H) 7.16-7.21(m, 3H), 7.37 (*t*, *J* = 16.4), 7.52 (d, *J* = 8 Hz, 1H), 7.66 (d, *J* = 7.4 Hz, 1H), 7.99 (d, *J* = 5.8 Hz,1H). ^{13}C NMR (125 MHz, DMSO-d_6): δ 21.3, 34, 55, 109.6, 113.0, 118, 121.6.2, 123.4 126.1, 127.8, 128.37, 129.1, 133.0, 138.9, 141.3, 143.5, 147.5.

D. **NMR Spectra of Products:**

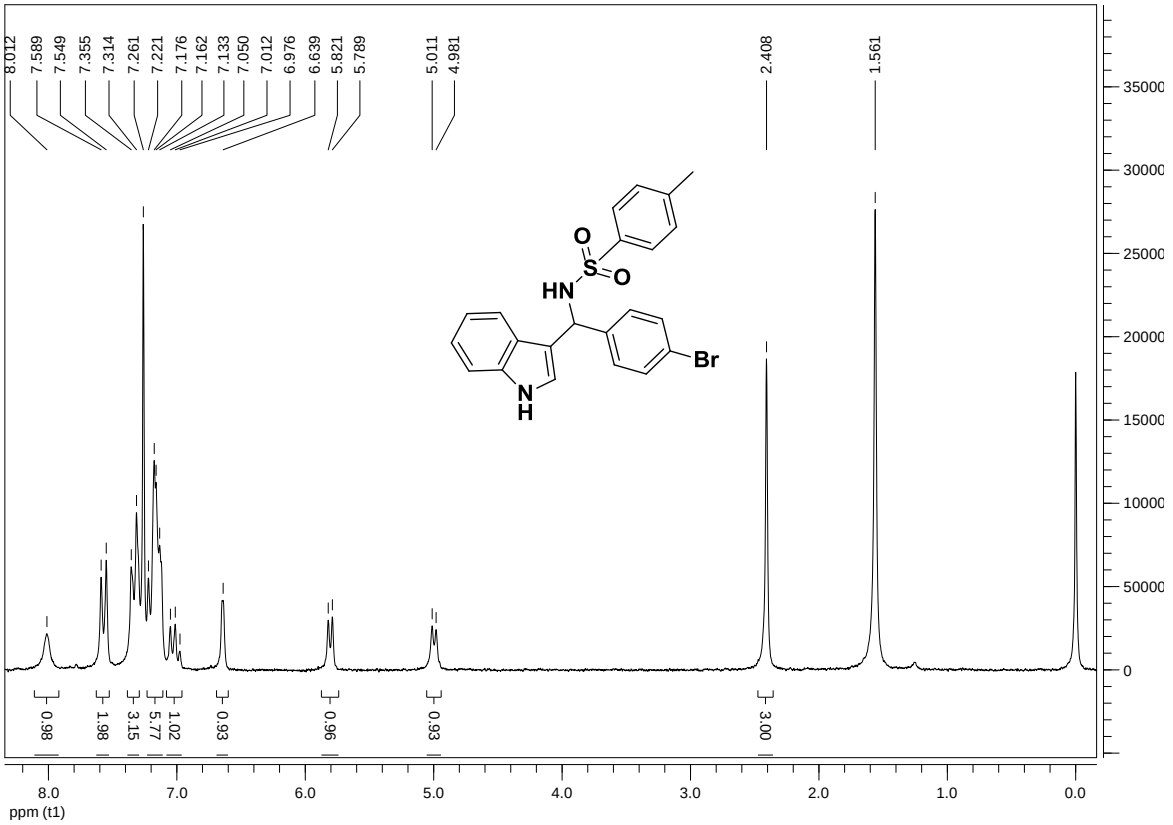
^{1}H spectrum of (-)-***N*-[Indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3a.**



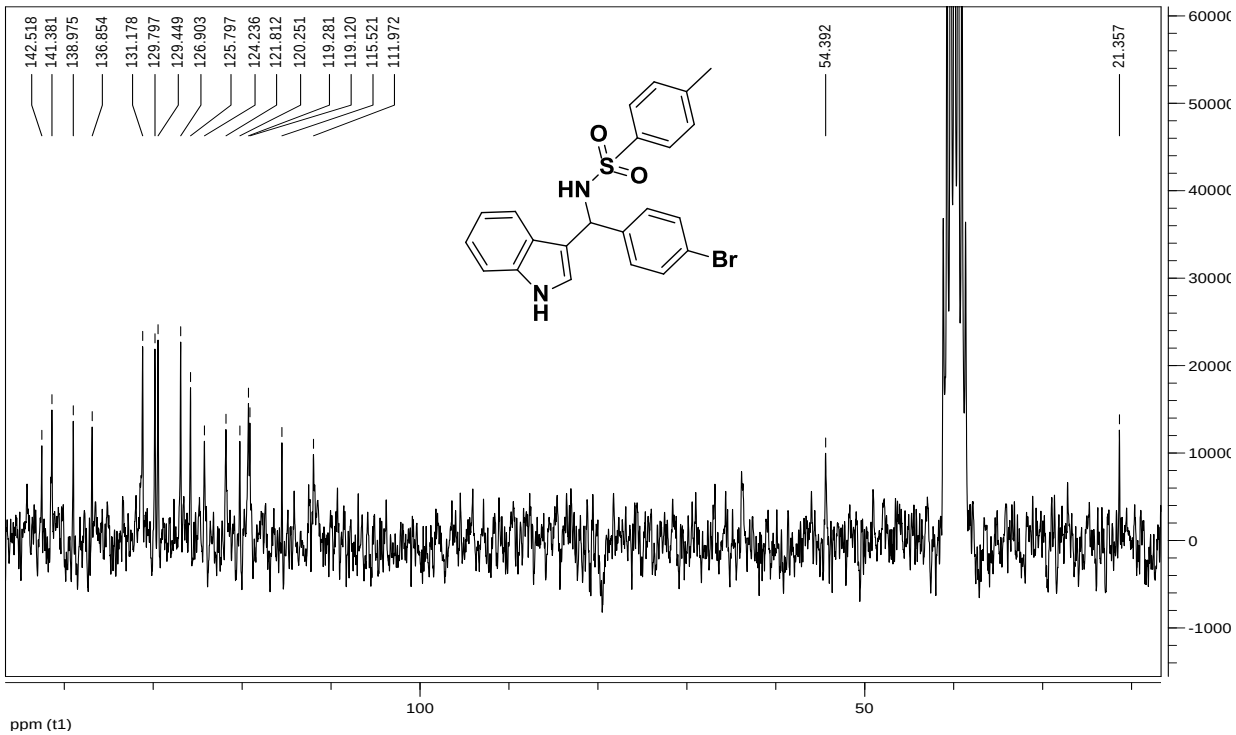
^{13}C spectrum of (-)-***N*-[Indol-3-yl-(3-nitrophenyl)methyl]-4-methylbenzenesulfonamide 3a.**



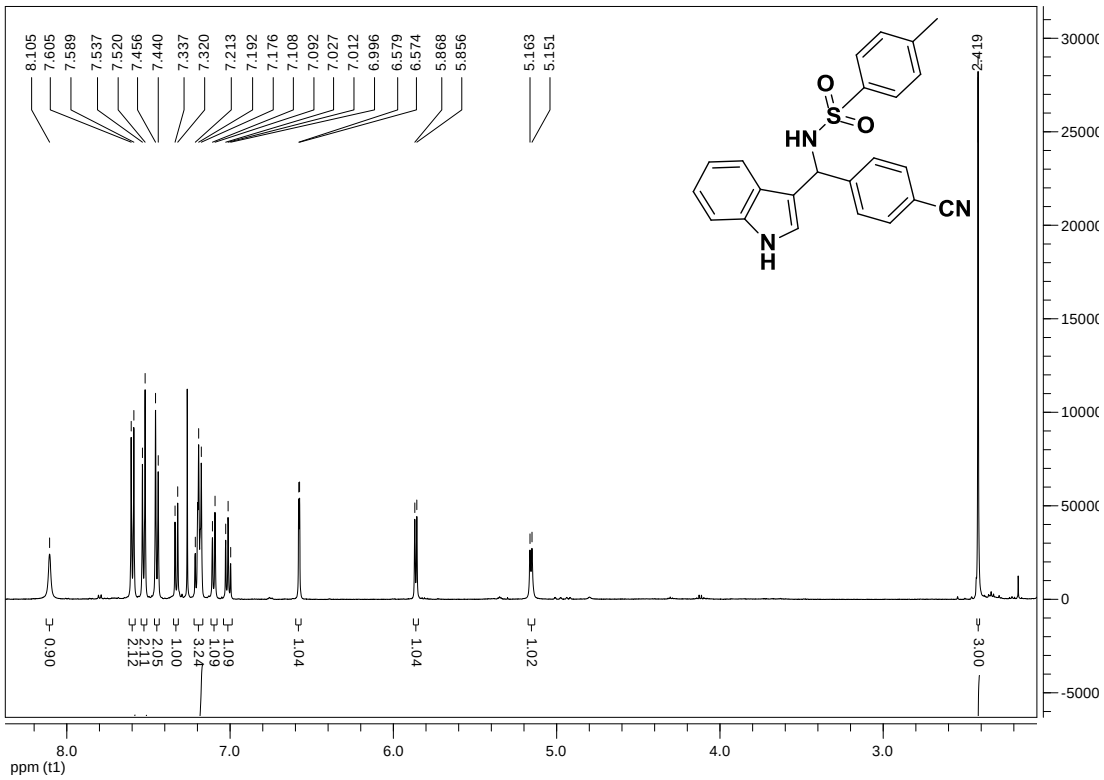
^{1}H spectrum of **(*S*)-*N*-[Indol-3-yl-(4-bromophenyl)methyl]-4-methylbenzenesulfonamide 3c:**



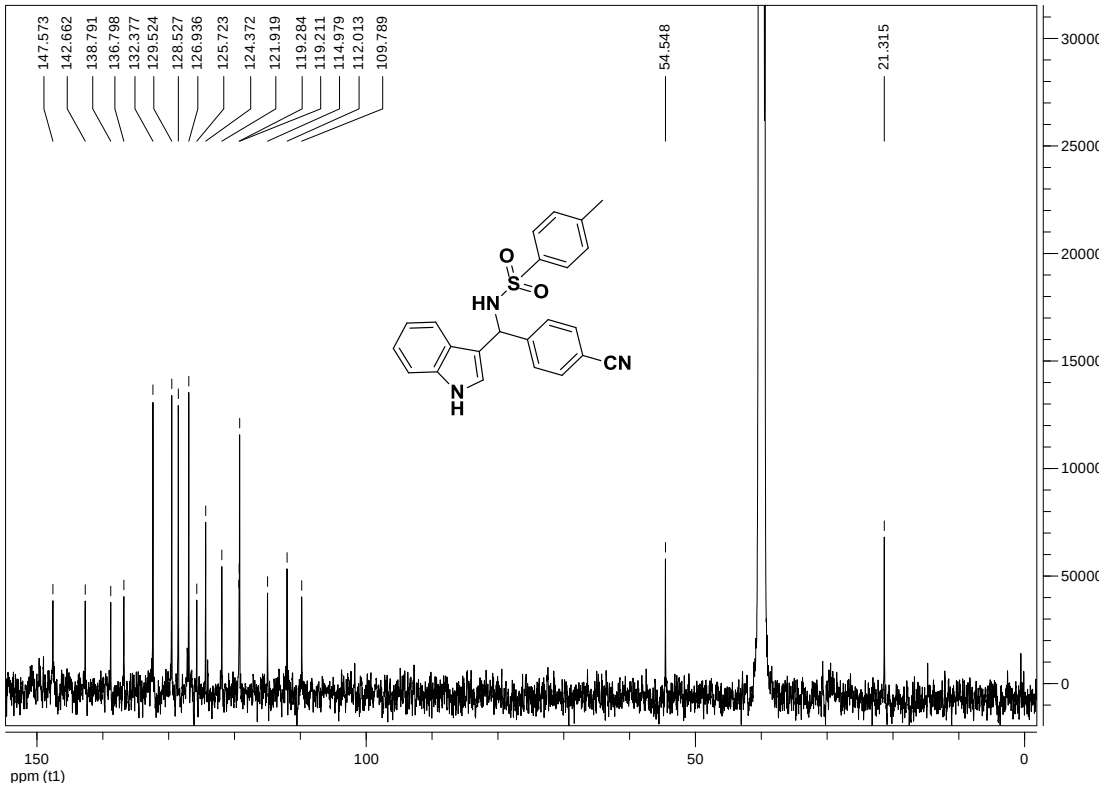
^{13}C spectrum of **(*S*)-N-[Indol-3-yl-(4-bromophenyl)methyl]-4-methylbenzenesulfonamide 3c:**



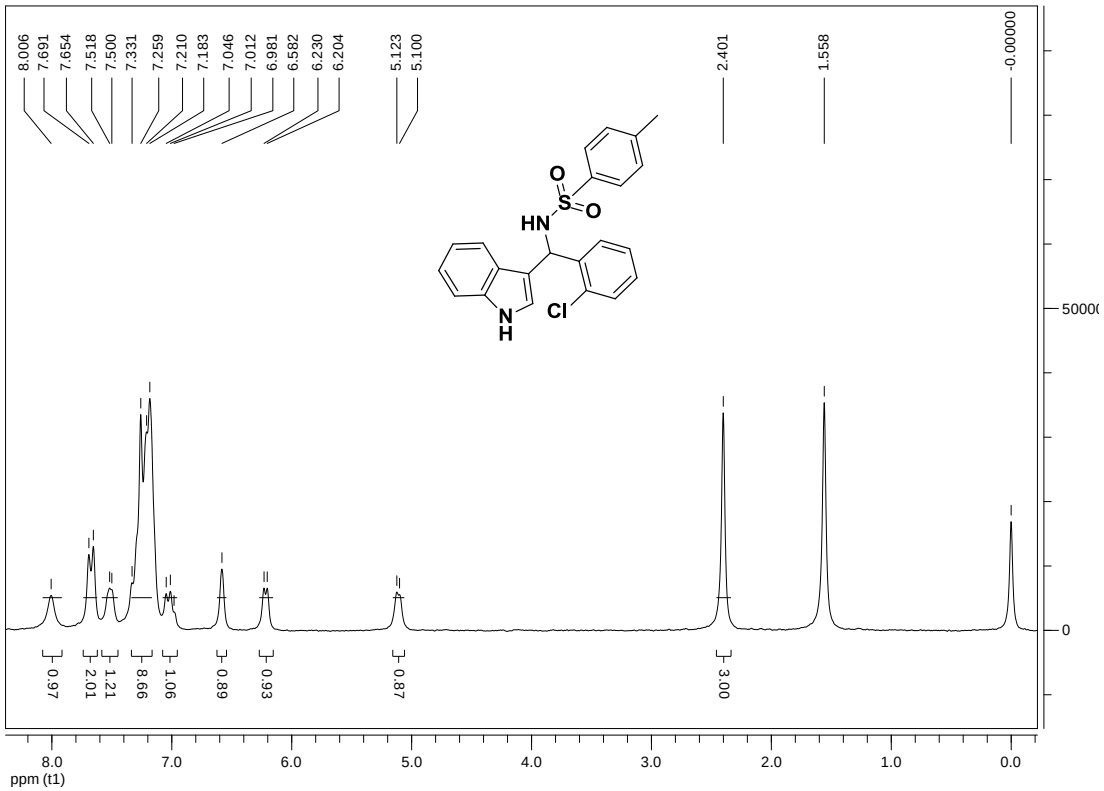
^{1}H spectrum of (-) ***N*-[Indol-3-yl-(4-cyanphenyl)methyl]-4-methylbenzenesulfonamide 3d:**



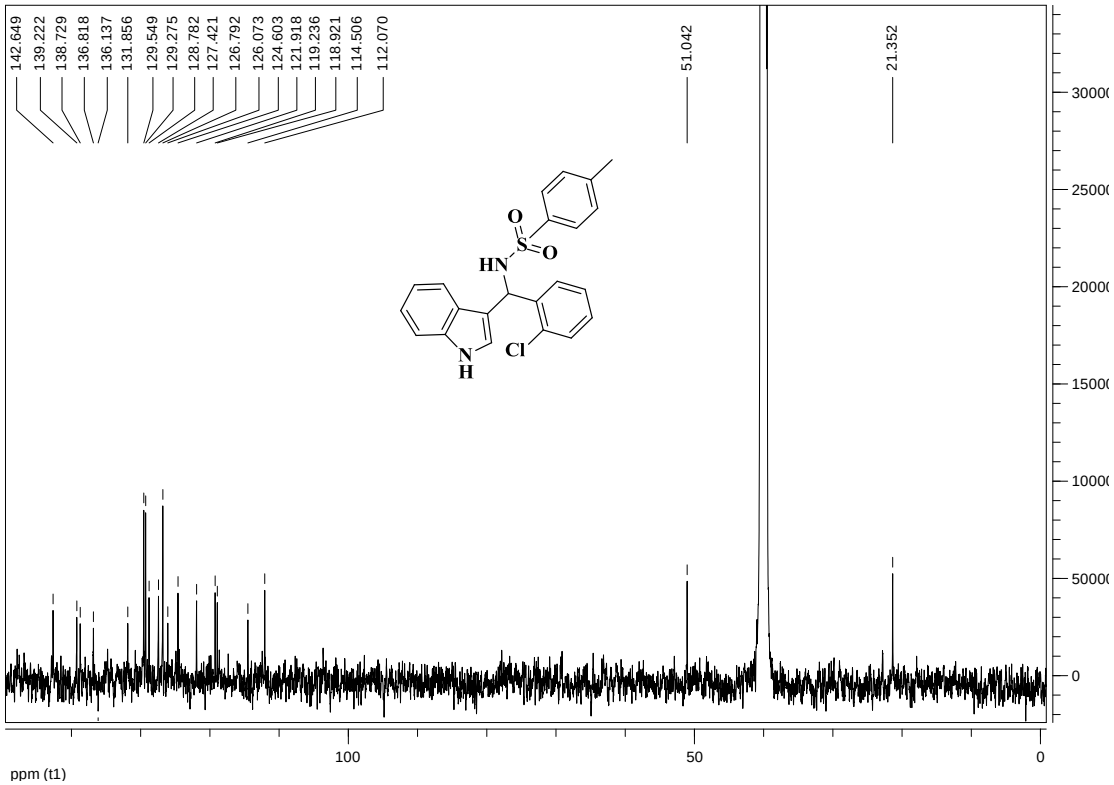
^{13}C spectrum of (-) ***N*-[Indol-3-yl-(4-cyanphenyl)methyl]-4-methylbenzenesulfonamide 3d:**



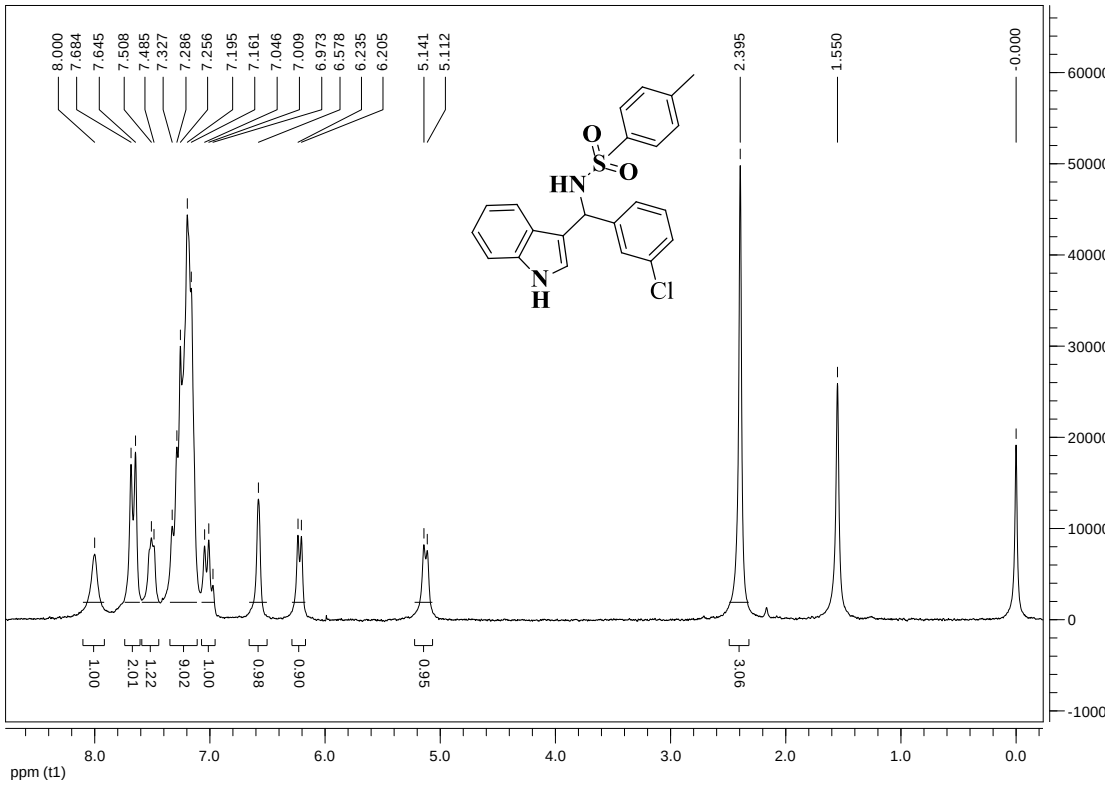
^{1}H spectrum of (-) ***N*-[Indol-3-yl-(2-chlorophenyl)methyl]-4-methylbenzenesulfonamide (3e)**:



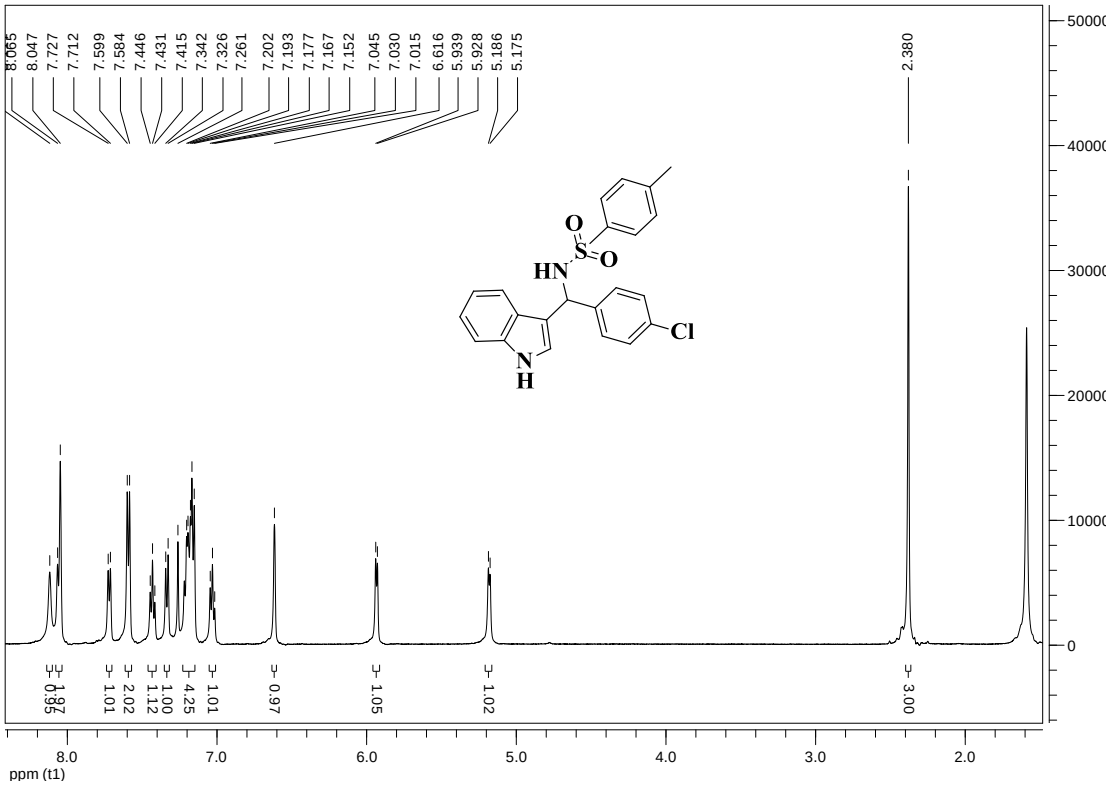
^{13}C spectrum of (-) ***N*-[Indol-3-yl-(2-chlorophenyl)methyl]-4-methylbenzenesulfonamide (3e)**:



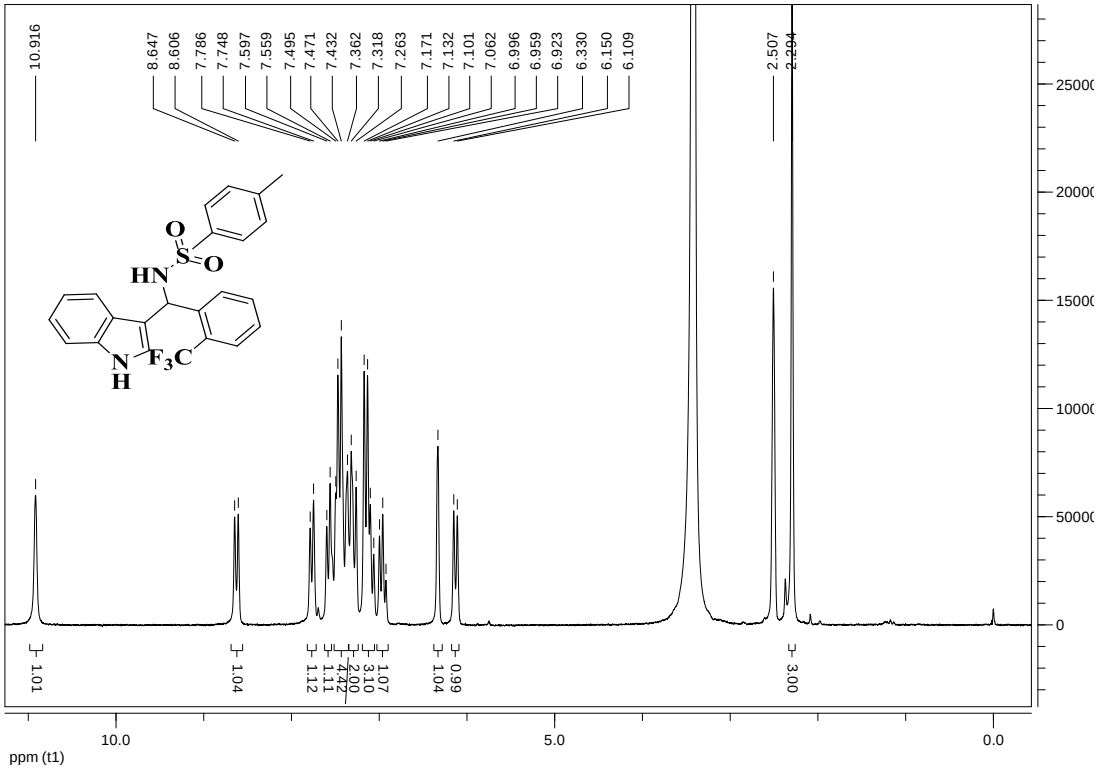
^{1}H spectrum of (-) ***N*-[Indol-3-yl-(3-chlorophenyl)methyl]-4-methylbenzenesulfonamide 3f :**



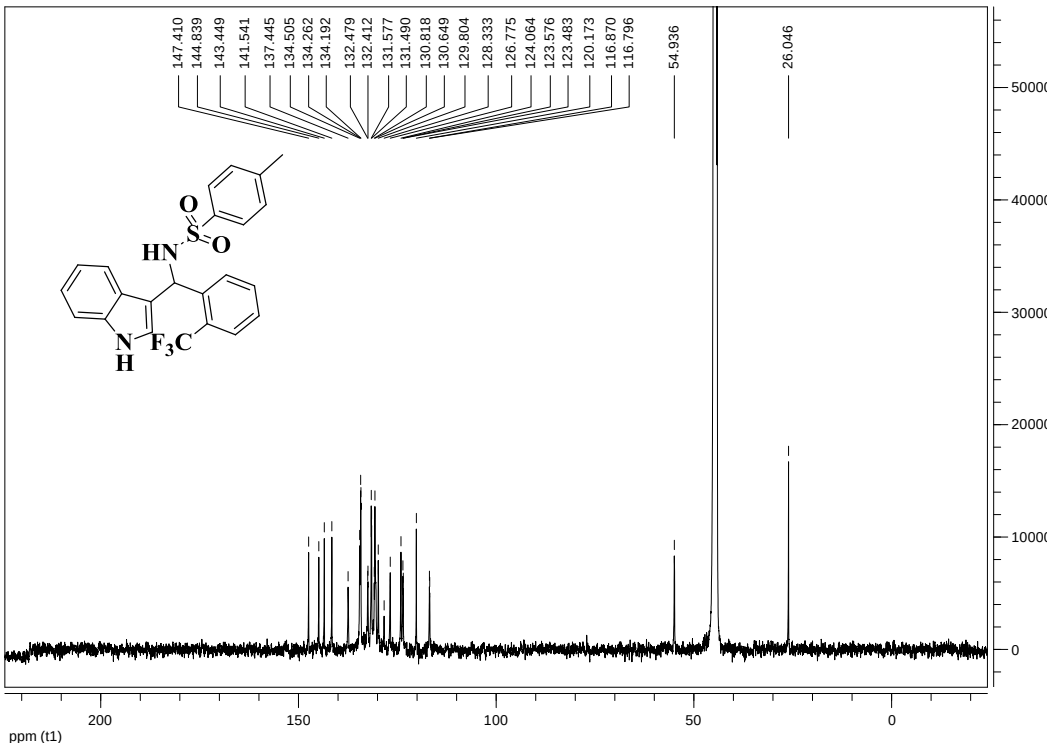
^{1}H spectrum of (-) ***N*-[Indol-3-yl-(4-chlorophenyl)methyl]-4-methylbenzenesulfonamide 3g:**



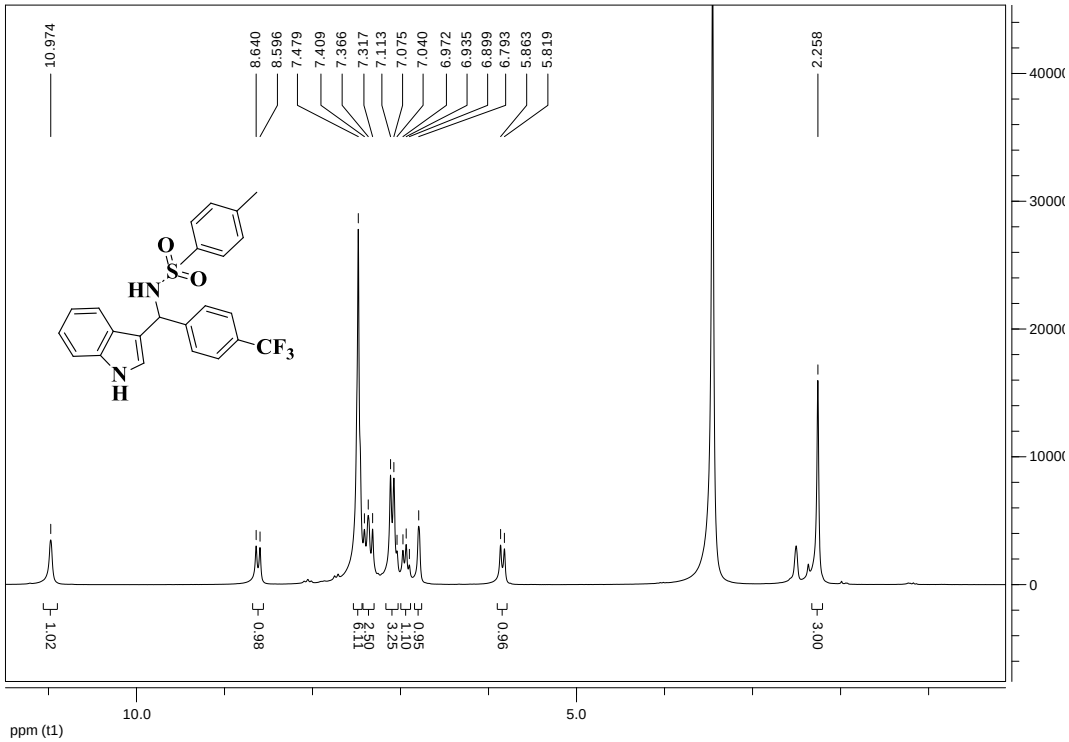
^{1}H spectrum of ***N*-[Indol-3-yl-(2-trifluoromethylphenyl)methyl]-4-methyl benzenesulfonamide 3h:**



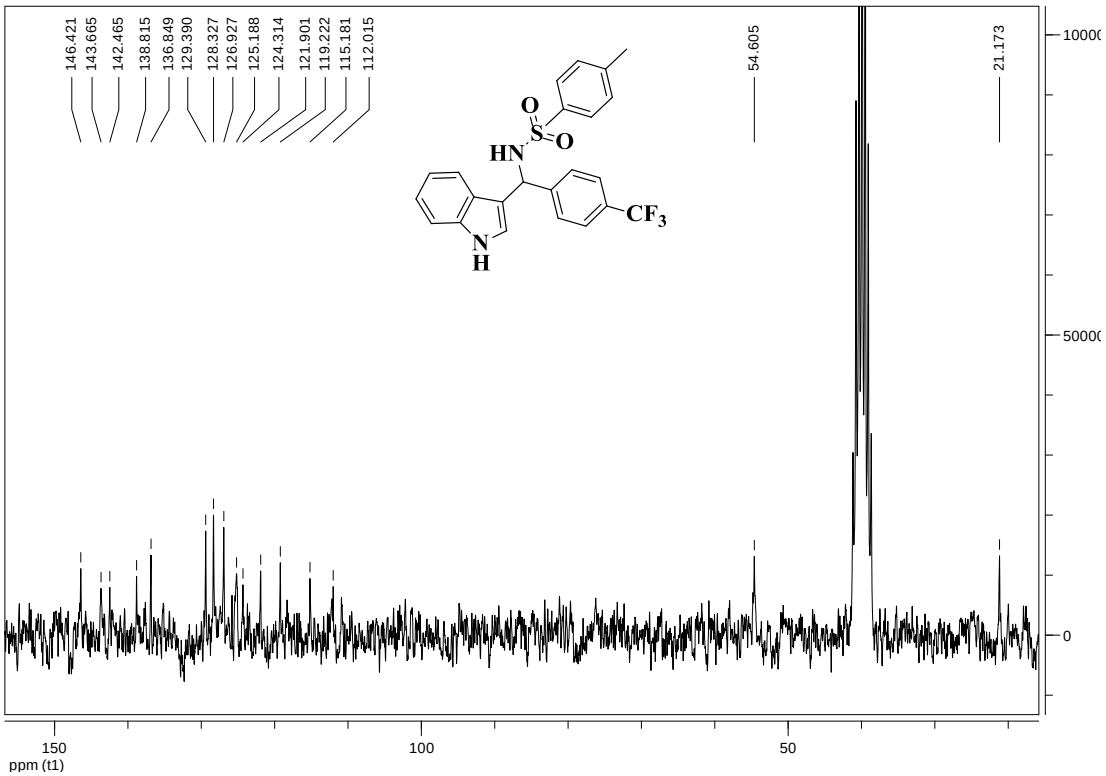
^{13}C spectrum of ***N*-[Indol-3-yl-(2-trifluoromethylphenyl)methyl]-4-methyl benzenesulfonamide 3h:**



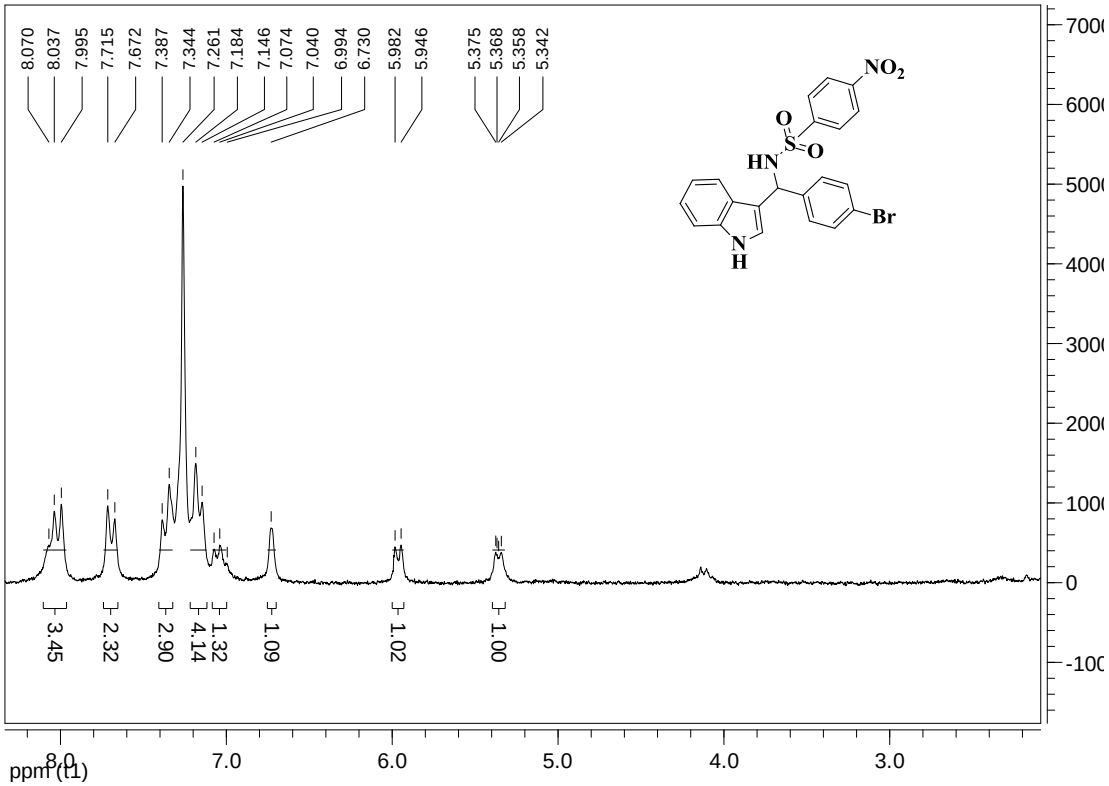
^{1}H spectrum of ***N*-[Indol-3-yl-(4-trifluoromethylphenyl)methyl]-4-methyl benzenesulfonamide 3i:**



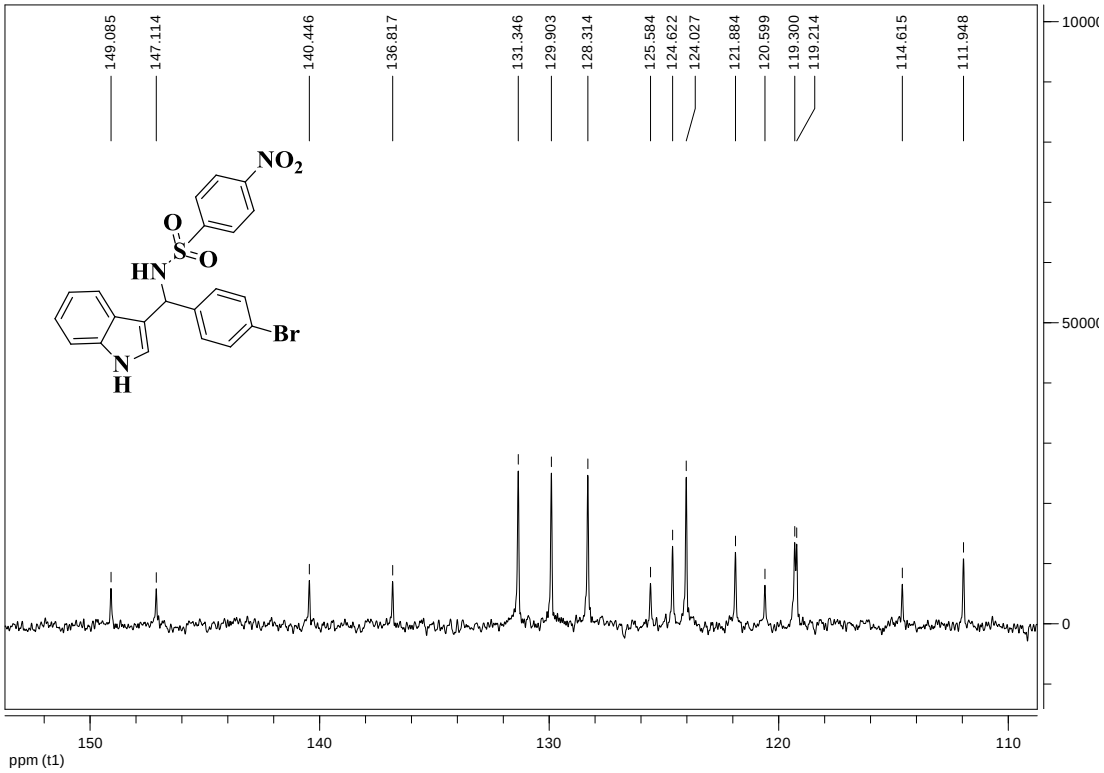
^{13}C spectrum of ***N*-[Indol-3-yl-(4-trifluoromethylphenyl)methyl]-4-methyl benzenesulfonamide 3i:**



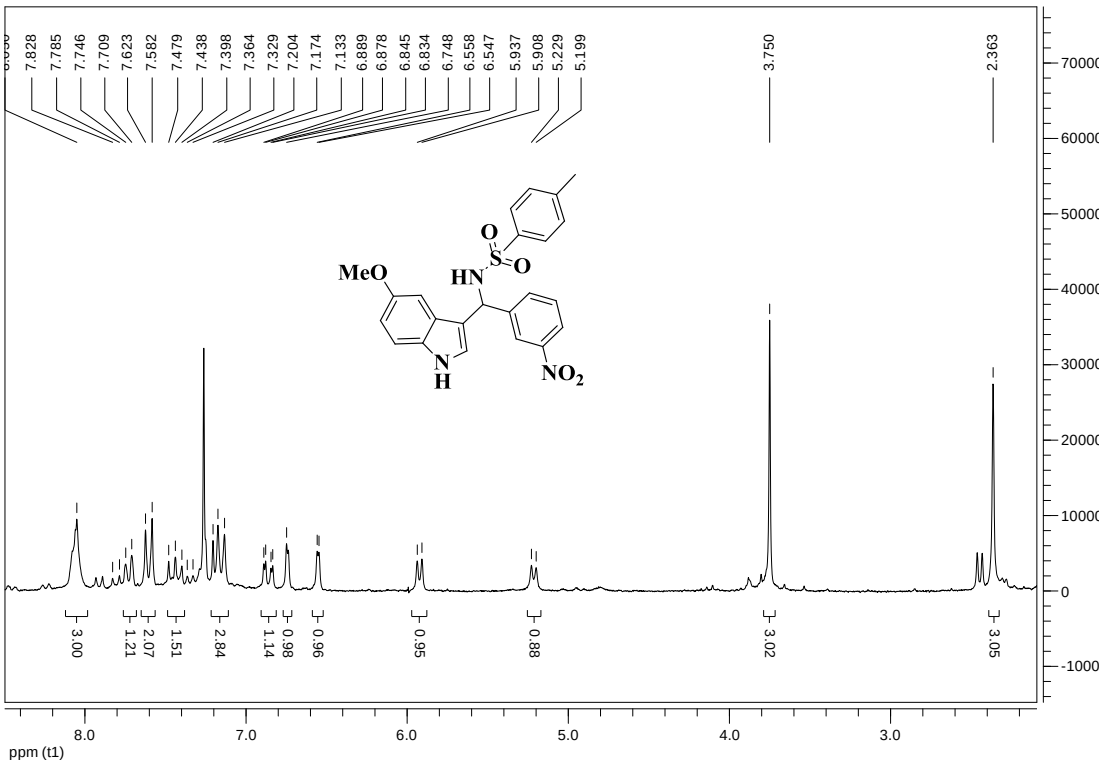
^{1}H spectrum of ***N*-[Indol-3-yl-(4-bromophenyl)methyl]-4-nitrobenzenesulfonamide 3m:**



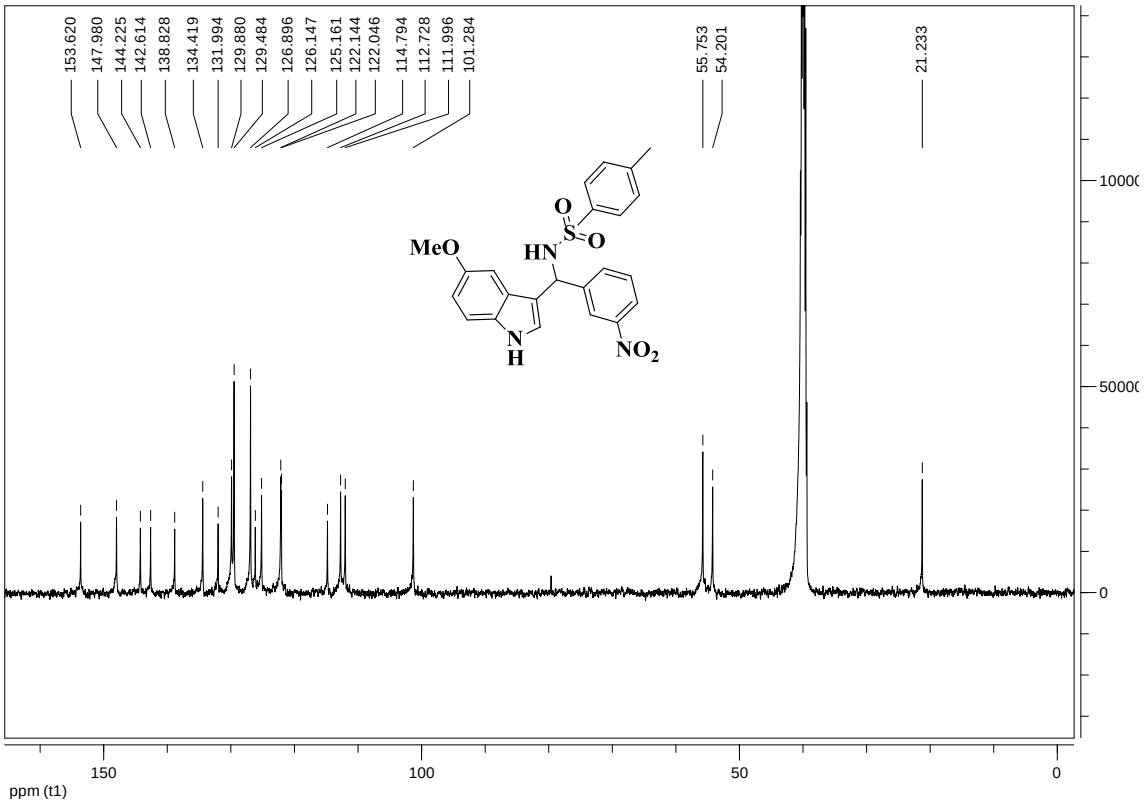
^{13}C spectrum of **(-) *N*-[Indol-3-yl-(4-bromophenyl)methyl]-4-nitrobenzenesulfonamide 3m:**



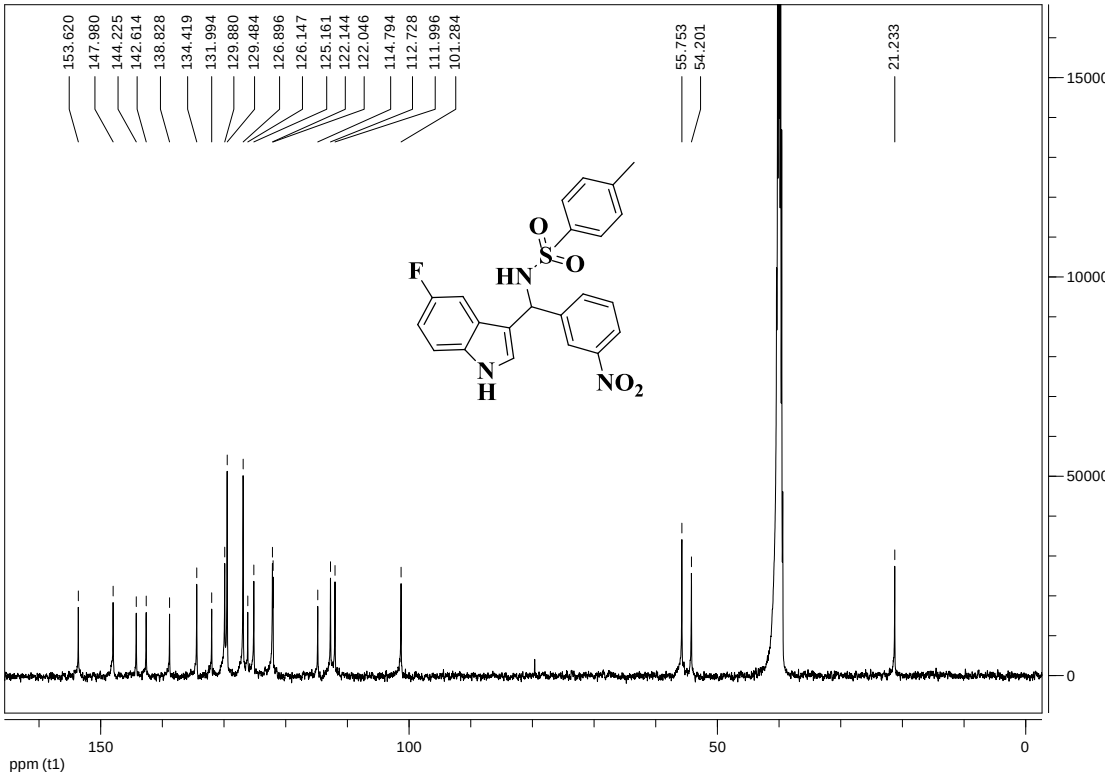
^{1}H spectrum of ***N*-[5-MeO-indol-3-yl-(3-nitrophenyl)methyl]4methylbenzenesulfonamide 3o**:



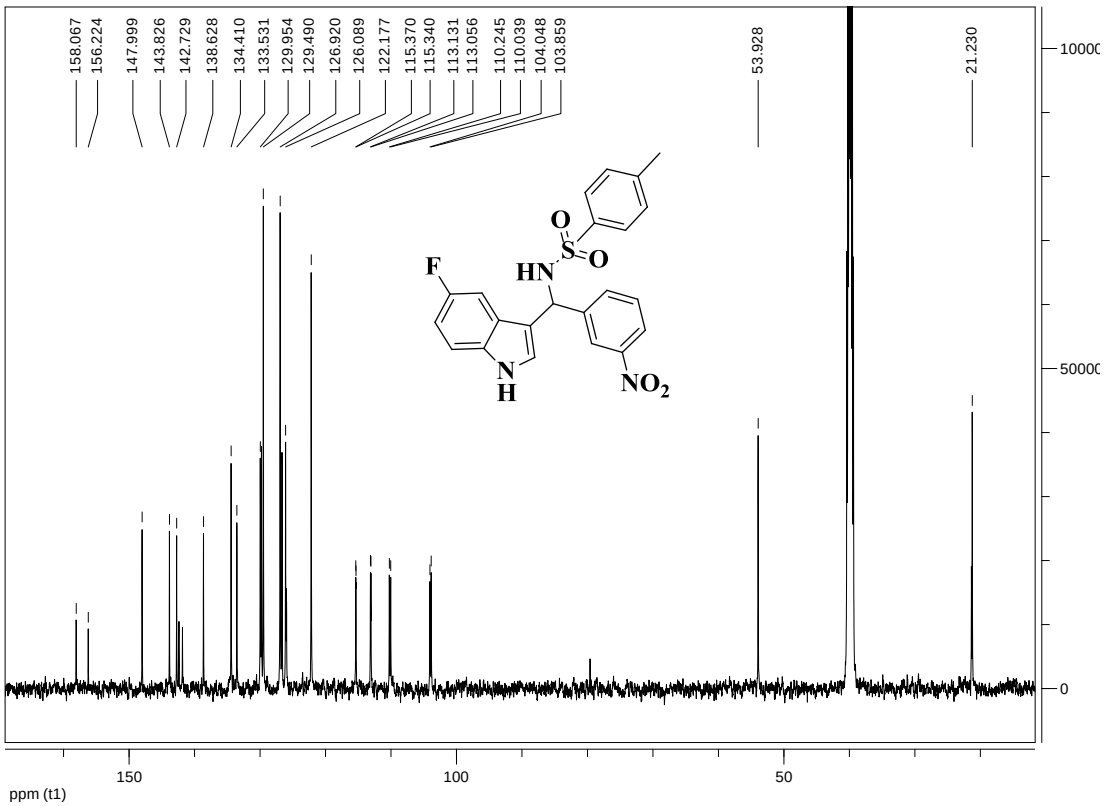
^{13}C spectrum of ***N*-[5-MeO-indol-3-yl-(3-nitrophenyl)methyl]4methylbenzenesulfonamide 3o**:



^{1}H spectrum of ***N*-[5-F-indol-3-yl-(3-nitrophenyl)methyl]4methylbenzenesulfonamide(3o)**:



^{13}C spectrum of ***N*-[5-F-indol-3-yl-(3-nitrophenyl)methyl]4methylbenzenesulfonamide(3o)**:



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