Design, Synthesis and Mechanistic insights of Triclosan Derived Dimers as potential anti-plasmodials

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Table S1: Physicochemical and ADMET properties of compound.

	3a	3b	3c	3d	3e	10a	10b	10c	10d	10e
Absorption										
Water solubility (log mol/L)	-5.278	-6.348	-4.165	-4.909	-3.967	-3.194	-3.171	-3.158	-3.131	-3.109
Caco2 permeability (log Papp in 10^{-6} cm/s)	1.079	1.058	1.081	1.057	1.093	1.097	1.022	0.991	1.01	1.019
Intestinal absorption (human) (% Absorbed)	86.693	85.511	87.562	86.525	85.956	89.623	90.06	89.235	88.282	87.71
Skin permeability (log Kp)	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735
P-glycoprotein substrate	No	No	No	No	No	No	No	No	No	No
P-glycoprotein I inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

P-glycoprotein II inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Metabolism										
CYP2D6 substrate	No	No	No	No	No	No	No	No	No	No
CYP3A4 substrate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CYP1A2 inhibitor	No	No	No	No	No	No	No	No	No	No
CYP2C19 Inhibitor	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
CYP2C9 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CYP2D6 inhibitor	No	No	No	No	No	No	No	No	No	No
CYP3A4 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excretion										
Total Clearance (log ml/min/kg)	-0.081	0.111	0.015	-0.017	-0.047	0.049	0.071	-0.022	-0.05	-0.019
Renal OCT2 substrate	No	No	No	No	No	No	No	No	No	No
Distribution										
VDss (human) (log L/kg)	-0.574	-0.392	-0.752	-0.68	-0.839	-0.742	-0.756	0.791	-0.84	-0.875
BBB permeability (log BB)	-0.078	-0.15	-0.185	-0.232	-0.125	-2.182	-2.221	-2.254	-2.272	-2.287
Fraction unbound (human) (Fu)	0.275	0.21	0.343	0.318	0.361	0.403	0.415	0.428	0.436	0.443
CNS permeability (log PS)	-1.069	-1.002	-1.15	-1.141	-1.128	-2.77	-2.744	-2.71	-2.653	-2.59
Toxicity										
Oral Rat Acute Toxicity (LD50) (mol/kg)	2.652	2.614	2.663	2.608	2.494	2.602	2.668	2.69	2.673	2.628

Hepatotoxicity	No	No	No	No	No	No	No	No	No	No
Skin Sensitisation	No	No	No	No	No	No	No	No	No	No
T.Pyriformis toxicity (log ug/L)	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285
Minnow toxicity (log mM)	-7.202	-7.518	-8.076	-7.539	-7.275	-10.373	-10.316	-10.478	-10.112	-9.348
Log*P*	8.57	9.04	9.34	9.69	9.94	10.44	10.83	11.22	11.61	12.00
TPSA (Å)	36.92	36.92	36.92	36.92	36.92	67.63	67.63	67.63	67.63	67.63
No. of HBA	4	4	4	4	4	6	6	6	6	6
No. of HBD	0	0	0	0	0	0	0	0	0	0
Molar refractivity	146.85	151.65	156.46	161.27	166.07	166.17	170.98	175.79	180.60	185.40

	11a	**11b**	**11c**	**11d**	**11e**	**12a**	**12b**	**12c**	**12d**	**12e**
Absorption										
Water solubility (log mol/L)	-3.037	-3.019	-3.007	-2.991	-2.978	-4.434	-4.461	-4.422	-4.343	-4.242
Caco2 permeability (log Papp in 10-6 cm/s)	0.498	0.463	0.462	0.476	0.476	0.788	0.755	0.726	0.702	0.691
Intestinal absorption (human) (% Absorbed)	100	100	100	100	100	83.194	83.031	82.792	81.769	81.06
Skin permeability (log Kp)	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.735	-2.725	-2.735	-2.735
P-glycoprotein substrate	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
P-glycoprotein I inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P-glycoprotein II inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Metabolism										
CYP2D6 substrate	No	No	No	No	No	No	No	No	No	No
CYP3A4 substrate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CYP1A2 inhibitor	No	No	No	No	No	No	No	No	No	No
CYP2C19 Inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CYP2C9 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CYP2D6 inhibitor	No	No	No	No	No	No	No	No	No	No
CYP3A4 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excretion										
Total Clearance (log ml/min/kg)	0.279	0.301	0.208	0.18	0.211	0.367	0.381	0.288	0.26	0.291
Renal OCT2 substrate	No	No	No	No	No	No	No	No	No	No
Distribution										
VDss (human) (log L/kg)	-1.118	-1.135	-1.167	-1.196	-1.217	-0.652	-0.662	-0.67	-0.71	-0.759
BBB permeability (log BB)	-2.694	-2.733	-2.765	-2.783	-2.685	-2.24	-2.237	0.333	-2.266	-2.282
Fraction unbound (human) (Fu)	0.453	0.465	0.475	0.48	0.484	0.323	0.326	-2.242	0.344	0.352
CNS permeability (log PS)	-2.801	-2.816	-2.803	-2.748	-2.685	-2.636	-2.616	-2.601	-2.567	-2.558
Toxicity										
Oral Rat Acute Toxicity	2.434	2.452	2.462	2.462	2.457	2.904	2.826	2.745	2.674	2.622

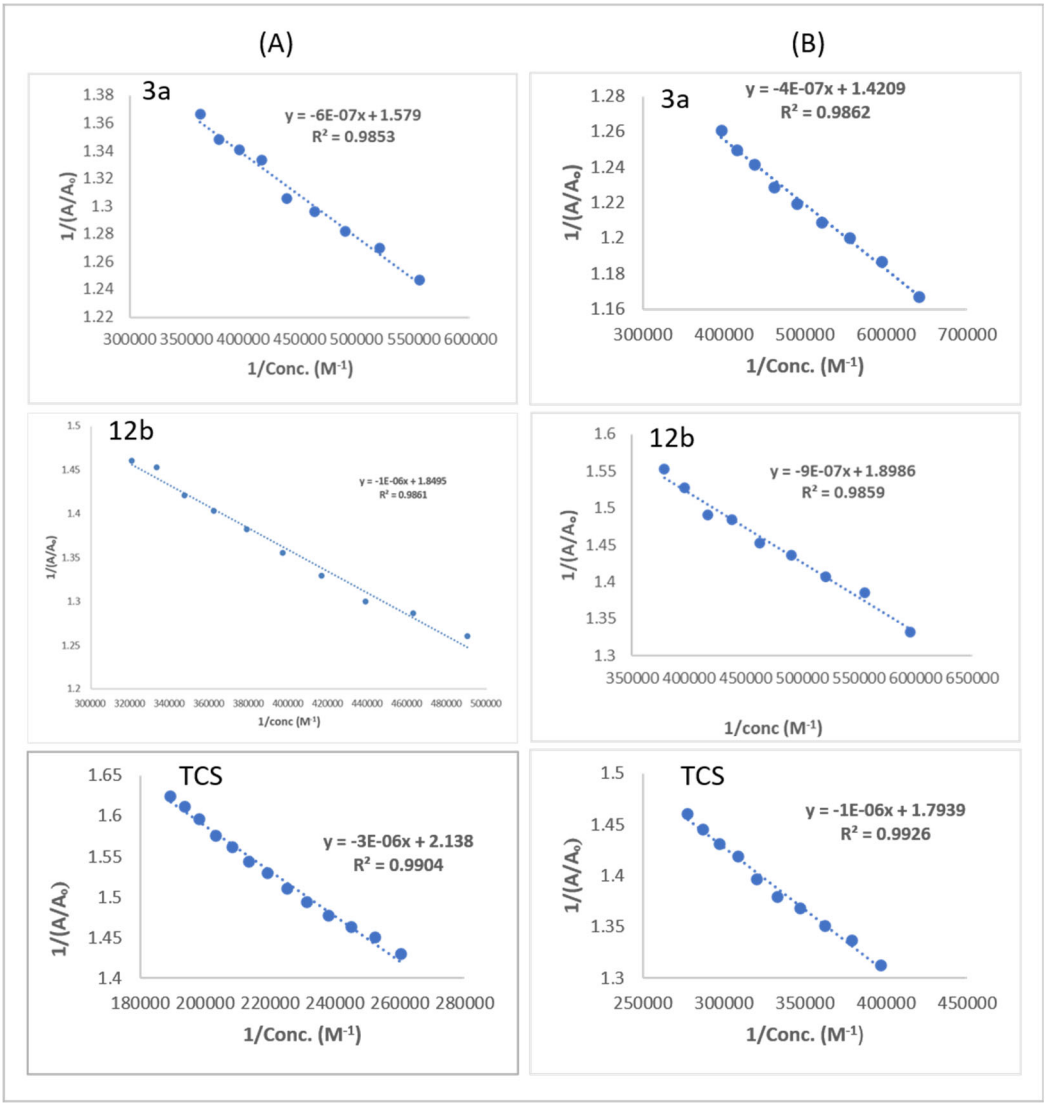
(LD50) (mol/kg)										
Hepatotoxicity	No	No	No	No	No	No	No	No	No	No
Skin Sensitisation	No	No	No	No	No	No	No	No	No	No
T.Pyriformis toxicity (log ug/L)	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285	0.285
Minnow toxicity (log mM)	-11.9	-11.704	-11.748	-11.15	-10.118	-1.75	-2.929	-3.665	-4.135	-4.282
Log*P*	10.34	10.73	11.12	11.51	11.90	10.17	10.56	10.96	11.35	11.74
TPSA (Å)	113.45	113.45	113.45	113.45	113.45	90.66	90.66	90.66	90.66	90.66
No. of HBA	8	8	8	8	8	6	6	6	6	6
No. of HBD	0	0	0	0	0	2	2	2	2	2
Molar refractivity	175.45	179.80	184.61	189.42	194.45	171.01	175.82	180.63	185.43	190.24

Toxicity	**Chloroquine (CQ)**	**Amodiaquine (AQ)**	**Quinine (QN)**
Oral Rat Acute Toxicity (LD50) (mol/kg)	3.011	3.055	2.69

Binding studies with monomeric Heme.

The stock solution (1.2 mM) of hemin chloride was prepared by dissolving hemin chloride (7.8 mg) in DMSO (10 mL). Working solution (12 μM) of hemin chloride was prepared by diluting hemin stock solution (100 μL) to 1 mL 0.02M HEPES buffer (pH 7.4), 4mL DMSO and making final volume up to 10 mL with ultrapure, HPLC grade Hipersolv water. The resultant 40% DMSO solutions maintain the hemin solutions in monomeric state at concentrations used. Likewise, the stock solution (10 mM) of **3a**, **12b** and **TCS** was prepared in DMSO. Working solution (100 μM) of **3a**, **12b** and **TCS** was prepared by diluting (100 μL) to 1mL 0.02M HEPES buffer (pH 7.4), 4mL DMSO and making final volume up to 10 mL. All the working solutions were kept in dark to avoid photo-sensitivity. Diluent solutions were prepared by dissolving 1 mL of 0.02 M HEPES and 4 mL of spectroscopic grade DMSO and made up to a

final volume of 10 mL with ultrapure, HPLC grade Hipersolv water. Hemin chloride solution (12 µM, 2.5 mL) was titrated with increasing concentrations of **3a**, **12b** and **TCS**. Subsequent to each addition of aliquot of the compound in the solution of hemin chloride, absorbance was recorded at 401 nm. Likewise, solution of hemin chloride and **3a**, **12b** and **TCS** were titrated at pH 5.6 (2-[N-morpholino] ethanesulphonate (MES, pH 5.4) buffer was used).



Titration of monomeric heme (12 µM) with increasing concentration of compound 3a, 12b and TCS along with linear dependence of absorption at 401 nm on heme−3a, 12b and TCS complex concentration in aqueous DMSO solution at (A) pH 7.4, 0.02 M HEPES buffer and (B) pH 5.6, 0.02 M MES buffer, respectively.

Spectral data of synthesized compounds.

1,2-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethane (**3a**)

Brown oil (yield 68%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.37 (d, *J* = 2.4 Hz, 2H, Ar-H), 7.04 (dd, *J* = 8.8, 2.5 Hz, 2H, Ar-H), 6.94 (d, *J* = 2.0 Hz, 2H, Ar-H), 6.93 (d, *J* = 2.4 Hz, 1H, Ar-H), 6.91 (d, *J* = 2.4 Hz, 1H, Ar-H), 6.86 (s, 1H, Ar-H), 6.84 (s, 1H, Ar-H), 6.66 (s, 1H, Ar-H), 6.64 (s,1H, Ar-H), 4.17 (s, 4H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.10, 150.38, 143.86, 130.35, 130.28, 128.34, 127.79, 124.90, 122.08, 121.64, 118.74, 116.06, 68.12. $C_{26}H_{16}Cl_6O_4$ $[M]^+$ 601.9180, $[M+2]^+$ 603.9150, $[M+4]^+$ 605.9121, and $[M+6]^+$ 607.9091 and found 601.9192, 603.9161, 605.9110 and 607.9079.

1,3-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propane (**3b**)

Light yellow oil (yield 70%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.40 (d, *J* = 2.5 Hz, 2H, Ar-H), 6.97 – 6.92 (m, 6H, Ar-H), 6.85 (d, *J* = 2.1 Hz, 2H, Ar-H), 6.53 (d, *J* = 8.8 Hz, 2H, Ar-H), 3.80 (t, *J* = 5.8 Hz, 4H, CH_2), 1.95-1.89 (m, 2H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.61, 150.69, 142.70, 130.99, 130.18, 127.82, 127.57, 124.12, 122.43, 121.34, 117.45, 114.75, 64.59, 28.79. $C_{27}H_{18}Cl_6O_4$ $[M]^+$ 615.9336, $[M+2]^+$ 617.9307, $[M+4]^+$ 619.9277, and $[M+6]^+$ 621.9248 and found 615.9347, 617.9320, 619.9265 and 621.9236.

1,4-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butane (**3c**)

Light yellow oil (yield 71%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.42 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.08 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.06 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.00 – 6.86 (m, 7H, Ar-H), 6.61 (d, *J* = 8.8 Hz, 2H, Ar-H), 3.93 (t, *J* = 5.6 Hz, 4H, CH_2- CH_2), 3.31 (t, *J* = 6.3 Hz, 4H, CH_2-CH_2). NMR (101 MHz, $CDCl_3$) δ 152.66, 150.82, 142.95, 130.79, 130.29, 127.89, 127.65, 124.32, 122.44, 121.26, 117.65, 114.79, 68.05, 29.05. $C_{28}H_{20}Cl_6O_4$ $[M]^+$ 629.9493, $[M+2]^+$ 631.9463, $[M+4]^+$ 633.9434, and $[M+6]^+$ 635.9404 and found 629.9482, 631.9474, 633.9423 and 635.9416.

1,5-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentane (**3d**)

Light yellow oil (yield 69%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 (d, *J* = 2.5 Hz, 2H, Ar-H), 7.05 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.03 (d, *J* = 2.5 Hz, 1H, Ar-H), 6.96 (d, *J* = 8.4 Hz, 2H, Ar-H), 6.92 (dt, *J* = 8.3, 2.2 Hz, 4H, Ar-H), 6.59 (d, *J* = 8.8 Hz, 2H, Ar-H), 3.80 (t, *J* = 6.2 Hz, 4H, CH_2-CH_2), 1.57–1.49 (m, 6H, CH_2-CH_2). ^{13}C NMR (126 MHz, $CDCl_3$) δ 152.70, 150.96, 142.78, 130.77, 130.04, 127.60, 127.52, 124.24, 122.33, 120.94, 117.63, 114.65, 68.76, 28.42,

22.20. $C_{29}H_{22}Cl_6O_4$ $[M]^+$ 643.9649, $[M+2]^+$ 645.9620, $[M+4]^+$ 647.9590, and $[M+6]^+$ 649.9561 and found 643.9660, 645.9632, 647.9579 and 649.9572.

1,6-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexane (**3e**)

Light yellow oil (yield 75%); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.35 (d, *J* = 1.4 Hz, 2H, Ar-H), 7.17 (dd, *J* = 7.5, 1.4 Hz, 2H, Ar-H), 6.94 (s, 1H, Ar-H), 6.93 (s, 3H, Ar-H), 6.90 (dd, *J* = 7.5, 1.4 Hz, 2H, Ar-H), 6.78 (d, *J* = 7.4 Hz, 2H, Ar-H), 4.00 (t, *J* = 7.6 Hz, 4H, CH_2), 1.79 (m, 4H, CH_2), 1.41 – 1.38 (m, 4H, CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 151.75, 150.24, 148.34, 132.36, 131.16, 130.53, 129.24, 125.75, 122.89, 121.68, 121.22, 118.62, 71.44, 28.75, 25.44. $C_{30}H_{24}Cl_6O_4$ $[M]^+$ 657.9806, $[M+2]^+$ 659.9776, $[M+4]^+$ 661.9747, and $[M+6]^+$ 663.9717 and found 657.9817, 659.9765, 661.9759 and 663.9706.

1-(2-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10a**)

Light yellow oil (yield 78%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.34 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.31 (s, 1H, triazole-H), 7.16 (d, *J* = 2.3 Hz, 1H, Ar-H), 7.05 (dd, *J* = 2.5, 0.6 Hz, 1H, Ar-H), 7.03 (dd, *J* = 2.5, 0.6 Hz, 1H, Ar-H), 6.97 (dd, *J* = 8.5, 2.3 Hz,1H, Ar-H), 6.94 – 6.90 (m, 3H, Ar-H), 6.87 (t, *J* = 7.6 Hz, 1H, Ar-H), 6.64 (d, *J* = 8.8 Hz, 1H, Ar-H), 6.55 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.08 (s, 2H, CH_2), 4.62 (t, *J* = 4.64 Hz, 2H, CH_2), 4.32 (t, *J* = 5.12 Hz, 2H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.17, 152.03, 150.15, 149.72, 143.64, 143.34, 143.01, 130.83, 130.48, 130.42, 130.20, 128.30, 128.16, 128.03, 127.81, 124.76, 124.32, 124.23, 122.57, 122.19, 122.02, 121.65, 118.64, 117.87, 116.14, 115.39, 67.68, 63.26, 49.67. $C_{29}H_{19}Cl_6N_3O_4$ $[M]^+$ 682.9507, $[M+2]^+$ 684.9477, $[M+4]^+$ 686.9448, and $[M+6]^+$ 688.9418 and found 682.9519, 684.9492, 686.9461 and 688.9429.

4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazole (**10b**)

Light yellow solid (yield 82%); m.p.: 113-116 ºC; ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.45 (d, *J* = 21.9 Hz, 2H, Ar-H), 7.27 (s, 1H, triazole-H), 7.16 – 7.09 (m, 3H, Ar-H), 6.99 (s, 2H, Ar-H), 6.95 (d, *J* = 11.5 Hz, 2H, Ar-H), 6.90 (d, *J* = 8.5 Hz, 1H, Ar-H), 6.72 – 6.67 (t, *J* = 6.5 Hz, 2H, Ar-H), 5.20 (s, 2H, CH_2), 4.31 (t, *J* = 6.4 Hz, 2H, CH_2), 3.92 (t, *J* = 5.4 Hz, 2H, CH_2), 2.28 – 2.26 (m, 2H, CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.41, 152.10, 150.17, 149.88, 143.64, 143.33, 143.04, 130.77, 130.43, 130.25, 130.15, 128.23, 128.15, 127.86, 127.80, 124.68, 124.31, 123.13, 122.17, 122.06, 121.76, 121.60, 118.57, 117.97, 116.16, 115.07, 65.09, 63.59,

46.48, 29.54. $C_{30}H_{21}Cl_6N_3O_4$ $[M]^+$ 696.9663, $[M+2]^+$ 698.9634, $[M+4]^+$ 700.9604, and $[M+6]^+$ 702.9575 and found 696.9674, 698.9645, 700.9615 and 702.9563.

1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10c**)

Beige oil (yield 81%); ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.42 (t, *J* = 2.0 Hz, 2H, Ar-H), 7.30 (s, 1H, triazole-H), 7.17 (d, *J* = 2.1 Hz, 1H, Ar-H), 7.10 (ddd, *J* = 8.6, 6.1, 2.4 Hz, 2H, Ar-H), 7.01 – 6.93 (m, 5H, Ar-H), 6.69 (d, *J* = 8.8 Hz, 1H, Ar-H), 6.68 – 6.64 (m, *J* = 8.8 Hz, 1H, Ar-H), 5.20 (s, 2H, CH_2), 4.29 (t, *J* = 7.0 Hz, 2H, CH_2), 3.98 (t, *J* = 5.7 Hz, 2H, CH_2), 1.90 – 1.83 (m, 2H, CH_2), 1.70 – 1.63 (m, 2H, CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.42, 152.23, 150.58, 150.01, 143.44, 143.41, 142.90, 130.74, 130.59, 130.18, 130.11, 128.06, 127.94, 127.78, 127.71, 124.52, 124.30, 122.50, 122.13, 122.04, 121.84, 121.39, 118.36, 117.80, 116.04, 114.79, 68.23, 63.66, 49.78, 26.89, 25.75. $C_{31}H_{23}Cl_6N_3O_4$ $[M]^+$ 710.9820, $[M+2]^+$ 712.9790, $[M+4]^+$ 714.9761, and $[M+6]^+$ 716.9731and found 710.9809, 712.9787, 714.9771 and 716.9742.

4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazole (**10d**)

Brown oil (yield 78%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.40 (dd, *J* = 11.5, 2.5 Hz, 2H, Ar-H), 7.26 (s, 1H, triazole-H), 7.13 (d, *J* = 2.2 Hz, 1H, Ar-H), 7.09 – 7.06 (m, 2H, Ar-H), 6.97 – 6.89 (m, 5H, Ar-H), 6.65 (d, *J* = 8.8 Hz, 1H, Ar-H), 6.61 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.17 (s, 2H, CH_2), 4.22 (t, *J* = 7.2 Hz, 2H, CH_2), 3.88 (t, *J* = 6.0 Hz, 2H, CH_2), 1.81 (m, 2H, CH_2), 1.65 (s, 4H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.70, 152.29, 150.84, 150.02, 143.46, 143.43, 142.86, 130.82, 130.67, 130.18, 130.15, 128.14, 127.87, 127.75, 127.69, 124.54, 124.32, 122.46, 122.35, 122.09, 121.92, 121.19, 118.40, 117.81, 116.00, 114.73, 68.58, 63.72, 50.27, 29.81, 28.35, 22.98. $C_{32}H_{25}Cl_6N_3O_4$ $[M]^+$ 724.9976, $[M+2]^+$ 726.9947, $[M+4]^+$ 728.9917, and $[M+6]^+$ 730.9888 and found 724.9964, 726.9958, 728.9929 and 730.9877.

1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10e**)

Light yellow oil (yield 84%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 (t, *J* = 2.7 Hz, 2H, Ar-H), 7.27 (s, 1H, triazole-H), 7.14 (d, *J* = 2.2 Hz, 1H, Ar-H), 7.06 (ddd, *J* = 10.0, 8.8, 2.5 Hz, 2H, Ar-H), 6.98 – 6.89 (m, 5H, Ar-H), 6.66 (d, *J* = 8.8 Hz, 1H, Ar-H), 6.60 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.18 (s, 2H, CH_2), 4.26 (t, *J* = 7.1 Hz, 2H, CH_2), 3.87 (t, *J* = 6.0 Hz, 2H, CH_2), 1.83 – 1.74

(m, *J* = 7.3 Hz, 2H, CH_2), 1.62 – 1.54 (m, 2H, CH_2), 1.23 – 1.19 (m, 4H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.75, 152.32, 150.99, 150.06, 143.48, 143.44, 142.85, 130.83, 130.70, 130.18, 130.12, 128.13, 127.85, 127.68, 127.61, 124.55, 124.26, 122.42, 122.38, 122.10, 121.95, 121.07, 118.38, 117.68, 116.04, 114.73, 68.71, 63.77, 50.30, 30.10, 28.75, 26.06, 25.25. $C_{33}H_{27}Cl_6N_3O_4$ $[M]^+$ 739.0133, $[M+2]^+$ 741.0103, $[M+4]^+$ 743.0074, and $[M+6]^+$ 745.0044 and found 739.0121, 741.0112, 743.0085 and 745.0032.

4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(2-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethyl)-1H-1,2,3-triazole (**11a**)

Light yellow solid (yield 80%); m.p.: 148-150 ºC; ^1H NMR (400 MHz, $CDCl_3$) δ 7.65 (s, 1H, Ar-H), 7.59 (s, 1H, triazole-H), 7.32 (s, 1H, Ar-H), 7.30 (dd, *J* = 11.5, 1.4 Hz, 2H, Ar-H), 7.14 (dd, *J* = 7.5, 1.4 Hz, 1H, Ar-H), 7.10 (dd, *J* = 7.5, 1.6 Hz, 1H, Ar-H), 6.95 (d, *J* = 7.5 Hz, 1H, Ar-H), 6.92 (d, *J* = 1.4 Hz, 1H, Ar-H), 6.88 (dd, *J* = 7.5, 1.4 Hz, 1H, Ar-H), 6.83 (d, *J* = 7.5 Hz, 1H, Ar-H), 6.78 (d, *J* = 7.5 Hz, 1H, Ar-H), 5.18 (s, 2H, CH_2), 4.62 (t, *J* = 4.64 Hz, 2H, CH_2), 4.32 (t, *J* = 5.12 Hz, 2H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 154.03, 151.75, 150.70, 149.67, 148.49, 146.30, 142.43, 140.16, 133.28, 132.28, 131.09, 130.16, 129.28, 128.08, 127.20, 126.73, 125.63, 124.20, 122.27, 121.92 120.69, 120.86, 118.63, 117.90, 116.30, 114.29, 67.52, 59.86, 48.35. $C_{29}H_{18}Cl_6N_4O_6$ $[M]^+$ 727.9358, $[M+2]^+$ 729.9328, $[M+4]^+$ 731.9298, and $[M+6]^+$ 733.9269 and found 727.9369, 729.9330, 731.9285, 733.9281.

4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazole (**11b**)

Light yellow solid (yield 78%); m.p.: 181-184 ºC; ^1H NMR (500 MHz, $CDCl_3$) δ 7.50 (s, 1H, triazole-H), 7.47 (dd, *J* = 7.4, 1.2 Hz, 2H, Ar-H), 7.45 (s, 1H, Ar-H), 7.37 (s, 1H, Ar-H), 7.29 (s, 1H, Ar-H), 7.23 (d, *J* = 8.7 Hz, 1H, Ar-H), 7.13 (d, *J* = 7.7 Hz, 1H, Ar-H), 6.99 (s, 1H, Ar-H), 6.95 (s, 1H, Ar-H), 6.88 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.71 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.32 (s, 2H, CH_2), 4.35 (t, *J* = 6.6 Hz, 2H, CH_2), 3.94 (t, *J* = 5.4 Hz, 2H, CH_2), 2.31 (m, 2H, CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.48, 152.37, 150.20, 150.09, 144.10, 143.02, 141.98, 140.48, 130.80, 130.76, 130.37, 130.26, 128.34, 128.19, 127.87, 126.09, 124.37, 124.28, 123.75, 122.15, 121.86, 120.71, 117.99, 116.97, 116.27, 115.10, 65.12, 63.59, 46.61, 29.45. $C_{30}H_{20}Cl_6N_4O_6$ $[M]^+$ 741.9514, $[M+2]^+$ 743.9484, $[M+4]^+$ 745.9455, and $[M+6]^+$ 747.9425 and found 741.9526, 743.9495, 745.9443and 747.9437.

4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-1H-1,2,3-triazole (**11c**)

Brown oil (yield 82%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.49 (s, 1H, triazole-H), 7.45 – 7.43 (m, 2H, Ar-H), 7.37 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.35 (s, 1H, Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.06 (dd, *J* = 8.8, 2.5 Hz, 1H Ar-H), 6.94 (s, 3H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.62 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.29 (s, 2H, CH_2), 4.30 (t, *J* = 7.1 Hz, 2H, CH_2), 3.96 (t, *J* = 5.7 Hz, 2H, CH_2), 1.91 – 1.83 (m, 2H, CH_2), 1.69 – 1.64 (m, 2H, CH_2). ^{13}C NMR (100 MHz,) δ 152.65, 152.46, 150.60, 150.37, 144.04, 142.89, 142.12, 140.52, 130.86, 130.80, 130.30, 130.24, 128.39, 128.00, 127.81, 126.05, 124.57, 124.30, 123.18, 122.19, 121.53, 120.60, 117.86, 117.05, 116.55, 114.83, 68.35, 63.72, 50.00, 27.06, 25.82. $C_{31}H_{22}Cl_6N_4O_6$ $[M]^+$ 755.9670, $[M+2]^+$ 757.9641, $[M+4]^+$ 759.9611, and $[M+6]^+$ 761.9582and found 755.9682, 757.9653, 759.9622and 761.9570.

4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazole (**11d**)

Light yellow solid (yield 79%); m.p.: 97-99 ºC; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.49 (s, 1H, triazole-H), 7.44 (t, *J* = 1.24 Hz, 2H, Ar-H), 7.41 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.36 (s, 1H Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.07 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.95 (s, 1H, Ar-H), 6.92 (dt, *J* = 4.4, 2.2 Hz, 2H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.61 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.30 (s, 2H, CH_2), 4.26 (t, *J* = 7.2 Hz, 2H, CH_2), 3.89 (t, *J* = 5.9 Hz, 2H, CH_2), 1.88-1.80 (m, 2H, CH_2), 1.69 – 1.62 (m, 2H, CH_2), 1.24 (s, 2H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.71, 152.63, 150.82, 150.40, 144.01, 142.88, 142.12, 140.54, 130.85, 130.80, 130.30, 130.14, 128.38, 127.75, 127.70, 126.01, 124.58, 124.32, 123.03, 122.36, 121.26, 120.56, 117.83, 117.06, 116.60, 114.79, 68.61, 63.74, 50.42, 29.77, 28.35, 23.06. $C_{32}H_{24}Cl_6N_4O_6$ $[M]^+$ 769.9827, $[M+2]^+$ 771.9797, $[M+4]^+$ 773.9768, and $[M+6]^+$ 775.9738 and found 769.9838, 771.9786, 773.9755 and 775.9749.

4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-1H-1,2,3-triazole (**11e**)

Brown solid (yield 81%); m.p.: 111-113 ºC; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.49 (s, 1H, triazole-H), 7.44 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.37 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.35 (s, 1H, Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.04 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.96 (dd, *J* = 7.5, 1.3 Hz, 2H, Ar-H), 6.92 (s, 2H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.59 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.30 (s, 2H, -CH_2), 4.29 (t, *J* = 7.2 Hz, 2H, CH_2- CH_2), 3.87 (t, *J* = 6.0 Hz, 2H, CH_2- CH_2), 1.85 – 1.78 (m, 4H, CH_2- CH_2), 1.62 – 1.55 (m, 4H, CH_2- CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.68, 152.55, 150.90, 150.35, 143.94, 142.79, 142.05, 140.49, 130.78, 130.71, 130.20,

130.03, 128.29, 127.59, 127.53, 125.93, 124.51, 124.17, 122.89, 122.35, 121.05, 120.45, 117.62, 117.02, 116.56, 114.71, 68.64, 63.72, 50.33, 30.02, 28.67, 25.97, 25.16. $C_{33}H_{26}Cl_6N_4O_6$ $[M]^+$ 783.9983, $[M+2]^+$ 785.9954, $[M+4]^+$ 787.9924, and $[M+6]^+$ 789.9895 and found 783.9995, 785.9965, 787.9912 and 789.9884.

5-chloro-4-(((1-(2-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12a**)

Light yellow solid (yield 81%); m.p.: 152-155 ºC; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.46 (s, 1H, triazole-H), 7.43 (s, 1H, Ar-H), 7.42 – 7.40 (dd, *J* = 2.9, 2.6 Hz, 2H, Ar-H), 7.36 (s, 1H), 7.16 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.07 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.98 (dd, *J* = 8.5, 2.3 Hz, 1H, Ar-H), 6.93 (d, *J* = 2.1 Hz, 2H, Ar-H), 6.90 (s, NH-exchangeable with D_2O), 6.83 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.55 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.20 (s, 2H, CH_2), 4.66 (t, *J* = 4.48 Hz, 2H, CH_2), 4.33 (t, *J* = 4.52 Hz, 2H, CH_2). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.70, 152.11, 150.27, 149.69, 144.15, 142.76, 142.08, 140.44, 130.99, 130.81, 130.42, 130.35, 128.38, 128.23, 128.06, 126.17, 124.83, 124.44, 124.19, 122.6, 122.32, 120.80, 117.73, 117.04, 116.32, 115.19, 67.58, 63.30, 49.80. $C_{29}H_{20}Cl_6N_4O_4$ $[M]^+$ 697.9616, $[M+2]^+$ 699.9586 $[M+4]^+$ 701.9557, and $[M+6]^+$ 703.9527 and found 697.9605, 699.9574, 701.9568 and 703.9537.

5-chloro-4-(((1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12b**)

Light yellow solid (yield 84%); m.p.: 168-171 ºC; ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.50 (s, 1H, triazole-H), 7.47 (dd, *J* = 7.4, 1.9 Hz, 2H, Ar-H), 7.44 (s, 1H, Ar-H), 7.37 (s, 1H, Ar-H), 7.29 (s, 1H, Ar-H), 7.23 (dd, *J* = 8.7, 1.7 Hz, 1H, Ar-H), 7.13 (dd, *J* = 8.7, 1.8 Hz, 1H, Ar-H), 6.99 (s, 1H, Ar-H), 6.95 (s, 1H, Ar-H), 6.89 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.71 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.32 (s, 2H, CH_2), 4.35 (t, *J* = 6.7 Hz, 2H, CH_2), 3.94 (t, *J* = 5.5 Hz, 2H, CH_2), 2.31 (dt, *J* = 12.1, 6.0 Hz, 2H, CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.48, 152.37, 150.20, 150.09, 144.10, 143.02, 141.98, 130.80, 130.73, 130.37, 130.26, 128.34, 128.19, 127.87, 126.09, 124.37, 124.28, 123.75, 122.15, 121.86, 120.71, 117.99, 116.97, 116.26, 115.10, 65.11, 63.59, 46.61, 29.44. $C_{30}H_{22}Cl_6N_4O_4$ $[M]^+$ 711.9772, $[M+2]^+$ 713.9743, $[M+4]^+$ 715.9713, and $[M+6]^+$ 717.9684 and found 711.9784, 713.9731, 715.9724 and 717.9694.

5-chloro-4-(((1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12c**)

Light yellow solid (yield 81%); m.p.: 107-110 ºC; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.49 (s, 1H, triazole-H), 7.44 (d, *J* = 2.8 Hz, 2H, Ar-H), 7.38 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.35 (s,1H, Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.06 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.94 (s, 3H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.62 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.29 (s, 2H, CH_2), 4.30 (t, *J* = 7.1 Hz, 2H, CH_2), 3.96 (t, *J* = 5.8 Hz, 2H, CH_2), 1.86 (m, 2H, CH_2), 1.68 – 1.64 (m, 2H, CH_2). ^{13}C NMR (126 MHz, $CDCl_3$) δ 152.60, 152.40, 150.53, 150.31, 143.98, 142.84, 142.05, 140.46, 130.81, 130.74, 130.24, 130.18, 130.14, 128.32, 127.94, 127.74, 125.98, 124.50, 124.24, 123.12, 122.12, 121.47, 120.54, 117.79, 117.00, 116.49, 114.77, 68.29, 63.66, 49.93, 26.99, 25.75. $C_{31}H_{24}Cl_6N_4O_4$ $[M]^+$ 725.9929, $[M+2]^+$ 727.9899, $[M+4]^+$ 729.9870, and $[M+6]^+$ 731.9840 and found 725.9940, 727.9888, 729.9882 and 731.9830.

5-chloro-4-(((1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12d**)

Brown oil (yield 68%); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.49 (s, 1H, triazole-H), 7.44 (s, 1H, Ar-H), 7.41 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.35 (s, 1H, Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.07 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.97 – 6.90 (m, 4H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.61 (dd, *J* = 8.8, 2.2 Hz, 1H, Ar-H), 5.30 (s, 2H, -CH2), 4.25 (t, *J* = 7.2 Hz, 2H, CH_2-CH_2), 3.89 (t, *J* = 4.8 Hz, 2H, CH_2-CH_2), 1.84 (m, 2H, CH_2-CH_2), 1.69 – 1.61 (m, 2H, CH_2-CH_2). ^{13}C NMR (125 MHz, $CDCl_3$) δ 152.63, 152.55, 150.74, 150.32, 143.94, 142.81, 142.04, 140.46, 130.72, 130.22, 130.06, 128.31, 127.68, 127.62, 126.31, 125.93, 124.51, 124.25, 122.96, 122.28, 121.19, 120.49, 117.75, 116.99, 116.53, 114.72, 68.54, 63.69, 50.35, 29.74, 28.28, 22.99. $C_{32}H_{26}Cl_6N_4O_4$ $[M]^+$ 740.0085, $[M+2]^+$ 742.0056, $[M+4]^+$ 744.0026, and $[M+6]^+$ 746.0093 and found 740.0076, 742.0067, 744.0037 and 746.0080.

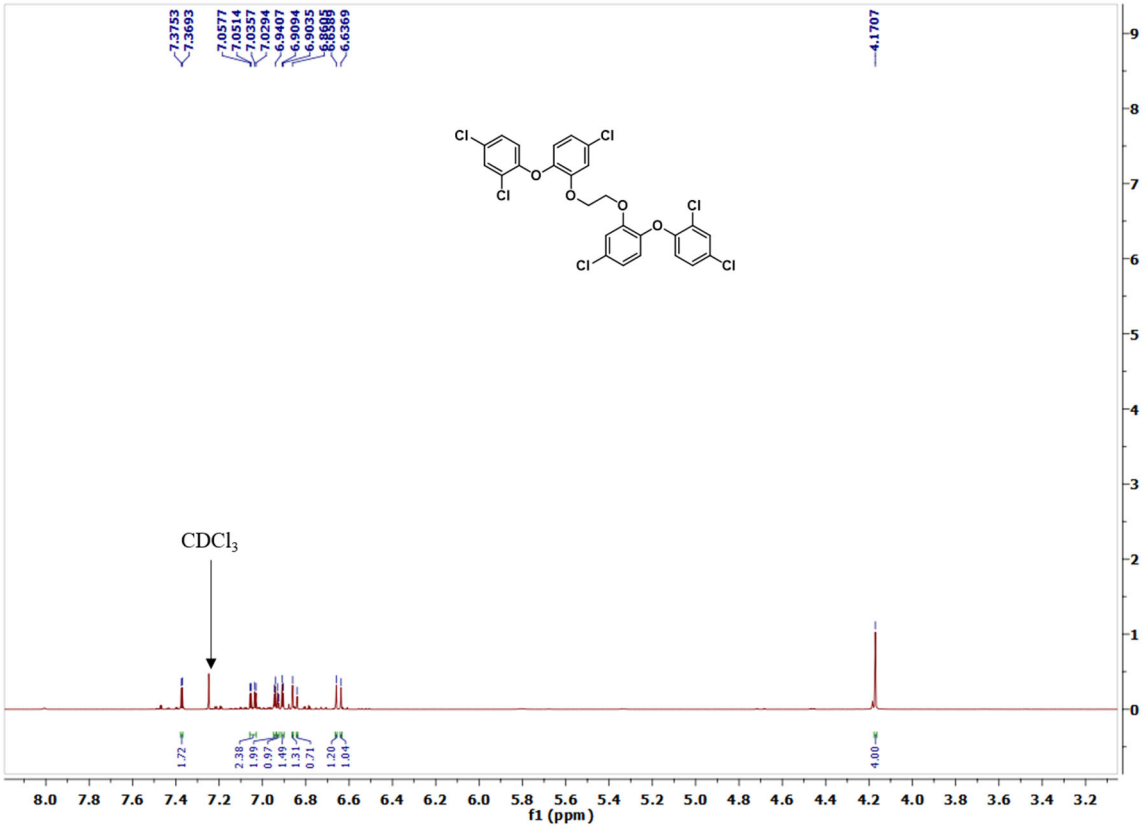
5-chloro-4-(((1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12e**)

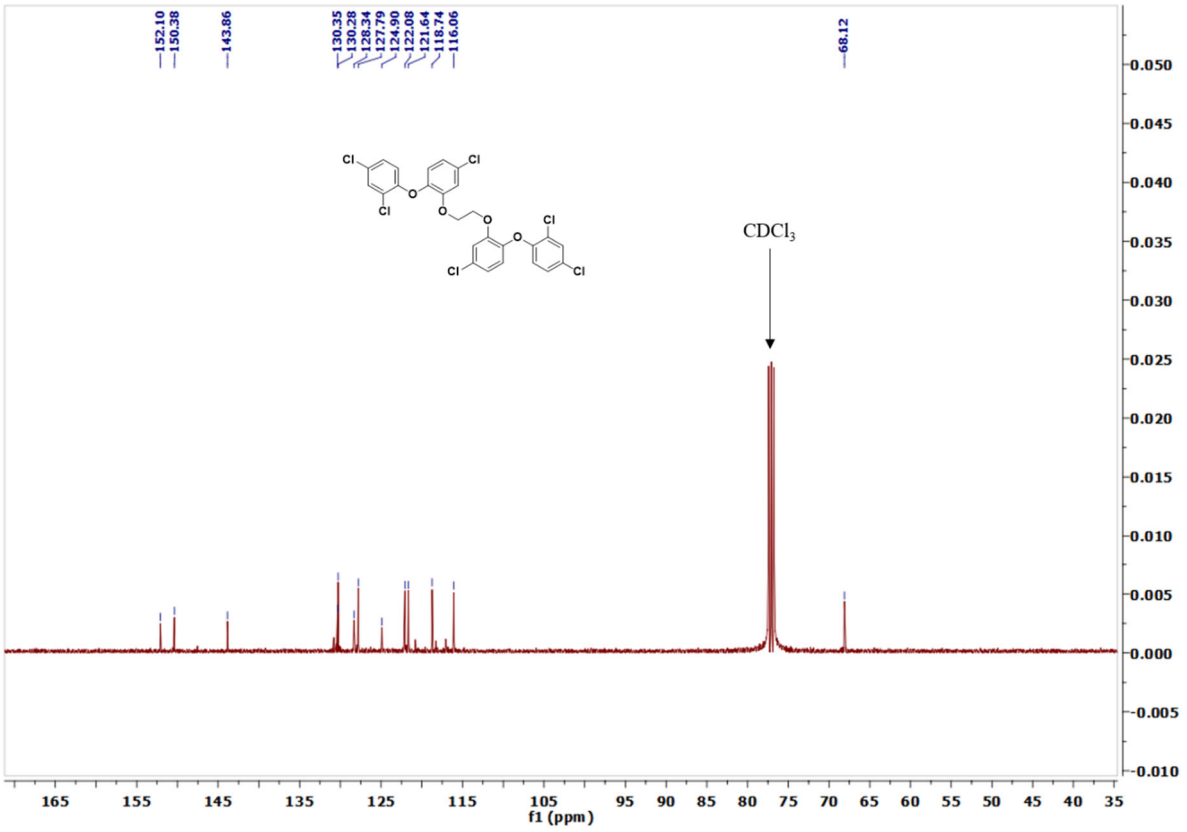
Light yellow solid (yield 78%); m.p.: 108-110 ºC; ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.50 (s, 1H, Ar-H), 7.45 (s, 1H, Ar-H), 7.44 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.38 (d, *J* = 2.5 Hz, 1H, Ar-H), 7.35 (s, 1H, Ar-H), 7.18 (dd, *J* = 8.7, 2.5 Hz, 1H, Ar-H), 7.05 (dd, *J* = 8.8, 2.5 Hz, 1H, Ar-H), 6.95 (t, *J* = 1.1 Hz, 1H, Ar-H), 6.92 (s, 2H, Ar-H), 6.84 (d, *J* = 8.7 Hz, 1H, Ar-H), 6.60 (d, *J* = 8.8 Hz, 1H, Ar-H), 5.30 (s, 2H), 4.30 (t, *J* = 7.2 Hz, 2H), 3.87 (t, *J* = 6.0 Hz, 2H), 1.85 – 1.78 (m, 2H), 1.62 – 1.57 (m, 2H), 1.24 (s, 4H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 152.76, 152.63, 150.97,

150.41, 144.02, 142.83, 142.12, 140.55, 130.87, 130.79, 130.29, 130.10, 128.37, 127.65, 127.61, 126.01, 124.59, 124.23, 122.99, 122.44, 121.12, 120.55, 117.68, 117.06, 116.62, 114.75, 68.68, 63.76, 50.42, 30.09, 29.77, 28.74, 25.23. $C_{33}H_{28}Cl_6N_4O_4$ $[M]^+$ 754.0242, $[M+2]^+$ 756.0212, $[M+4]^+$ 758.0183, and $[M+6]^+$ 760.0153 and found 754.0253, 756.0225, 758.0194 and 760.0164.

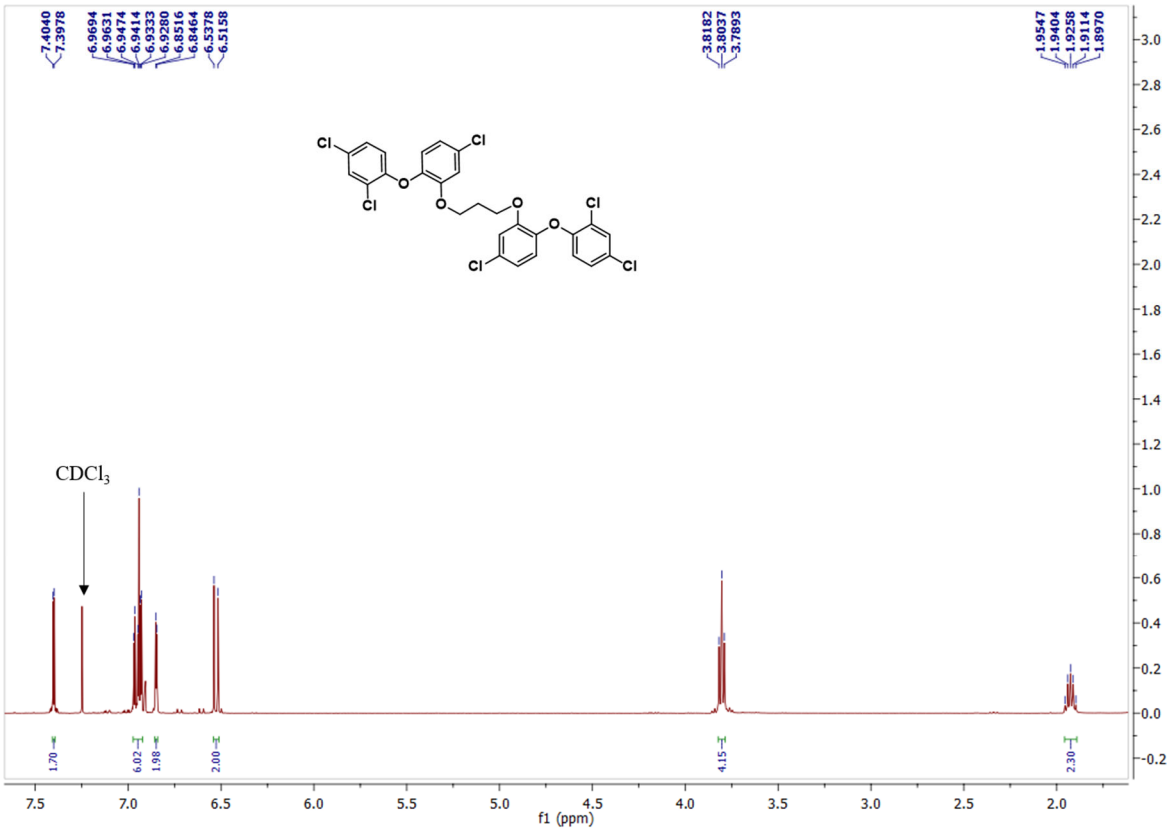
Scanned copies of NMR of synthesized compounds.

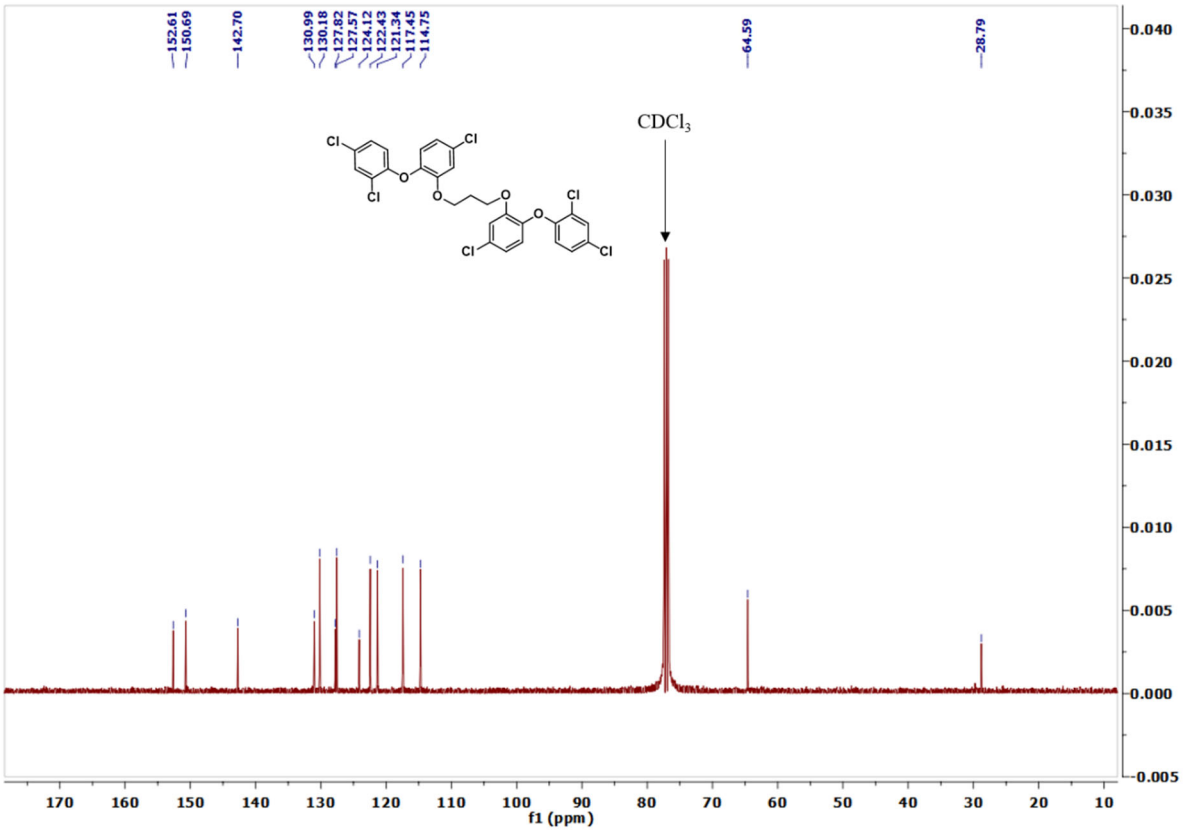
1,2-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethane (**3a**)



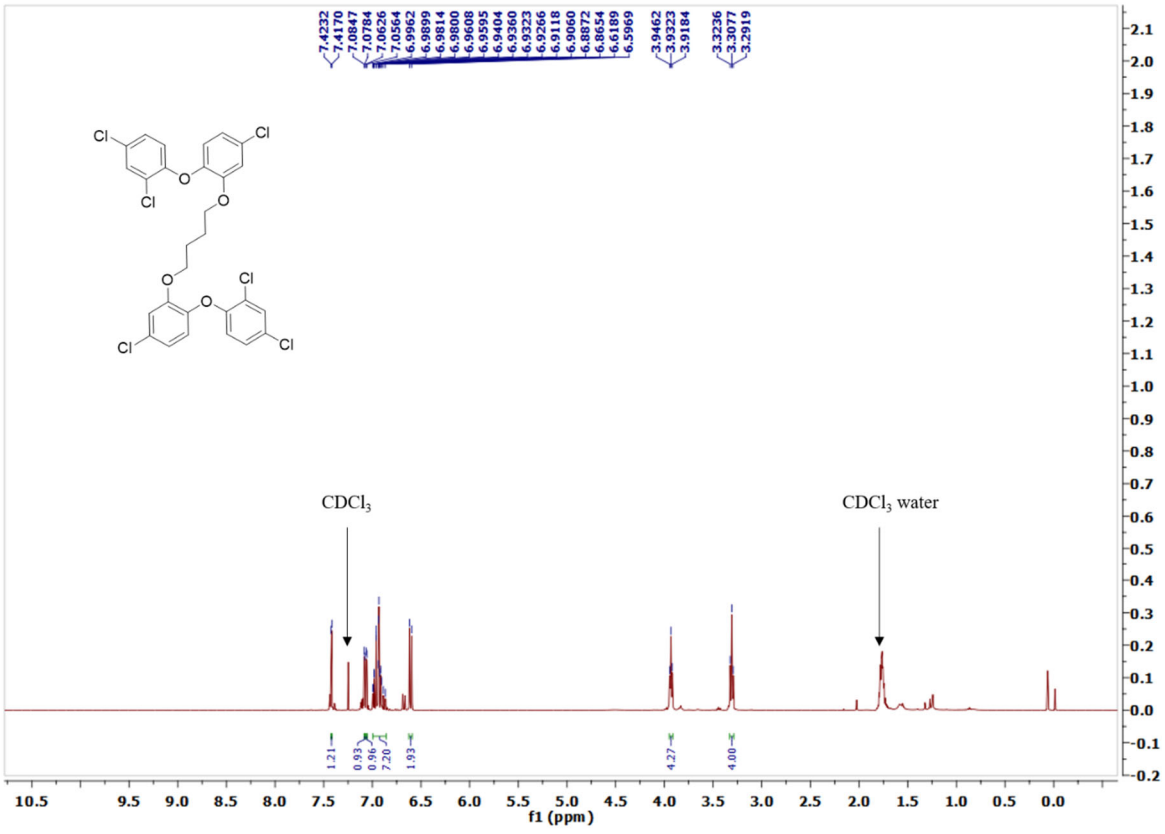


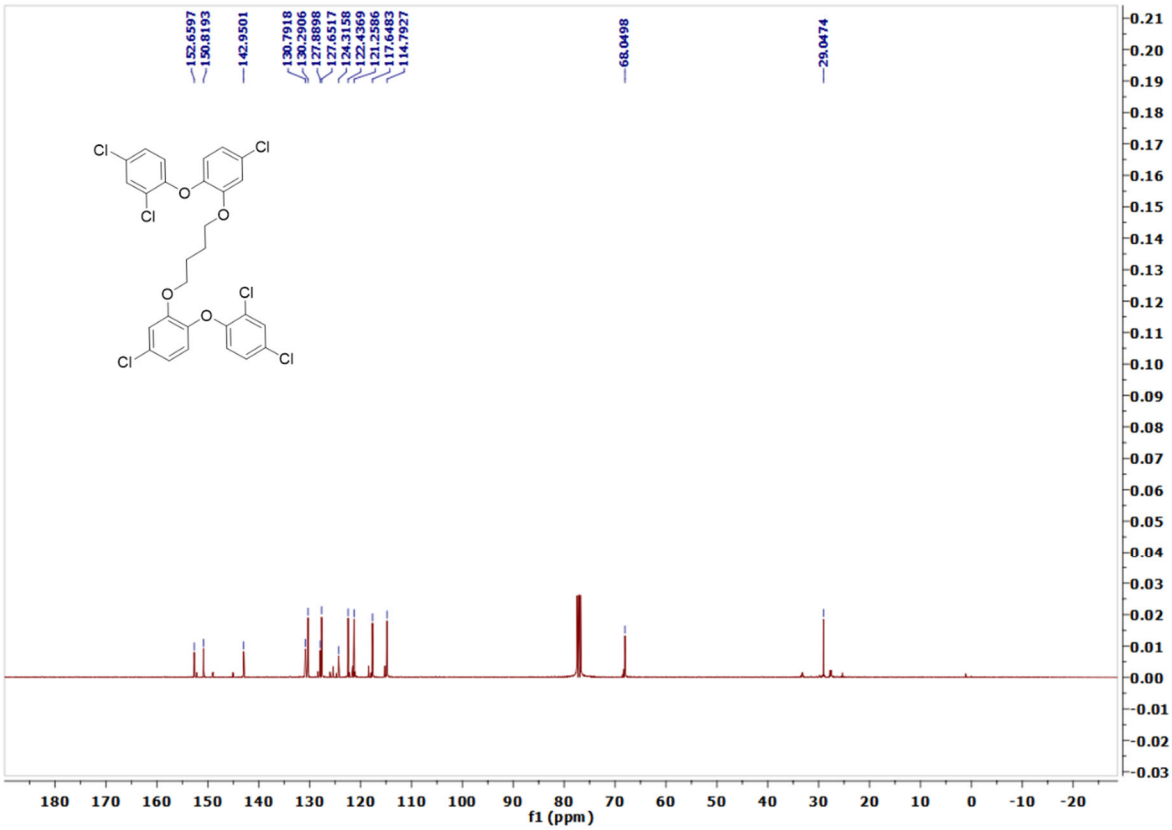
1,3-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propane (**3b**)



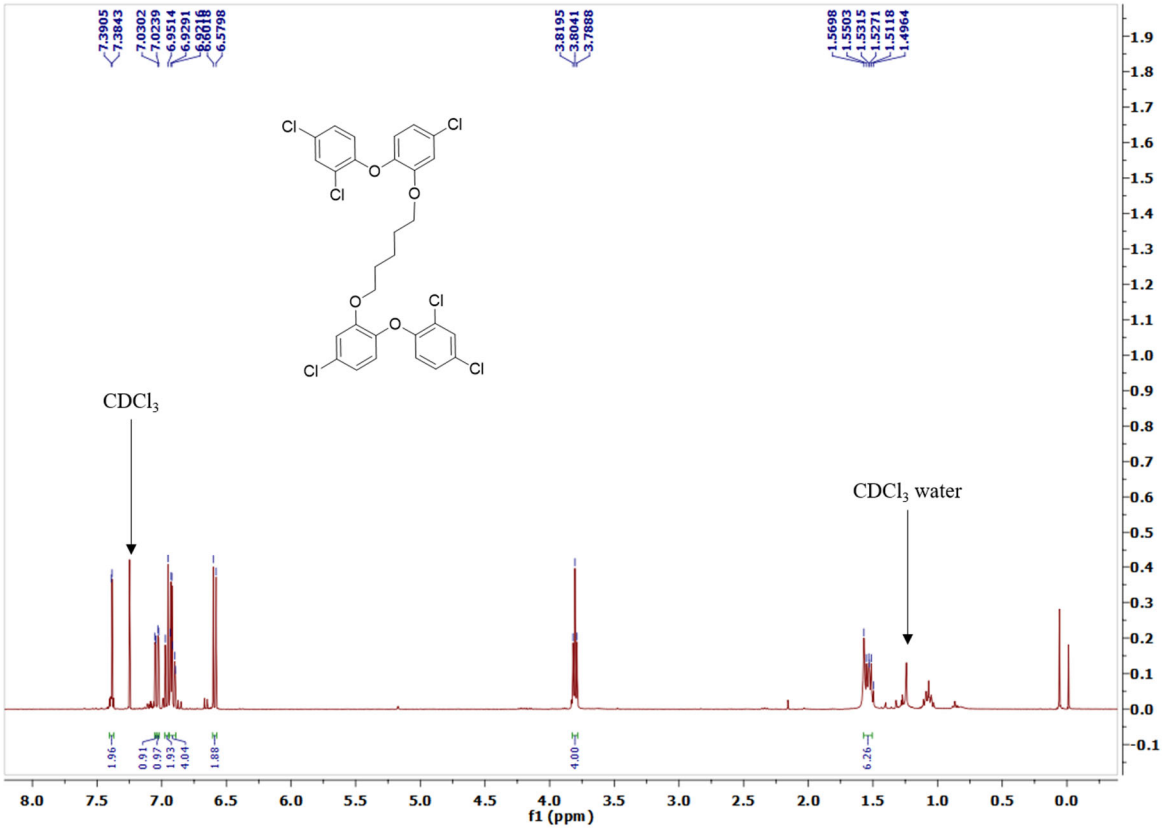


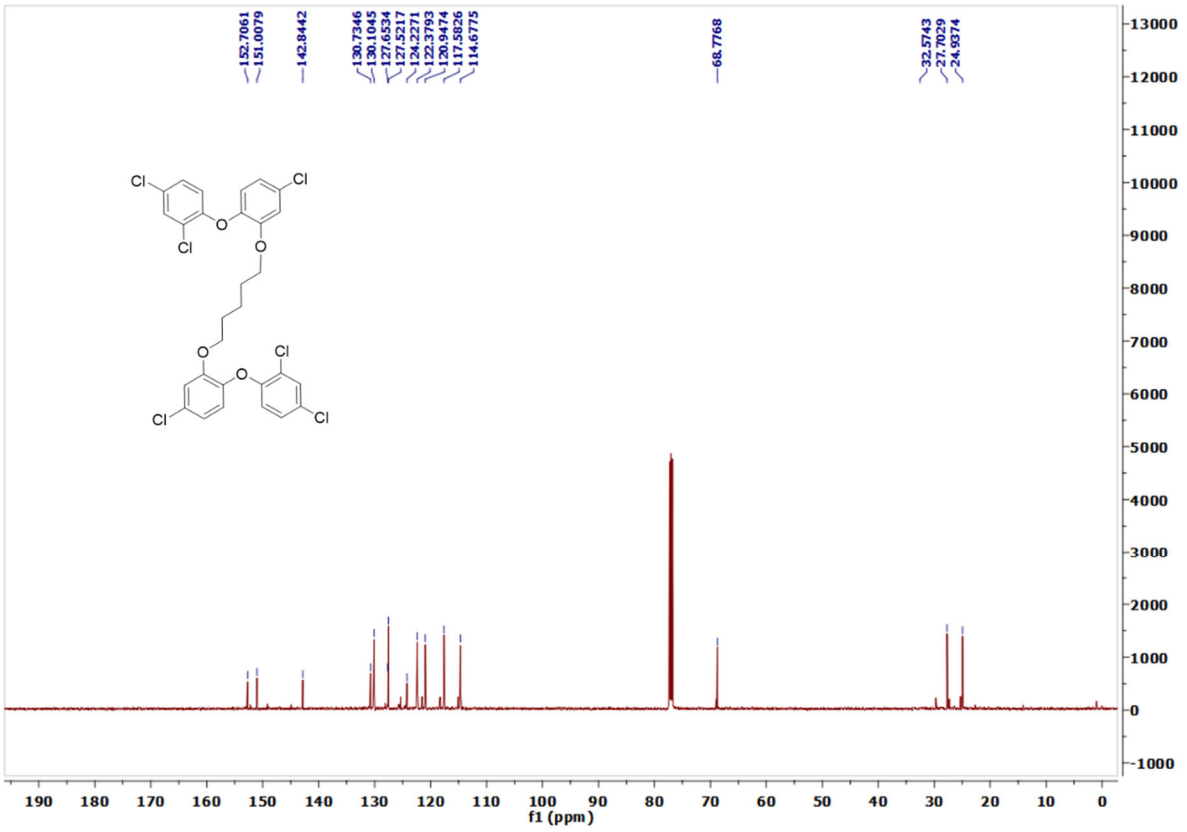
1,4-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butane (**3c**)



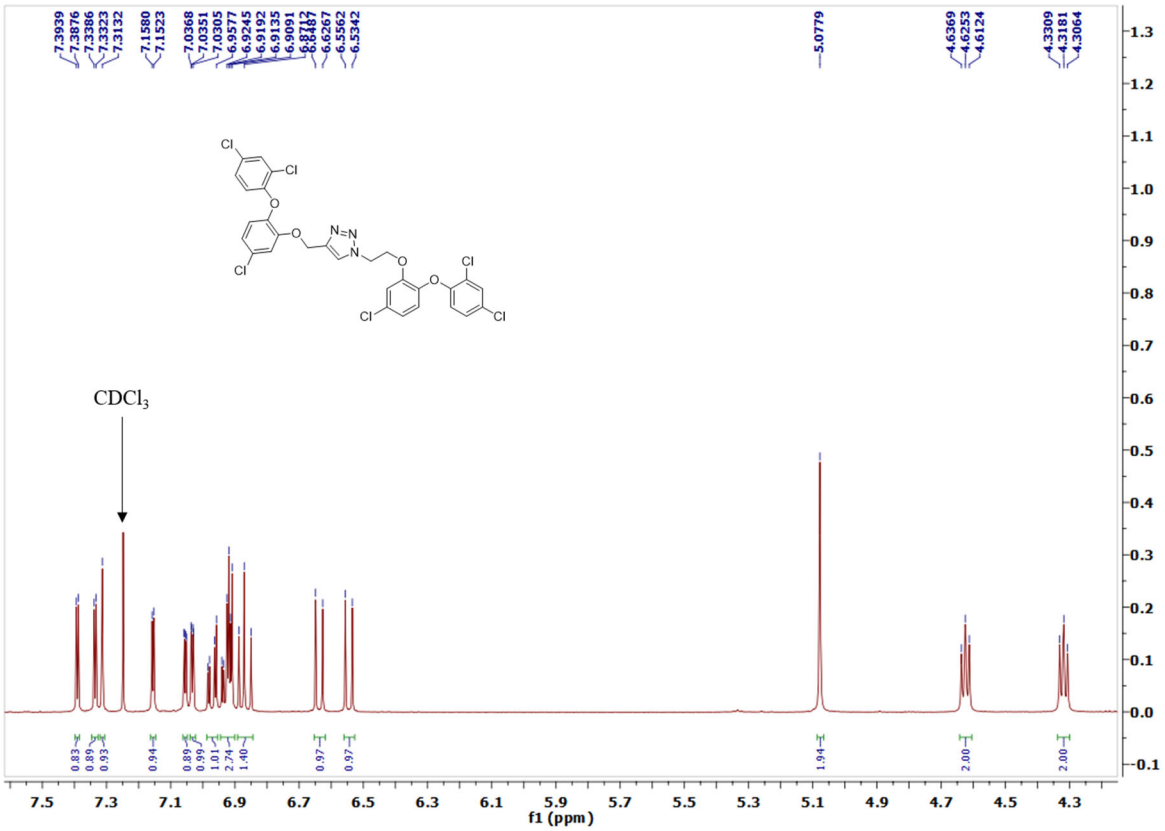


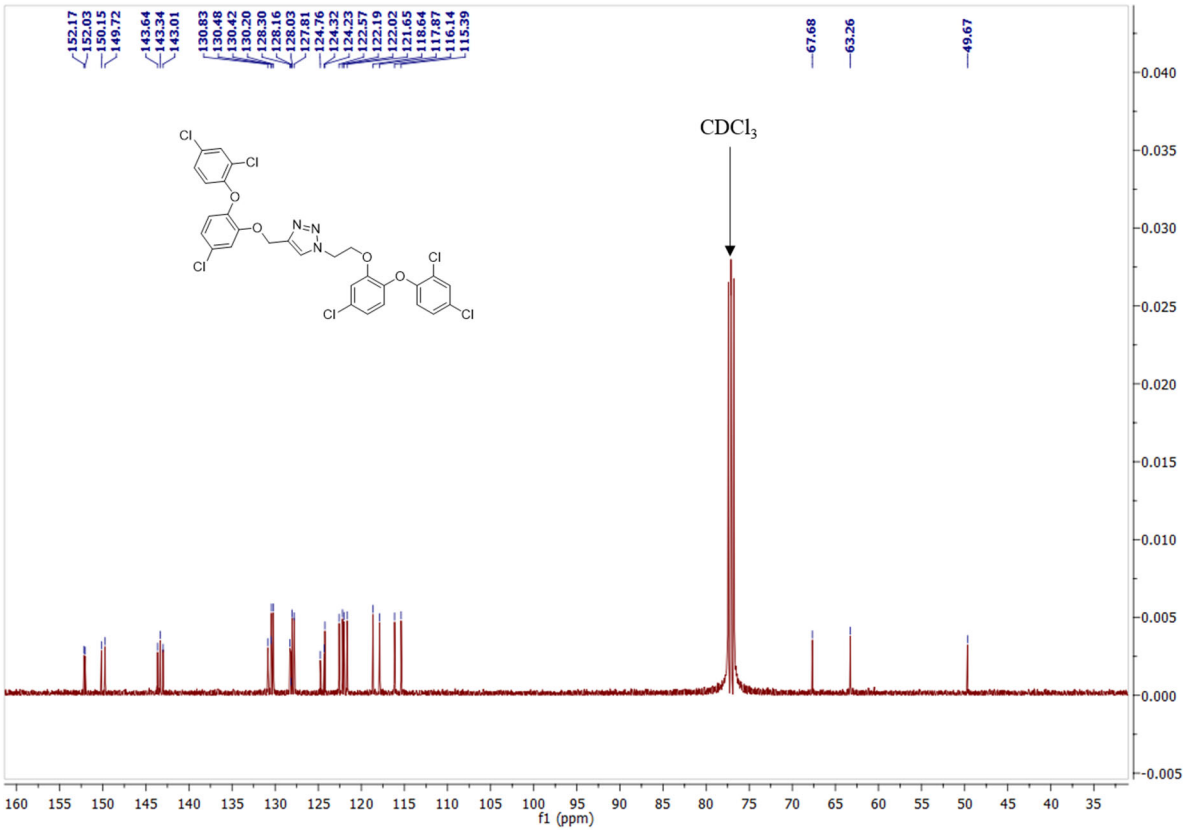
1,5-bis(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentane (**3d**)



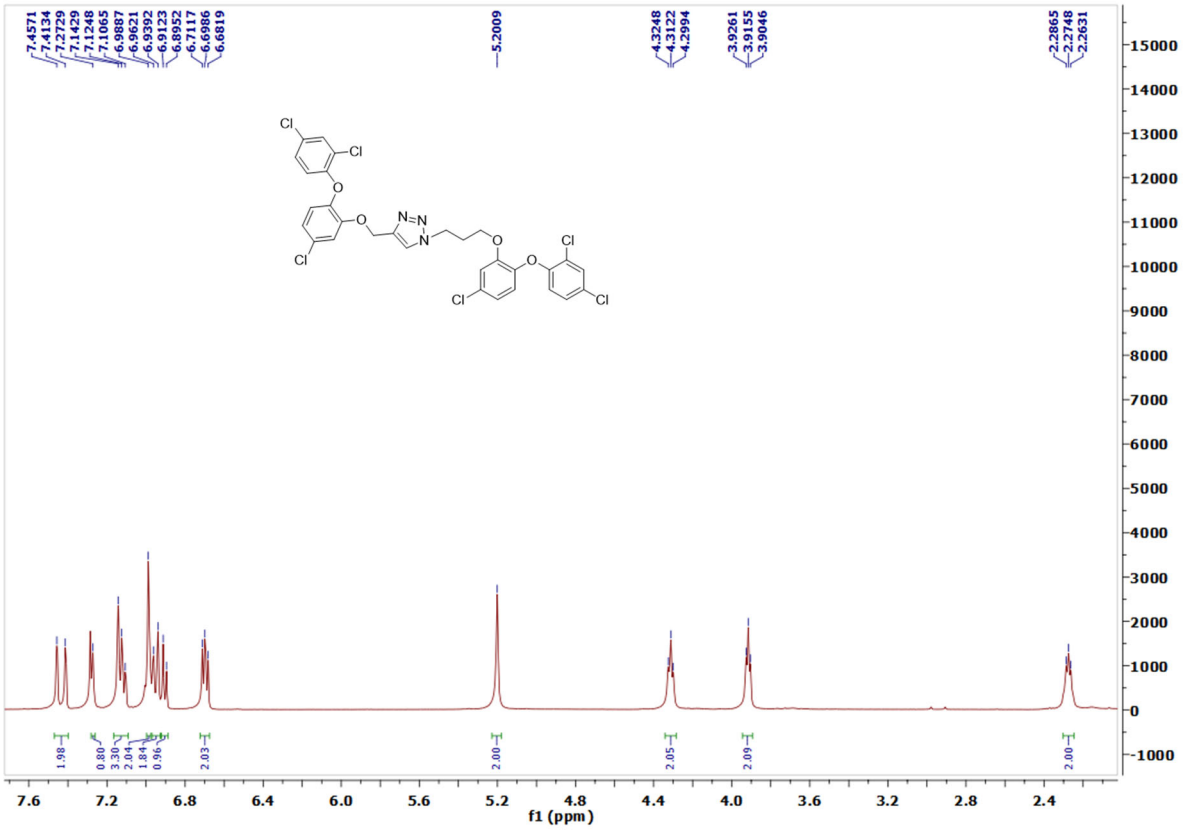


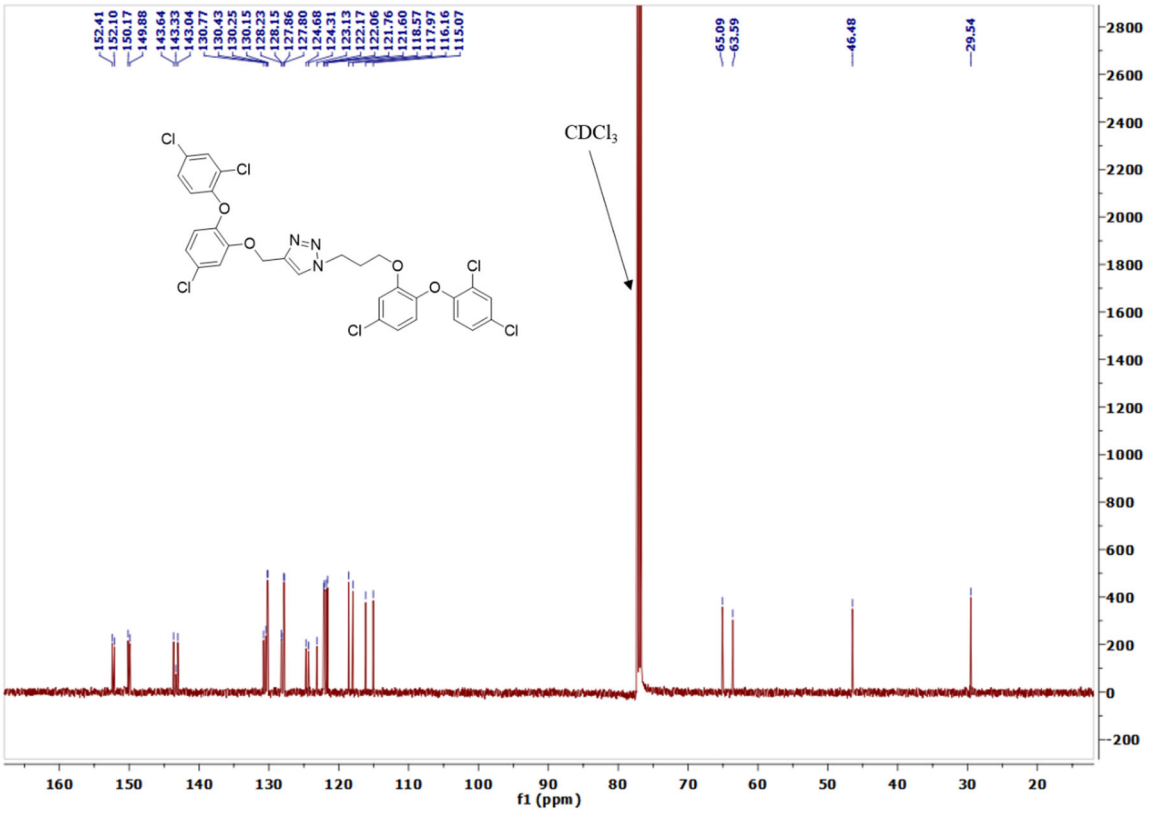
1-(2-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10a**)



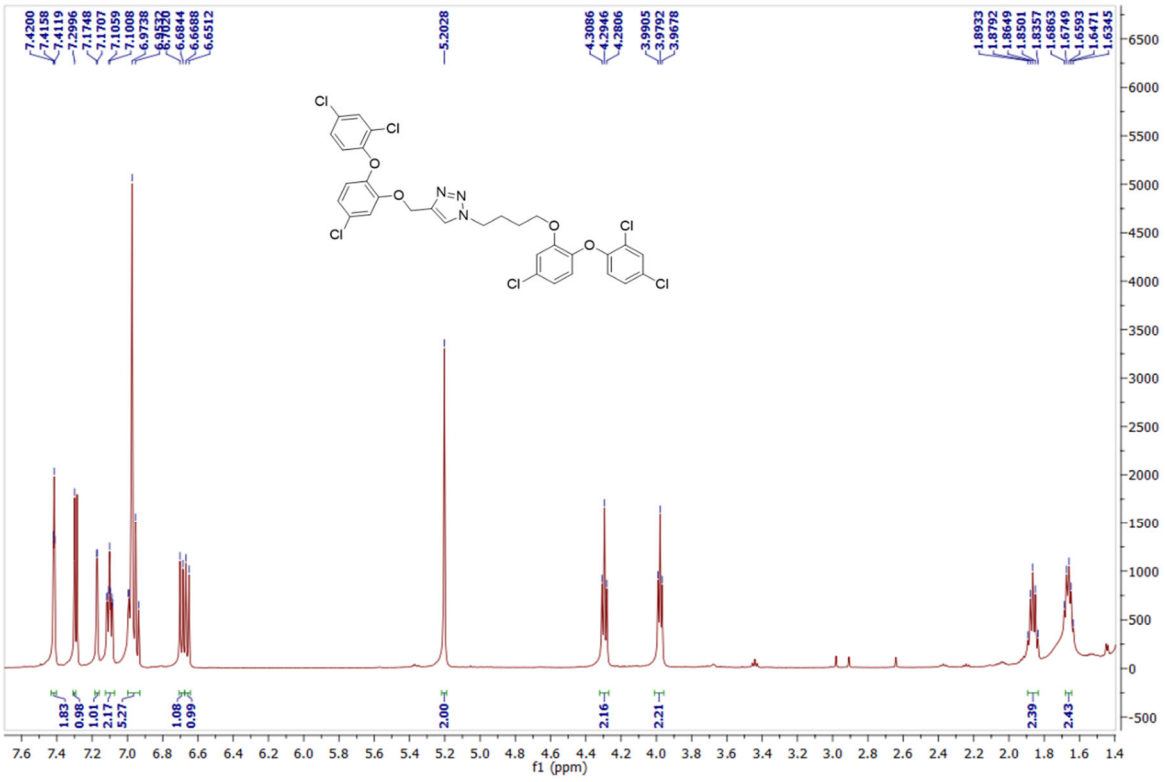


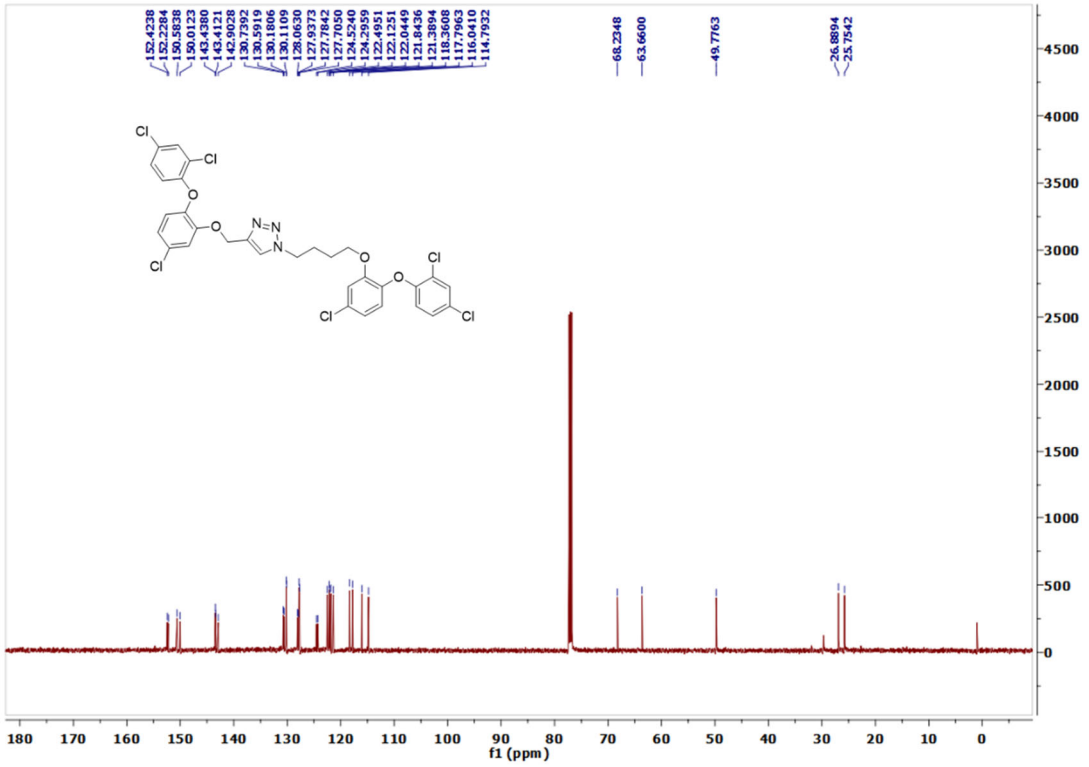
4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazole (**10b**)



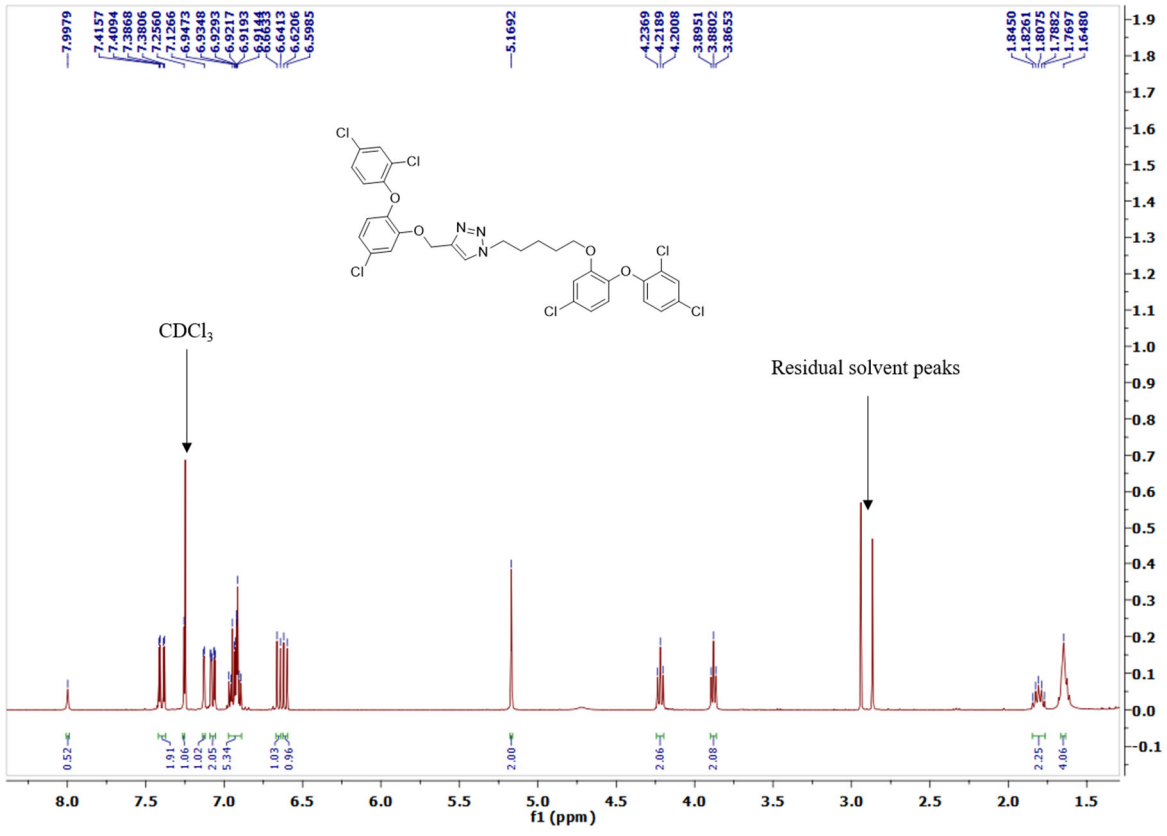


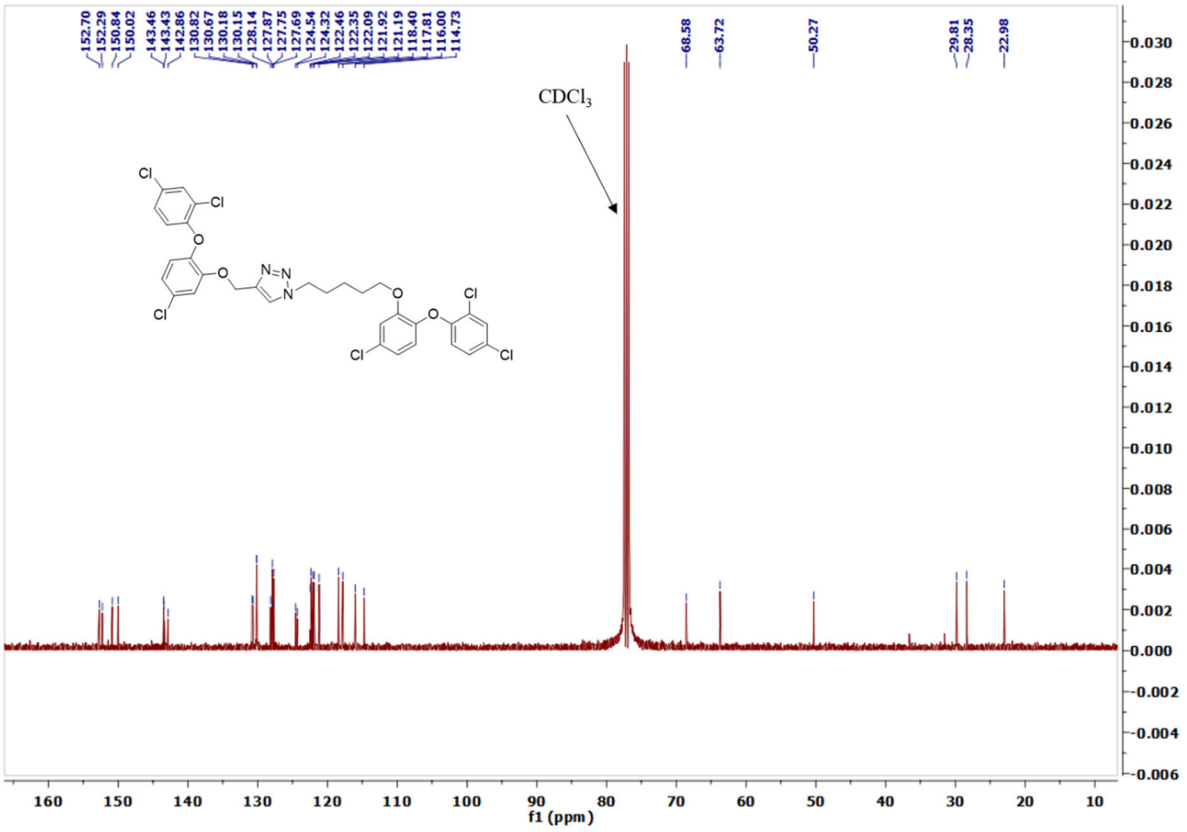
1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10c**)



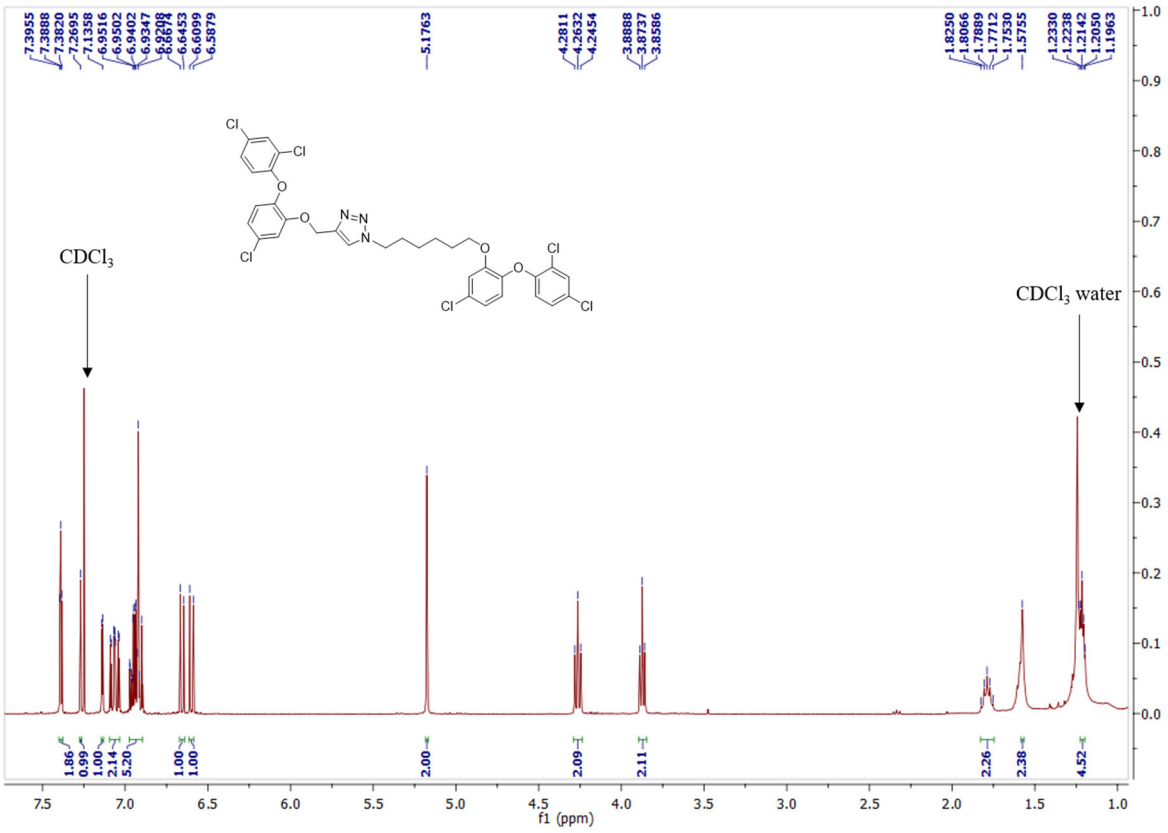


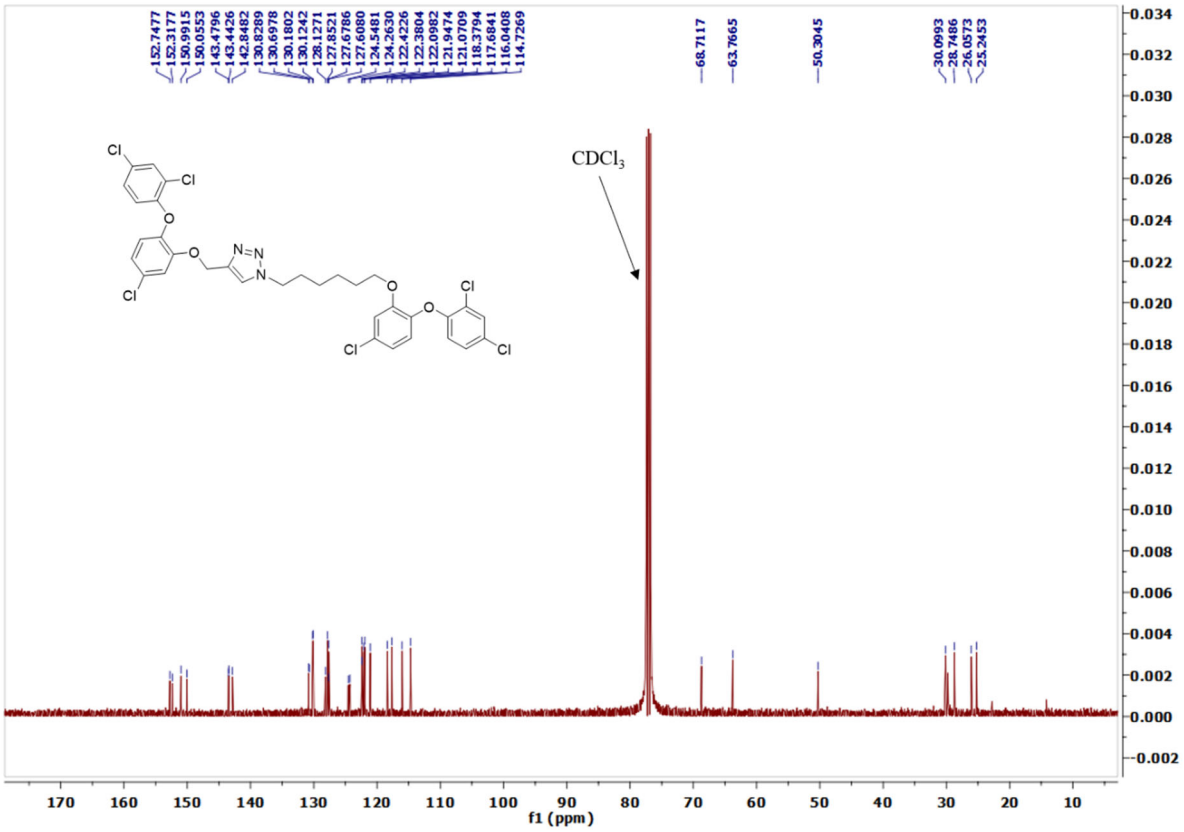
4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazole (**10d**)



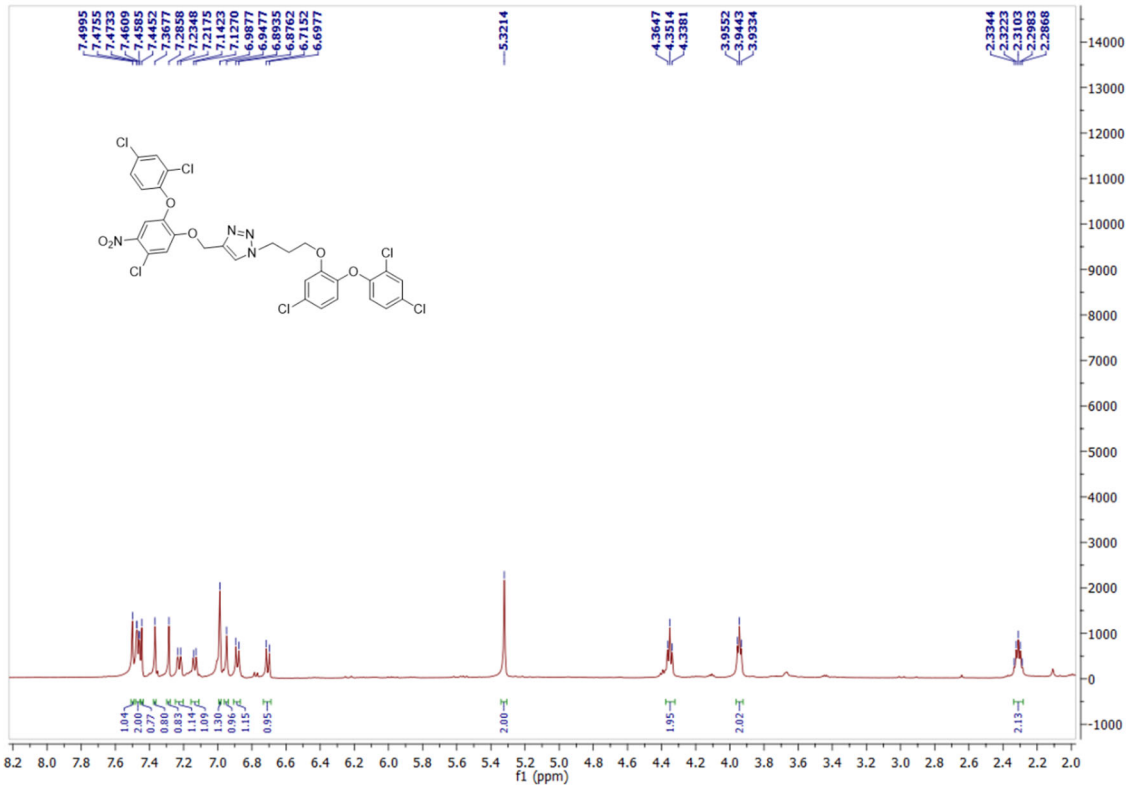


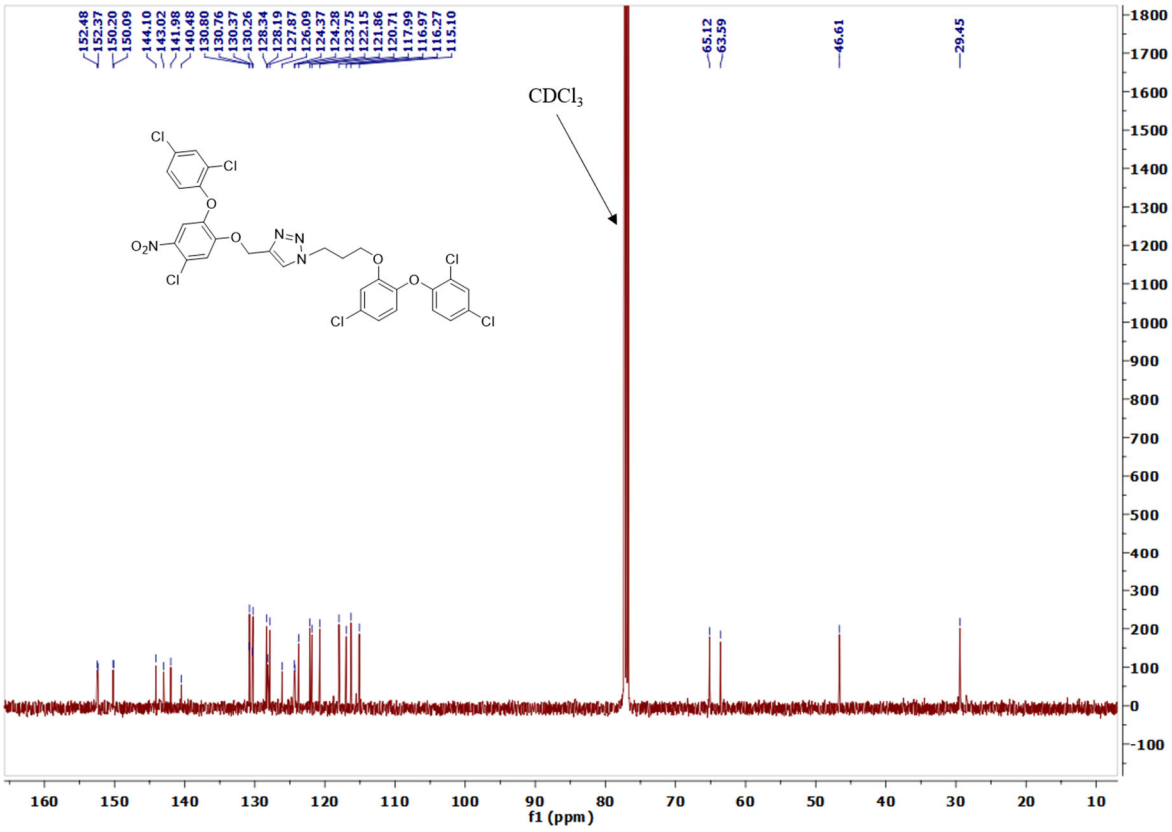
1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-4-((5-chloro-2-(2,4-dichlorophenoxy)phenoxy)methyl)-1H-1,2,3-triazole (**10e**)



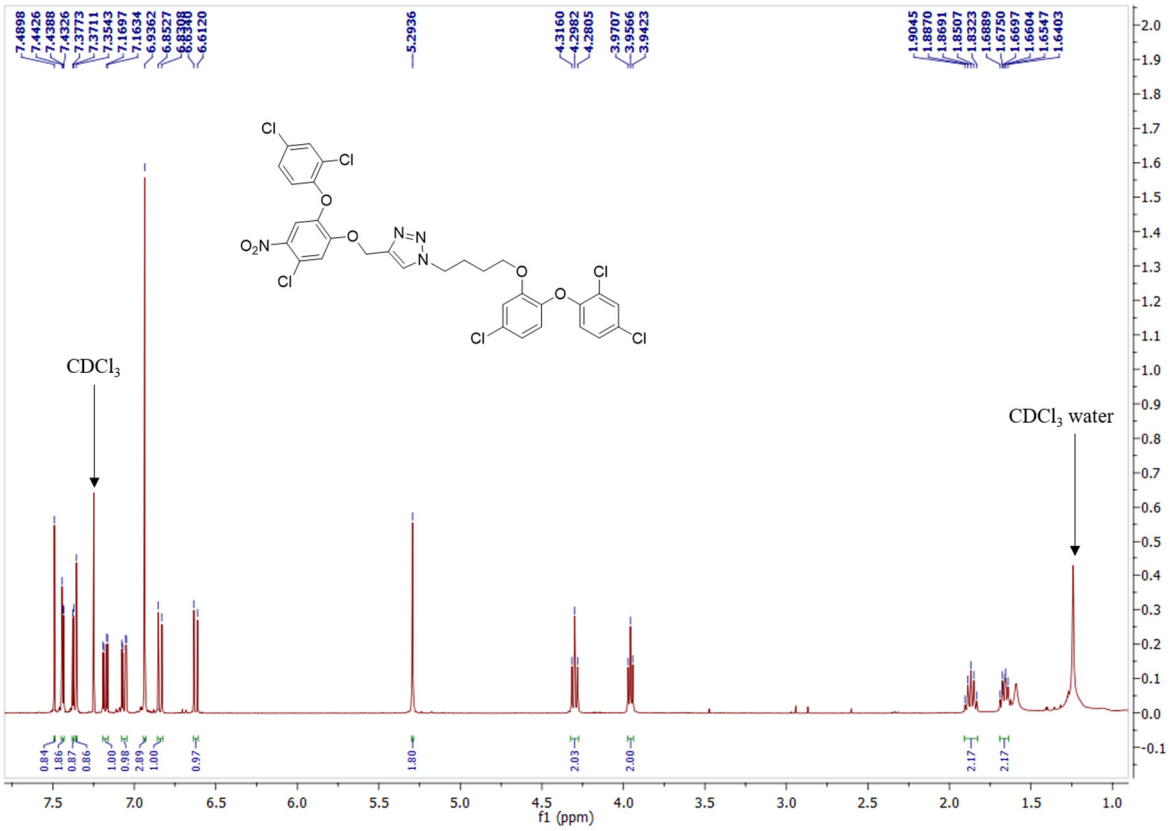


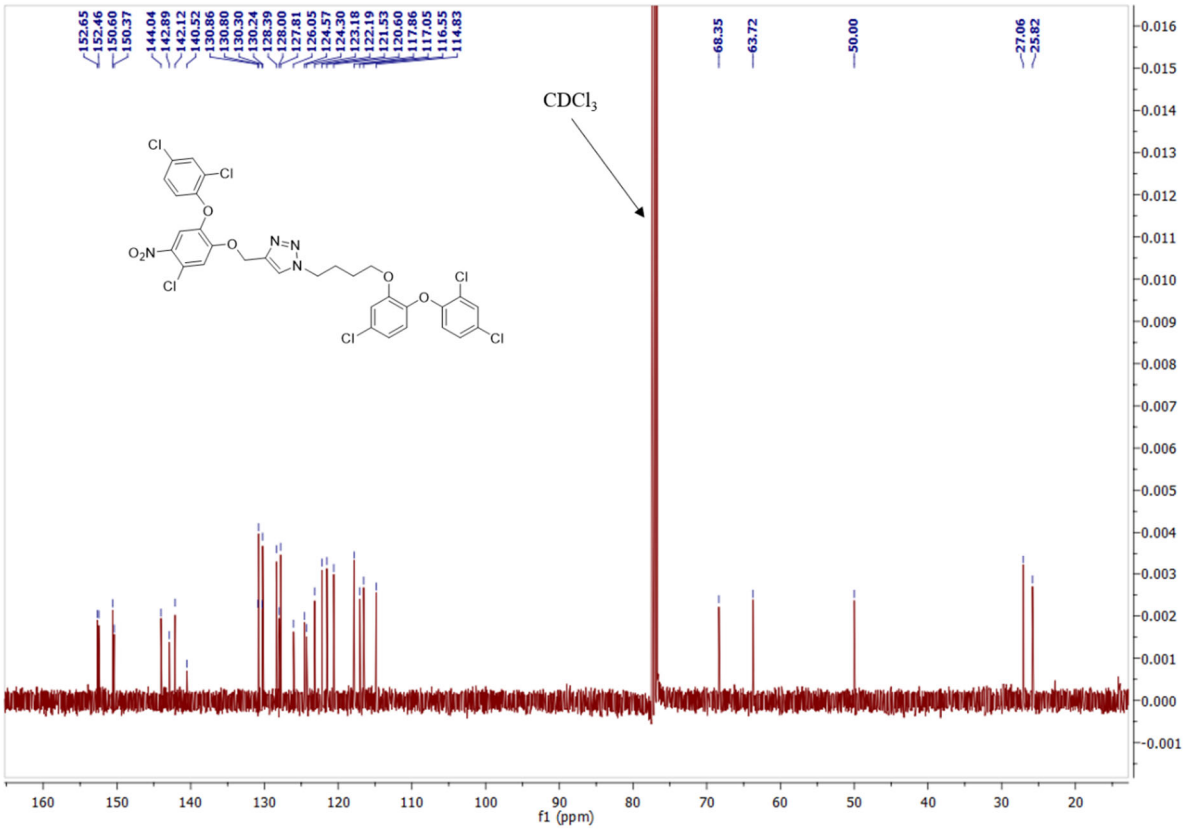
4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazole (**11b**)



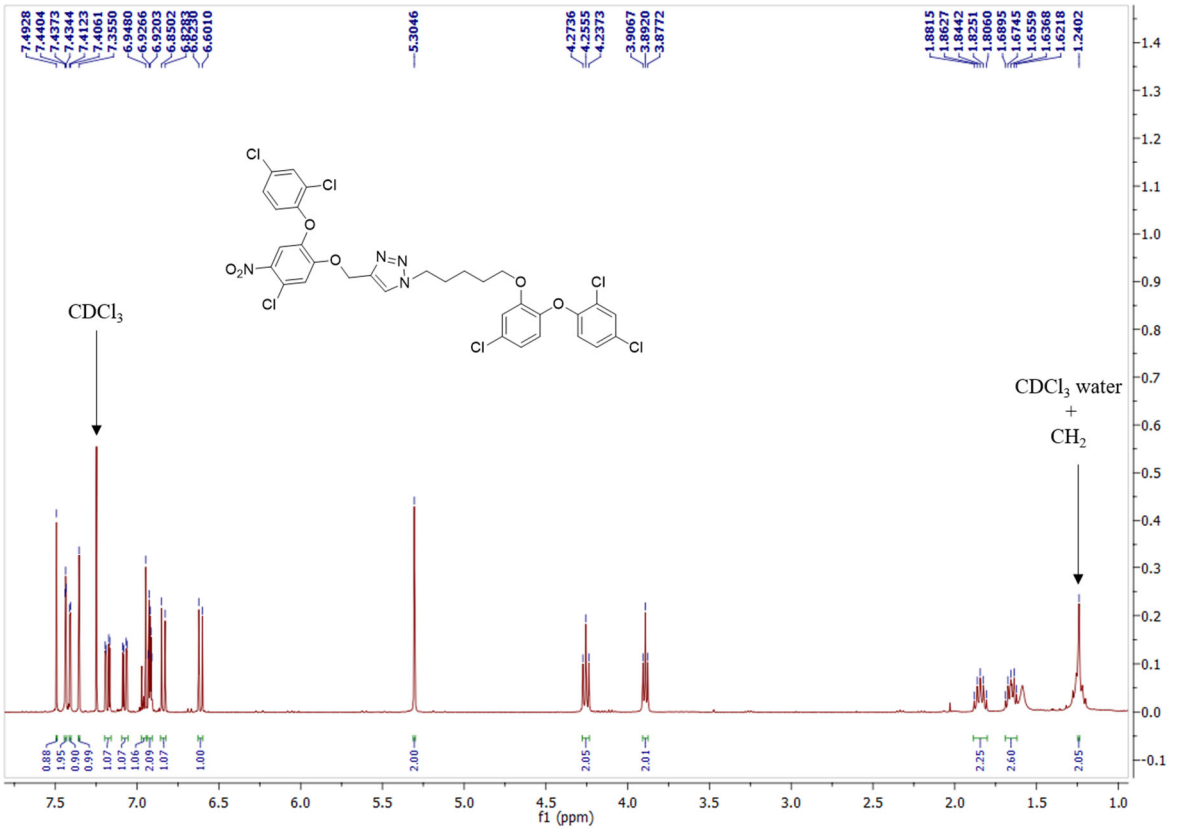


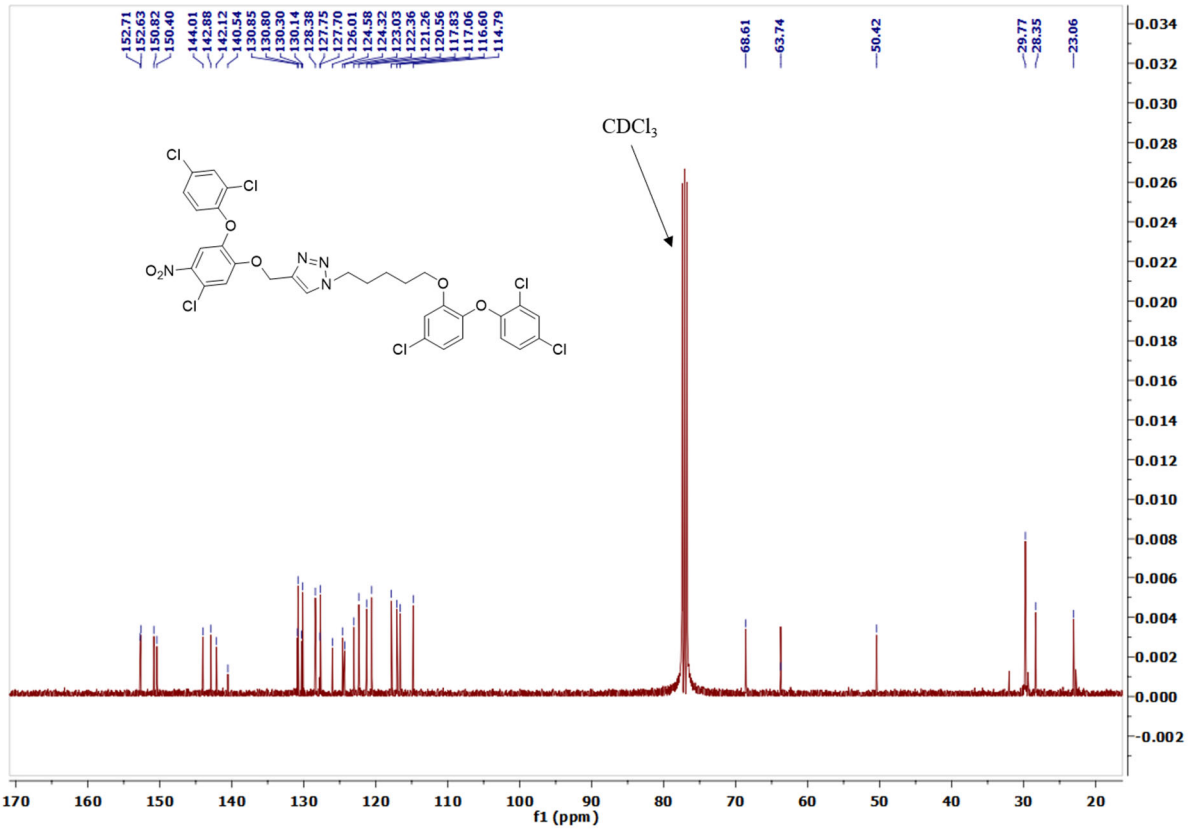
4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-1H-1,2,3-triazole (**11c**)



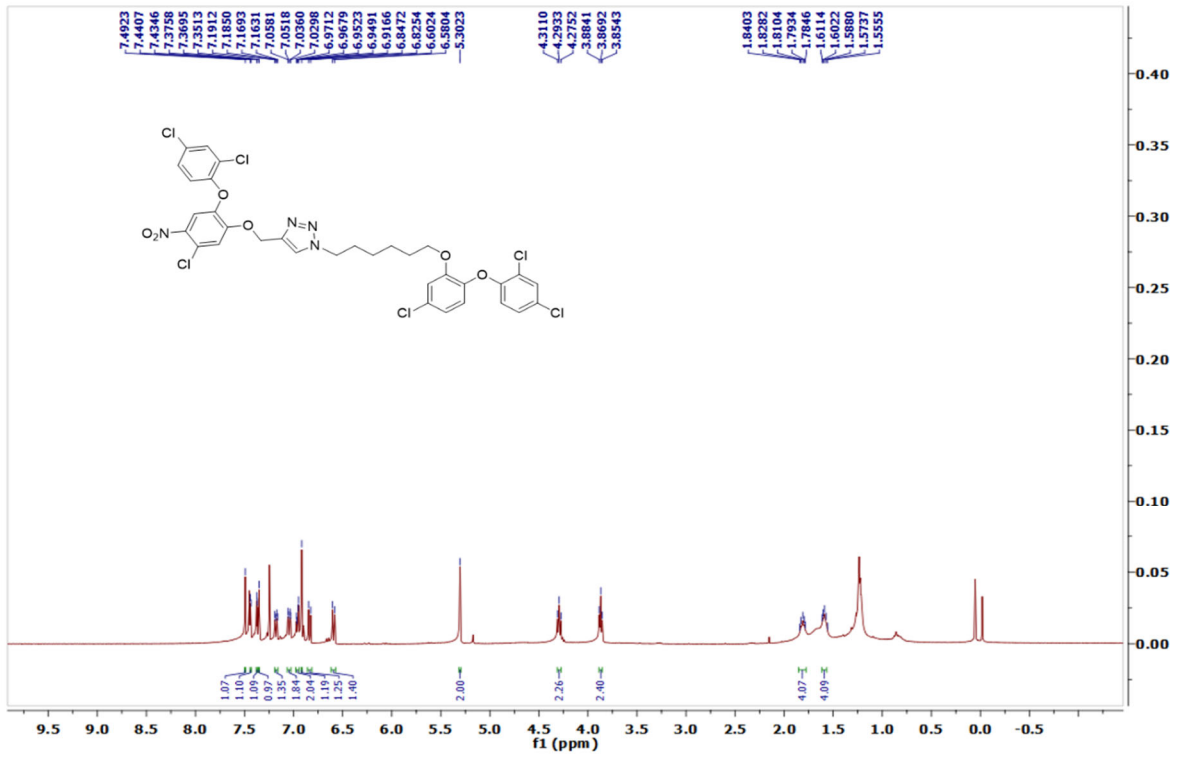


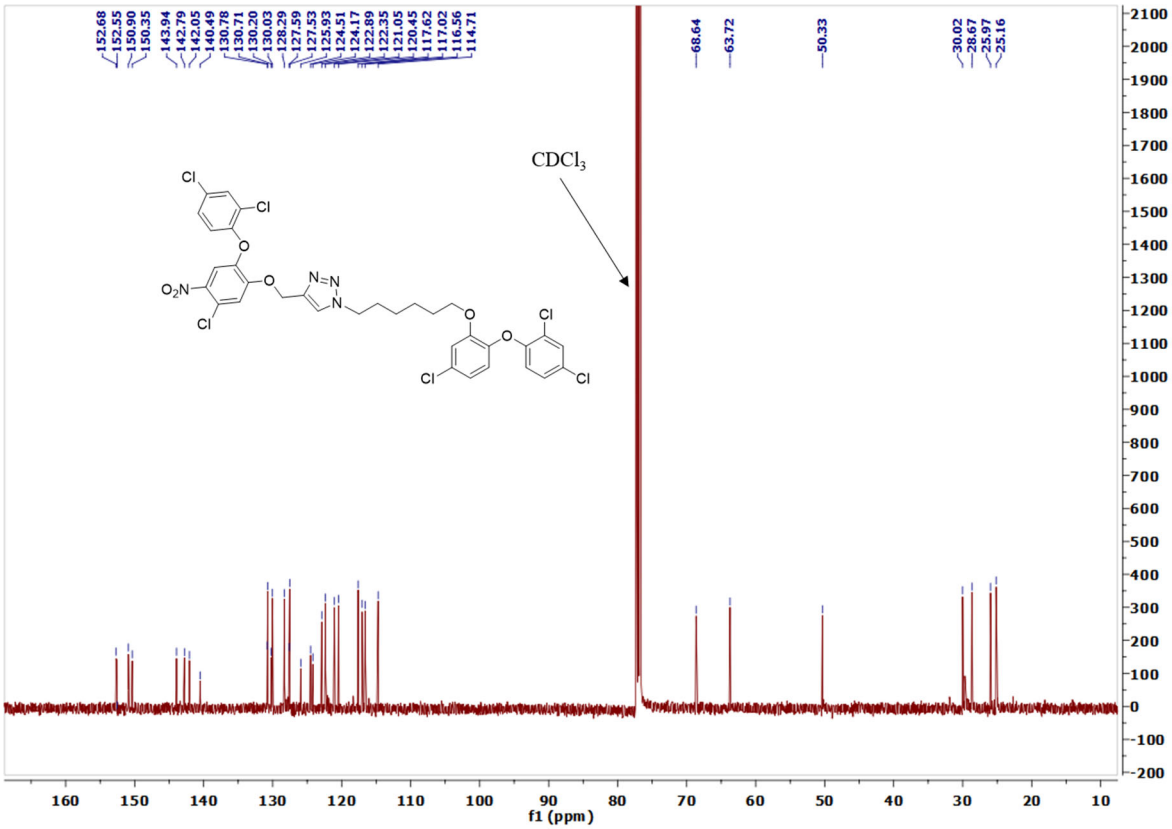
4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazole (**11d**)



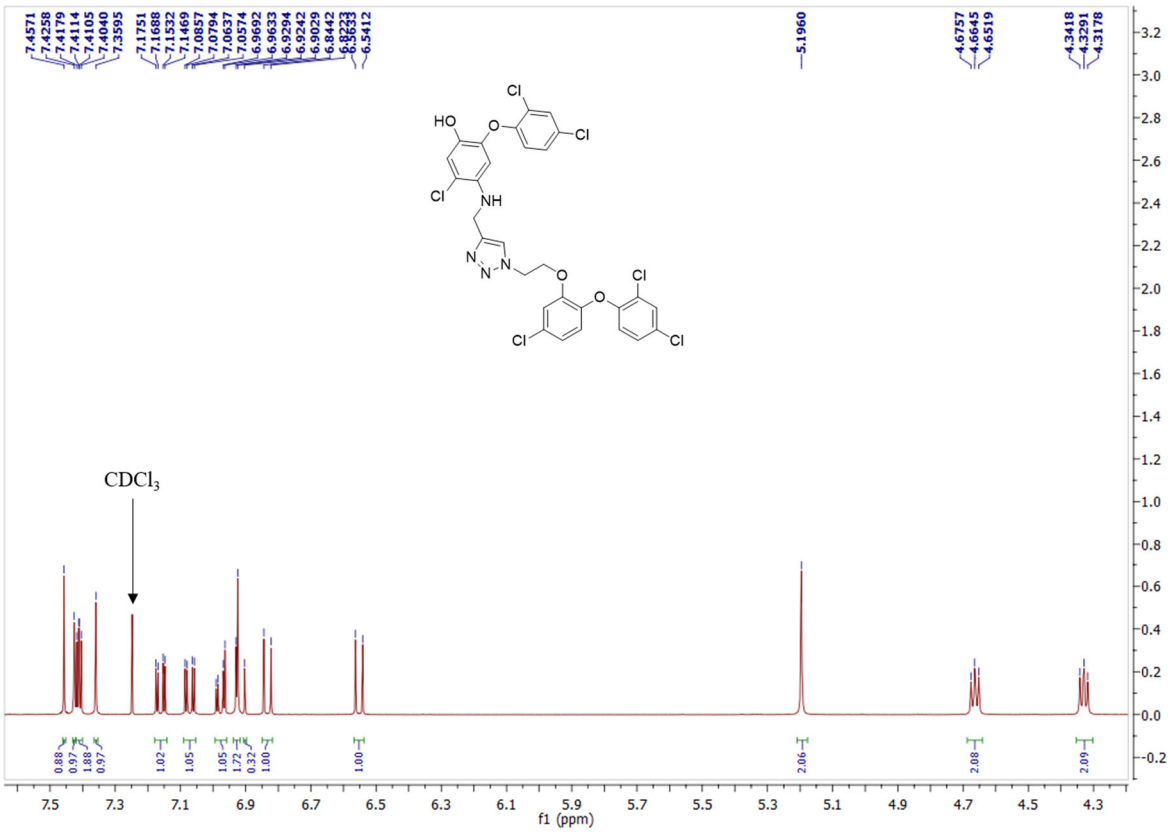


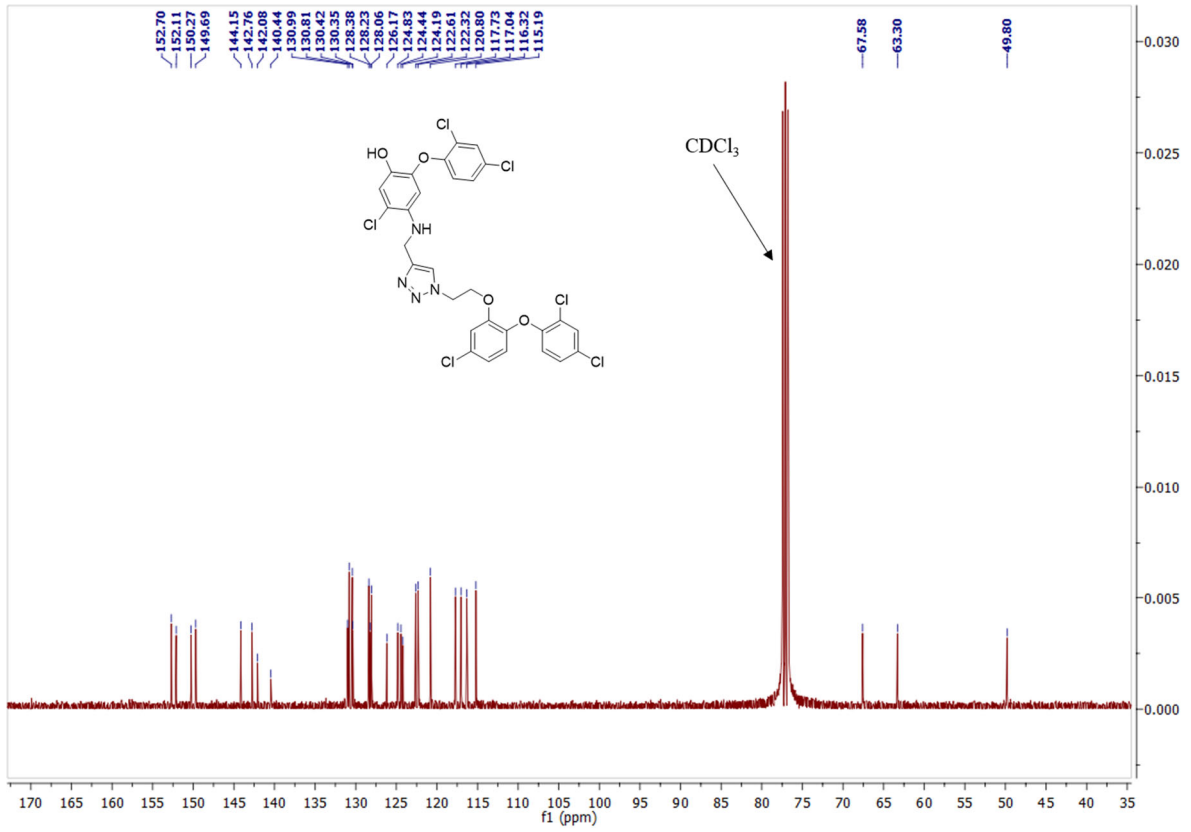
4-((5-chloro-2-(2,4-dichlorophenoxy)-4-nitrophenoxy)methyl)-1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-1H-1,2,3-triazole (**11e**)



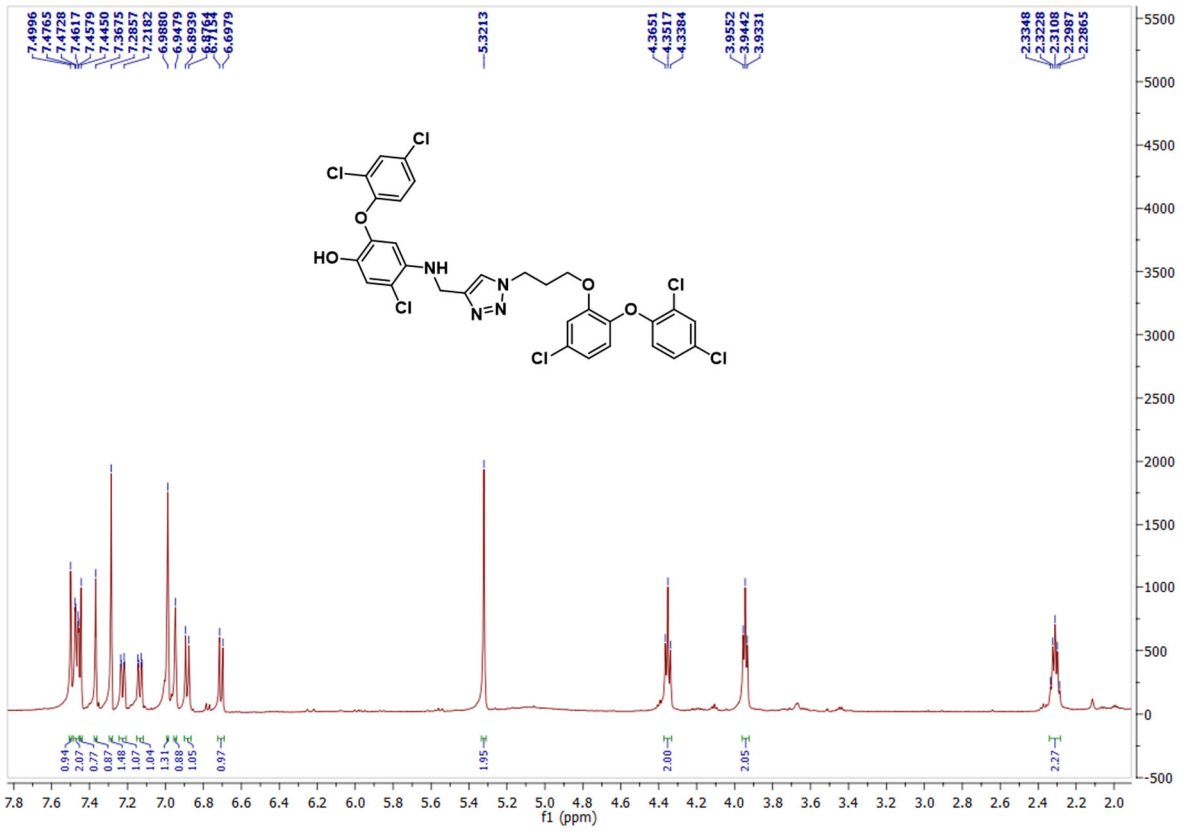


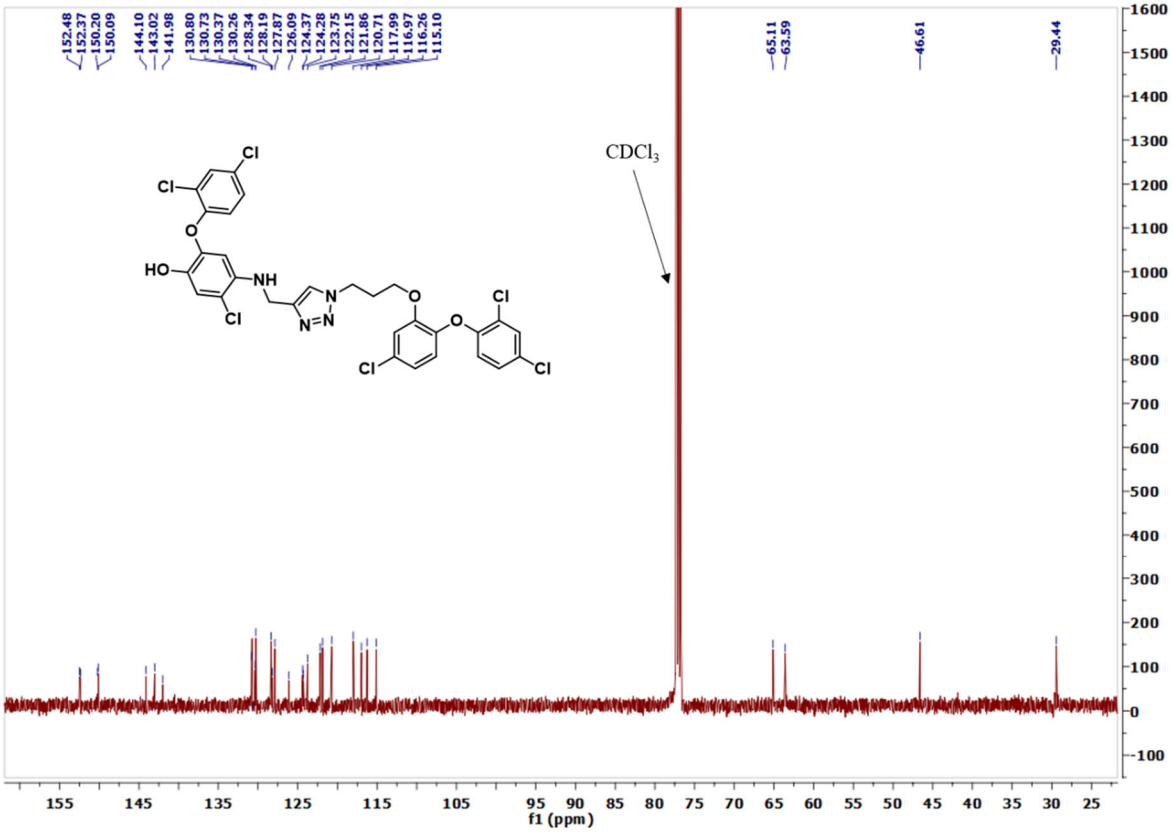
5-chloro-4-(((1-(2-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)ethyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12a**)



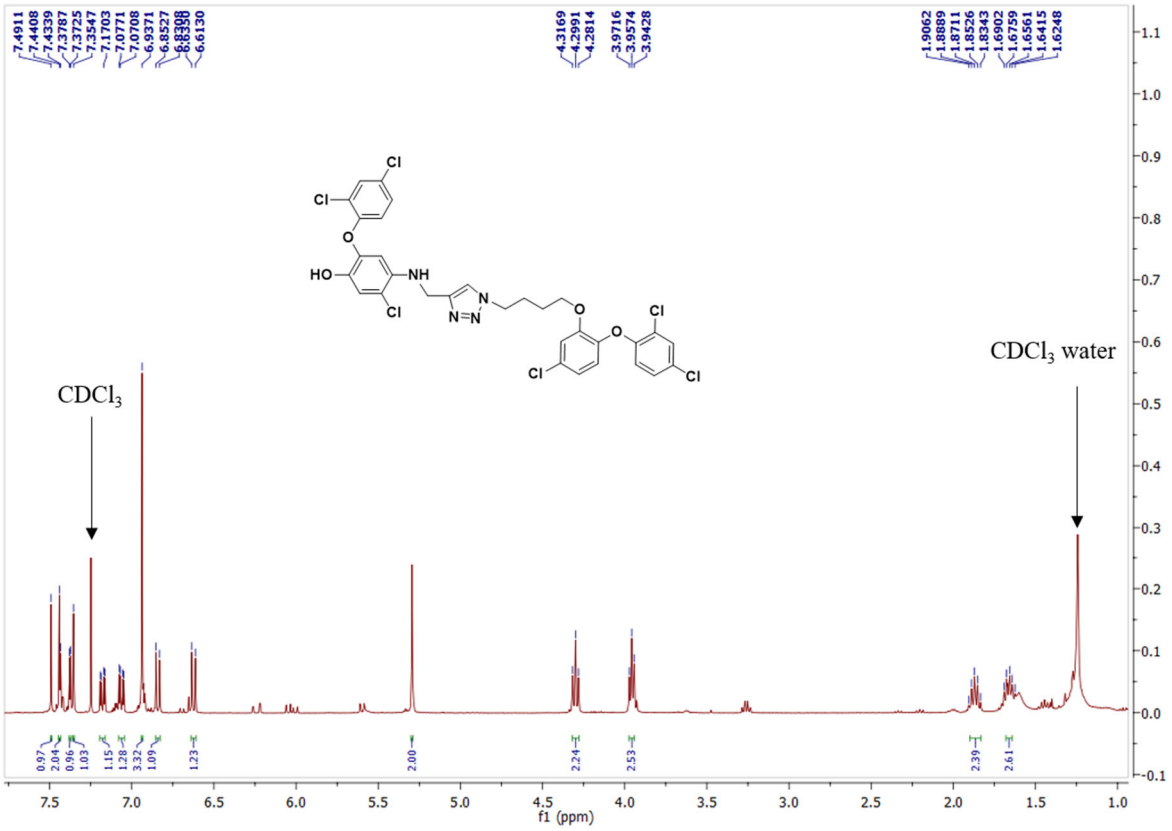


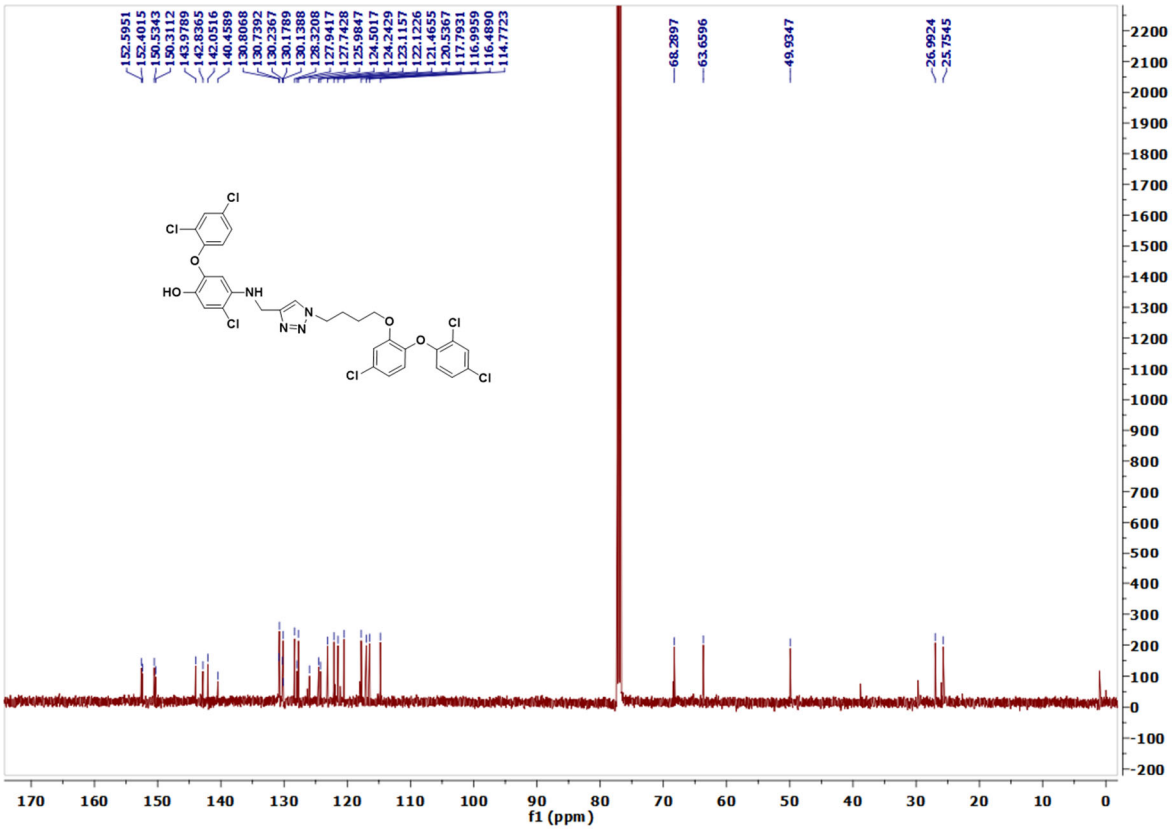
5-chloro-4-(((1-(3-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)propyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12b**)



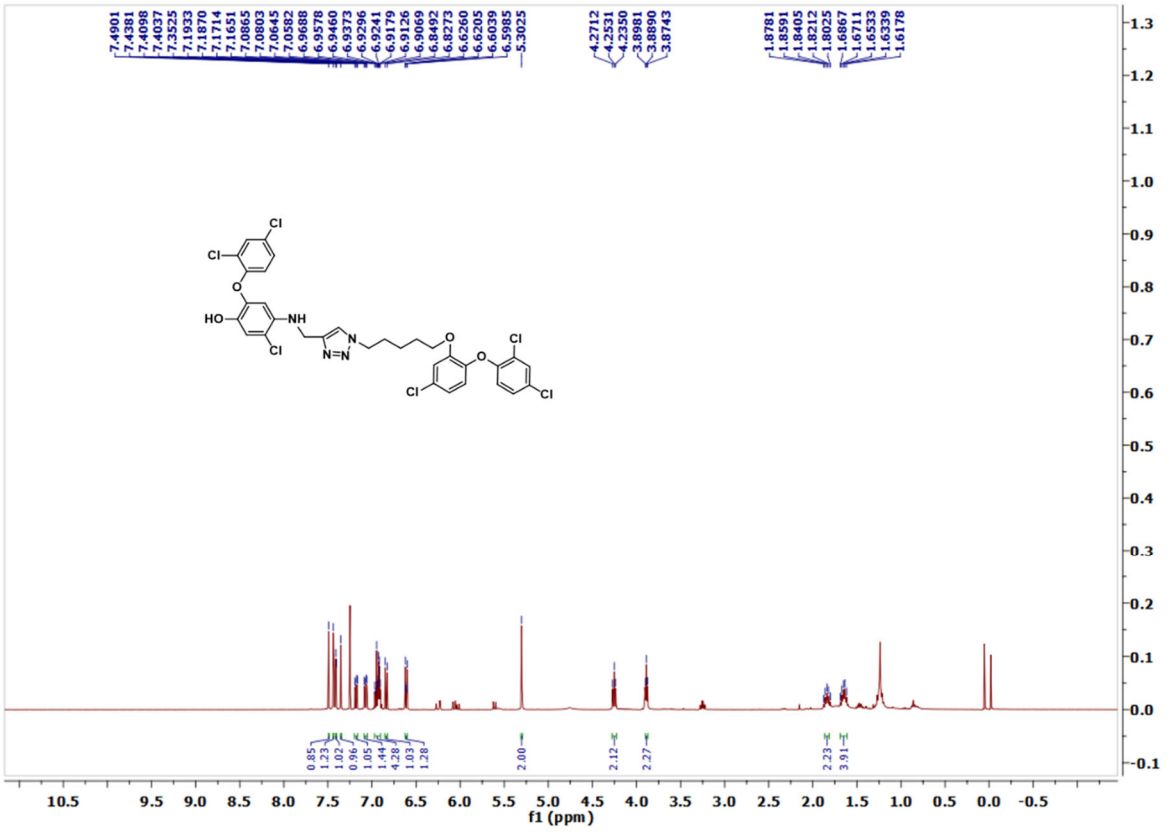


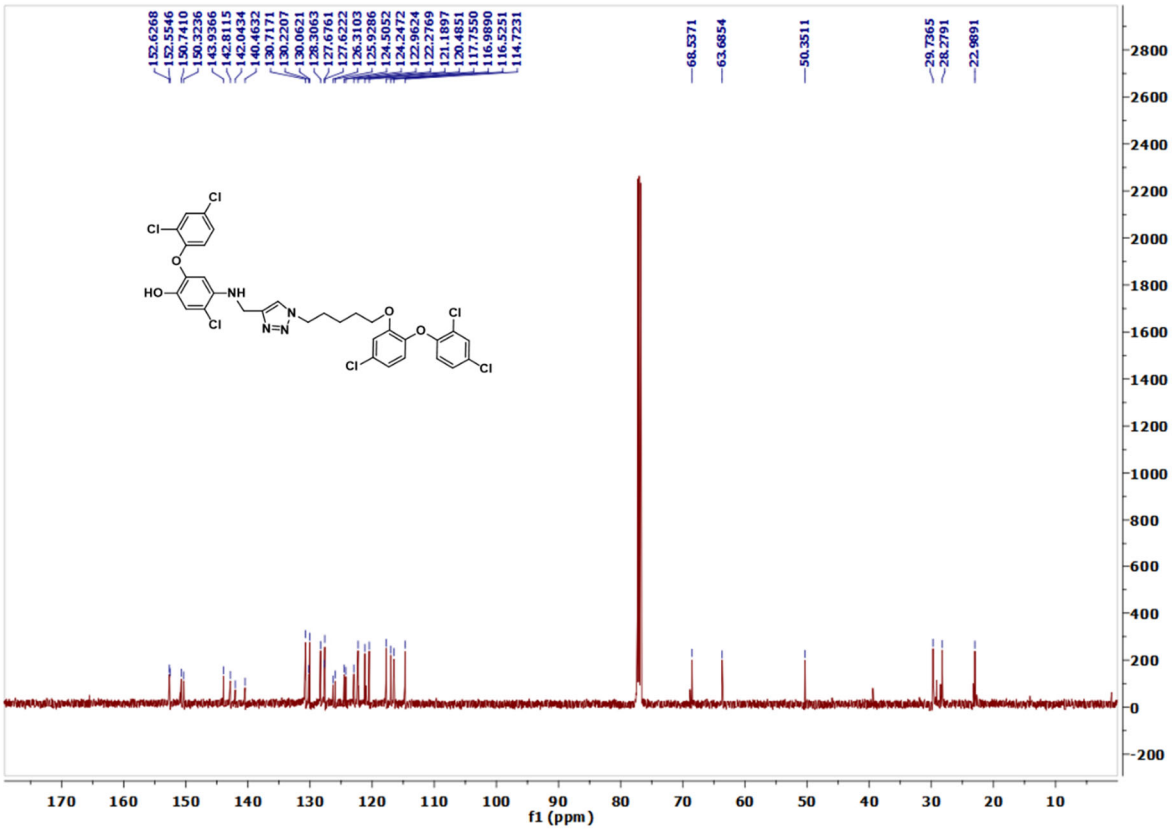
5-chloro-4-(((1-(4-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)butyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12c**)



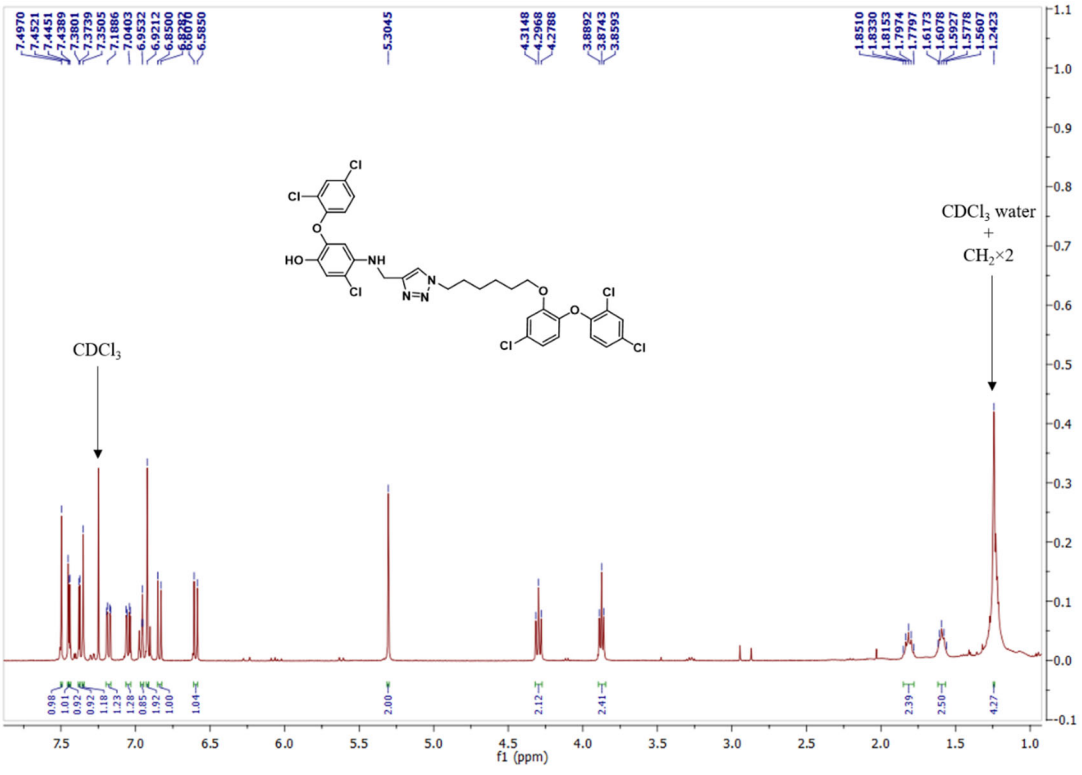


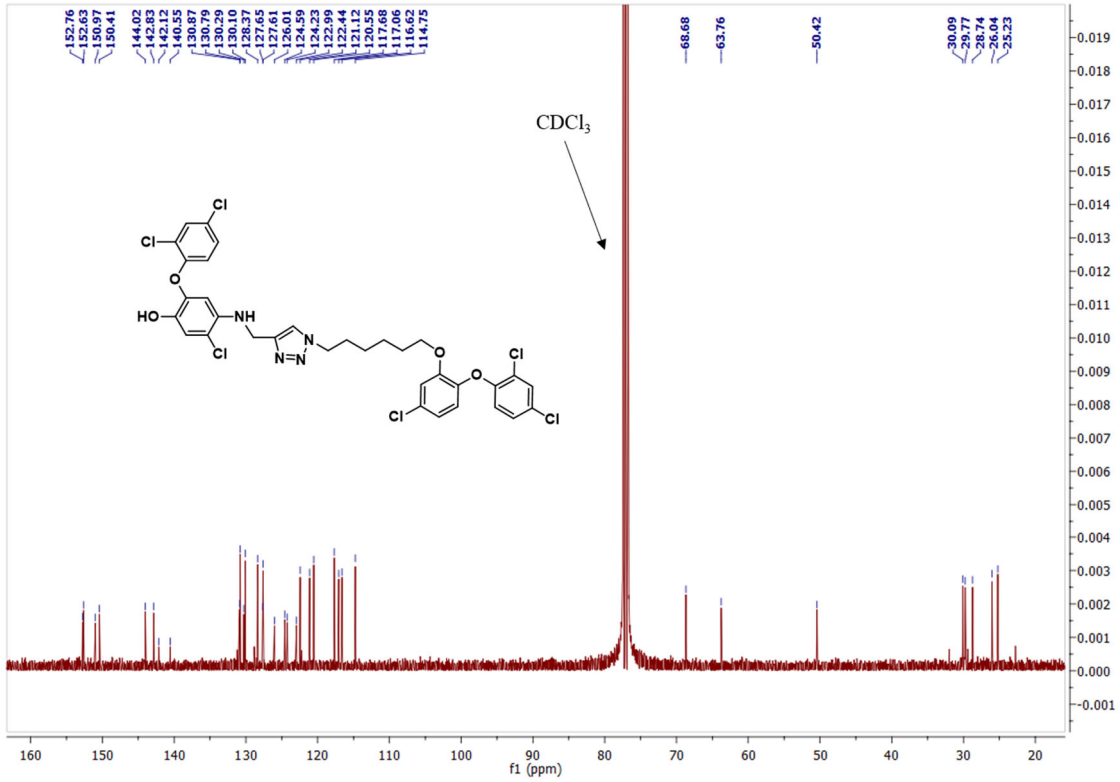
5-chloro-4-(((1-(5-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)pentyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12d**)





5-chloro-4-(((1-(6-(5-chloro-2-(2,4-dichlorophenoxy)phenoxy)hexyl)-1H-1,2,3-triazol-4-yl)methyl)amino)-2-(2,4-dichlorophenoxy)phenol (**12e**)

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