SUPPORTING INFORMATION

Biocompatible Glycolipid derived from Bhilawanol as an Antibiofilm Agent and Promising Platform for Drug Delivery

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Table S1: Gelation studies of compounds 4a and 4b.

S.No	Solvent	Compound 4a (CGC % wt/v)	Compound 4b (CGC % wt/v)
1	Chloroform	I	I
2	DMSO	S	S
3	Water	PS	PS
4	Toluene	I	I
5	Olive oil	S	S
6	Linseed oil	S	S
7	Xylene	I	PS
8	Cyclohexane	I	I
9	DMSO+Water	G (1.5)	G (1.0)
10	DMSO+Chloroform	G (2.0)	G (1.0)
11	N methyl pyrrolidine	I	I
12	Paraffin	I	I
13	THF	I	I
14	Acetone	S	S
15	PEG	PG	PG
16	1,4 Dioxane	PS	S
17	Ethylene glycol	S	S

I-insoluble; S-solution, G-gelation, PS – partially soluble, PG-partial gel

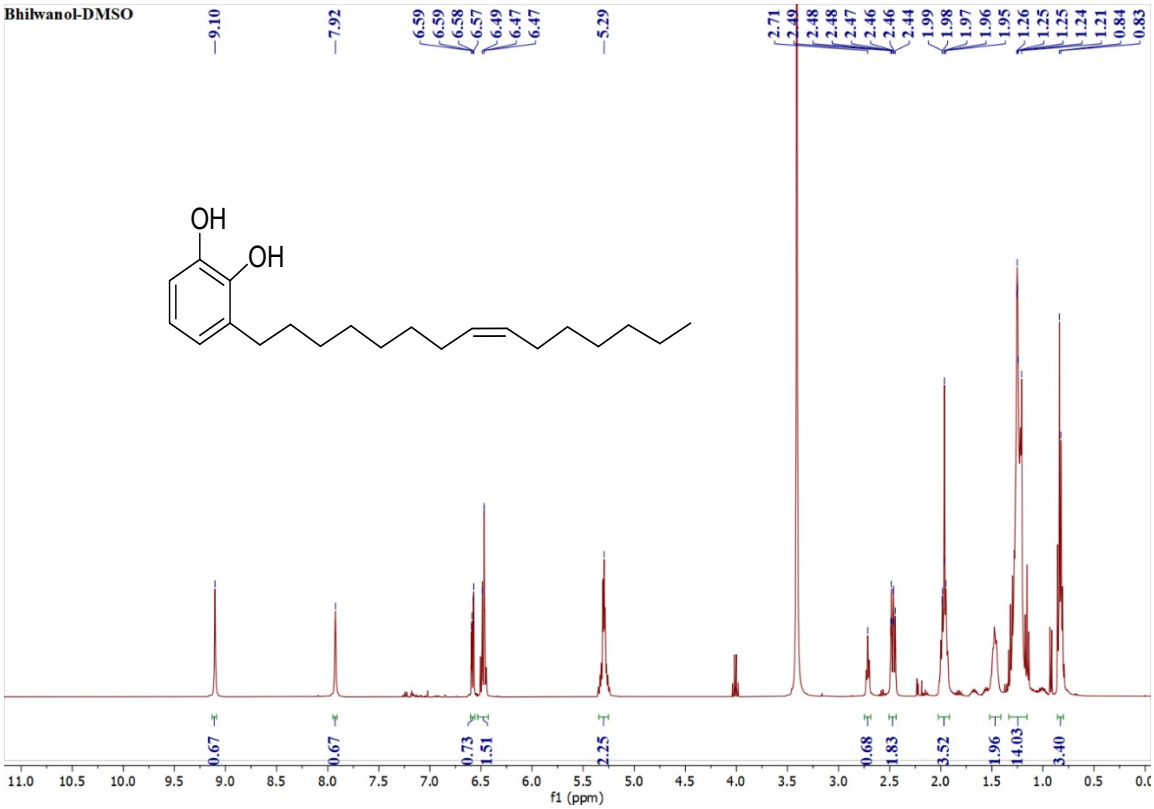


Figure S1. ^{1}H NMR spectra of compound 1a (DMSO-$d_{6,}$ 400MH*z*)

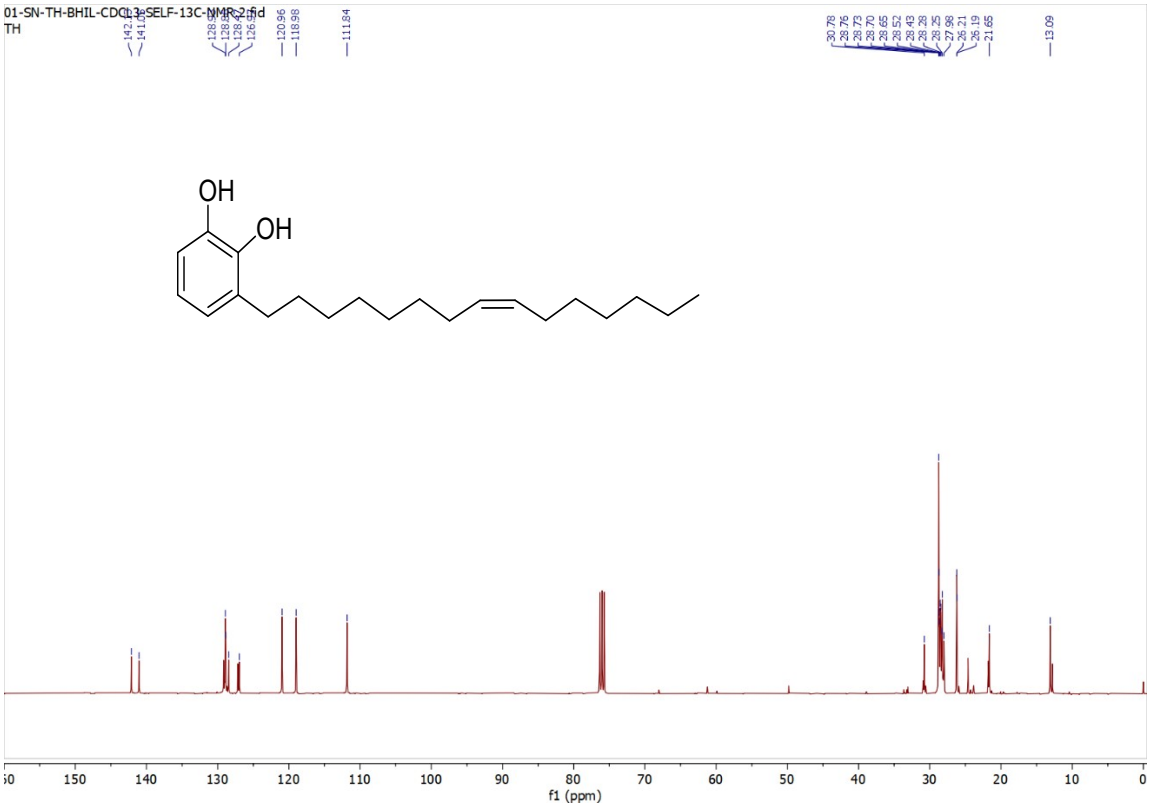


Figure S2. ^{13}C NMR spectra of compound 3a ($CDCl_{3,}$ 100MH*z*)

Sample Name	bhil	**Position**	P1-A7	**Instrument Name**	Instrument 1
User Name		**Inj Vol**	2	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Success	**Data Filename**	18.7.2023-7.d
ACQ Method	HRMS-NITW.m	**Comment**		**Acquired Time**	18-Jul-23 12:16:07 PM

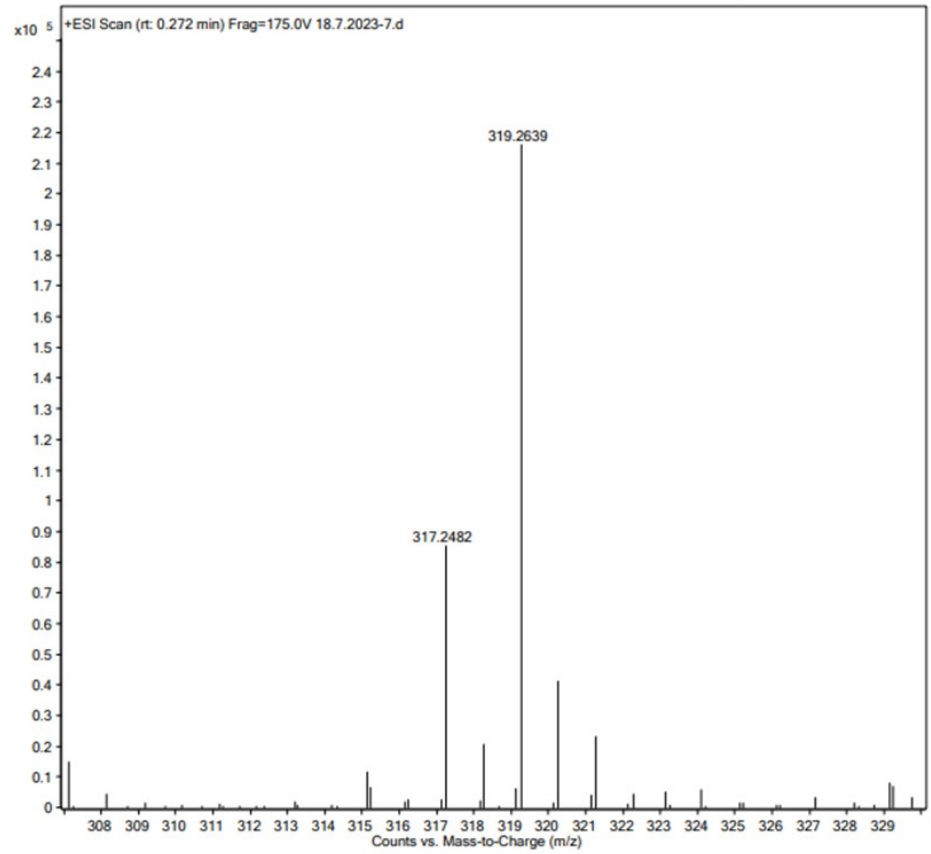


Figure S3. HRMS spectra of compound 1a.

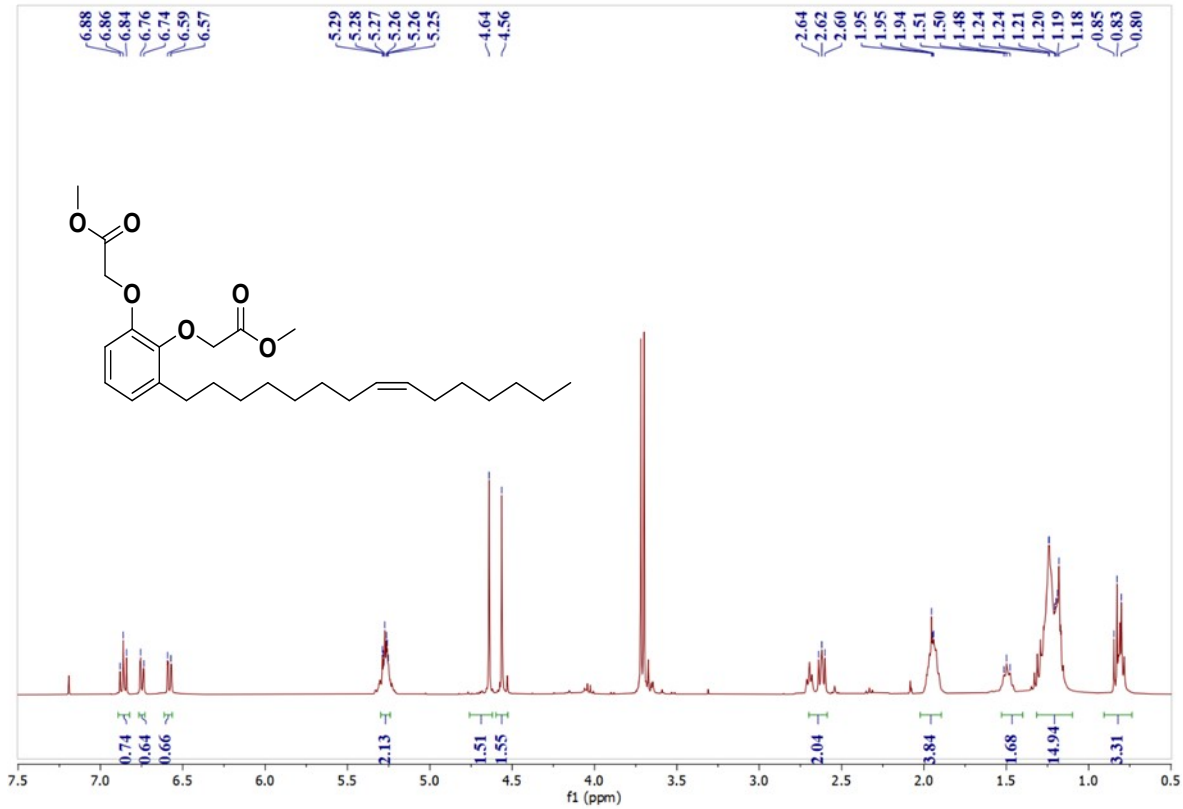


Figure S4. ^{1}H NMR spectra of compound 2a (DMSO-$d_{6,}$ 400MH*z*)

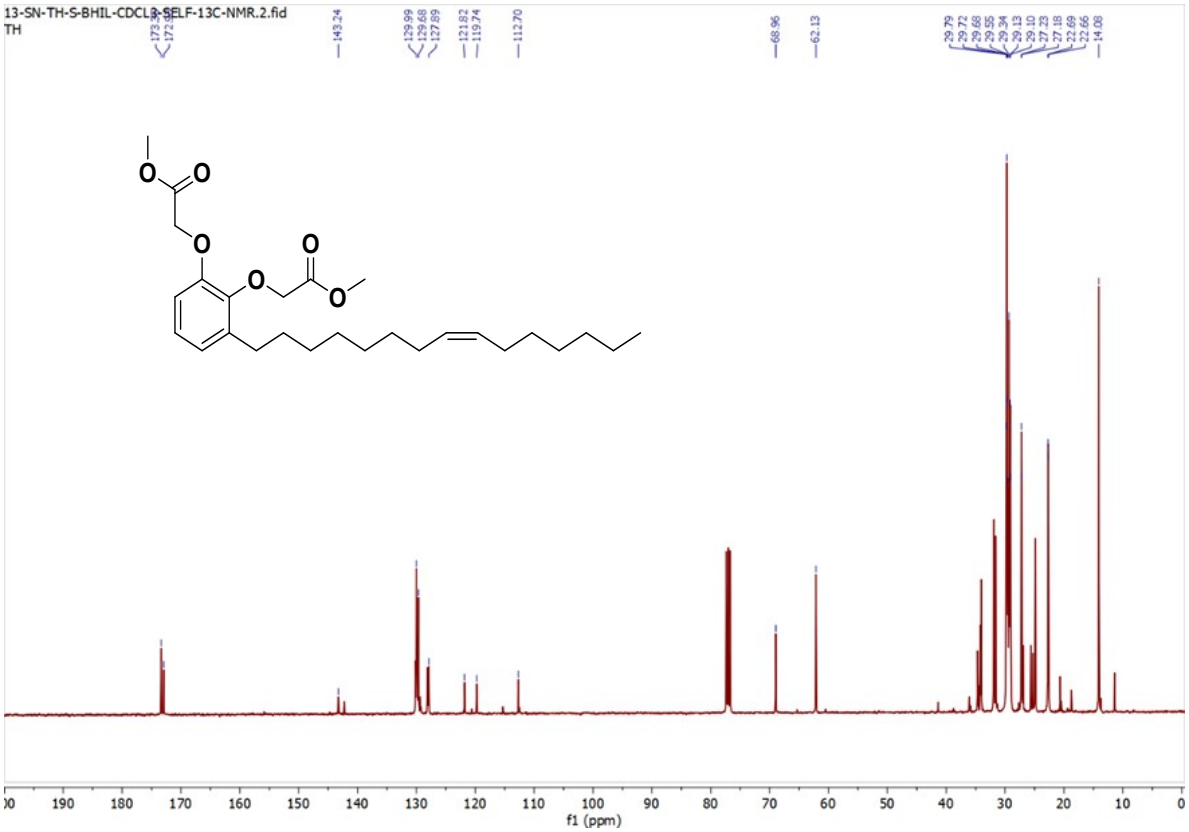


Figure S5. ^{13}C NMR spectra of compound 2a ($CDCl_{3,}$ 100MH*z*)

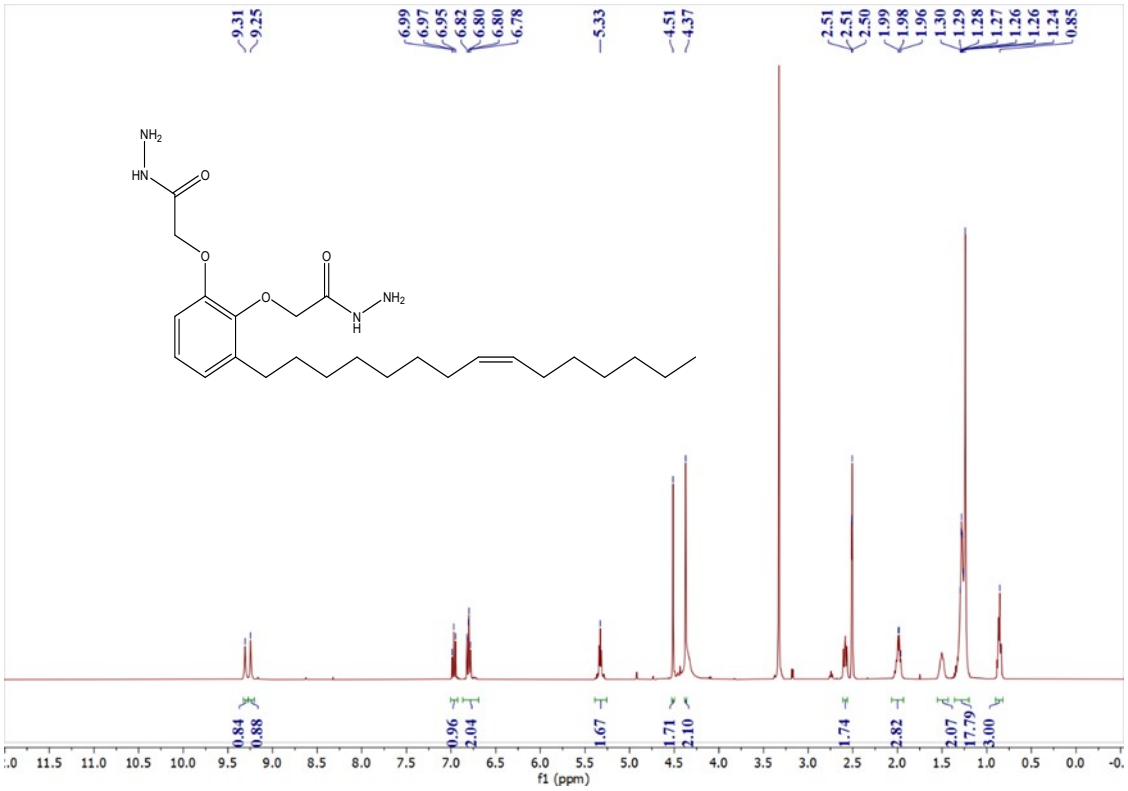


Figure S6. ^{1}H NMR spectra of compound 3a (DMSO-d_6, 400MH*z*)

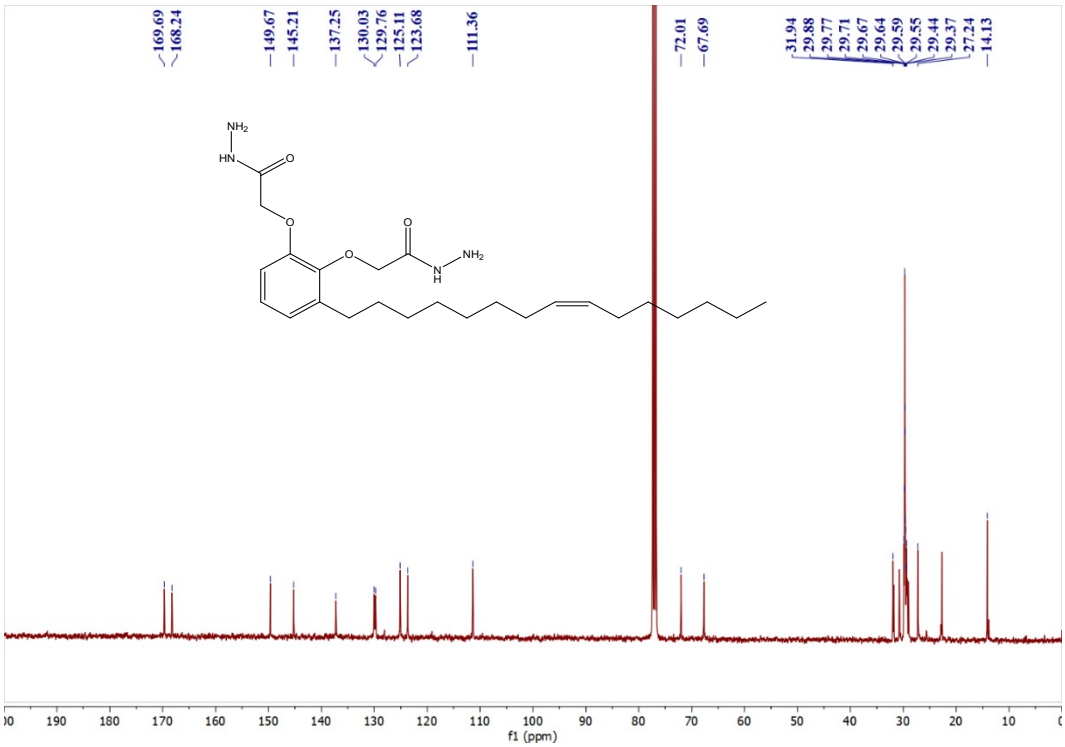


Figure S7. ^{13}C NMR spectra of compound 3a ($CDCl_3$, 100MH*z*)

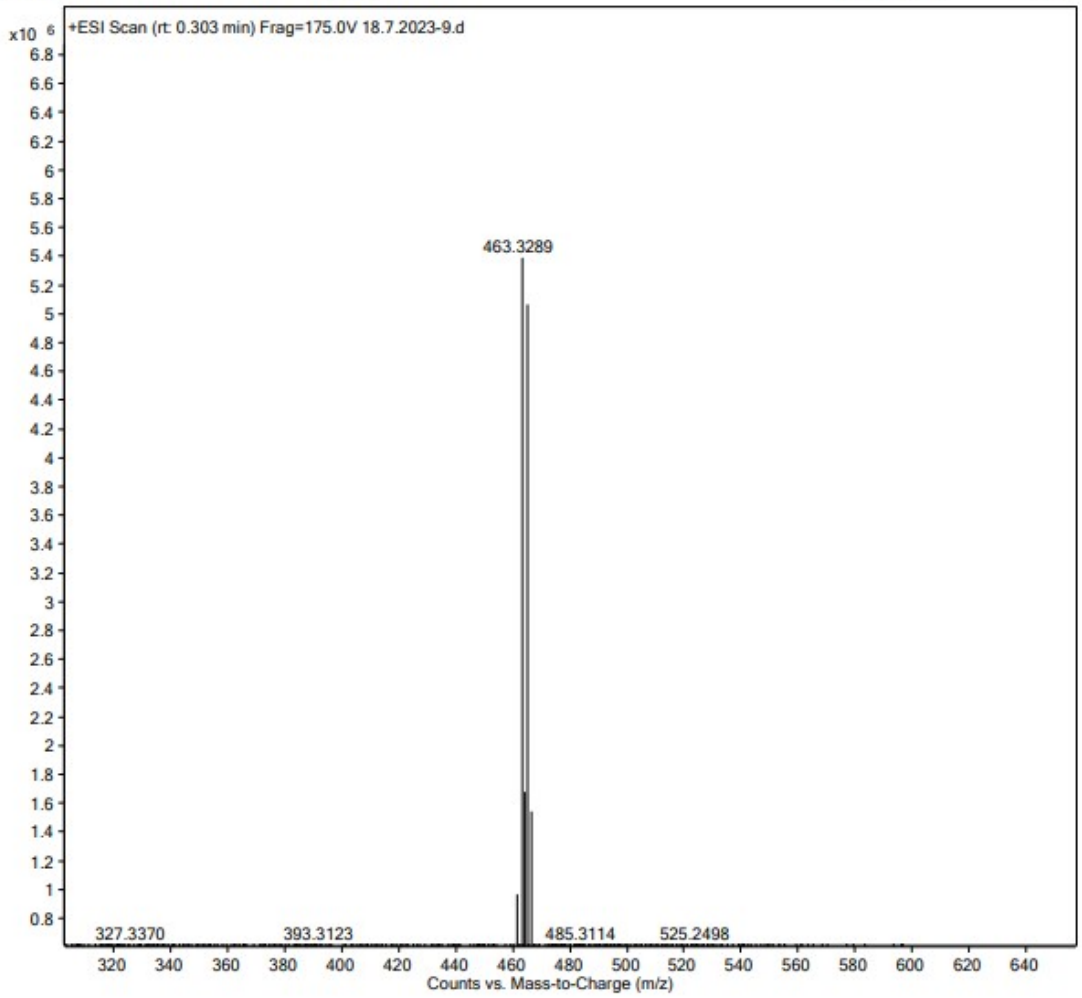


Figure S8. HRMS spectra of compound 3a

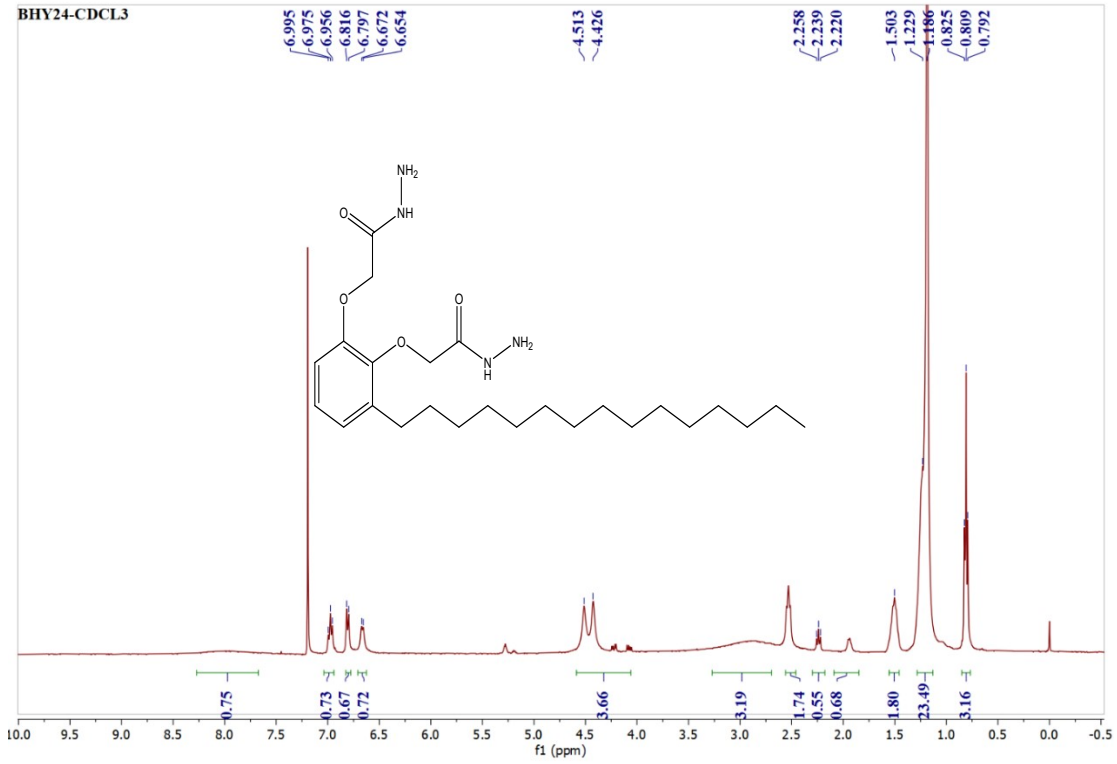


Figure S9. ^{1}H NMR spectra of compound 3b ($CDCl_3$, 400MH*z*)

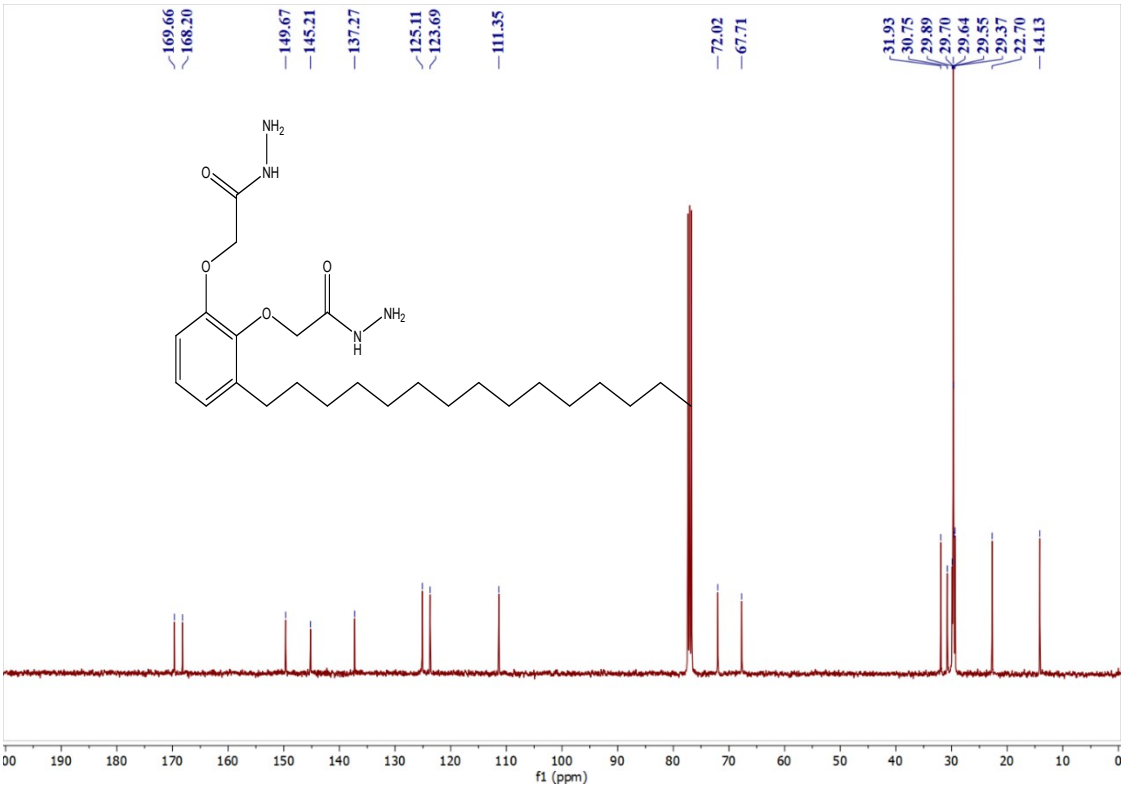


Figure S10. ^{13}C NMR spectra of compound 3b ($CDCl_3$, 100MH*z*)

Sample Name	bhil-hz-s	**Position**	P1-A8	**Instrument Name**	Instrument 1
User Name		**Inj Vol**	2	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Success	**Data Filename**	18.7.2023-8.d
ACQ Method	HRMS-NITW.m	**Comment**		**Acquired Time**	18-Jul-23 12:20:05 PM

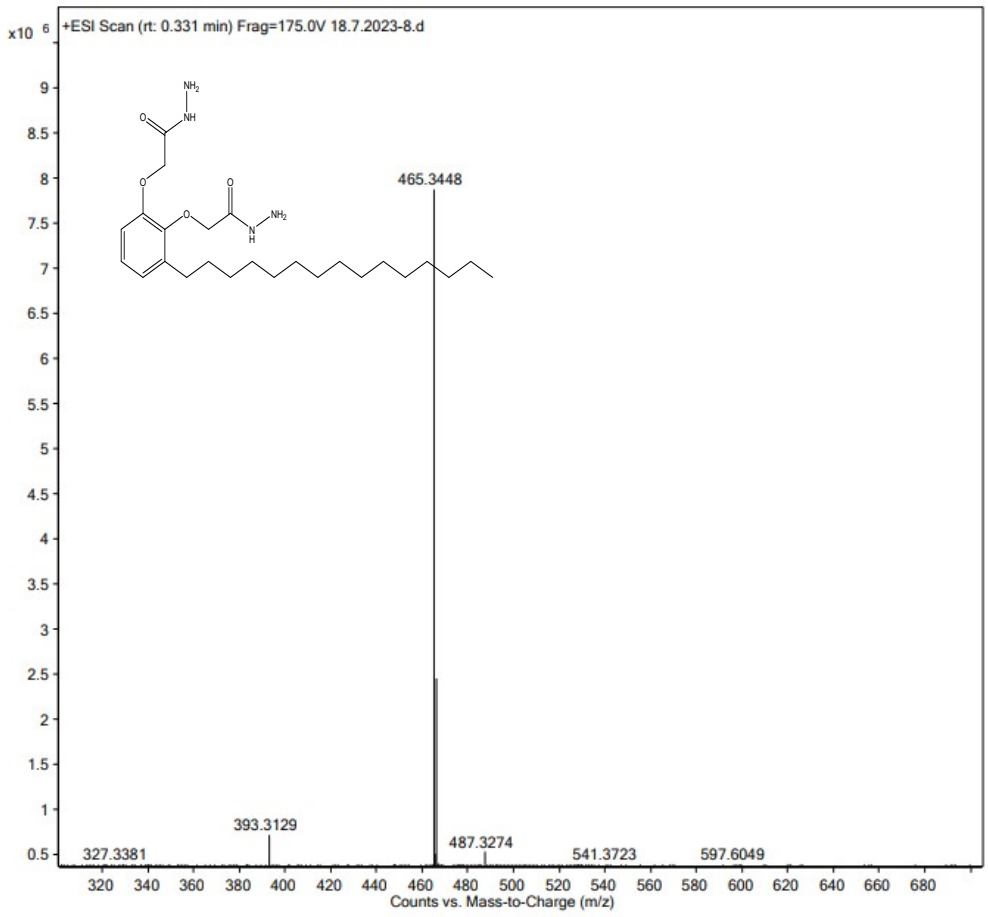


Figure S11. HRMS spectra of compound 3b

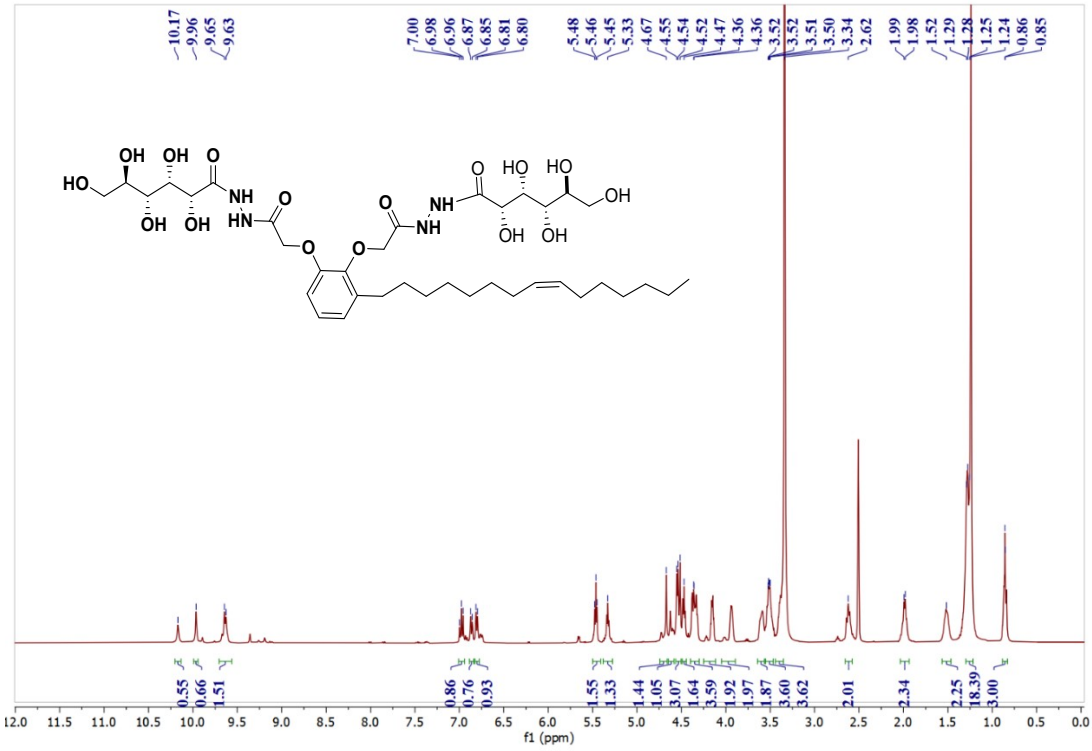


Figure S12. ^{1}H NMR spectra of compound 4a (DMSO-d_6, 400MH*z*)

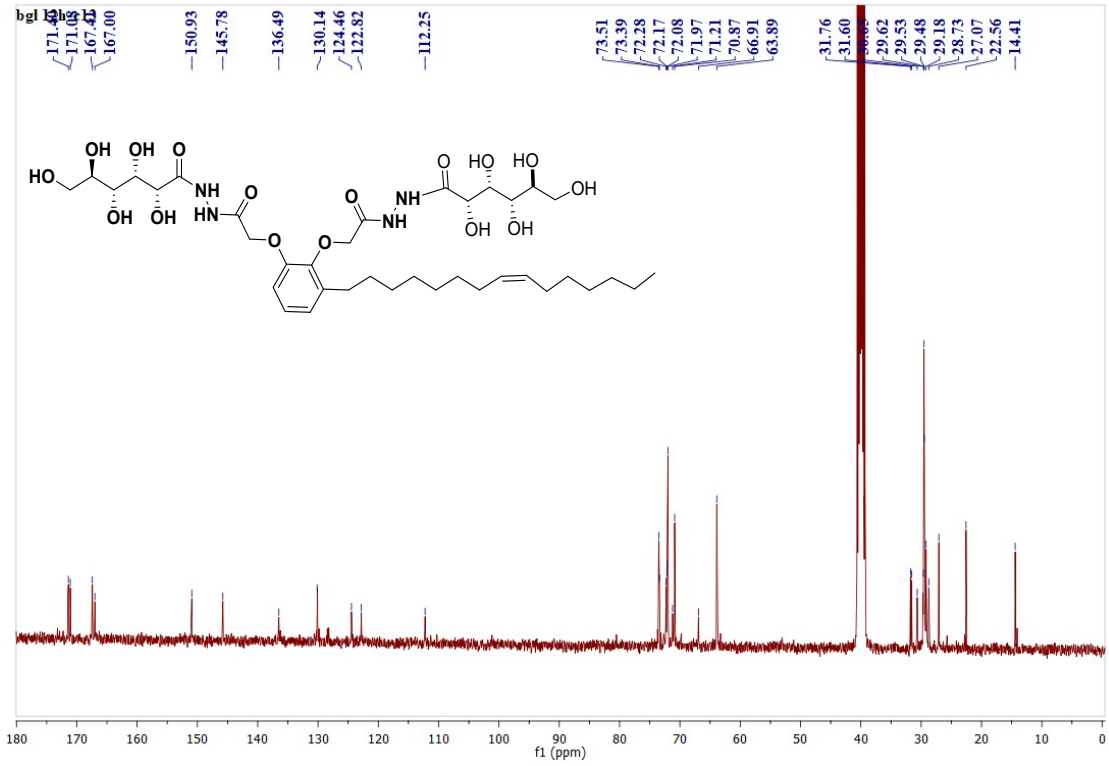


Figure S13. ^{13}C NMR spectra of compound 4a (DMSO-d_6, 100MH*z*)

Sample Name	B-G2-12	**Position**	P1-A5	**Instrument Name**	Instrument 1
User Name		**Inj Vol**	2	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Success	**Data Filename**	28.03.2022-5.d
ACQ Method	NITW-W.m	**Comment**		**Acquired Time**	28-Mar-22 1:25:33 PM

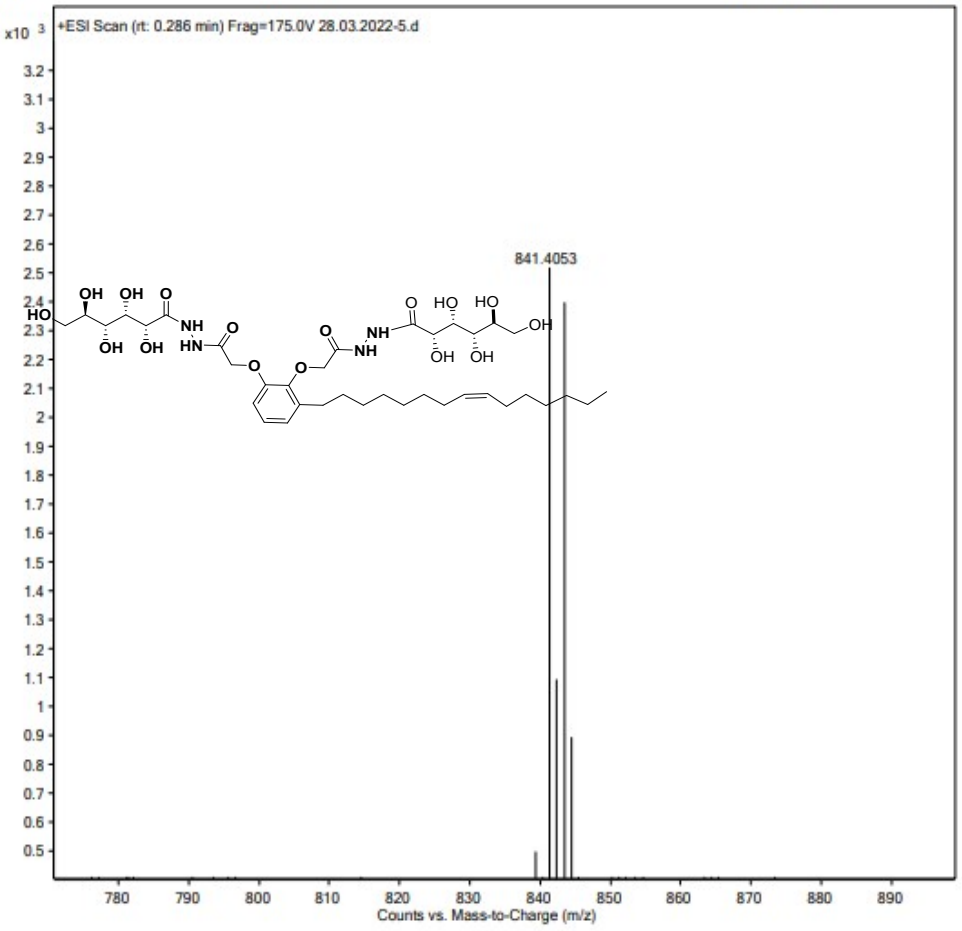


Figure S14. HRMS spectra of compound 4a

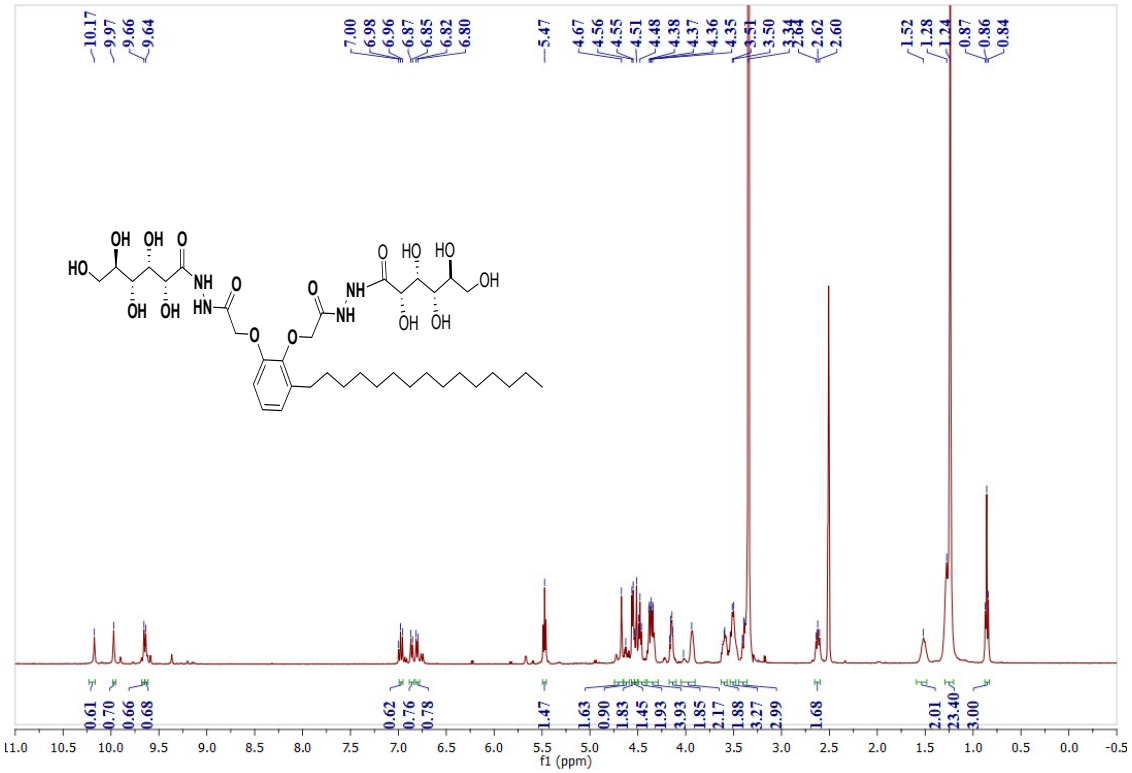


Figure S15. ^{1}H NMR spectra of compound 4b (DMSO-d_6, 400MH*z*)

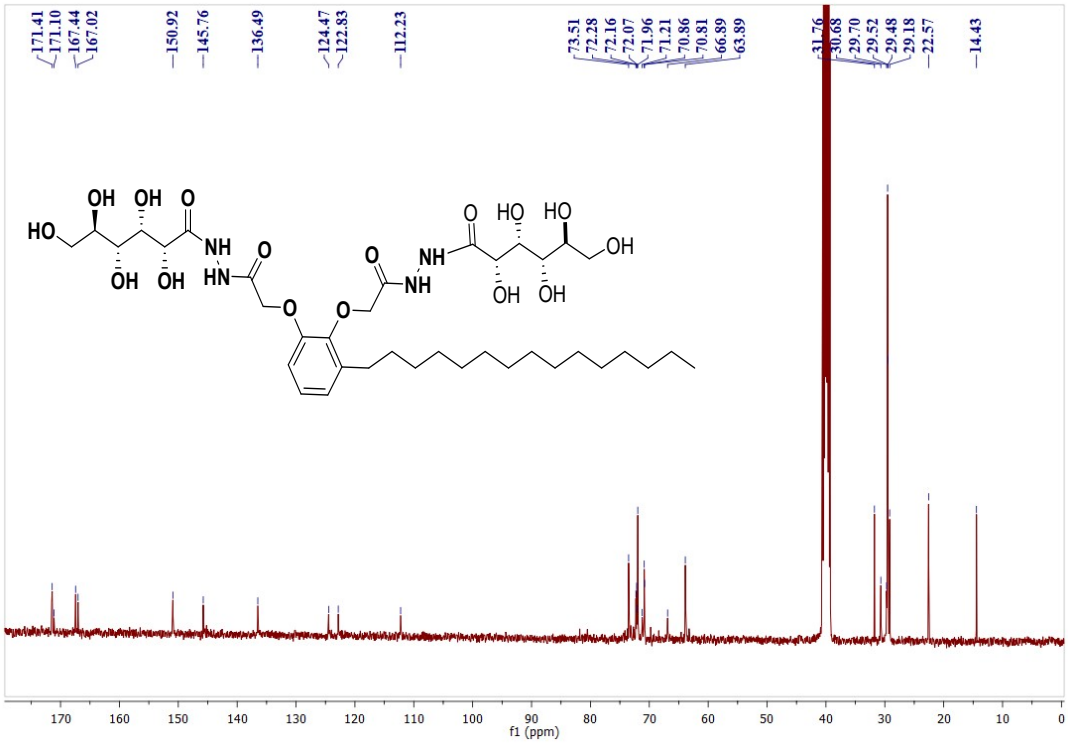


Figure S16. ^{13}C NMR spectra of compound 4b (DMSO-d_6 100MH*z*)

Sample Name	B-GL2	**Position**	P1-C2	**Instrument Name**	Instrument 1
User Name		**Inj Vol**	2	**InjPosition**	
Sample Type	Sample	**IRM Calibration Status**	Success	**Data Filename**	02.02.2022-20.d
ACQ Method	NITW-W.m	**Comment**		**Acquired Time**	02-Feb-22 4:22:26 PM

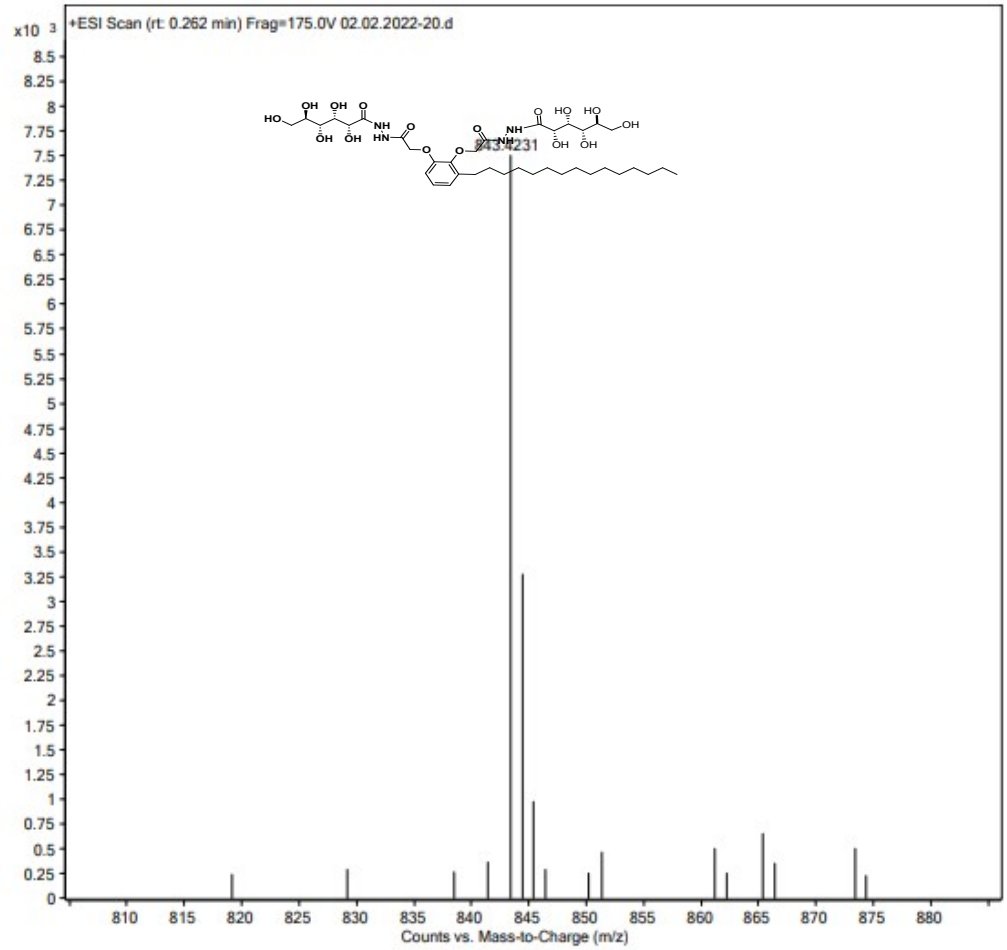


Figure S17. HRMS spectra of compound 4b

Figure S18. Optical microscopic images of the compound 4b in DMSO+ Water.

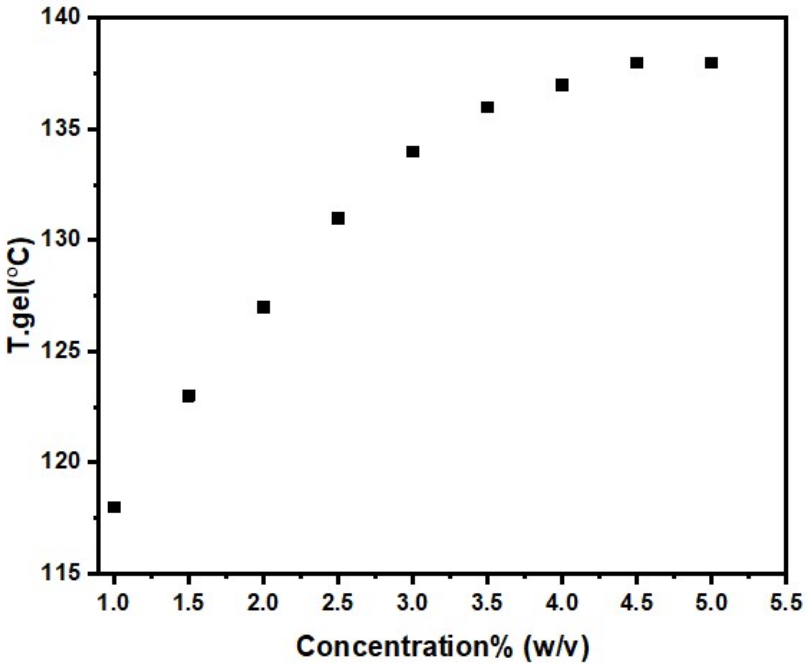


Figure S19. Thermal stability of hydrogel formed by compound 4b with respect to concentration.

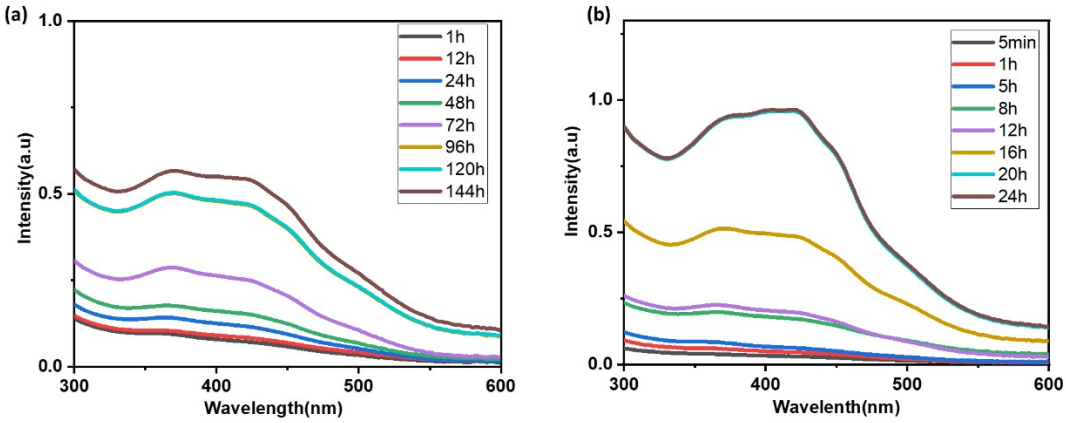
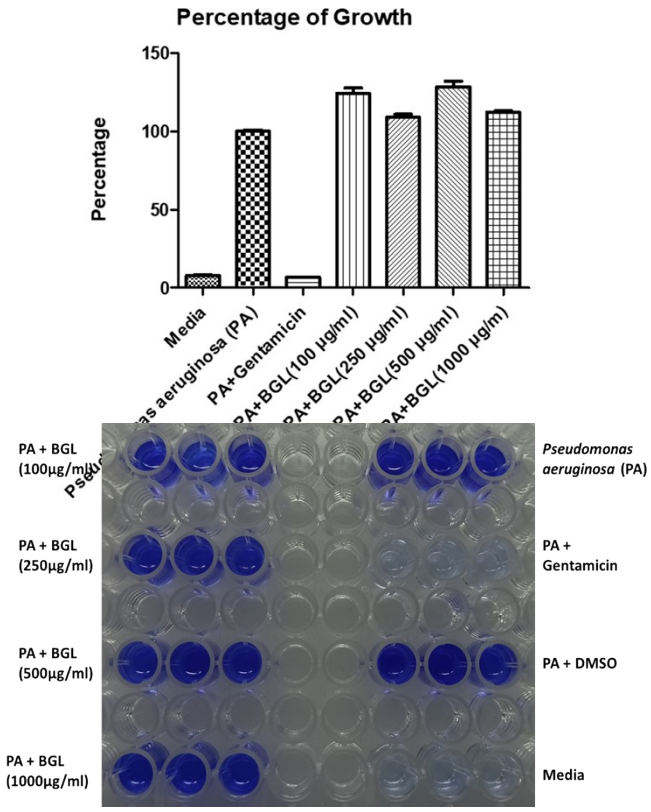


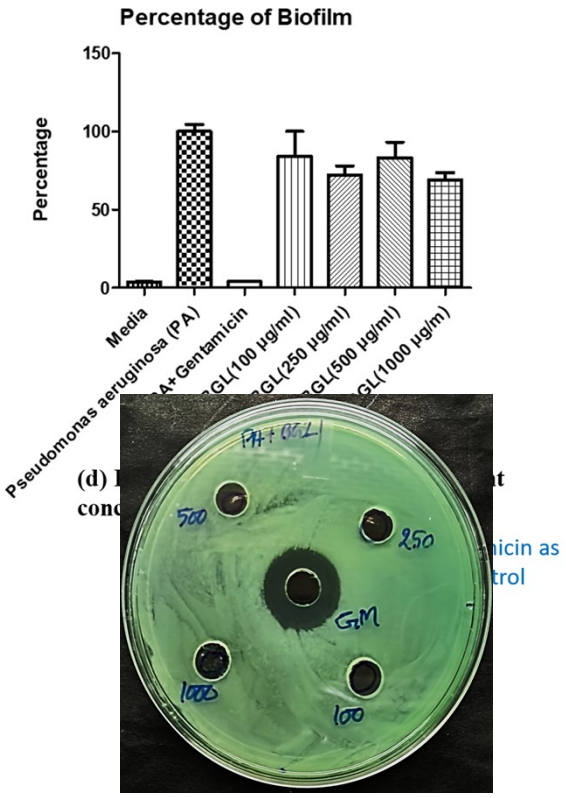
Figure S20. UV-vis studies demonstrating the curcumin release from hydrogel matrix at different time intervals under pH as stimuli responsive condition (a) acidic pH (b) neutral pH.

Cytotoxic study, antimicrobial studies of compound 4b against various bacterial strains.

1.*Pseudomonas aeruginosa*.



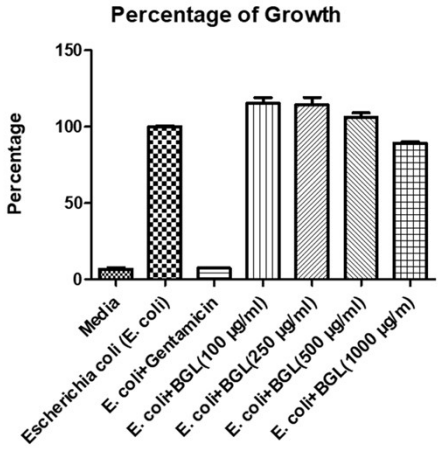
MTT assay of the compound.

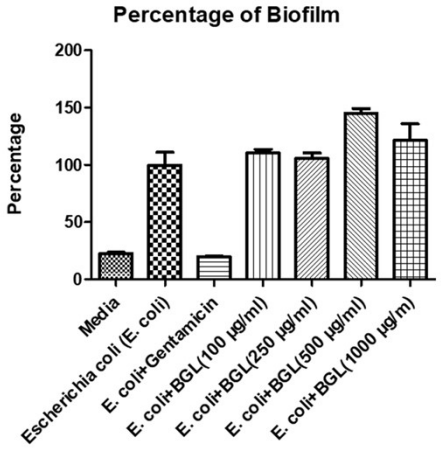


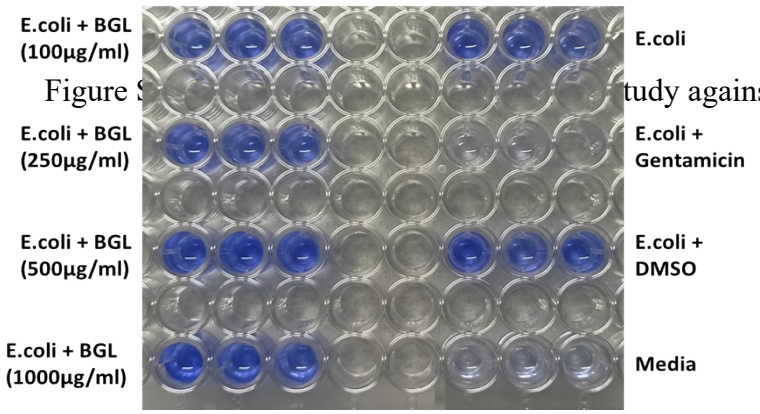
The diameter of zone of inhibition with gentamicin (positive) control) is 1.9 cm.

Figure S21. Anti-bacterial and anti- biofilm study against *Pseudomonas aeruginosa*

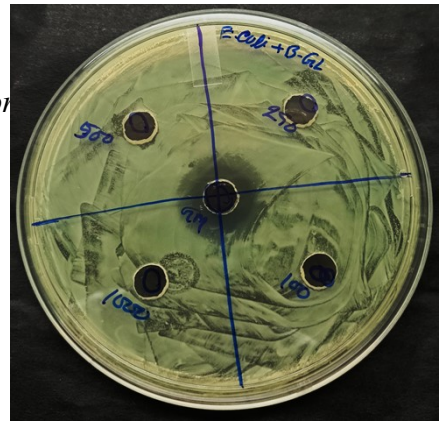
2.*Escherichia coli* (E. coli)







MTT assay of the compound



The diameter of zone of inhibition with gentamicin (positive control) is 2cm.

Figure S22. Anti-bacterial and anti- biofilm study against *Escherichia coli* (E. coli)