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J. Serb. Chem. Soc. 88 (9) S242–S251 (2023) *Supplementary material*

SUPPLEMENTARY MATERIAL TO

Evaluation of derivatives of 2,3-dihydroquinazolin-4(1*H*)-one as inhibitors of cholinesterases and their antioxidant activity: *In vitro*, *in silico* and kinetics studies

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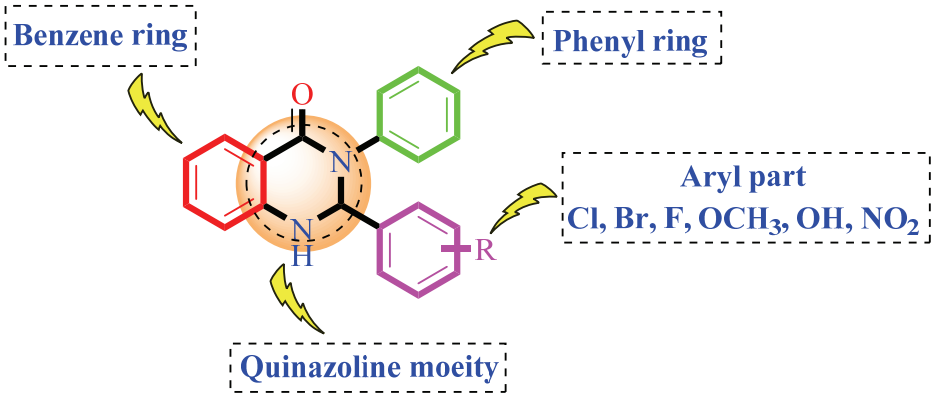

Fig. S-1. General structure of synthetic dihydroquinazolin-4(1*H*)-one derivative.

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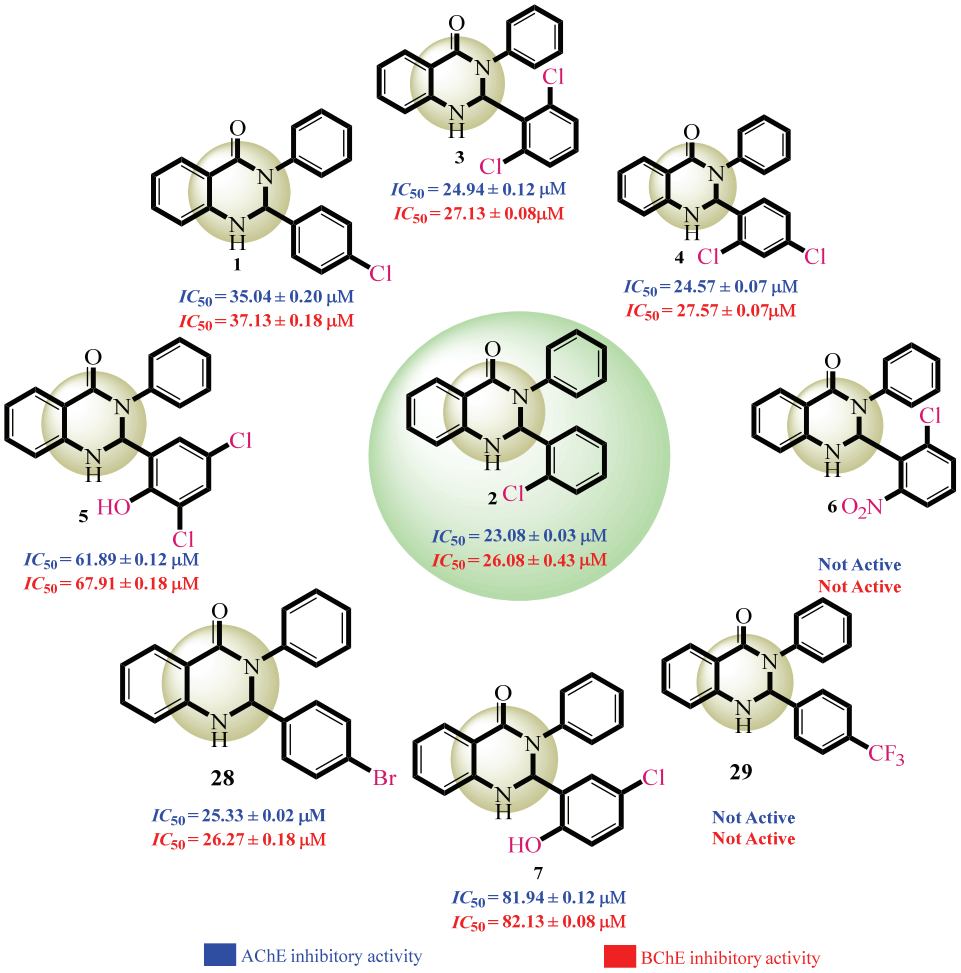

Fig. S-2. SAR of compounds **1**–**7**, **28** and **29**.

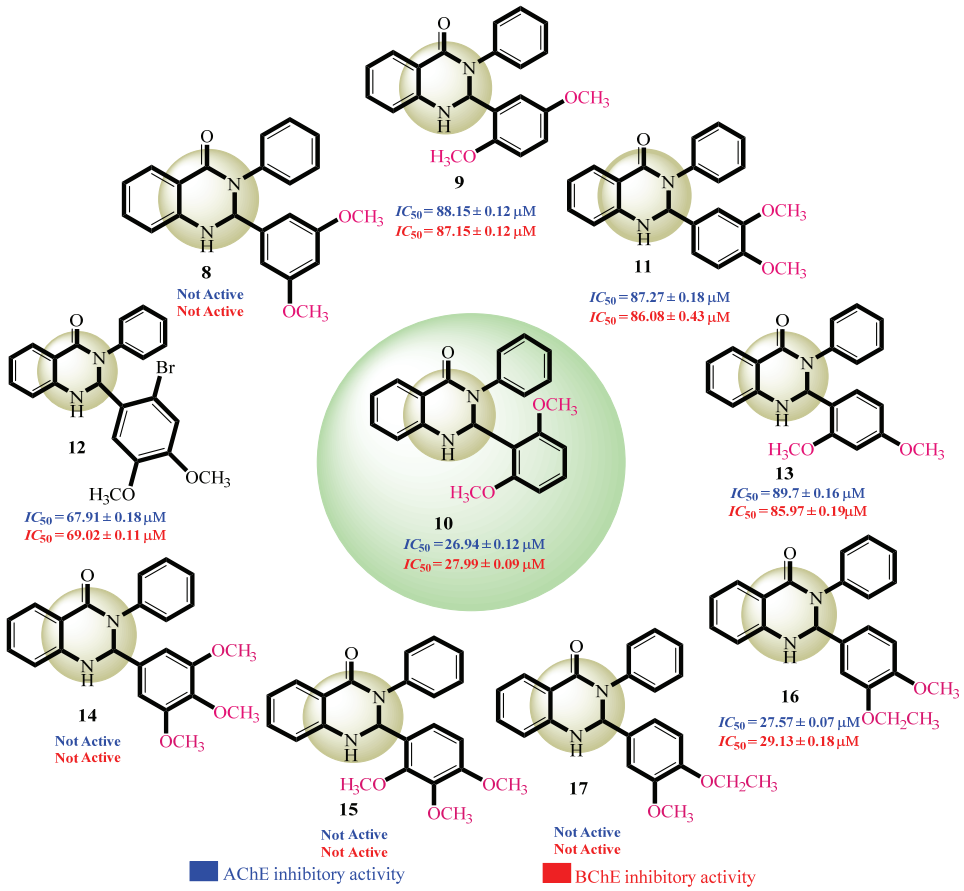

Fig. S-3. SAR of compounds **8**–**17**.

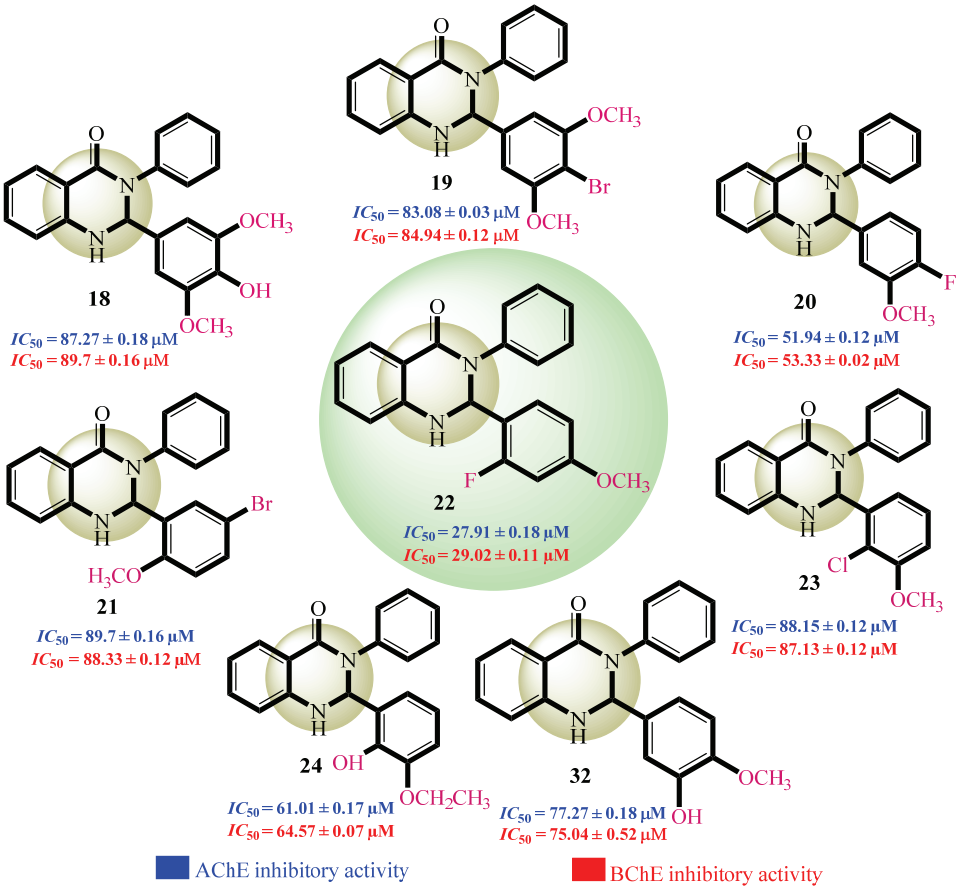

Fig. S-4. SAR of compounds **18**–**24** and **32**.

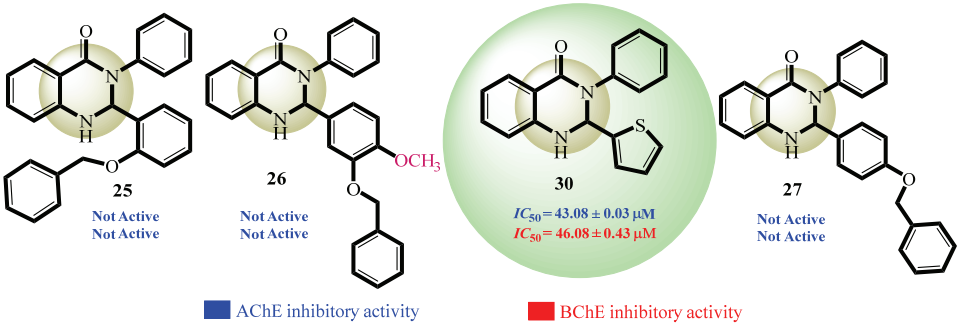

Fig. S-5. SAR of compounds **25**–**27** and **30**.

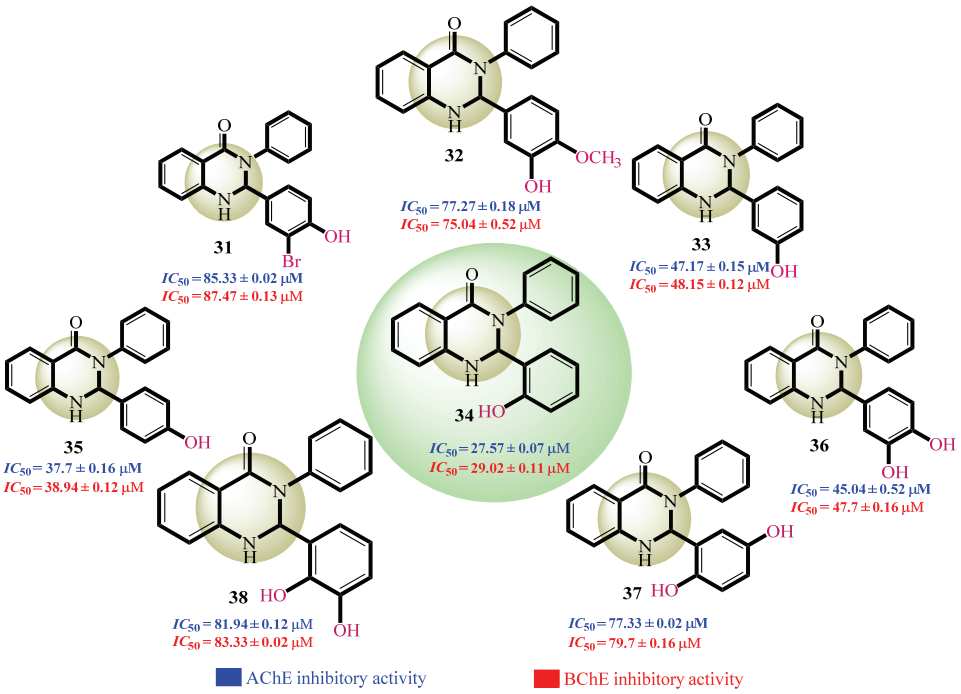

Fig. S-6. SAR of compound **31**–**38**.

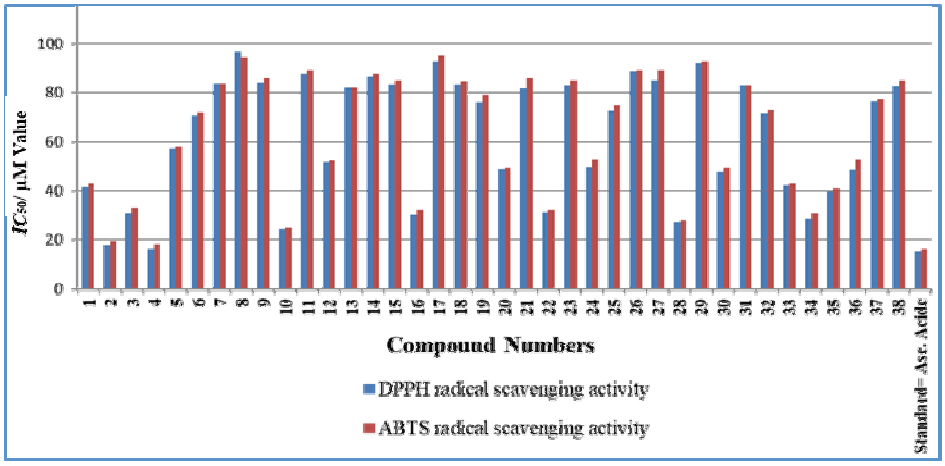

Fig. S-7. Comparison of radical scavenging activities (DPPH and ABTS) of compounds **1**–**38**.

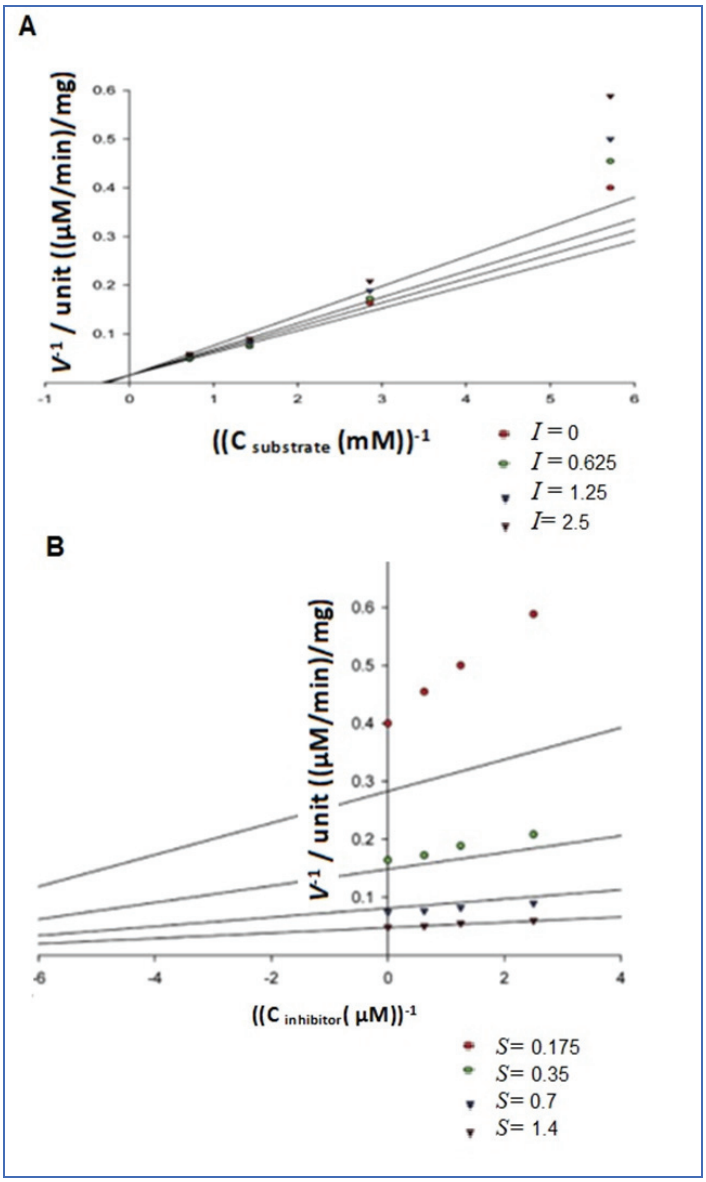

Fig. S-8. Graph of compound **2**: A-Lineweaver-Burk plot of reciprocal of rate of reaction (velocities) *vs.* reciprocal of different concentrations of inhibitor (0, 0.625, 1.25 and 2.5 µM) in the substrate (acetyl thiocholine iodide (ATCI)), whereas V_{max} and K_m values were calculated from Lineweaver- Burk plot; B - the plot of reciprocal of rate of reaction (velocities) *vs.* different concentrations of inhibitor, whereas the K_i value was calculated from the Dixon plot.

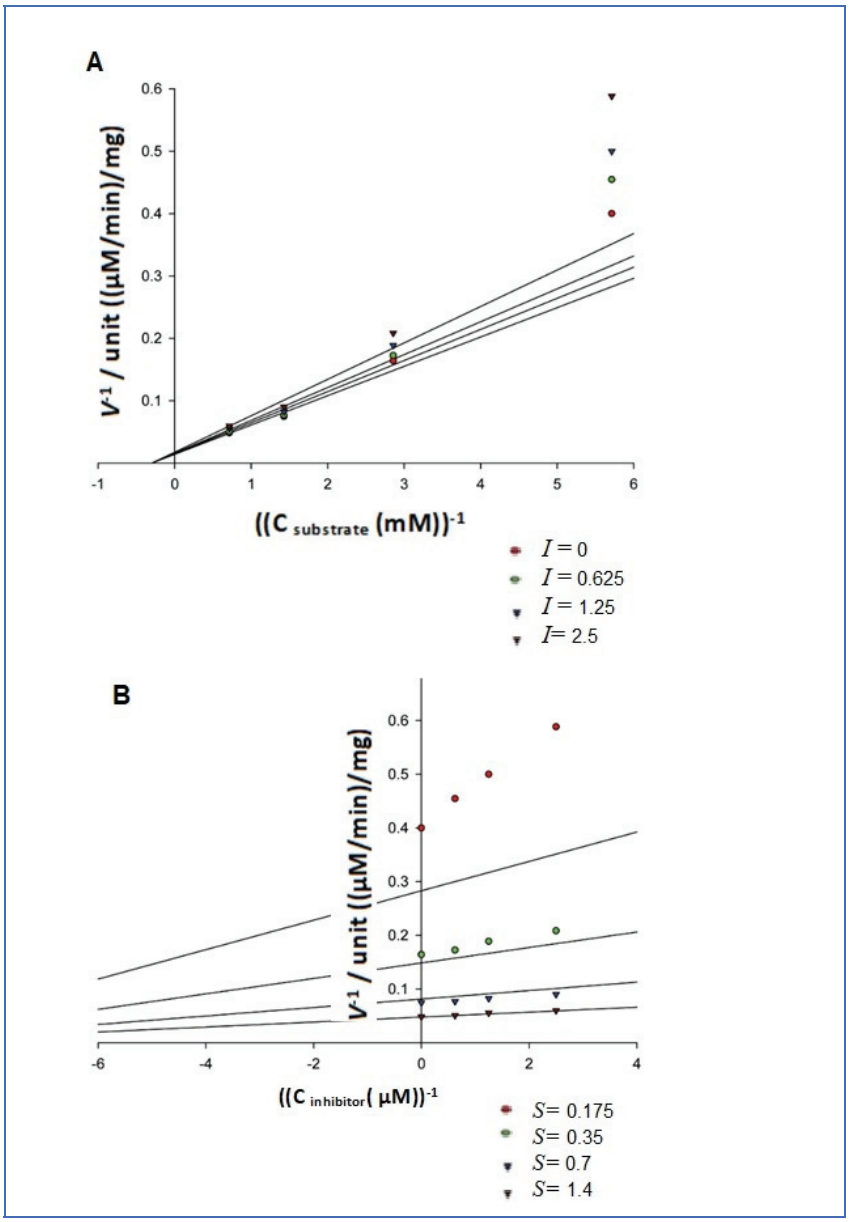

Fig. S-9. Graph of compound **2:** A - Lineweaver- Burk plot of reciprocal of rate of reaction (velocities) *vs.* reciprocal of the substrate (butyryl thiocholine iodide (BTCI)) in the different concentrations of inhibitor (0, 0.625, 1.25 and 2.5 µM). Whereas V_{max} and K_m values were calculated from Lineweaver- Burk plot; B - Dixon plot of the reciprocal of rate of reaction (velocities) *vs.* different concentrations of inhibitor, whereas the K_i value was calculated from the Dixon plot.

Table S-I. Interaction details for all derivatives (**1-38**) with the acetylcholinesterase (AChE) enzyme

S. No	Interaction details (AChE)						Docking score
	Ligands	Receptor	Interaction	Distance Å	*E* / cal mol^{-1}	Residue	
1	C 23	6-ring	H-π	4.52	-0.5	TRP 279	-5.66273642
	C 3	6-ring	π-π	4.42	-0.0	PHE 331	
2	6-ring	O1	H-donor	3.27	-0.9	TYR 334	-6.7638814
	O 1	OD1	H-donor	3.85	-0.0	ASP 72	
	C 6	6-ring	π-π	3.87	-0.0	TRP 279	
3	O 11	CA	H-acceptor	3.54	-0.8	PHE 331	-5.60079002
	6-ring	6-ring	π-π	3.75	-0.0	TYR 334	
	O 11	O 1	H-acceptor	3.27	-1.2	PHE 331	
4	C 6	6-ring	H-donor	3.27	-0.9	TYR 334	-6.31296978
	NH 1	OD1	H-donor	3.85	-2.0	ASP 72	
5	O 24	OD1	H-donor	3.02	-0.7	ASP 72	-5.77625036
6	NA						NA
7	O 25	O	H-donor	2.91	-1.0	TYR 334	-6.00905561
	C 8	6-ring	H-π	4.09	-0.5	TRP 279	
8	NA						NA
9	O 26	CA	H-acceptor	3.36	-0.7	GLY 335	-5.63523006
10	O 11	CA	H-acceptor	3.53	-0.6	GLY 335	-5.57175112
11	O 11	CA	H-acceptor	3.73	-0.5	PHE 331	-5.98022985
	6-ring	6-ring	π-π	3.96	-0.0	TYR 334	
12	C 8	6-ring	H-π	4.12	-0.5	TRP 279	-5.69548988
13	C 8	6-ring	H-π	4.07	-0.5	TRP 279	-5.54778252
14	NA						NA
15	NA						NA
16	O 11	CA	H-acceptor	3.30	-1.2	PHE 331	-6.12902689
	C 22	5-ring	H-π	4.01	-0.8	TRP 279	
17	NA						NA
18	O 24	OG	H-donor	2.89	-1.2	SER 200	-5.65914297
19	C 8	6-ring	H-π	4.08	-0.6	TRP 279	-5.58714533
20	C 8	O	H-donor	3.42	-0.5	TYR 334	-5.81397343
21	C 8	6-ring	H-π	4.08	-0.5	TRP 279	-5.70436907
22	6-ring	6-ring	π-π	3.55	-0.0	TRP 279	-5.86824417
23	C 14	5-ring	H-π	4.13	-0.7	TRP 84	-6.00569773
24	C 27	6-ring	H-π	4.31	-0.8	PHE 331	-5.71659184
25	NA						NA

26	NA						NA
27	NA						NA
28	C 23	6-ring	H-π	4.44	-0.5	TRP 279	-5.36408567
29	NA						NA
30	S 22	OG	H-donor	2.90	-0.9	SER 200	-5.40765858
31	6-ring	5-ring	π-π	3.57	-0.0	TRP 279	-5.71627712
	6-ring	6-ring	π-π	3.65	-0.0	TRP 279	
32	C 8	6-ring	H-π	4.15	-0.5	TRP 279	-5.90167618
33	O 24	O	H-donor	2.95	-2.6	SER 286	-5.36855221
34	O 24	O	H-donor	2.91	-1.0	TYR 334	-6.03559828
	C 8	6-ring	H-π	4.09	-0.5	TRP 279	
35	O 24	O	H-donor	2.94	-0.6	SER 286	-5.34506702
36	O 24	O	H-donor	2.87	-1.3	SER 286	-5.79665184
	O 25	O	H-donor	2.89	-2.9	TYR 334	
37	C 8	O	H-donor	3.51	-0.5	TYR 334	-5.36489582
38	O 11	O 11	H-acceptor	3.30	-1.2	PHE 331	-5.43194532

Table S-II. Interaction detail for all derivatives with the butyrylcholinesterase (BChE) enzyme

S. No.	**Interaction details (BChE)**						**Docking score**
	Ligands	**Receptor**	**Interaction**	**Distance Å**	***E* / cal mol^{-1}**	**Residue**	
1	O 11	CD2	H-acceptor	3.29	-0.5	HIS 438	-4.25291157
	6-ring	6-ring	π-π	3.63	-0.0	PHE 329	
2	6-ring	6-ring	π-π	4.00	-0.0	TRP 82	-6.74273882
	6-ring	5-ring	π-π	3.82	-0.0	TRP 82	
3	6-ring	6-ring	π-π	3.95	-0.0	TYR 332	-5.12142467
4	6-ring	6-ring	π-π	3.97	-0.0	TRP 82	-5.40873098
5	O 24	O	H-donor	3.53	-0.5	PRO 285	-4.97462296
6	NA						NA
7	6-ring	6-ring	π-π	3.69	-0.0	PHE 329	-5.44320917
8	NA						NA
9	O 11	CD2	H-acceptor	3.36	-0.6	HIS 438	-5.18472815
10	6-ring	6-ring	π-π	4.00	-0.0	TRP 82	-4.85872316
11	6-ring	6-ring	π-π	3.90	-0.0	PHE 329	-5.36547041
12	6-ring	6-ring	π-π	4.00	-0.0	PHE 329	-5.75709534
13	6-ring	6-ring	π-π	3.94	-0.0	TRP 82	-5.33182621
14	NA						NA
15	NA						NA
16	6-ring	6-ring	π-π	3.88	-0.0	PHE 329	-4.68446302

17	NA						NA
18	O 11	CD2	H-acceptor	3.33	-0.5	HIS 438	-5.10889292
19	O 11	CD2	H-acceptor	3.39	-0.5	HIS 438	-5.250278
20	6-ring	6-ring	π-π	3.99	-0.0	PHE 329	-5.82584286
21	6-ring	6-ring	π-π	3.95	-0.0	TRP 82	-5.19997549
22	6-ring	6-ring	π-π	3.79	-0.0	PHE 329	-5.3220067
23	6-ring	6-ring	π-π	3.90	-0.0	PHE 329	-4.97137928
24	6-ring	OG1	π -H	3.95	-1.1	THR 120	-5.39356089
25	NA						NA
26	NA						NA
27	NA						NA
28	6-ring	6-ring	π-π	3.92	-0.0	PHE 329	-6.4467145
	C 26	OE2	H-donor	3.36	-0.5	GLU 197	
29	NA						NA
30	S 22	OG1	H-donor	4.14	-0.6	THR 120	-4.30858469
31	6-ring	6-ring	π-π	3.95	-0.0	PHE 329	-5.26759958
32	O 24	OG1	H-donor	3.26	-0.7	THR 120	-4.33135366
33	O 24	OG1	H-donor	3.35	-0.6	THR 120	-5.12208843
34	6-ring	6-ring	π-π	3.97	-0.0	PHE 329	-5.07936764
35	6-ring	6-ring	π-π	3.89	-0.0	PHE 329	-4.48091221
36	O 25	OG1	H-donor	3.31	-0.7	THR 120	-4.88316011
37	6-ring	6-ring	π-π	3.90	-0.0	PHE 329	-4.97137928
38	6-ring	6-ring	π-π	3.94	-0.0	TYR 332	-5.09215164