

# Supplementary Material

## Conductometric and Fluorescence Probe Analysis to Investigate the Interaction between Bioactive Peptide and Bile salts: A Micellar State Study

Santosh Kumari <sup>1</sup>, Suvarcha Chauhan <sup>1,\*</sup>, Ahmad Umar <sup>2,3,\*</sup>, Hassan Fouad <sup>4</sup> and Mohammad Shaheer Akhtar <sup>5,6</sup>

<sup>1</sup> Department of Chemistry, Himachal Pradesh University, Summer Hill, Shimla171005, India

<sup>2</sup> Department of Chemistry, College of Science and Arts, Promising Centre for Sensors and Electronic Devices (PCSED), Najran University, Najran11001, Saudi Arabia

<sup>3</sup> Department of Materials Science and Engineering, The Ohio State University, Columbus, OH 43210, USA

<sup>4</sup> Applied Medical Science Department, Community College, King Saud University, Riyadh11433, Saudi Arabia

<sup>5</sup> School of Semiconductor and Chemical Engineering, Jeonbuk National University, Jeonju 54896, Korea

<sup>6</sup> Graduate School of Integrated Energy-AI, Jeonbuk National University, Jeonju 54896, Korea

\* Correspondence: scschauhan19@gmail.com (S.C.); ahmadumar786@gmail.com (A.U.)

† Adjunct Professor at the Department of Materials Science and Engineering, The Ohio State University, Columbus, OH 43210, USA.

**Table S1.** Specific Conductance,  $\kappa$  ( $\mu \text{ Scm}^{-1}$ ) values for NaC and NaDC (mmol·kg<sup>-1</sup>) in pure water and in 0.001, 0.05 and 0.010 mol·kg<sup>-1</sup> aqueous solution of glycyl dipeptide at different temperatures.

NaC						NaDC					
[NaC] T	293.15 K	298.15 K	303.15 K	308.15 K	313.15 K	[NaDC] T	293.15 K	298.15 K	303.15 K	308.15 K	313.15 K
[Pure Water]											
1	249	264	232	255	256	0.5	35	40	35	35	40
2	308	319	297	320	322	1.0	65	70	65	65	70
3	371	370	354	381	373	1.5	95	100	95	100	100
4	419	429	428	438	448	2.0	125	130	124	128	130
5	477	481	483	499	508	2.5	155	160	153	160	160
6	538	537	546	558	590	3.0	182	191	185	190	190
7	596	593	611	618	648	3.5	213	218	220	220	220
8	652	653	677	689	712	4.0	243	248	250	245	250
9	703	708	725	750	777	4.5	275	274	280	280	280
10	767	762	766	801	830	5.0	305	305	310	305	310
11	835	827	823	863	890	5.5	335	335	335	335	340
12	882	875	869	911	935	6.0	360	358	365	365	370
13	927	916	912	965	985	6.5	385	380	385	385	400
14	967	947	959	1005	1027	7.0	405	405	410	405	425
15	999	978	1009	1049	1068	7.5	425	430	435	425	450
16	1032	1015	1043	1093	1112	8.0	445	455	455	450	475
17	1068	1053	1089	1139	1159	8.5	465	480	480	475	500
18	1098	1091	1135	1183	1210	9.0	485	499	500	499	525
19	1132	1130	1179	1233	1266	9.5	510	520	525	519	550

20	1176	1167	1232	1280	1323	10.0	530	540	550	539	575
<b>[Glycyl dipeptide] = 0.001 mol·kg<sup>-1</sup></b>											
1	106	109	122	131	141	0.5	38	49	54	61	69
2	180	200	214	224	236	1.0	71	77	84	92	99
3	245	265	285	299	322	1.5	98	106	115	121	131
4	306	322	347	368	402	2.0	131	139	148	157	169
5	366	390	420	441	472	2.5	161	168	178	188	199
6	415	445	485	506	549	3.0	187	194	209	219	231
7	474	510	558	589	625	3.5	219	223	239	255	269
8	532	590	625	661	699	4.0	247	252	270	289	305
9	596	640	690	732	778	4.5	277	286	300	319	339
10	657	726	751	799	836	5.0	308	322	335	349	366
11	725	788	819	868	898	5.5	338	351	365	375	390
12	780	840	885	922	951	6.0	361	375	392	401	413
13	825	899	930	968	988	6.5	388	395	413	422	435
14	871	915	965	1005	1032	7.0	408	416	435	447	461
15	909	961	1000	1052	1071	7.5	427	439	461	476	485
16	951	1003	1040	1090	1105	8.0	448	458	485	496	505
17	994	1042	1085	1120	1147	8.5	471	479	505	512	530
18	1040	1088	1127	1161	1182	9.0	489	496	530	541	555
19	1090	1137	1167	1202	1215	9.5	512	520	555	566	580
20	1125	1161	1200	1230	1261	10.0	535	542	580	599	609
<b>[Glycyl dipeptide] = 0.005 mol·kg<sup>-1</sup></b>											
1	129	133	142	149	158	0.5	59	75	93	105	111
2	212	221	232	243	252	1.0	88	98	121	132	142
3	285	301	315	333	353	1.5	119	135	155	172	191
4	347	371	395	411	433	2.0	149	165	186	211	229

5	420	446	473	493	520	2.5	179	200	223	241	264
6	485	512	551	575	612	3.0	215	230	253	276	295
7	558	584	631	661	688	3.5	245	260	291	309	326
8	625	651	703	741	772	4.0	272	295	321	334	349
9	690	723	778	808	846	4.5	295	325	343	359	374
10	751	781	845	879	913	5.0	316	350	365	382	395
11	809	852	906	940	978	5.5	345	369	384	400	412
12	868	911	959	990	1031	6.0	371	387	399	420	435
13	918	955	996	1030	1069	6.5	392	405	418	435	453
14	956	991	1041	1072	1113	7.0	417	425	434	454	469
15	996	1038	1082	1112	1148	7.5	438	445	457	473	489
16	1028	1075	1117	1149	1191	8.0	454	462	474	492	507
17	1065	1112	1154	1185	1226	8.5	476	485	499	514	526
18	1108	1147	1191	1221	1261	9.0	495	506	520	533	547
19	1152	1191	1226	1254	1301	9.5	521	525	539	554	568
20	1198	1226	1263	1289	1330	10.0	541	545	559	571	588

**[Glycyl dipeptide] = 0.010 mol·kg<sup>-1</sup>**

1	145	150	152	161	175	0.5	80	104	116	122	136
2	230	241	248	252	259	1.0	125	138	150	164	173
3	311	328	342	353	360	1.5	158	176	180	189	200
4	398	417	428	444	451	2.0	191	201	205	218	230
5	475	504	523	538	555	2.5	220	231	235	244	260
6	558	582	618	631	642	3.0	251	254	260	272	287
7	631	662	699	715	730	3.5	275	284	290	300	314
8	708	746	791	807	815	4.0	301	311	315	330	345
9	785	813	867	894	909	4.5	325	331	338	360	372
10	857	882	935	968	991	5.0	349	358	365	385	398

<b>11</b>	924	948	996	1029	1050	<b>5.5</b>	<b>372</b>	381	390	410	422
<b>12</b>	975	999	1046	1087	1110	<b>6.0</b>	<b>390</b>	410	420	435	451
<b>13</b>	1022	1040	1083	1123	1143	<b>6.5</b>	<b>410</b>	428	440	459	478
<b>14</b>	1061	1084	1122	1162	1183	<b>7.0</b>	<b>431</b>	450	460	476	496
<b>15</b>	1092	1118	1163	1194	1220	<b>7.5</b>	<b>455</b>	465	484	502	520
<b>16</b>	1126	1156	1194	1222	1244	<b>8.0</b>	<b>474</b>	485	504	520	539
<b>17</b>	1158	1195	1223	1252	1276	<b>8.5</b>	<b>496</b>	508	521	538	563
<b>18</b>	1193	1229	1258	1289	1303	<b>9.0</b>	<b>515</b>	527	544	562	586
<b>19</b>	1215	1263	1293	1312	1331	<b>9.5</b>	<b>535</b>	548	569	588	609
<b>20</b>	1245	1292	1315	1351	1369	<b>10.0</b>	<b>550</b>	571	591	611	639

---

Standard uncertainties,  $u$ , are  $u(T) = \pm 0.01$  K,  $u(p) = \pm 0.002$  MPa,  $u(m) = \pm 0.003$  mol·kg<sup>-1</sup>,  $u(\kappa) = \pm 2$  μS·cm<sup>-1</sup> and relative uncertainty in conductivity measurement i.e.  $u_r(\kappa) = u(\kappa)/\kappa = 0.05$  (level of confidence = 0.68).