SUPPORTING INFORMATION

Photophysical Behavior and Fluorescence Quenching of L-Tryptophan in Choline Chloride-Based Deep Eutectic Solvents

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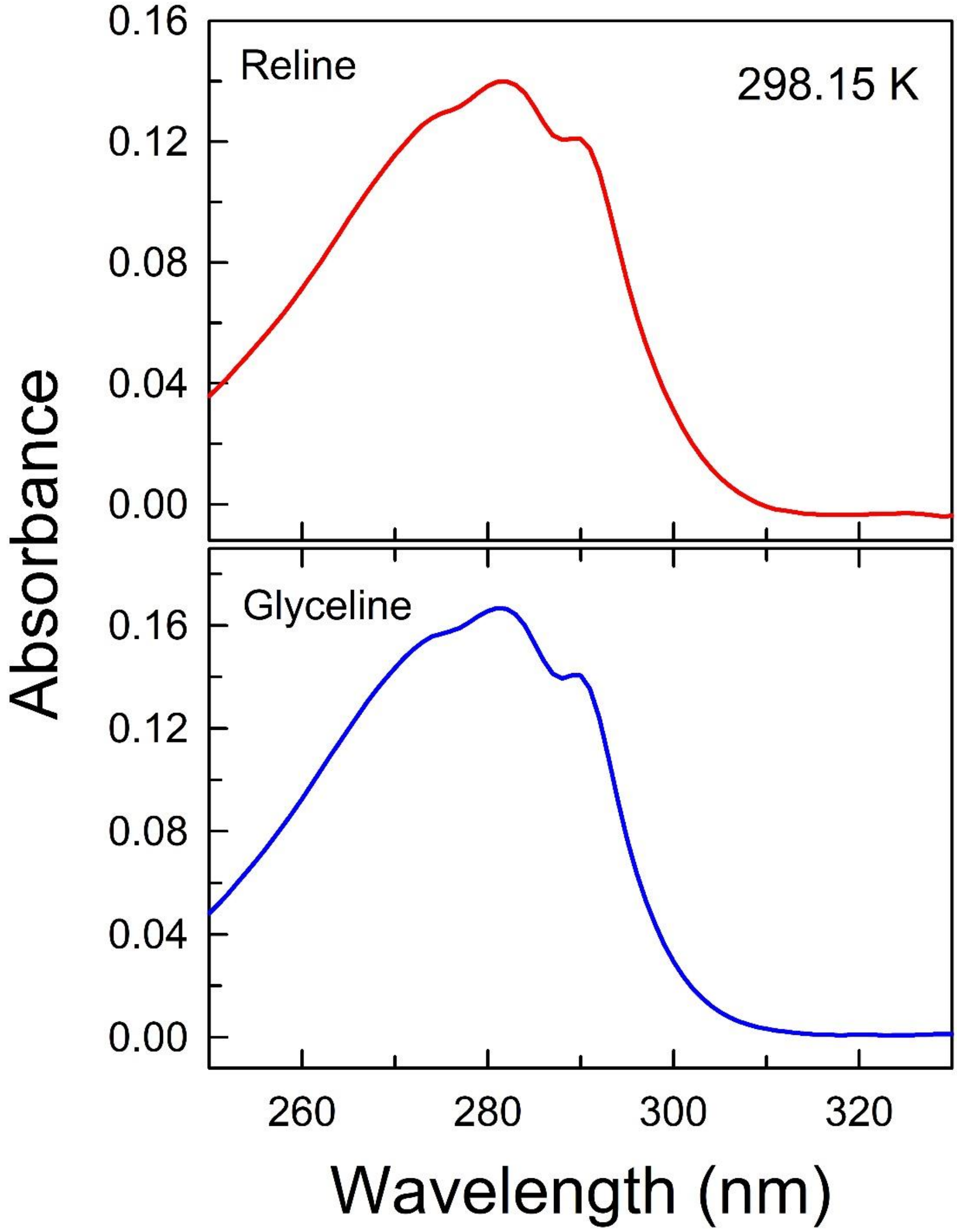

Figure S1: Absorbance Spectra of L-Trp at 298.15 K in Reline (top panel) and Glyceline (bottom panel).

Table S1: Quantum Yield, Viscosity, $E_T(30)$ and E_T^N of L-Trp in Reline and Glyceline Obtained Experimentally Compared with Different Solvents Available in the Literature[12,13,58,a,b] at 298.15 K.

Solvent	**Quantum Yield (Φ_F)**	**Viscosity (mPa·s)**	**$E_T(30)$**	**E_T^N**
Glyceline	**0.76** ± 0.01	329.7[46]	58.0[a]	0.84[a]
Reline	**0.50** ± 0.01	827.6[45]	57.00[a]	0.81[a]
Acetonitrile	0.36 ± 0.05[12]	0.4[58]	45.6[b]	0.46[b]
Water	0.21 ± 0.01[13]	0.9[58]	63.1[b]	1.00[b]
Methanol	0.14 ± 0.02[12]	0.5[58]	55.4[b]	0.76[b]
1-Hexanol	0.14 ± 0.03[12]	4.6[58]	48.8[b]	0.56[b]
1-Octanol	0.09 ± 0.03[12]	7.3[58]	48.1[b]	0.54[b]
1-Butanol	0.06 ± 0.10[12]	2.5[58]	49.7[b]	0.59[b]

[a]Pandey, A.; Rai, R.; Pal, M.; Pandey, S. How Polar Are Choline Chloride-Based Deep Eutectic Solvents? *Phys. Chem. Chem. Phys.* **2014**, *16*, 1559−1568. https://doi.org/10.1039/C3CP53456A.

[b]Reichardt, C., *Solvents and Solvent Effects in Organic Chemistry*, 2nd ed.; Wiley VCH: Weinheim, 2003. https://doi.org/10.1002/9783527632220.

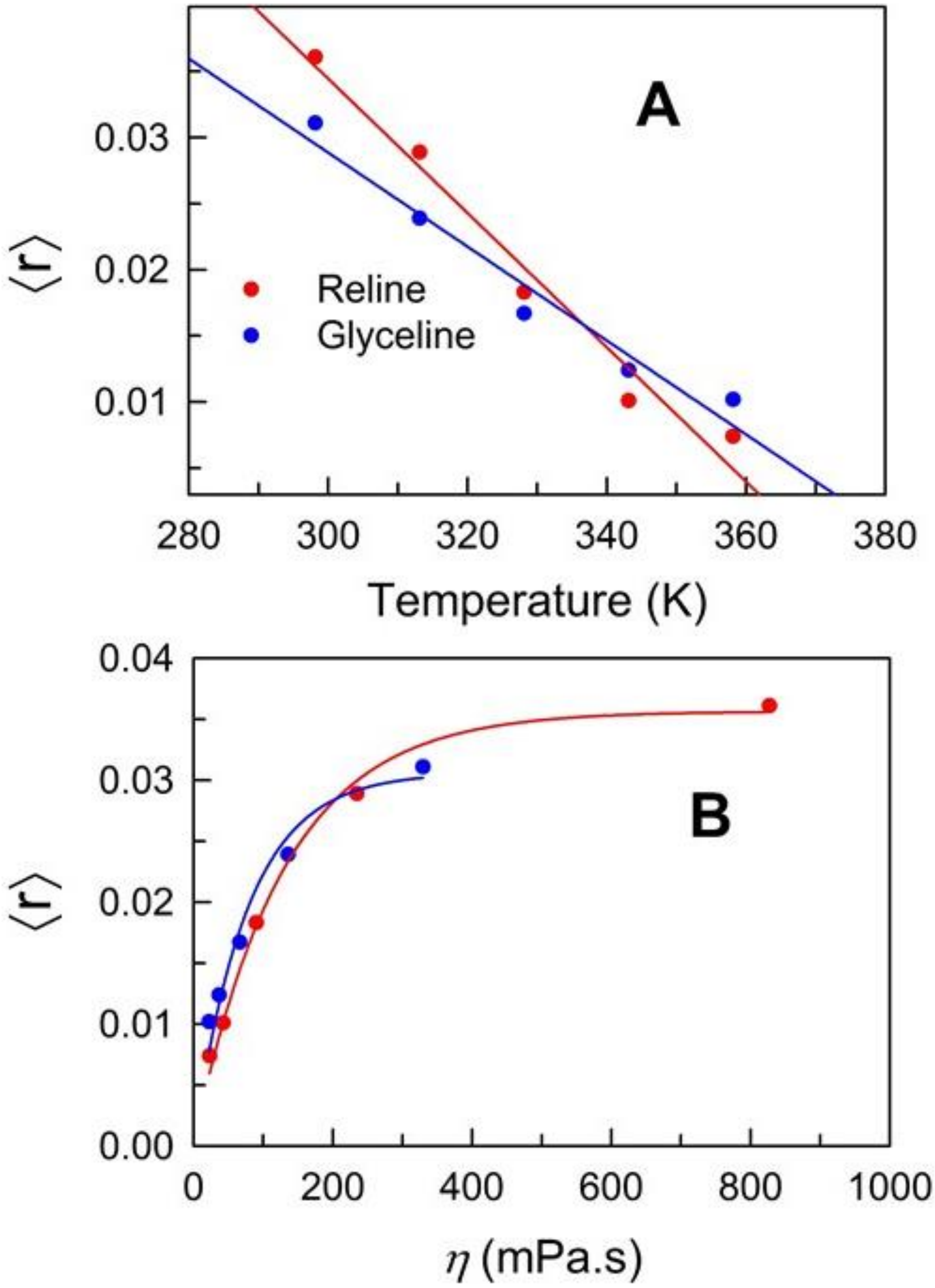

Figure S2: ⟨r⟩ *versus* T (panel A) and ⟨r⟩ *versus* η (panel B) plots showing steady-state anisotropy ⟨r⟩, variation with temperature and viscosity of L-Trp in Reline and Glyceline at different temperatures. Solid lines represent fit to linear equation (panel A) and exponential rise to maxima equation (panel B), respectively.

Table S2: Recovered Intensity Decay Parameters for L-Trp Dissolved in Reline and Glyceline at Different Temperatures. Errors Associated with Decay Times and Pre-exponential Factors are ≤ ±5%.

T(K)	τ_1 (ns)	τ_2 (ns)	α_1	α_2	$\langle\tau\rangle$	χ^2
			Reline			
298.15	7.5		1			2.84
	2.0	8.7	0.47	0.53	7.6	1.39
313.15	7.4		1			2.45
	1.5	8.3	0.43	0.57	7.5	1.35
328.15	7.0		1			1.57
	1.6	7.5	0.31	0.69	7.0	1.12
343.15	6.3		1			1.60
	1.5	6.6	0.25	0.75	6.2	1.34
358.15	6.1		1			1.53
	1.6	6.4	0.23	0.77	6.1	1.33
			Glyceline			
298.15	5.9		1			1.92
	3.6	7.4	0.53	0.47	6.1	1.35
313.15	5.7		1			1.87
	3.0	6.7	0.44	0.56	5.7	1.31
328.15	5.3		1			1.89
	2.5	6.0	0.38	0.62	5.3	1.43
343.15	4.7		1			1.76
	1.5	5.0	0.27	0.73	4.7	1.53
358.15	4.1		1			1.59
	0.9	4.3	0.29	0.71	4.0	1.35

Table S3: Rotational Reorientation Times (τ_{rot}) and Chi-Square Values Obtained from the Single-Exponential Fit of the Data from Excited-state Anisotropy Decay of L-Trp in Reline and Glyceline in the temperature range 298.15-358.15 K.

T(K)	Reline		Glyceline	
	τ_{rot} (ns)	χ^2	τ_{rot} (ns)	χ^2
298.15	15.9	1.09	8.9	0.97
313.15	9.2	1.06	5.3	0.82
328.15	4.5	1.05	3.2	1.07
343.15	2.3	1.01	2.1	0.80
358.15	1.4	1.01	1.6	1.09

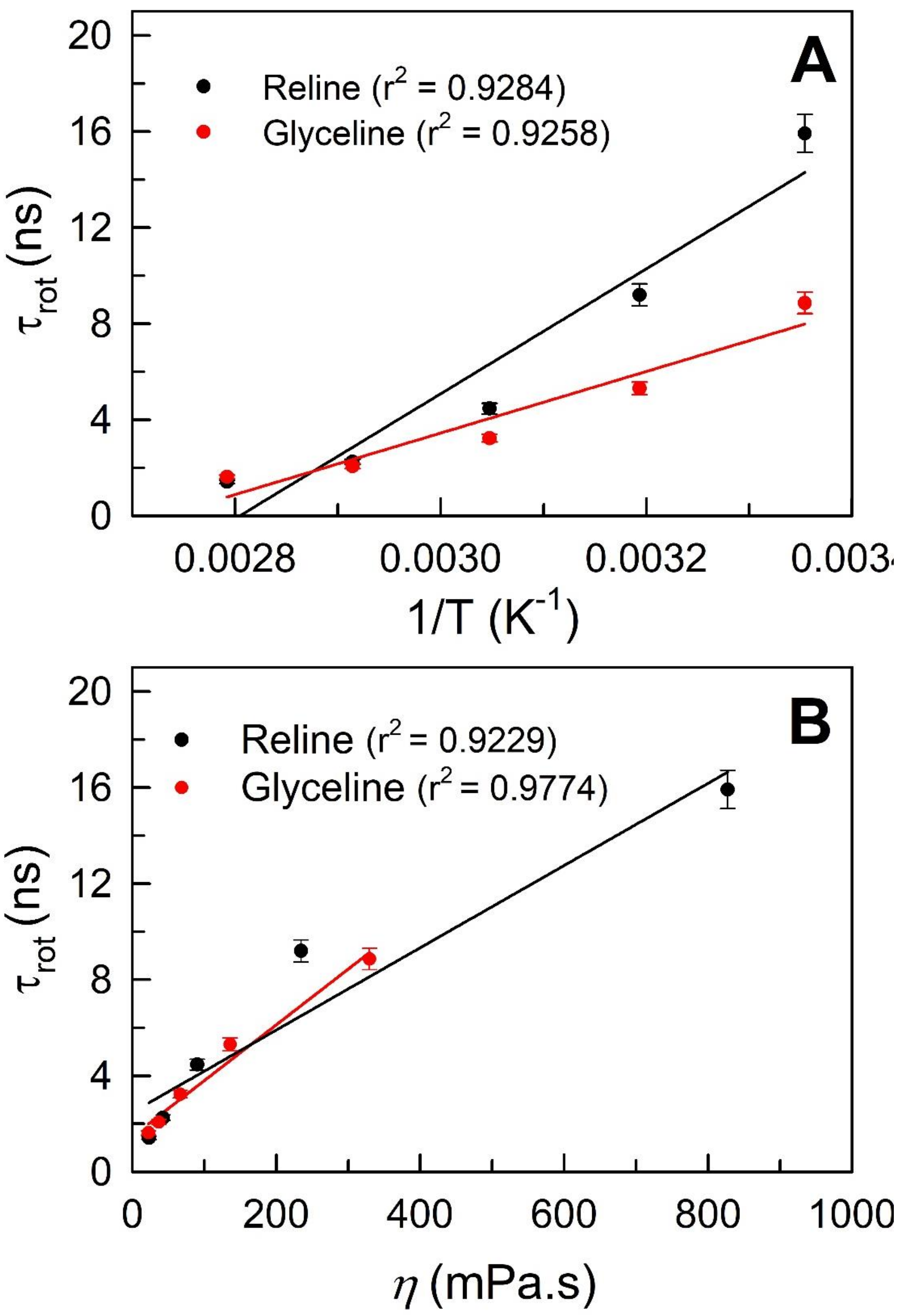

Figure S3: Plots of τ_{rot} versus 1/T (panel A) and τ_{rot} versus η (panel B) showing rotational reorientation times variation with temperature and viscosity of L-Trp in Reline and Glyceline at different temperatures.

Table S4: Recovered Intensity Decay Parameters for Quenching L-Trp Dissolved in Reline by Acrylamide at Different Temperatures. Errors Associated with Decay Times and Pre-exponential Factors are ≤ ±5%.

[Acrylamide]/M	τ_1 (ns)	τ_2 (ns)	α_1	α_2	$\langle\tau\rangle$	χ^2
			298.15 K			
0	7.7		1			2.67
	1.7	8.5	0.41	0.59	7.7	1.42
0.1	7.1		1			3.24
	1.7	8.2	0.46	0.54	7.3	1.33
0.2	6.7		1			3.64
	1.6	7.8	0.5	0.5	6.7	1.40
0.3	6.1		1			4.85
	1.5	7.6	0.6	0.4	6.4	1.45
0.4	5.8		1			5.29
	1.4	7.4	0.65	0.35	6.0	1.24
0.5	4.9		1			5.96
	1.3	7.0	0.72	0.28	5.4	1.28
0.6	5.0		1			5.78
	1.2	6.9	0.72	0.28	5.1	1.25
0.7	3.4		1			7.14
	1.2	6.6	0.84	0.16	4.2	1.07
0.8	2.6		1			6.79
	1.2	6.4	0.88	0.12	3.6	1.12
0.9	2.4		1			5.92
	1.2	6.1	0.91	0.09	3.1	1.08
			313.15 K			
0	6.9		1			1.84
	2.9	7.9	0.39	0.61	7.0	1.20
0.1	6.3		1			2.08

	1.6	7.7	0.44	0.56	6.8	1.28
0.2	5.6		1			2.32
	2.1	6.8	0.50	0.50	5.7	1.19
0.3	5.1		1			2.53
	1.6	6.0	0.50	0.50	5.1	1.19
0.4	4.7		1			2.60
	1.6	5.7	0.56	0.44	4.6	1.23
0.5	4.1		1			2.86
	1.4	5.2	0.61	0.39	4.1	1.30
0.6	3.5		1			3.54
	0.7	4.5	0.72	0.28	3.4	1.33
0.7	3.2		1			3.56
	0.84	4.4	0.71	0.29	3.3	1.46
0.8	2.8		1			4.01
	0.66	3.8	0.76	0.24	2.7	1.46
0.9	2.8		1			3.25
	0.72	3.8	0.73	0.27	2.8	1.27
			328.15 K			
0	7.0		1			1.73
	2.4	7.5	0.28	0.72	7.0	1.40
0.1	6.0		1			1.88
	2.2	6.8	0.35	0.65	6.1	1.41
0.2	5.4		1			1.97
	1.8	6.1	0.39	0.61	5.4	1.39
0.3	4.6		1			1.90
	1.5	5.3	0.43	0.57	4.6	1.24
0.4	4.0		1			1.86
	1.5	4.7	0.47	0.53	4.0	1.24
0.5	3.5		1			2.21
	1.2	4.2	0.53	0.47	3.5	1.24
0.6	3.0		1			2.40
	1.1	3.8	0.59	0.41	3.0	1.21
0.7	2.7		1			2.34

	0.78	3.3	0.60	0.40	2.6	1.18
0.8	2.4		1			2.57
	0.95	3.3	0.66	0.34	2.5	1.21
0.9	2.5		1			2.49
	0.90	3.3	0.69	0.31	2.4	1.09
			343.15 K			
0	6.4		1			2.61
	1.3	7.2	0.48	0.52	6.4	1.30
0.1	5.4		1			2.78
	1.4	6.5	0.56	0.44	5.4	1.14
0.2	3.8		1			3.66
	1.2	5.2	0.70	0.30	3.8	1.23
0.3	3.1		1			3.40
	1.1	4.6	0.74	0.26	3.2	1.09
0.4	2.5		1			3.04
	1.1	4.0	0.80	0.20	2.5	1.01
0.5	2.1		1			2.62
	0.02	2.4	1.00	0.00	0.02	2.12
0.6	1.7		1			2.08
	1.0	3.0	0.84	0.16	1.7	0.96
0.7	1.6		1			1.93
	0.9	2.8	0.84	0.16	1.6	0.97
0.8	1.4		1			1.77
	0.03	1.5	1.00	0.00	0.03	1.62
			358.15 K			
0	6.5		1			3.41
	1.2	7.4	0.53	0.47	6.4	1.21
0.1	5.2		1			3.13
	1.1	5.9	0.52	0.48	5.1	1.46
0.2	3.7		1			3.19
	1.1	4.6	0.61	0.39	3.6	1.21
0.3	2.9		1			3.21
	1.0	3.7	0.68	0.32	2.7	1.09

0.4	2.1		1			2.77
	0.9	2.9	0.72	0.28	2.0	1.15
0.5	1.7		1			2.64
	0.9	2.4	0.74	0.26	1.6	1.36
0.6	1.4		1			1.88
	0.03	1.4	1	0	0.03	1.65
0.7	1.2		1			1.56
	0.9	2.0	0.88	0.12	1.2	1.09
0.8	1.1		1			1.59
	1.0	2.3	0.95	0.05	1.1	1.32
0.9	1.0		1			1.61
	0.8	1.5	0.83	0.17	1.0	1.44

Table S5: Stern-Volmer quenching parameters (Stern-Volmer constant, (K_D); and bimolecular quenching constant (k_q)) of L-Trp in Reline and Glyceline in the temperature range 298.15-358.15 K.

Temperature (K)	**K_D (M^{-1})**	**k_q (10^8 M^{-1} s^{-1})**
298.15	0.85 ± 0.02	1.1
313.15	1.70 ± 0.16	2.4
328.15	2.18 ± 0.14	3.1
343.15	4.55 ± 0.30	7.1
358.15	6.06 ± 0.51	9.5