Supplementary Data

Table S.1. Effect of variation of [Phen] on First Order k' of Cinnamic acid in PEG- 200 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	4.00	y = 0.225x +0.069	0.307	2318
	2.50	6.00			
	3.75	7.50			
	5.00	8.00			
	6.25	10.00			
320K	1.25	5.00	y = 0.174x + .061	0.350	2622
	2.50	7.50			
	3.75	8.50			
	5.00	10.00			
	6.25	12.00			
330K	1.25	5.50	y = 0.189x +0.031	0.164	5161
	2.50	8.50			
	3.75	12.00			
	5.00	13.00			
	6.25	14.50			

Table S.2. Effect of variation of [Phen] on First Order k' of Cinnamic acid in PEG- 300 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	3.00	y = 0.348x + 0.023	0.067	5925
	2.50	6.00			
	3.75	8.00			
	5.00	10.00			
	6.25	15.00			
320K	1.25	4.50	y = 0.244x + 0.024	0.099	6666
	2.50	8.00			
	3.75	11.50			
	5.00	13.00			
	6.25	16.00			
330K	1.25	5.20	y = 0.208x + 0.027	0.123	6956
	2.50	9.00			
	3.75	12.00			
	5.00	14.00			
	6.25	18.00			

Table S.3. Effect of variation of [Phen] on First Order k' of Cinnamic acid in PEG- 400 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.40	y = 0.131x + 0.081	0.618	1975
	2.50	7.50			
	3.75	8.50			
	5.00	9.00			
	6.25	10.00			
320K	1.25	6.00	y = 0.141x + 0.052	0.368	3076
	2.50	9.00			
	3.75	11.00			
	5.00	12.00			
	6.25	14.00			
330K	1.25	11.00	y = 0.054x + 0.047	0.870	3404
	2.50	14.50			
	3.75	16.00			
	5.00	17.00			
	6.25	18.00			

Table S. 4. Effect of variation of [Phen] on First Order k' of Cinnamic acid in PEG- 600 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.50	y = 0.160x + 0.056	0.35	2857
	2.50	8.00			
	3.75	10.00			
	5.00	11.00			
	6.25	14.00			
320K	1.25	8.00	y = 0.105x + 0.040	0.380	4000
	2.50	12.00			
	3.75	14.00			
	5.00	16.00			
	6.25	18.00			
330K	1.25	12.00	y = 0.067x + 0.030	0.448	5333
	2.50	17.00			
	3.75	21.00			
	5.00	23.00			
	6.25	25.00			

Table S.5. Effect of variation of [Phen] on First Order k' of Crotonic acid in PEG- 200 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.072	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.00	y = 0.191x + 0.047	0.176	3404
	2.50	8.00			
	3.75	10.00			
	5.00	12.00			
	6.25	13.00			
320K	1.25	10.00	y = 0.102x + 0.018	0.246	7619
	2.50	15.00			
	3.75	22.00			
	5.00	25.00			
	6.25	30.00			
330K	1.25	12.50	y = 0.072x + 0.021	0.292	8888
	2.50	20.00			
	3.75	25.00			
	5.00	27.00			
	6.25	32.00			

Table S.6. Effect of variation of [Phen] on First Order k' of Crotonic acid in PEG- 300 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	A=y = 0.823x + 0.06	0.072	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	3.00	A=y = 0.382x + 0.027	0.078	5925
	2.50	5.50			
	3.75	8.00			
	5.00	9.00			
	6.25	12.00			
320K	1.25	20.00	A=y = 0.031x + 0.025	0.645	6400
	2.50	26.00			
	3.75	30.00			
	5.00	32.00			
	6.25	33.00			
330K	1.25	22.00	A=y = 0.031x + 0.020	0.806	8000
	2.50	31.00			
	3.75	32.00			
	5.00	36.00			
	6.25	39.00			

Table S.7. Effect of variation of [Phen] on First Order k' of Crotonic acid in PEG- 400 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.289x + 0.100	0.346	1600
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	3.00	y = 0.406x + 0.08	0.356	2000
	2.50	6.00			
	3.75	8.00			
	5.00	11.00			
	6.25	15.00			
320K	1.25	15.00	y = 0.051x + 0.019	0.372	8421
	2.50	25.00			
	3.75	30.00			
	5.00	34.00			
	6.25	38.00			
330K	1.25	18.00	y = 0.040x + 0.017	0.500	9411
	2.50	30.00			
	3.75	35.00			
	5.00	40.00			
	6.25	42.00			

Table S.8. Effect of variation of [Phen] on First Order k' of Crotonic acid in PEG- 600 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.072	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.00	y = 0.196x + 0.044	0.224	3636
	2.50	8.00			
	3.75	10.00			
	5.00	12.00			
	6.25	14.00			
320K	1.25	11.00	y = 0.096x + 0.012	0.288	12307
	2.50	20.00			
	3.75	27.00			
	5.00	32.00			
	6.25	35.00			
330K	1.25	20.00	y = 0.045x + 0.013	0.325	13333
	2.50	32.00			
	3.75	41.00			
	5.00	45.00			
	6.25	47.00			

Table S.9. Effect of variation of [Phen] on First Order k' of Acrylic acid in PEG- 200 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.40	y = 0.145x + 0.091	0.618	1758
	2.50	7.50			
	3.75	8.50			
	5.00	9.00			
	6.25	10.00			
320K	1.25	6.00	y = 0.155x + 0.064	0.368	2500
	2.50	9.00			
	3.75	11.00			
	5.00	12.00			
	6.25	14.00			
330K	1.25	11.00	y = 0.054x + 0.047	0.870	3404
	2.50	14.50			
	3.75	16.00			
	5.00	17.00			
	6.25	18.00			

Table S.10. Effect of variation of [Phen] on First Order k' of Acrylic acid in PEG- 300 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.072	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	4.00	y = 0.255x + 0.044	0.172	3636
	2.50	7.00			
	3.75	8.50			
	5.00	10.00			
	6.25	12.00			
320K	1.25	13.00	y = 0.068x + 0.017	0.238	9411
	2.50	23.00			
	3.75	29.00			
	5.00	32.00			
	6.25	34.00			
330K	1.25	15.00	y = 0.063x + 0.015	0.25	10666
	2.50	25.00			
	3.75	32.00			
	5.00	35.00			
	6.25	38.00			

Table S.11. Effect of variation of [Phen] on First Order k' of Acrylic acid in PEG- 400 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.072	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	4.00	y = 0.055x + 0.047	0.0854	3404
	2.50	7.00			
	3.75	10.00			
	5.00	11.00			
	6.25	14.00			
320K	1.25	11.00	y = 0.274x + 0.030	0.109	5333
	2.50	14.00			
	3.75	16.00			
	5.00	17.00			
	6.25	18.00			
330K	1.25	14.00	y = 0.073x + 0.011	0.150	14545
	2.50	25.00			
	3.75	34.00			
	5.00	36.00			
	6.25	46.00			

Table S.12. Effect of variation of [Phen] on First Order k' of Acrylic acid in PEG- 600 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	6.00	y = 0.182x + 0.066	0.362	2424
	2.50	9.00			
	3.75	10.00			
	5.00	12.00			
	6.25	15.00			
320K	1.25	18.00	y = 0.540x + 0.032	0.389	5000
	2.50	30.00			
	3.75	32.00			
	5.00	37.00			
	6.25	39.00			
330K	1.25	18.00	y = 0.040x + 0.017	0.425	9411
	2.50	30.00			
	3.75	35.00			
	5.00	40.00			
	6.25	42.00			

Table S.13. Effect of variation of [Phen] on First Order k' of Methoxy cinnamic acid in PEG- 200 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.318x + 0.077	0.242	2077
	2.50	4.00			
	3.75	5.00			
	5.00	7.00			
	6.25	8.00			
310K	1.25	4.00	y = 0.188x +0.101	0.284	1584
	2.50	5.50			
	3.75	6.50			
	5.00	7.00			
	6.25	8.00			
320K	1.25	4.10	y = 0.200x +0.081	0.405	1975
	2.50	5.00			
	3.75	7.50			
	5.00	8.00			
	6.25	9.00			
330K	1.25	5.50	y = 0.165x +0.047	0.537	3404
	2.50	9.00			
	3.75	11.00			
	5.00	12.00			
	6.25	14.00			

Table S.14. Effect of variation of [Phen] on First Order k' of Methoxy cinnamic acid in PEG- 300 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.318x + 0.077	0.242	2077
	2.50	4.00			
	3.75	5.00			
	5.00	7.00			
	6.25	8.00			
310K	1.25	3.50	y = 0.357x + 0.024	0.267	5333
	2.50	6.00			
	3.75	8.00			
	5.00	10.00			
	6.25	15.00			
320K	1.25	4.50	y = 0.264x + 0.028	0.106	5714
	2.50	8.00			
	3.75	11.50			
	5.00	13.00			
	6.25	16.00			
330K	1.25	5.20	y = 0.208x + 0.027	0.123	5925
	2.50	9.00			
	3.75	12.00			
	5.00	14.00			
	6.25	18.00			

Table S.15. Effect of variation of [Phen] on First Order k' of Methoxy cinnamic acid in PEG- 400 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.318x + 0.077	0.242	2077
	2.50	4.00			
	3.75	5.00			
	5.00	7.00			
	6.25	8.00			
310K	1.25	7.50	y = 0.292x +0.053	0.281	3018
	2.50	9.00			
	3.75	12.50			
	5.00	13.00			
	6.25	15.50			
320K	1.25	15.00	y = 0.052x + 0.038	0.50	6400
	2.50	24.00			
	3.75	30.00			
	5.00	34.00			
	6.25	36.00			
330K	1.25	20.00	y = 0.038x + 0.019	0.730	8421
	2.50	29.00			
	3.75	30.00			
	5.00	36.00			
	6.25	42.00			

Table S.16. Effect of variation of [Phen] on First Order k'of Methoxy cinnamic acid in PEG- 600 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	5.50	y = 0.160x + 0.056	0.35	2857
	2.50	8.00			
	3.75	10.00			
	5.00	11.00			
	6.25	14.00			
320K	1.25	8.00	y = 0.105x + 0.040	0.380	4000
	2.50	12.00			
	3.75	14.00			
	5.00	16.00			
	6.25	18.00			
330K	1.25	12.00	y = 0.067x + 0.030	0.448	5333
	2.50	17.00			
	3.75	21.00			
	5.00	23.00			
	6.25	25.00			

Table S.17. Effect of variation of [Phen] on First Order k'of Nitro cinnamic acid in PEG- 200 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	3.00	y = 0.289x + 0.100	0.346	1600
	2.50	4.50			
	3.75	5.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	4.00	y = 0.225x +0.069	0.350	2318
	2.50	6.00			
	3.75	7.50			
	5.00	8.00			
	6.25	10.00			
320K	1.25	5.00	y = 0.174x + .061	0.307	2622
	2.50	7.50			
	3.75	8.50			
	5.00	10.00			
	6.25	12.00			
330K	1.25	5.50	y = 0.189x +0.031	0.164	5161
	2.50	8.50			
	3.75	12.00			
	5.00	13.00			
	6.25	14.50			

Table S.18. Effect of variation of [Phen] on First Order k'of Nitro cinnamic acid in PEG- 300 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.289x + 0.100	0.346	1600
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	3.00	y = 0.382x + 0.027	0.470	5925
	2.50	5.50			
	3.75	8.00			
	5.00	9.00			
	6.25	12.00			
320K	1.25	20.00	y = 0.031x + 0.025	0.645	6400
	2.50	26.00			
	3.75	30.00			
	5.00	32.00			
	6.25	33.00			
330K	1.25	22.00	y = 0.031x + 0.020	0.806	6956
	2.50	31.00			
	3.75	32.00			
	5.00	36.00			
	6.25	39.00			

Table S.19. Effect of variation of [Phen] on First Order k'of Nitro cinnamic acid in PEG- 400 medium.

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.07	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	4.00	y = 0.055x + 0.047	0.109	3404
	2.50	7.00			
	3.75	10.00			
	5.00	11.00			
	6.25	14.00			
320K	1.25	11.00	y = 0.274x + 0.030	0.150	5333
	2.50	14.00			
	3.75	16.00			
	5.00	17.00			
	6.25	18.00			
330K	1.25	14.00	y = 0.073x + 0.011	0.854	14545
	2.50	25.00			
	3.75	34.00			
	5.00	36.00			
	6.25	46.00			

Table S.20. Effect of variation of [Phen] on First Order k' of Nitro cinnamic acid in PEG- 600 medium

Temp (K)	10^3[Phen] (mol dm^{-3})	k'/min	Equations for Plots of (1/ k') Vs (1/ [Phen])	Formation Constant	Rate Constant
300K	1.25	1.50	y = 0.823x + 0.06	0.07	2666
	2.50	3.00			
	3.75	4.50			
	5.00	6.00			
	6.25	7.00			
310K	1.25	3.50	y = 0.351x + 0.042	0.119	3809
	2.50	6.00			
	3.75	10.00			
	5.00	16.00			
	6.25	20.00			
320K	1.25	15.00	y = 0.052x + 0.038	0.150	6400
	2.50	24.00			
	3.75	30.00			
	5.00	34.00			
	6.25	36.00			
330K	1.25	16.00	y = 0.073x + 0.011	0.730	14545
	2.50	28.00			
	3.75	34.00			
	5.00	38.00			
	6.25	46.00			

Table S.21. Eyring's plots involving rate constant (k) for Cinnamic acid

PEG	Temp(K)	k $dm^3mol^{-1}s^{-1}$	ln(k/T)	Equation	R^2
200	300	1600	1.6739	y = -2.615x + 10.37	0.995
	310	2318	1.911		
	320	2622	2.2233		
	330	5161	2.4497		
300	300	1600	1.6739	y = -6.232x + 22.53	0.969
	310	5925	2.4878		
	320	6666	3.2365		
	330	6956	3.5107		
400	300	1600	1.6739	y = -2.863x + 11.20	0.998
	310	1975	1.9517		
	320	3076	2.2630		
	330	3404	2.5336		
600	300	1600	1.6739	y = -4.393x + 16.31	0.997
	310	2857	2.1209		
	320	4000	2.6257		
	330	5333	2.9825		

Table S.22. Eyring's plots involving rate constant (k) for Crotonic acid

PEG	Temp (K)	k $dm^3mol^{-1}s^{-1}$	ln(k/T)	Equation	R^2
200	300	2666	2.1845	y = -3.638x + 14.31	0.999
	310	3404	2.5961		
	320	7619	2.9393		
	330	8888	3.2933		
300	300	2666	2.1845	y = -4.471x + 17.26	0.980
	310	5925	2.9503		
	320	6400	2.9957		
	330	8000	3.1881		
400	300	1600	1.6739	y = -4.624x + 16.95	0.943
	310	2000	1.8643		
	320	8421	3.2701		
	330	9411	3.3505		
600	300	1600	1.9739	y = -5.279x + 19.65	0.954
	310	3636	2.6562		
	320	12307	3.3496		
	330	13333	3.5089		

Table S.23. Eyring's plots involving rate constant(k) for Acrylic acid

PEG	Temp(K)	k $dm^3mol^{-1}s^{-1}$	ln(k/T)	Equation	R^2
200	300	1600	1.6739	y = -2.863x + 11.20	0.998
	310	1975	1.9517		
	320	3076	2.2630		
	330	3404	2.5336		
300	300	2666	2.1845	y = -5.641x + 20.98	0.999
	310	3636	2.762		
	320	9411	3.3813		
	330	10666	3.875		
400	300	2666	2.1845	y = -5.284x + 19.77	0.998
	310	3404	2.6961		
	320	5333	3.233		
	330	14545	3.785		
600	300	1600	1.6739	y = -5.598x + 20.32	0.998
	310	2424	2.2266		
	320	5000	2.848		
	330	9411	3.350		

Table S.24. Eyring's plots involving rate constant (k) for Methoxy cinnamic acid

PEG	Temp(K)	k $dm^3mol^{-1}s^{-1}$	ln(k/T)	Equation	R^2
200	300	1584	1.6639	y = -2.208x + 9.000	0.998
	310	1975	1.8517		
	320	2077	1.8703		
	330	3404	2.336		
300	300	2077	1.9348	y = -7.732x + 27.73	0.998
	310	5333	2.8450		
	320	5714	3.1803		
	330	5925	4.0878		
400	300	1077	1.2453	y = -9.045x + 31.23	0.997
	310	3018	1.9757		
	320	6400	2.9957		
	330	8421	3.8393		
600	300	1600	1.6739	y = -4.394x + 16.31	0.997
	310	2857	2.1209		
	320	4000	2.6257		
	330	5333	2.9825		

Table S.25. Eyring's plots involving rate constant (k) for Nitro cinnamic acid

PEG	Temp(K)	k $dm^3mol^{-1}s^{-1}$	ln(k/T)	Equation	R^2
200	300	1600	1.6739	y = -2.530x + 10.11	0.998
	310	2318	1.911		
	320	2622	2.2233		
	330	5161	2.4497		
300	300	1600	1.6739	y = -6.590x + 23.63	0.999
	310	5925	2.3503		
	320	6400	3.0757		
	330	6956	3.6482		
400	300	2666	2.1845	y = -4.973x + 18.75	0.999
	310	3404	2.6961		
	320	5333	3.2133		
	330	14545	3.685		
600	300	2666	2.1845	y = -4.591x + 17.45	0.997
	310	3809	2.6085		
	320	6400	3.0957		
	330	14545	3.5685		

Table S.26. Vant Hoff's plots involving formation constant (K_1) for Cinnamic acid

PEG	Temp(K)	K_1 dm^3mol^{-1}	$ln(K_1)$	$10^3/T$	Equation	R^2
200	300	0.346	-1.0613	3.333	y = -1.793x - 3.050	0.997
	310	0.307	-1.1809	3.226		
	320	0.350	-1.4498	3.125		
	330	0.164	-1.6078	3.030		
300	300	0.346	-1.0613	3.333	y = -5.394x - 15.06	0.998
	310	0.067	-1.6955	3.226		
	320	0.099	-2.3126	3.125		
	330	0.123	-2.703	3.030		
400	300	0.346	-1.0613	3.333	y = -2.747x - 12.09	0.998
	310	0.618	-0.4812	3.226		
	320	0.368	-0.9996	3.125		
	330	0.870	-0.1392	3.030		
600	300	0.346	-1.0613	3.333	y = -0.796x +3.578	0.976
	310	0.350	-1.0498	3.226		
	320	0.380	-0.9675	3.125		
	330	0.448	-0.8029	3.030		

Table S.27. Vant Hoff's plots involving formation constant (K_1) for Crotonic acid

PEG	Temp(K)	K_1 dm^3mol^{-1}	$ln(K_1)$	$10^3/T$	Equation	R^2
200	300	0.07	-2.6592	3.333	y = -4.673x + 16.92	0.999
	310	0.176	-1.7372	3.2258		
	320	0.246	-1.40242	3.125		
	330	0.292	-1.2310	3.0303		
300	300	0.07	-2.6592	3.333	y = -8.064x + 29.19	0.998
	310	0.078	-2.6592	3.2258		
	320	0.645	-0.4385	3.125		
	330	0.806	-0.2156	3.0303		
400	300	0.346	-1.0613	3.333	y = -3.111x + 13.29	0.998
	310	0.356	-1.0328	3.2258		
	320	0.372	-0.9888	3.125		
	330	0.500	-0.6931	3.0303		
600	300	0.07	-2.6592	3.333	y = -4.991x + 18.98	0.998
	310	0.224	-2.0794	3.2258		
	320	0.288	-1.2447	3.125		
	330	0.325	-1.1239	3.0303		

Table S.28 Van Hoff's plots involving formation constant (K_1) for Acrylic acid

PEG	Temp(K)	K_1 dm^3mol^{-1}	ln(K)	$10^3/T$	Equation	R^2
200	300	0.346	-1.0613	3.3330	y = 3.010x -10.95	0.995
	310	0.618	-0.4812	3.2260		
	320	0.368	-0.9996	3.1250		
	330	0.870	-0.1392	3.0300		
300	300	0.07	-2.6310	3.3330	y = 6.103x - 21.72	0.999
	310	0.172	-1.760	3.2258		
	320	0.238	-1.435	3.1250		
	330	0.25	-1.386	3.0303		
400	300	0.07	-2.6310	3.3330	y = -2.428x + 10.46	0.999
	310	0.085	-2.4651	3.2258		
	320	0.109	-2.216	3.1250		
	330	0.150	-1.897	3.0303		
600	300	0.346	-1.0613	3.3330	y = -1.150x + 6.674	0.999
	310	0.362	-1.0161	3.2258		
	320	0.389	-0.9441	3.1250		
	330	0.425	-0.855	3.0303		

Table S.29. Vant Hoff's plots involving formation constant (K_1) for Methoxy cinnamic acid

PEG	Temp(K)	K_1 dm^3mol^{-1}	ln(K)	$10^3/T$	Equation	R^2
200	300	0.242	-1.4188	3.3333	y = -2.617x + 9.292	0.997
	310	0.284	-1.2587	3.2258		
	320	0.405	-0.9038	3.1250		
	330	0.537	-0.6217	3.0303		
300	300	0.346	-1.0613	3.333	y = -5.394x + 15.06	0.998
	310	0.123	-2.703	3.2258		
	320	0.099	-2.3126	3.125		
	330	0.067	--1.6955	3.0303		
400	300	0.242	-1.4188	3.333	y = -3.626x + 14.65	0.998
	310	0.281	-1.2694	3.2258		
	320	0.500	-0.6931	3.125		
	330	0.730	-0.3147	3.0303		
600	300	0.346	-1.0613	3.333	y = -0.796x + 3.578	0.976
	310	0.350	-1.0498	3.2258		
	320	0.380	-0.9675	3.125		
	330	0.448	-0.8029	3.0303		

Table S.30. Vant Hoff's plots involving formation constant (K_1) for Nitro cinnamic acid

PEG	Temp(K)	K_1 dm^3mol^{-1}	ln(K)	$10^3/T$	Equation	R^2
200	300	0.346	-1.0613	3.333	y = 1.793x - 3.050	0.997
	310	0.350	-1.4498	3.2258		
	320	0.307	-1.1809	3.125		
	330	0.164	-1.6078	3.0303		
300	300	0.346	-1.0613	3.333	y = -2.828x + 12.37	0.997
	310	0.470	-0.7550	3.2258		
	320	0.645	-0.4385	3.125		
	330	0.806	-0.2156	3.0303		
400	300	0.07	-2.6592	3.333	y = -6.257x + 22.18	0.999
	310	0.109	-2.216	3.2258		
	320	0.15	-1.8971	3.125		
	330	0.854	-0.1578	3.0303		
600	300	0.07	-2.6592	3.333	y = -8.372x + 30.01	0.999
	310	0.119	-2.1286	3.2258		
	320	0.150	-1.8971	3.125		
	330	0.730	-0.3147	3.0303		