Elettronic Supplementary Information

Organic salts and aromatic substrates in two-component gel phases formation: the study of properties and release processes.

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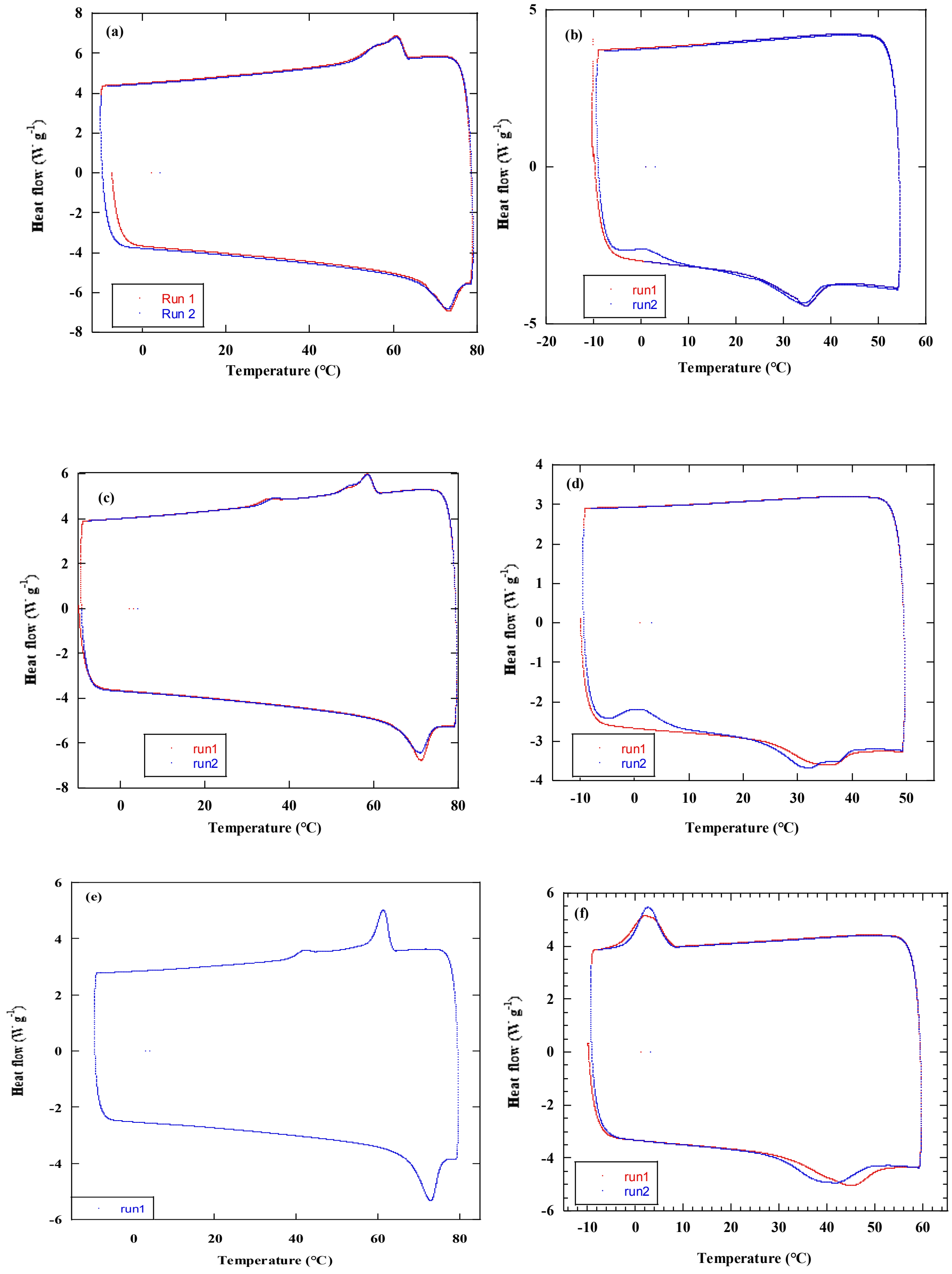
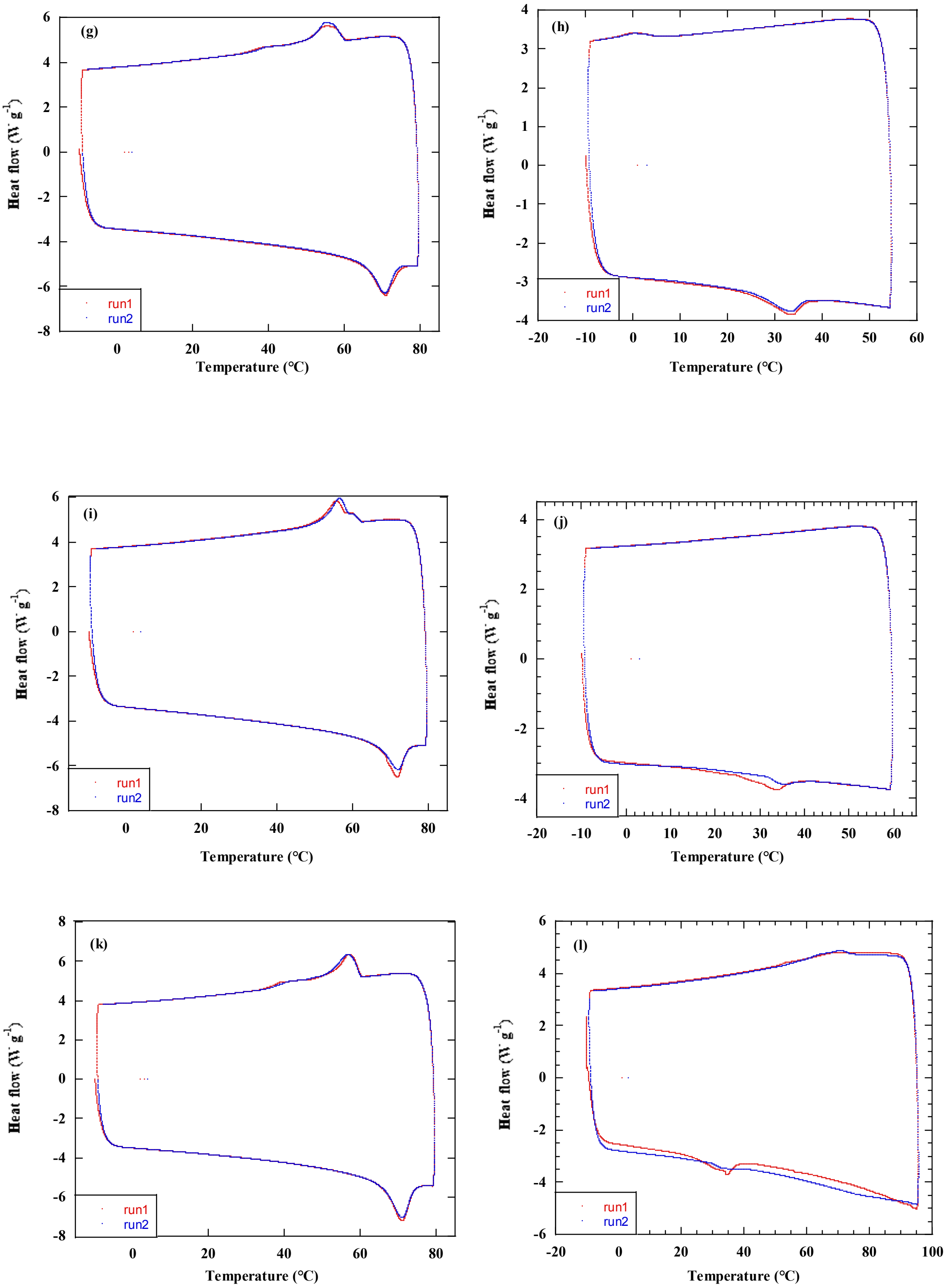
TableS1. $T_{g\text{-}s}$ values for two component gels collected at 8 % (w/w; guest/gelator) of gelator in 1-propanol as function of guest/gelator molar ratio.

	[*p*-Xyl-(oim)$_2$][1,5-NDS]		**[*p*-Xyl-(oim)$_2$][2,6-NDS]**	
Guest	$\mathbf{n_{guest}/n_{gelator}}$	$T_{g\text{-}s}{}^{a}$ **(°C)**	$\mathbf{n_{guest}/n_{gelator}}$	$T_{g\text{-}s}{}^{a}$ **(°C)**
	0/1	74	0/1	47
Xanthone	0.5/1	74	1.0/1	42
	1.0/1	69	1.7/1	44
	2.0/1	70	2.0/1	62
	3.0/1	72	3.0/1	68
	4.0/1	74	4.0/1	71
	4.4/1	76	4.4/1	78
	4.7/1	79	5.0/1	86
	5.0/1	85	7.0/1	92
	6.0/1	85	10.0/1	95
			11.9/1	94
Pyrene	1.0/1	75	2.0/1	29
	2.0/1	78	3.0/1	58
	3.0/1	77	4.0/1	62
	4.0/1	79	5.0/1	72
	5.0/1	81	6.0/1	62
	6.0/1	84	7.0/1	65
	7.0/1	88	8.0/1	71
	7.5/1	85	9.0/1	68
	8.0/1	84	10.0/1	63
	9.0/1	82		
L-Proline	0.4/1	71		
	1.0/1	69		
	2.0/1	68		
	3.0/1	64		
	3.3/1	62		
	4.7/1	64		
	5.0/1	69		

[a]$T_{g\text{-}s}$ were reproducible within ± 1 °C.


(a)
Heat flow (W g-1)
8
6
4
2
0
-2
-4
-6
-8
0
20
40
60
80
Temperature (°C)
Run 1
Run 2
(b)
Heat flow (W g-1)
5
0
-5
-20
-10
0
10
20
30
40
50
60
Temperature (°C)
run1
run2
(c)
Heat flow (W g-1)
6
4
2
0
-2
-4
-6
-8
0
20
40
60
80
Temperature (°C)
run1
run2
(d)
Heat flow (W g-1)
4
3
2
1
0
-1
-2
-3
-4
-10
0
10
20
30
40
50
Temperature (°C)
run1
run2
(e)
Heat flow (W g-1)
6
4
2
0
-2
-4
-6
0
20
40
60
80
Temperature (°C)
run1
(f)
Heat flow (W g-1)
6
4
2
0
-2
-4
-6
-10
0
10
20
30
40
50
60
Temperature (°C)
run1
run2


(g)
(h)
(i)
(j)
(k)
(l)
Heat flow (W g^{-1})
Temperature (°C)
run1
run2

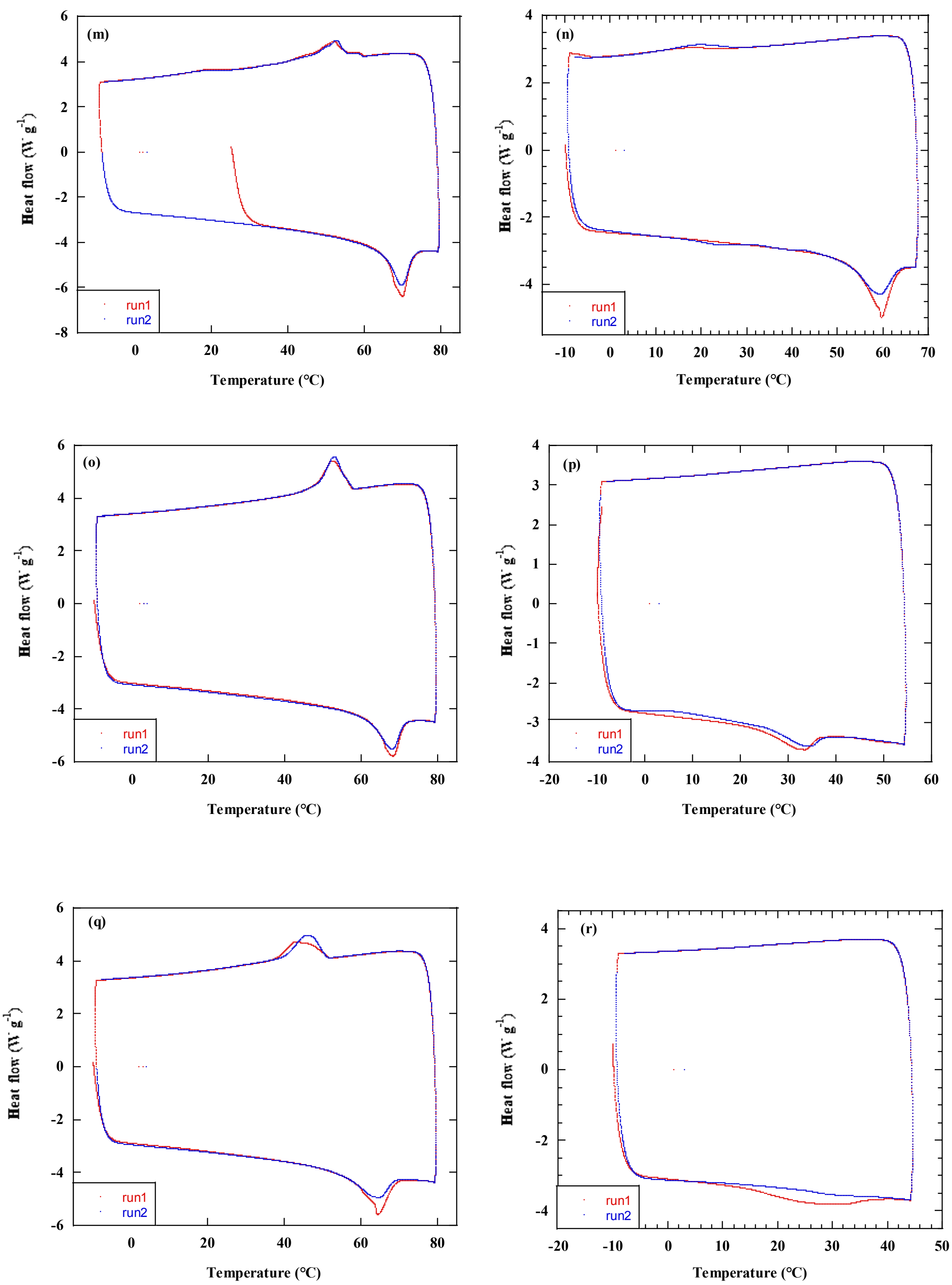


Figure S1. DSC traces of gels obtained at 8% (w/w) of gelator concentration in 1-propanol from (a) [*p*-Xyl-(oim)$_2$][1,5-NDS]; (b) [*p*-Xyl-(oim)$_2$][2,6-NDS]; (c) benzene/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (d) benzene/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (e) hexafluorobenzene/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (f) hexafluorobenzene/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (g) anthracene/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (h) anthracene/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (i) anthraquinone/[*p*-Xyl-(oim)$_2$][1,5-NDS]. (j) anthraquinone/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (k) xanthone/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (l) xanthone/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (m) pyrene/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (n) pyrene/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (o) L-phenylalanine/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (p) L-phenylalanine/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (q) L-proline/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (r) L-proline/[*p*-Xyl-(oim)$_2$][2,6-NDS]. Exothermic transitions point upwards.

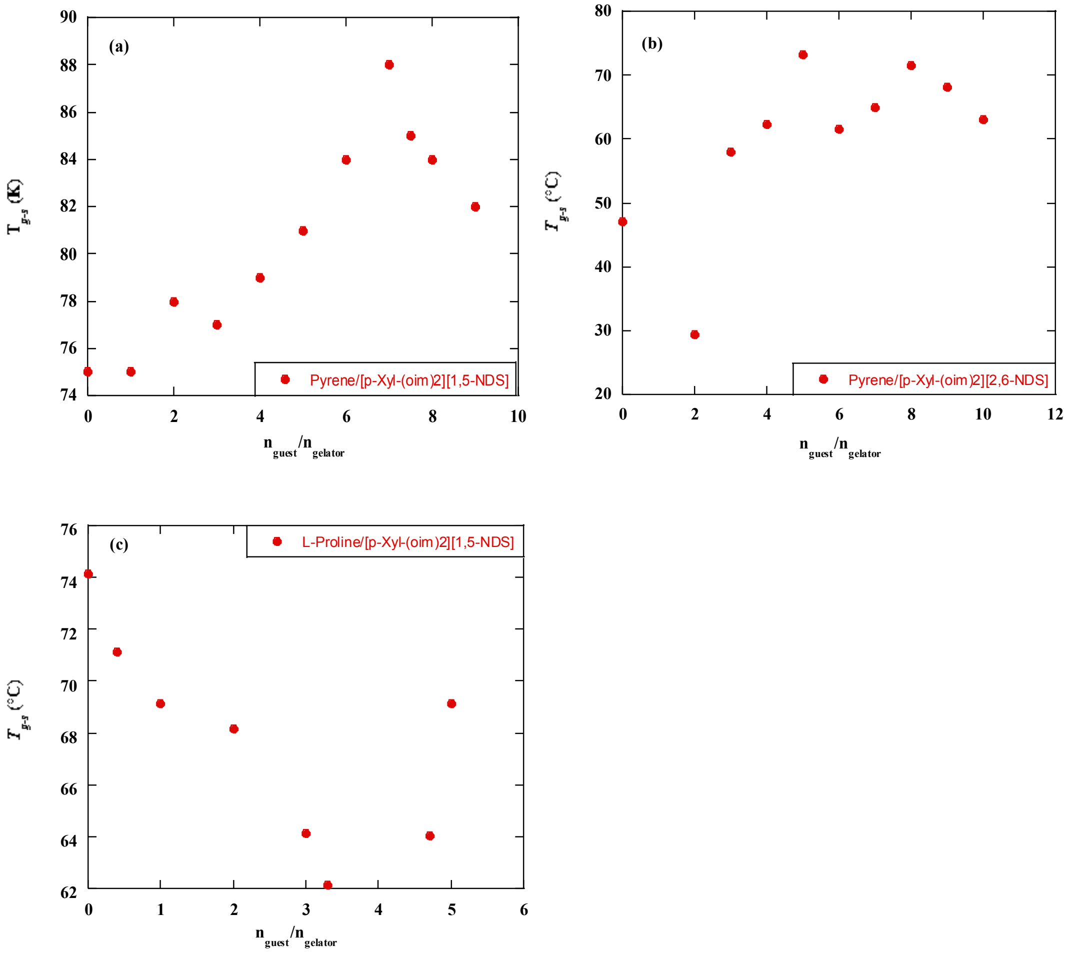
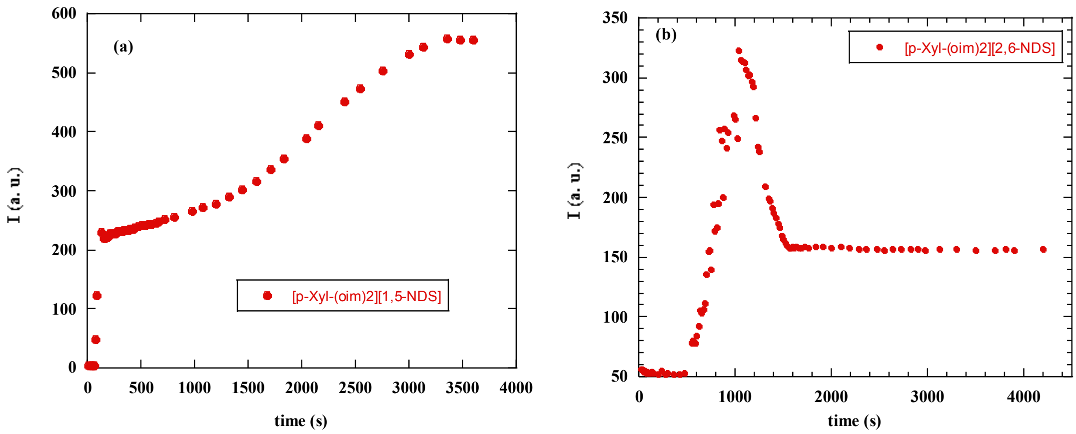
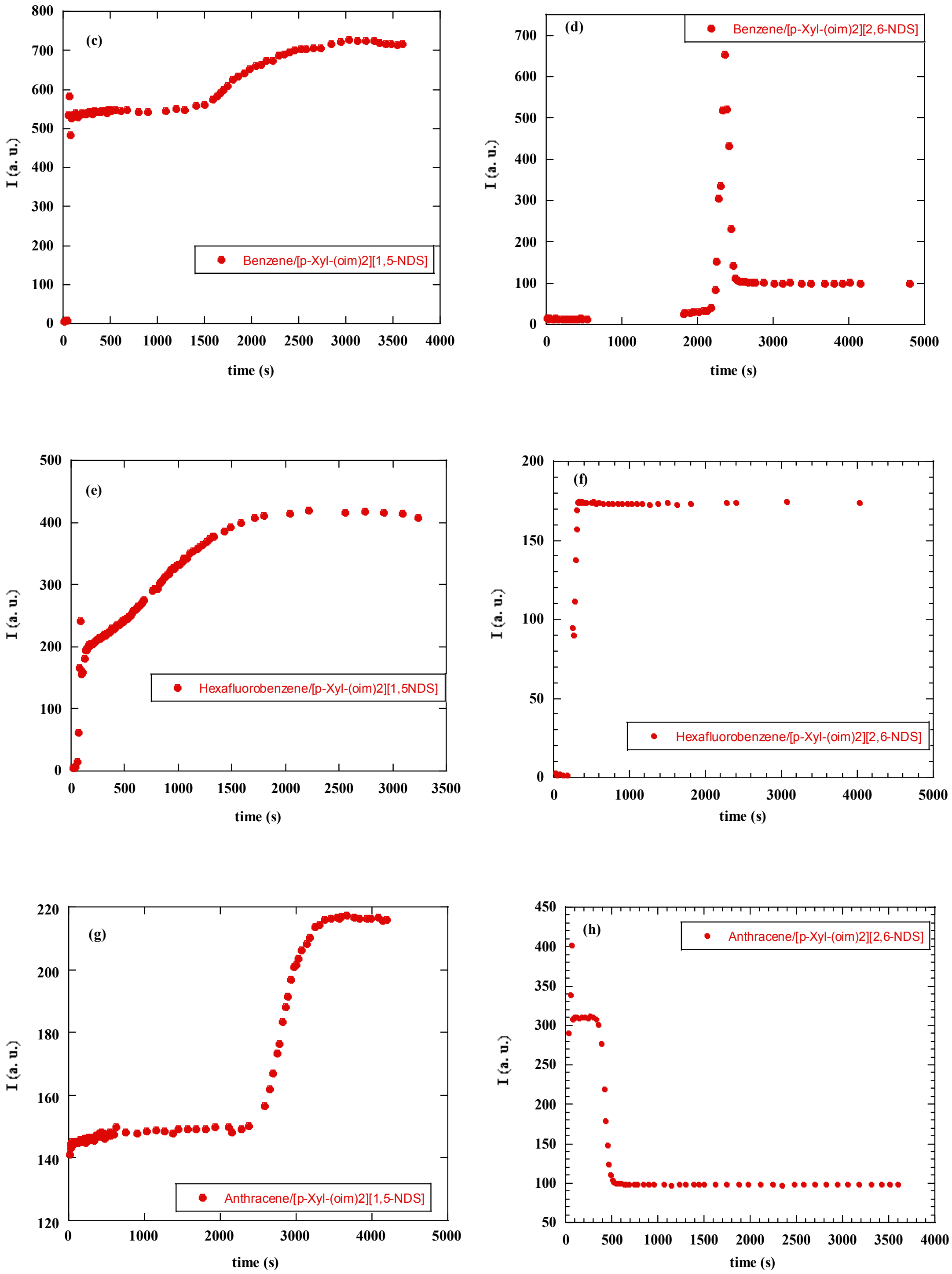
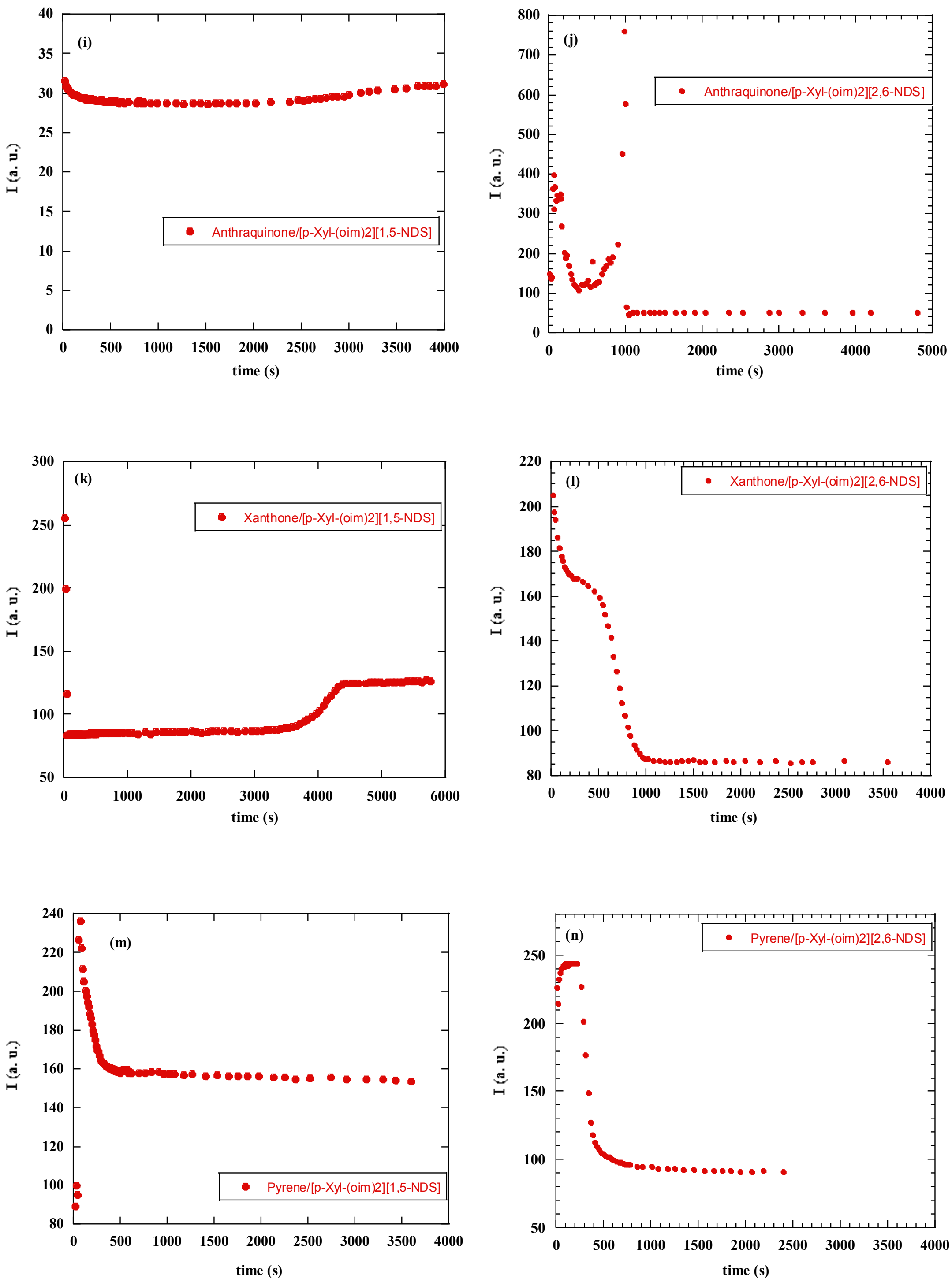


Figure S2. $T_{g\text{-}s}$ as function of guest/gelator molar ratio corresponding to two component gel formed at 8% (w/w) of gelator concentration in 1-propanol.




(c)
Benzene/[p-Xyl-(oim)2][1,5-NDS]
I (a. u.)
time (s)
(d)
Benzene/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)
(e)
Hexafluorobenzene/[p-Xyl-(oim)2][1,5NDS]
I (a. u.)
time (s)
(f)
Hexafluorobenzene/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)
(g)
Anthracene/[p-Xyl-(oim)2][1,5-NDS]
I (a. u.)
time (s)
(h)
Anthracene/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)


(i)
Anthraquinone/[p-Xyl-(oim)2][1,5-NDS]
I (a. u.)
time (s)
0
5
10
15
20
25
30
35
40
0
500
1000
1500
2000
2500
3000
3500
4000
(j)
Anthraquinone/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)
0
100
200
300
400
500
600
700
800
0
1000
2000
3000
4000
5000
(k)
Xanthone/[p-Xyl-(oim)2][1,5-NDS]
I (a. u.)
time (s)
50
100
150
200
250
300
0
1000
2000
3000
4000
5000
6000
(l)
Xanthone/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)
80
100
120
140
160
180
200
220
0
500
1000
1500
2000
2500
3000
3500
4000
(m)
Pyrene/[p-Xyl-(oim)2][1,5-NDS]
I (a. u.)
time (s)
80
100
120
140
160
180
200
220
240
0
500
1000
1500
2000
2500
3000
3500
4000
(n)
Pyrene/[p-Xyl-(oim)2][2,6-NDS]
I (a. u.)
time (s)
50
100
150
200
250
0
500
1000
1500
2000
2500
3000
3500
4000

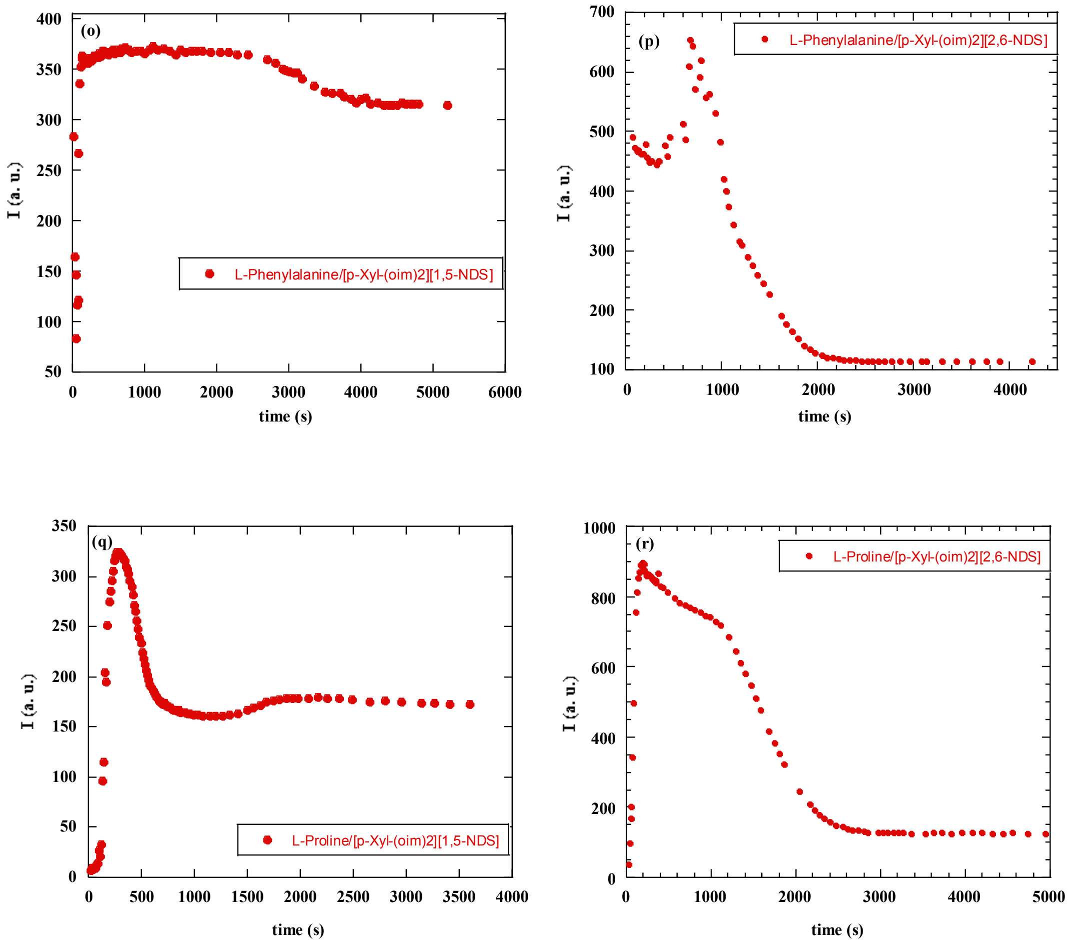
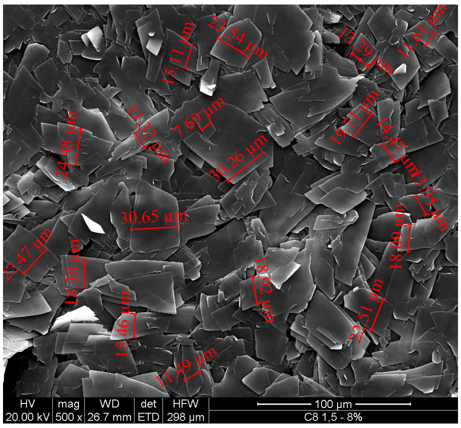
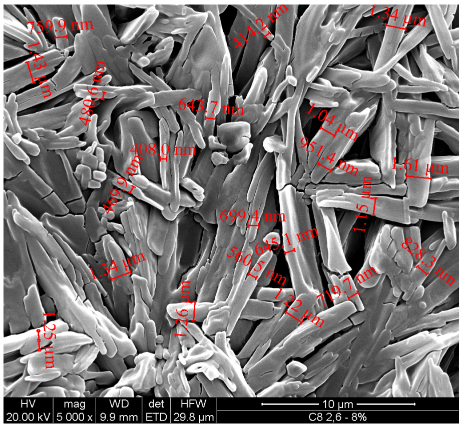


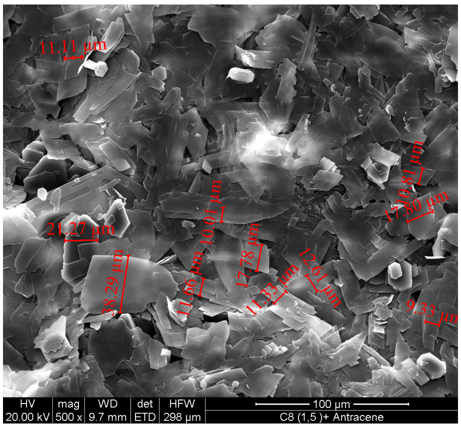
Figure S3. Plots of RLS intensity as a function of time corresponding to two component gel phases formation at 8% (w/w) of gelator and using a 5/1 guest/gelator molar ratio in 1-propanol (λ = 560 nm for gels containing anthraquinone and 523 nm for all the other gels).


HV mag WD det HFW 100 µm
20.00 kV 500 x 26.7 mm ETD 298 µm C8 1,5 - 8%

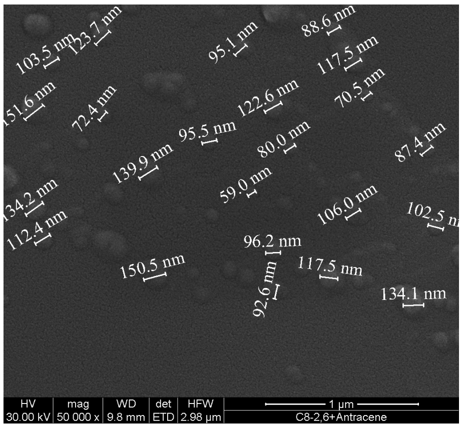
(a)


HV mag WD det HFW 10 µm
20.00 kV 5 000 x 9.9 mm ETD 29.8 µm C8 2,6 - 8%

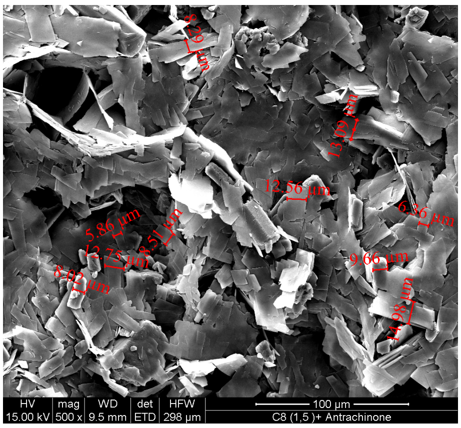
(b)


HV mag WD det HFW 100 µm
20.00 kV 500 x 9.7 mm ETD 298 µm C8 (1,5)+ Antracene

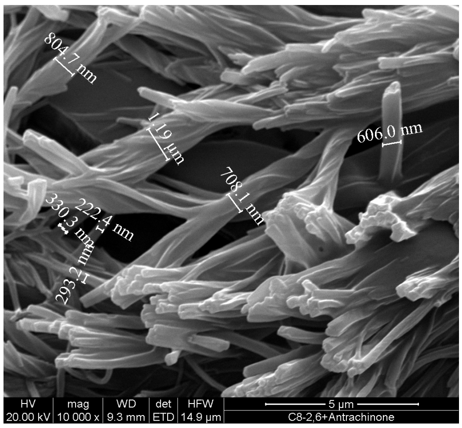
(c)


HV mag WD det HFW 1 µm
30.00 kV 50 000 x 9.8 mm ETD 2.98 µm C8-2,6+Antracene

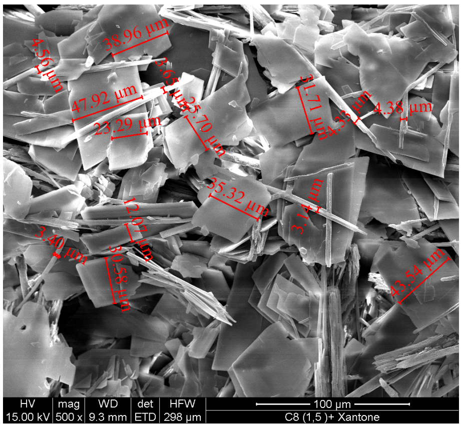
(d)


HV mag WD det HFW 100 µm
15.00 kV 500 x 9.5 mm ETD 298 µm C8 (1,5)+ Antrachinone

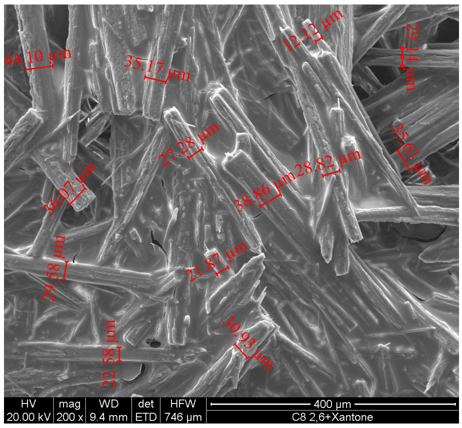
(e)


HV mag WD det HFW 5 µm
20.00 kV 10 000 x 9.3 mm ETD 14.9 µm C8-2,6+Antrachinone

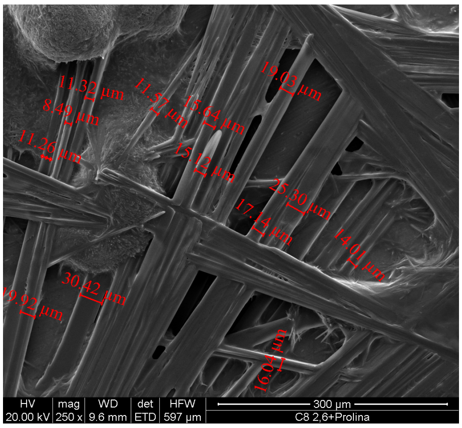
(f)



(g)

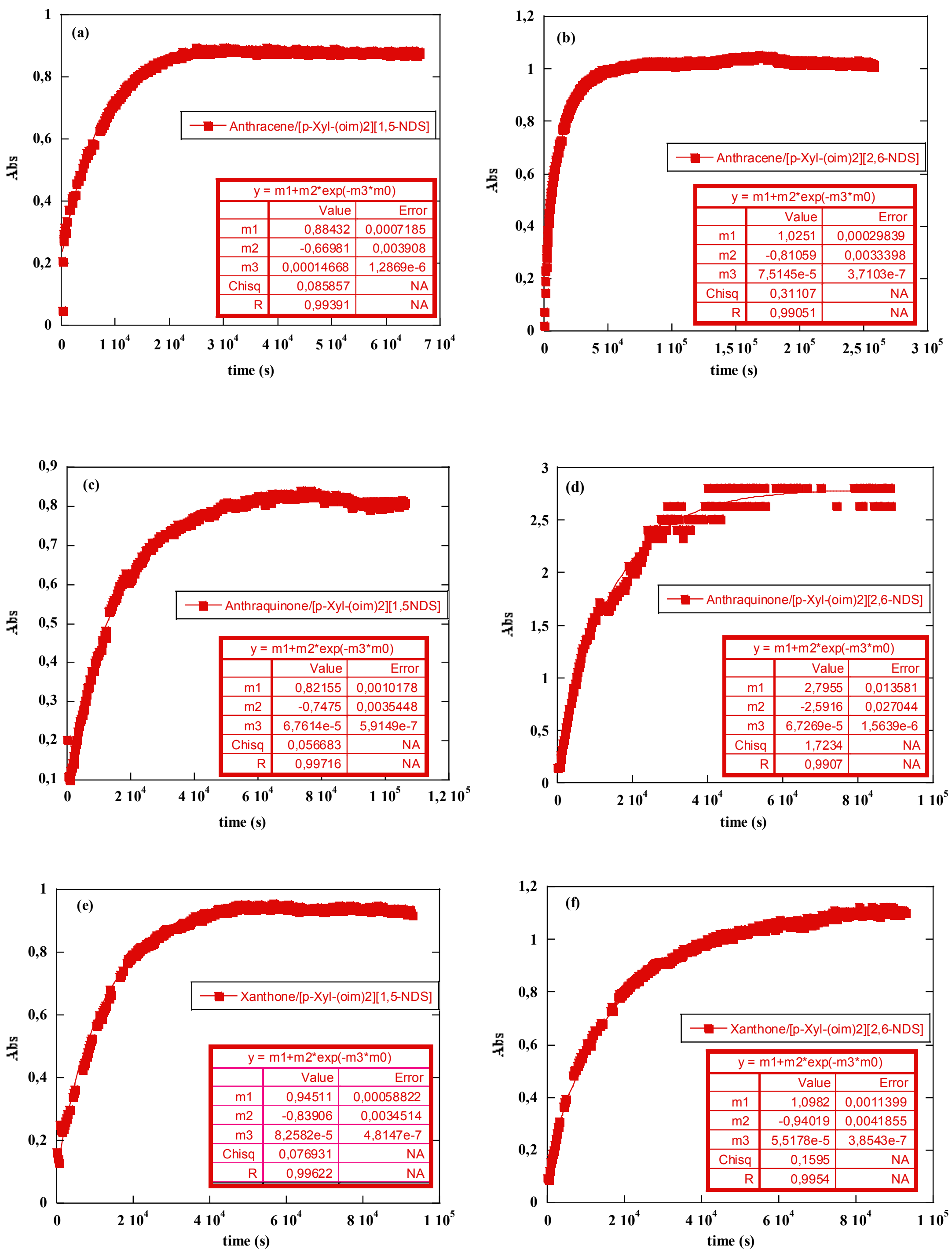


(h)

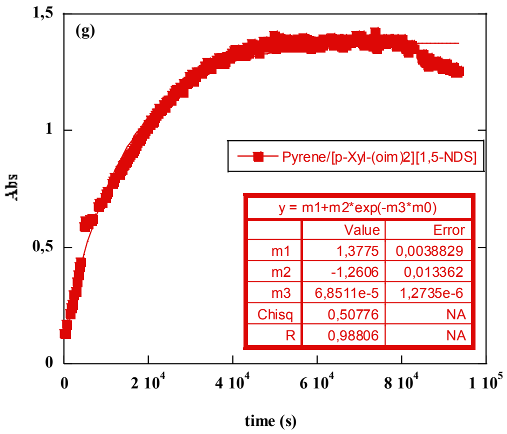


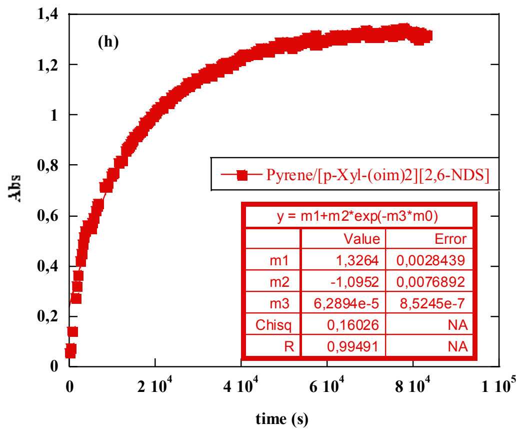
(i)

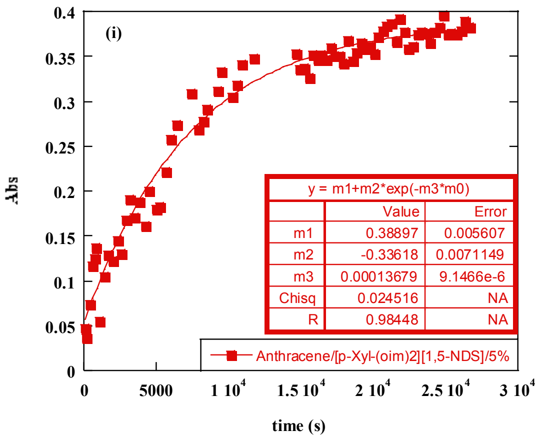
Figure S4. SEM images of xerogels obtained from (a) [*p*-Xyl-(oim)$_2$][1,5-NDS]; (b) [*p*-Xyl-(oim)$_2$][2,6-NDS]; (c) anthracene/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (d) anthracene/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (e) anthraquinone/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (f) anthraquinone/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (g) xanthone/[*p*-Xyl-(oim)$_2$][1,5-NDS]; (h) xanthone/[*p*-Xyl-(oim)$_2$][2,6-NDS]; (i) L-Proline/[*p*-Xyl-(oim)$_2$][2,6-NDS].

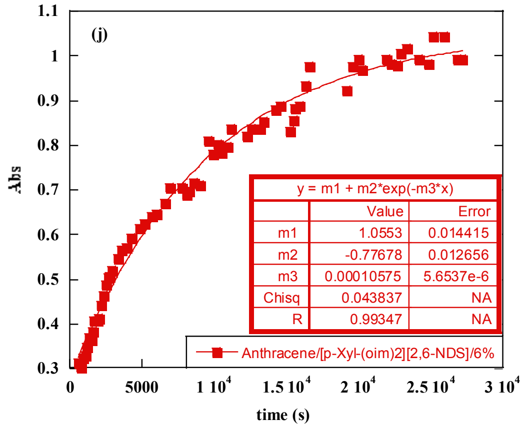


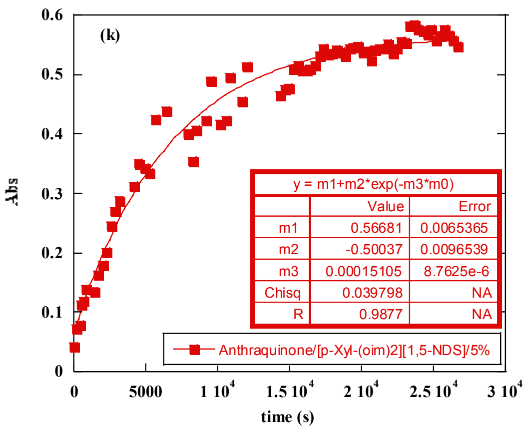
(a)
Anthracene/[p-Xyl-(oim)2][1,5-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 0,88432 0,0007185
m2 -0,66981 0,003908
m3 0,00014668 1,2869e-6
Chisq 0,085857 NA
R 0,99391 NA
Abs
time (s)
(b)
Anthracene/[p-Xyl-(oim)2][2,6-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 1,0251 0,00029839
m2 -0,81059 0,0033398
m3 7,5145e-5 3,7103e-7
Chisq 0,31107 NA
R 0,99051 NA
Abs
time (s)
(c)
Anthraquinone/[p-Xyl-(oim)2][1,5NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 0,82155 0,0010178
m2 -0,7475 0,0035448
m3 6,7614e-5 5,9149e-7
Chisq 0,056683 NA
R 0,99716 NA
Abs
time (s)
(d)
Anthraquinone/[p-Xyl-(oim)2][2,6-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 2,7955 0,013581
m2 -2,5916 0,027044
m3 6,7269e-5 1,5639e-6
Chisq 1,7234 NA
R 0,9907 NA
Abs
time (s)
(e)
Xanthone/[p-Xyl-(oim)2][1,5-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 0,94511 0,00058822
m2 -0,83906 0,0034514
m3 8,2582e-5 4,8147e-7
Chisq 0,076931 NA
R 0,99622 NA
Abs
time (s)
(f)
Xanthone/[p-Xyl-(oim)2][2,6-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 1,0982 0,0011399
m2 -0,94019 0,0041855
m3 5,5178e-5 3,8543e-7
Chisq 0,1595 NA
R 0,9954 NA
Abs
time (s)

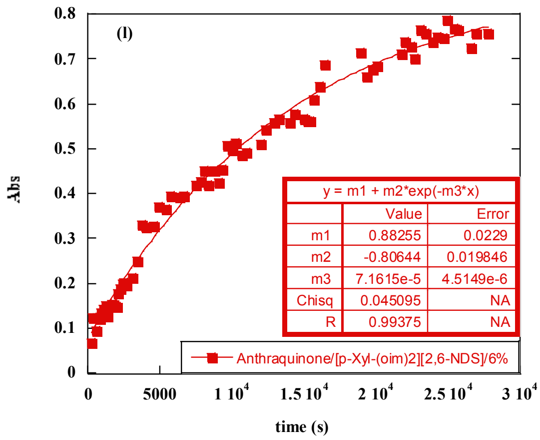

(g)
Abs
time (s)
Pyrene/[p-Xyl-(oim)2][1,5-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 1,3775 0,0038829
m2 -1,2606 0,013362
m3 6,8511e-5 1,2735e-6
Chisq 0,50776 NA
R 0,98806 NA


(h)
Abs
time (s)
Pyrene/[p-Xyl-(oim)2][2,6-NDS]
y = m1+m2*exp(-m3*m0)
Value Error
m1 1,3264 0,0028439
m2 -1,0952 0,0076892
m3 6,2894e-5 8,5245e-7
Chisq 0,16026 NA
R 0,99491 NA


(i)
Abs
time (s)
y = m1+m2*exp(-m3*m0)
Value Error
m1 0.38897 0.005607
m2 -0.33618 0.0071149
m3 0.00013679 9.1466e-6
Chisq 0.024516 NA
R 0.98448 NA
Anthracene/[p-Xyl-(oim)2][1,5-NDS]/5%


(j)
Abs
time (s)
y = m1 + m2*exp(-m3*x)
Value Error
m1 1.0553 0.014415
m2 -0.77678 0.012656
m3 0.00010575 5.6537e-6
Chisq 0.043837 NA
R 0.99347 NA
Anthracene/[p-Xyl-(oim)2][2,6-NDS]/6%


(k)
Abs
time (s)
y = m1+m2*exp(-m3*m0)
Value Error
m1 0.56681 0.0065365
m2 -0.50037 0.0096539
m3 0.00015105 8.7625e-6
Chisq 0.039798 NA
R 0.9877 NA
Anthraquinone/[p-Xyl-(oim)2][1,5-NDS]/5%


(l)
Abs
time (s)
y = m1 + m2*exp(-m3*x)
Value Error
m1 0.88255 0.0229
m2 -0.80644 0.019846
m3 7.1615e-5 4.5149e-6
Chisq 0.045095 NA
R 0.99375 NA
Anthraquinone/[p-Xyl-(oim)2][2,6-NDS]/6%

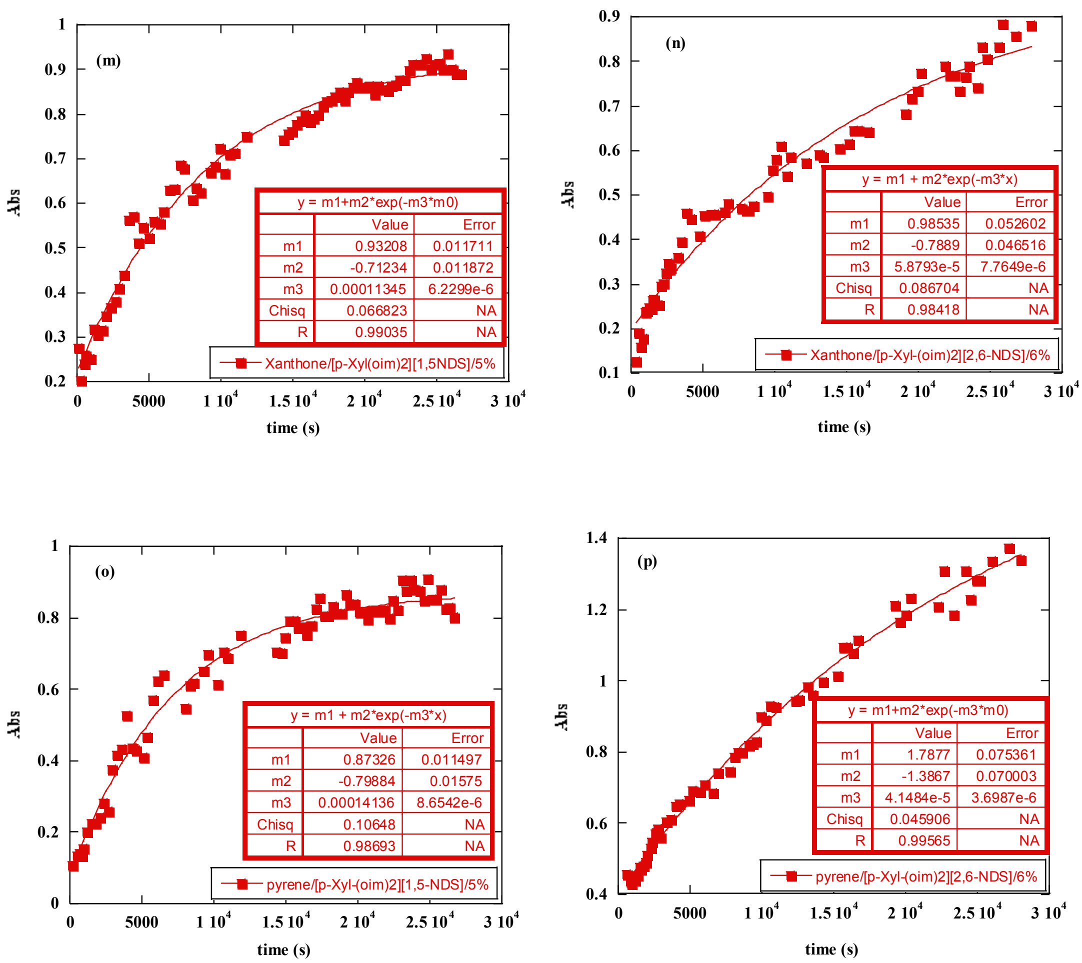
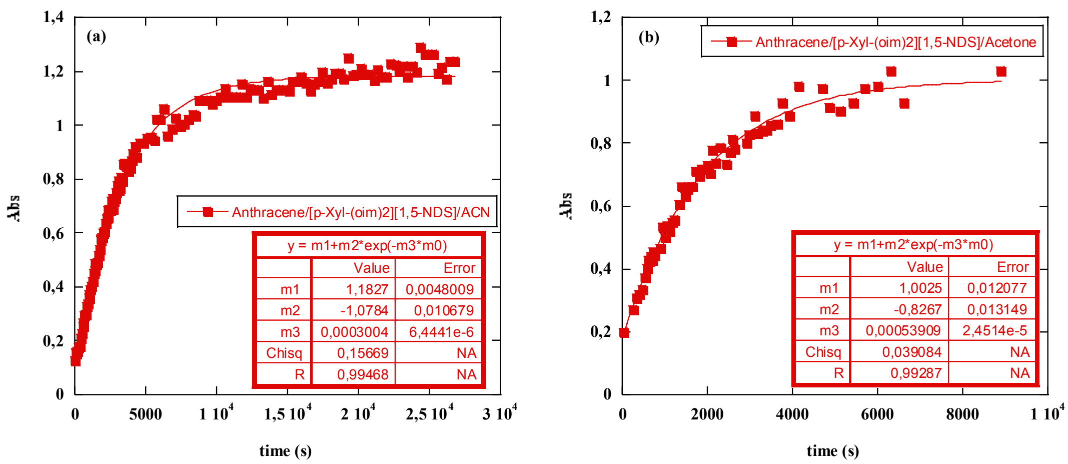


Figure S5. Plots of absorbance values as a function of time, at 25 °C, corresponding to extraction processes of guests in 1-propanol solution at: (a-h) 8% gelator concentration and (i-p) CGC of different gelator used (λ = 356 nm for gels containing anthracene and 332 nm for all the other gels).



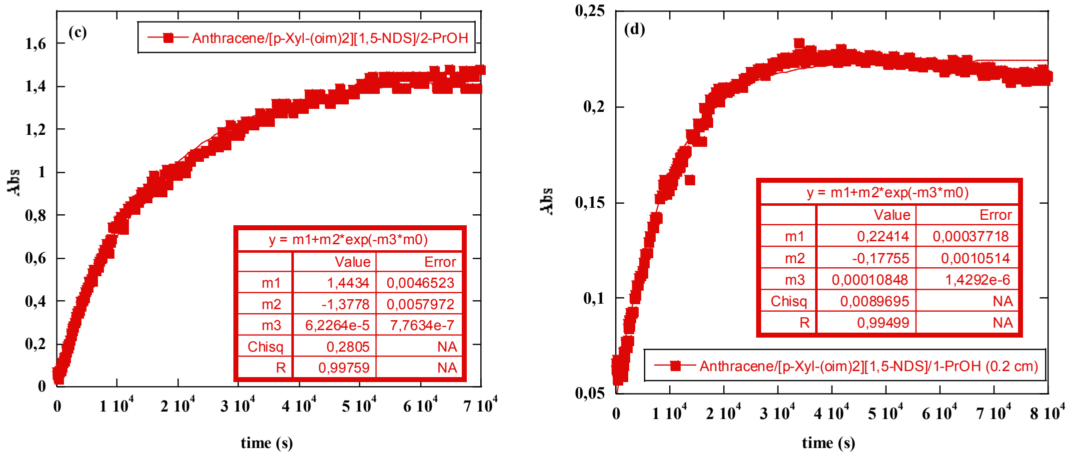
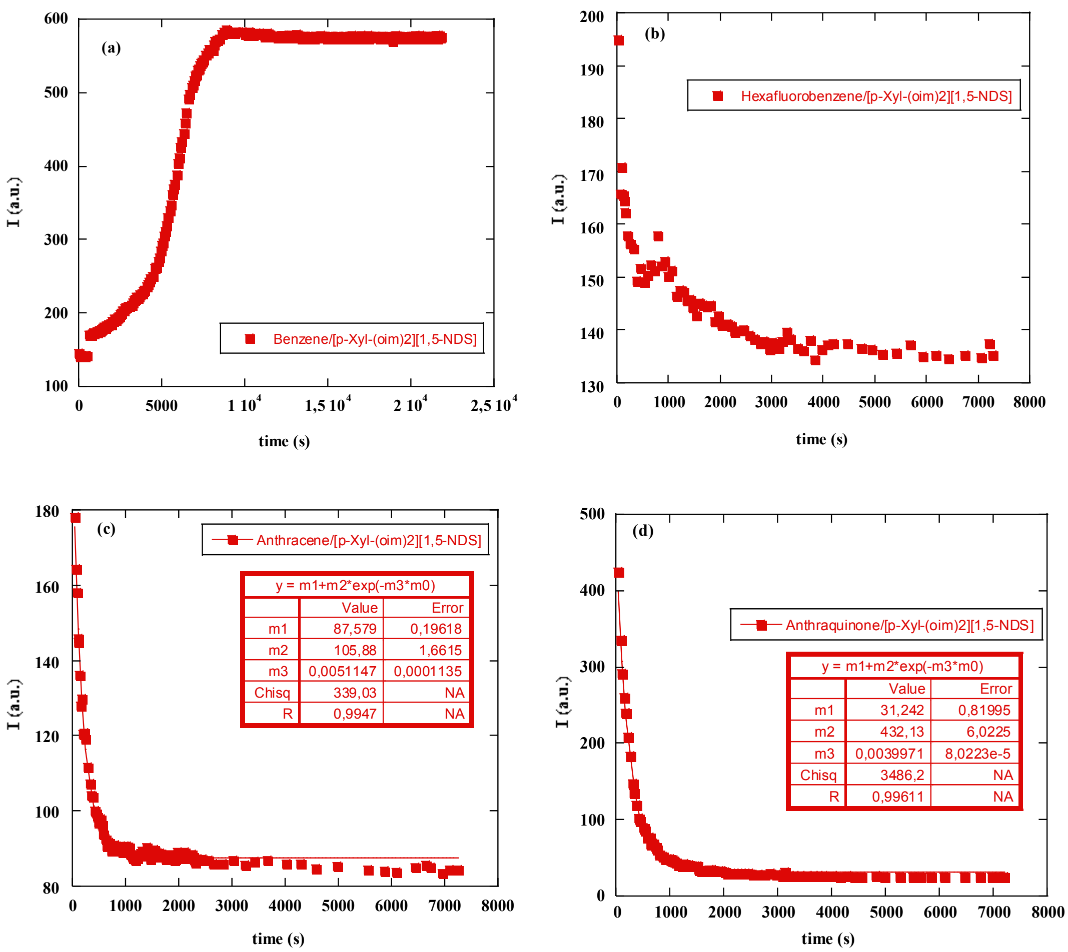


Figure S6. Plots of absorbance values as a function of time, at 25 °C, corresponding to extraction processes of anthracene changing solvents and contact surface area (λ = 356 nm).



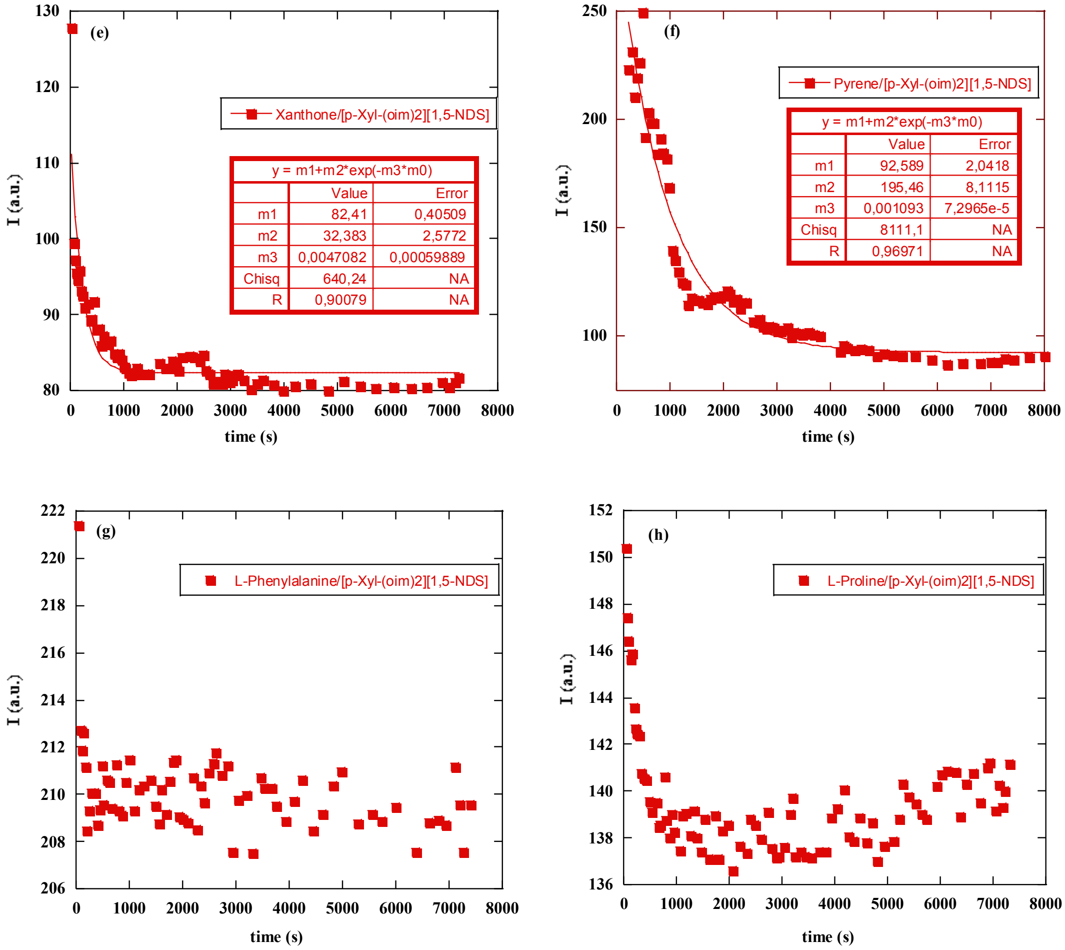


Figure S7. Plots of RLS intensity as a function of time corresponding to extraction processes of guests in 1-propanol solution from two component gel phases formed by [*p*-Xyl-(oim)$_2$][1,5-NDS] (λ = 560 nm for gel containing anthraquinone and 523 nm for all the other gels).