Electronic Supplementary Material (ESI) for RSC Advances.

Novel tunable adsorbents based on Bentonite and modified Tragacanth gum for removal of acid dyes from aqueous solutions

Susan Sadeghi[*1, a], Ali Zeraatkar Moghadam[a], Mohammad Massinaei [b]

[a]*Department of Chemistry, Faculty of Science, University of Birjand, Birjand, Iran*

[b]*Department of Mineral Engineering, Faculty of Engineering, University of Birjand, Birjand, Iran*

*Corresponding Authour (S. Sadeghi). Tel.: +98 56 32202008; Fax: +98 56 32202009.
E-mail address: ssadeghi@birjand.ac.ir

Fig. S1 FTIR spectrum of the TG (a), TG-*g*-P(MMA) (b), B (c), TG-*g*-P(MMA)/B (d), and CR loaded TG-*g*-P(MMA)/B (e).

Fig. S2 Thermal gravimmetric analysis (TGA) and differentional thermal analysis (DTA) of TG (a), TG-*g*-PMMA(b), and TG-*g*-P(MMA)/B(c).

Fig. S3 SEM of B (a) and TG-*g*-P(MMA)/B (b).

Fig. S4 Normal probability plot of studentized residuals for the defined quadratic models of (a) CR, (b) MO, and (c) AB-113.

Fig. S5 Typical interactions between the CR dye with (a) TG, (b) B and (c) TG-*g*-P(MMA).

Figure S1

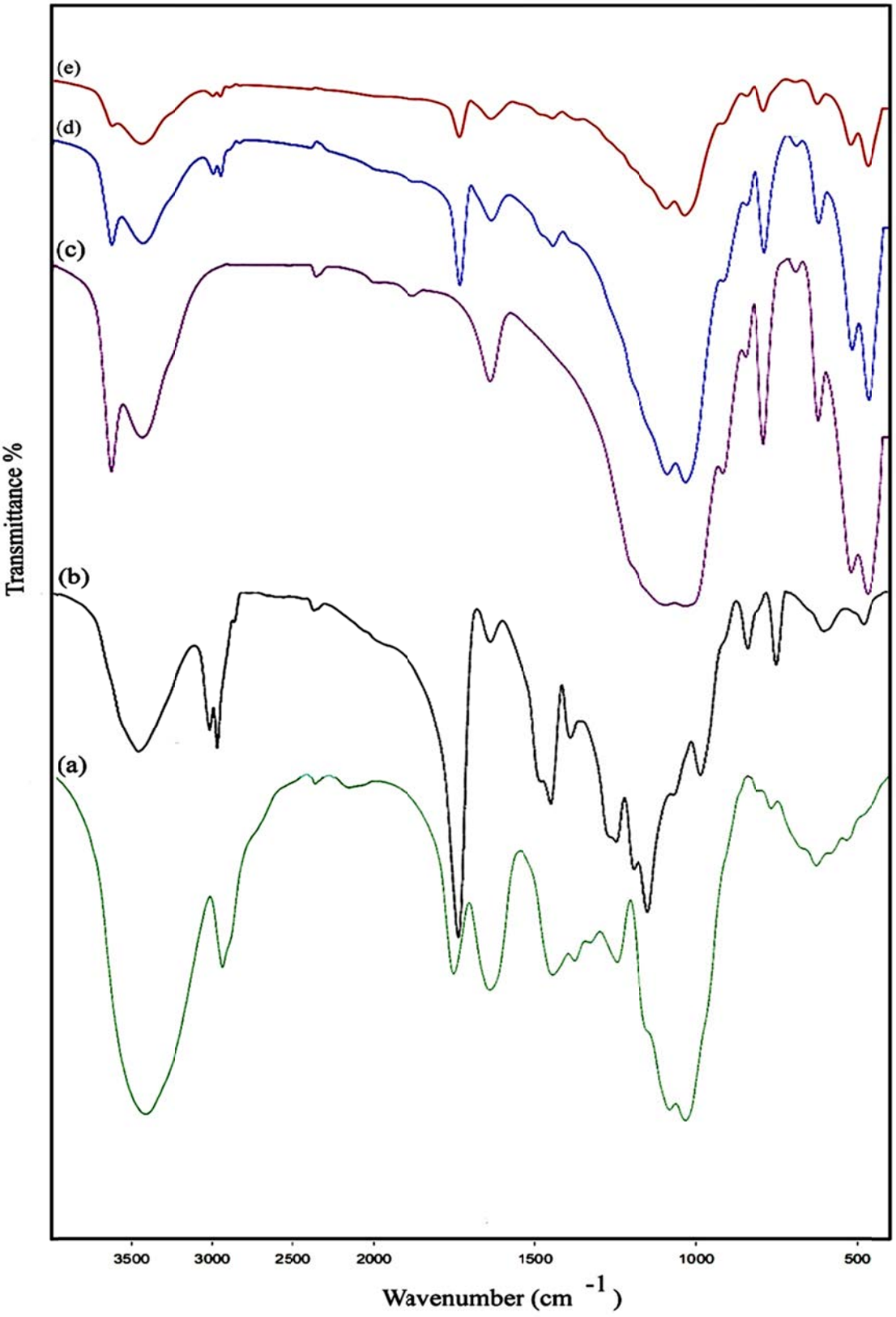
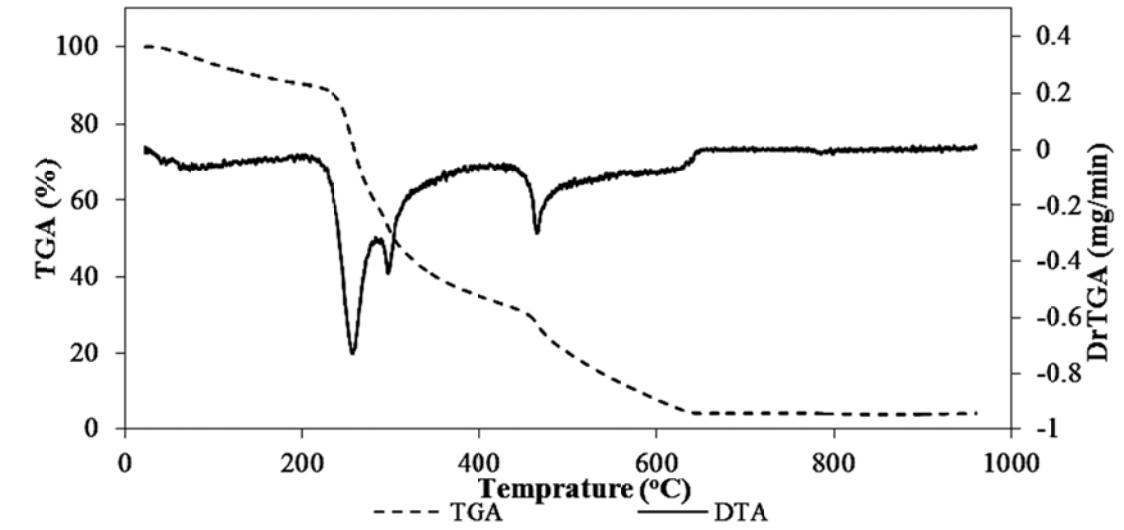
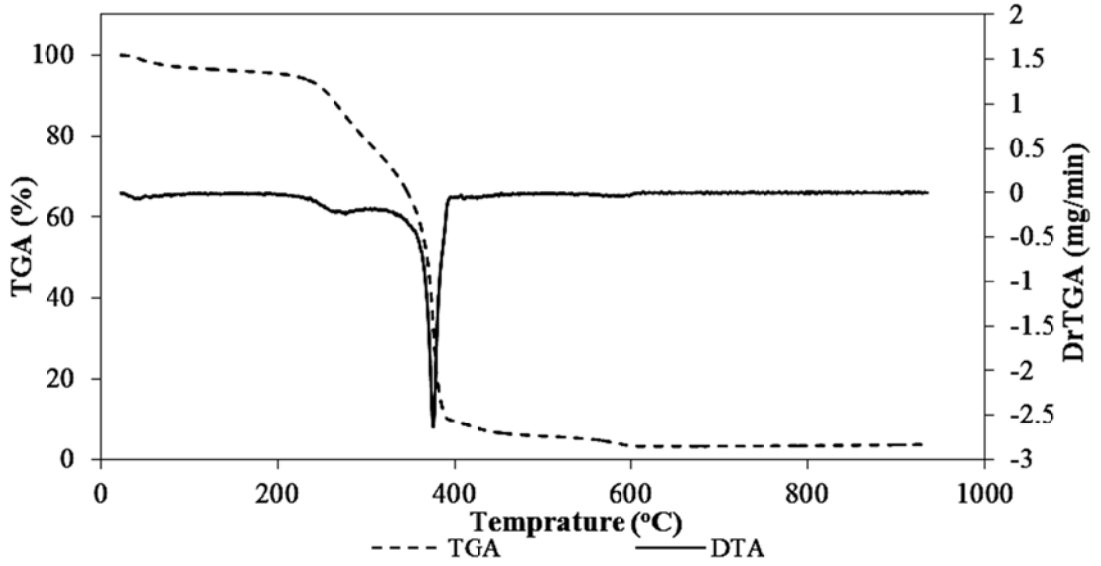

(e)
(d)
(c)
(b)
(a)
Transmittance %
3500
3000
2500
2000
1500
1000
500
Wavenumber (cm -1)

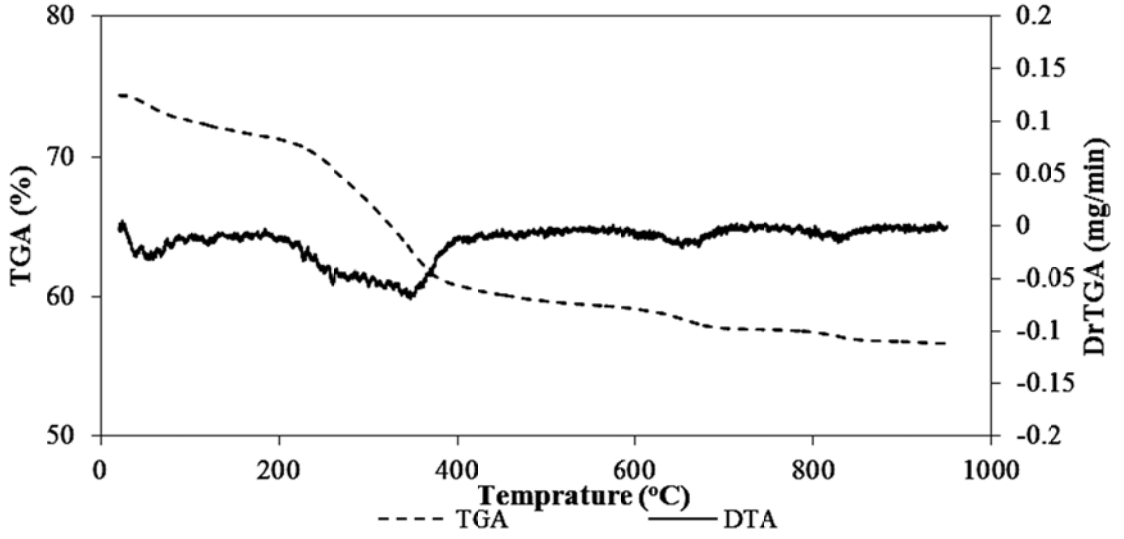
Figure S2



(a)

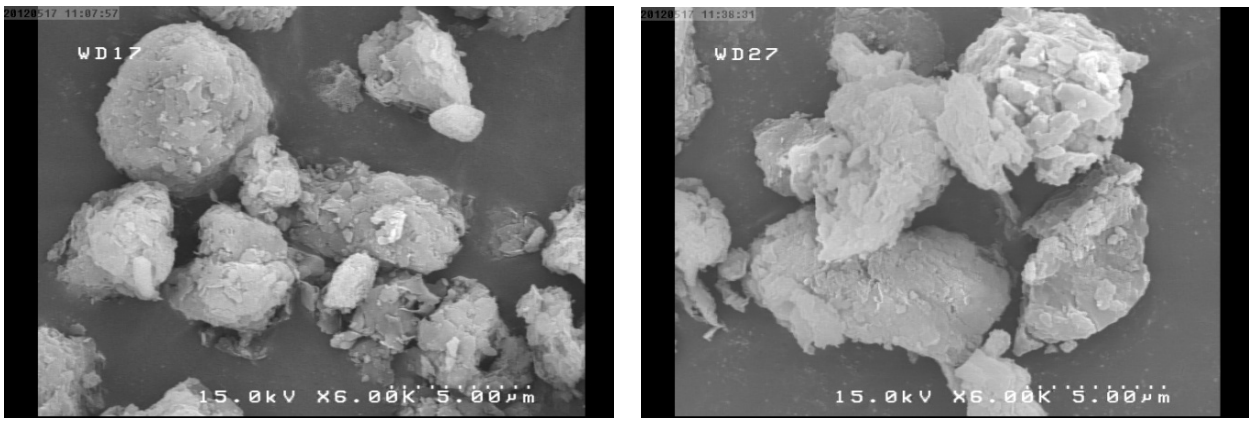


(b)



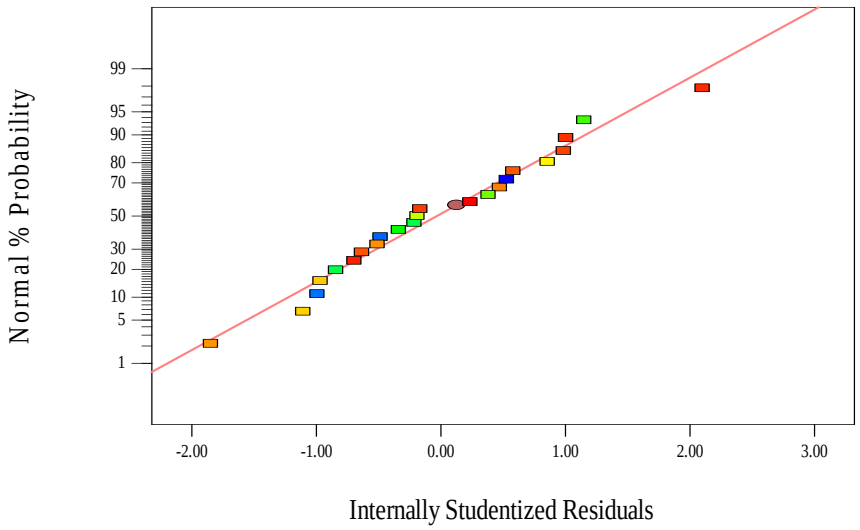
(c)

Figure S3

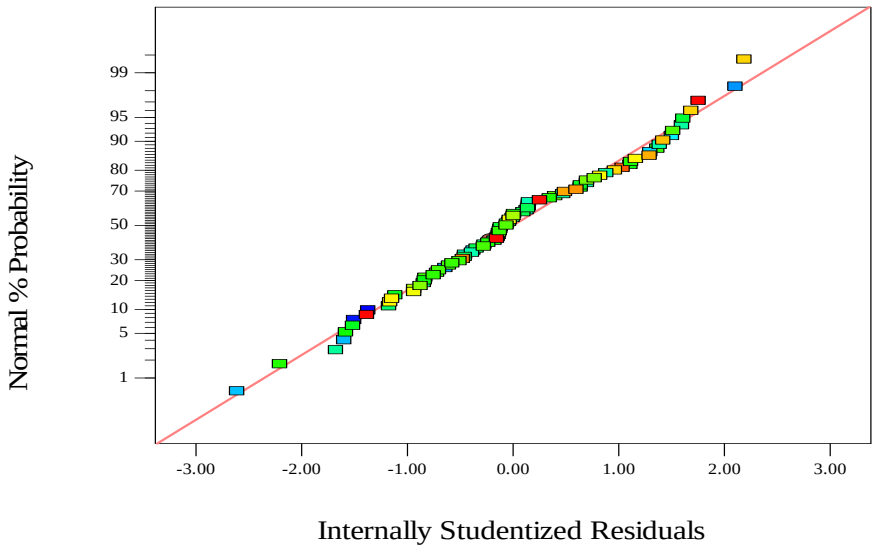


(a) **(b)**

Figure S4


Normal % Probability
99
95
90
80
70
50
30
20
10
5
1
-2.00
-1.00
0.00
1.00
2.00
3.00
Internally Studentized Residuals

(a)


Normal % Probability
99
95
90
80
70
50
30
20
10
5
1
-3.00
-2.00
-1.00
0.00
1.00
2.00
3.00
Internally Studentized Residuals

(b)

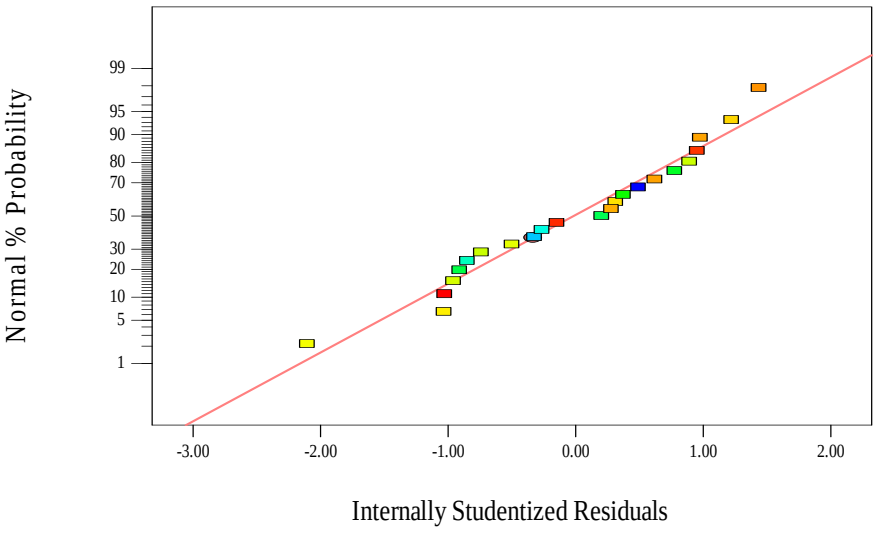
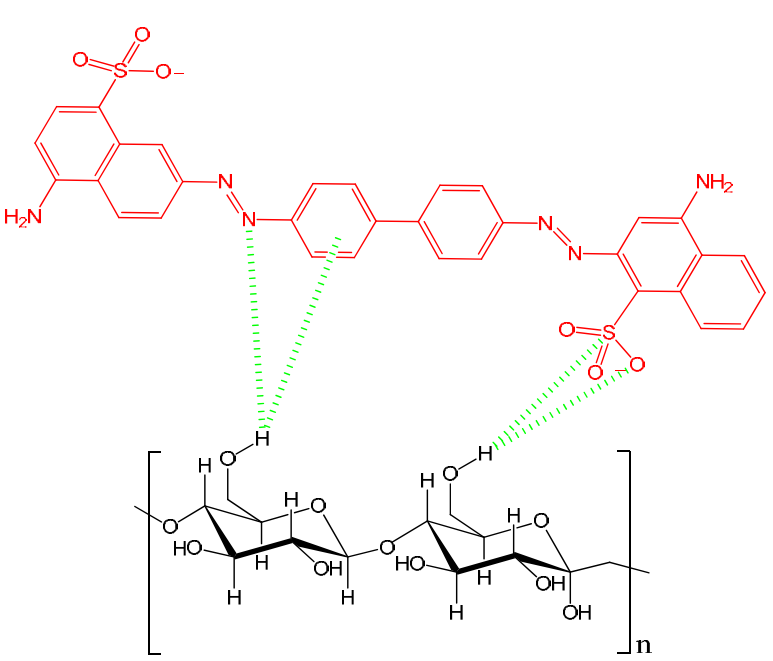
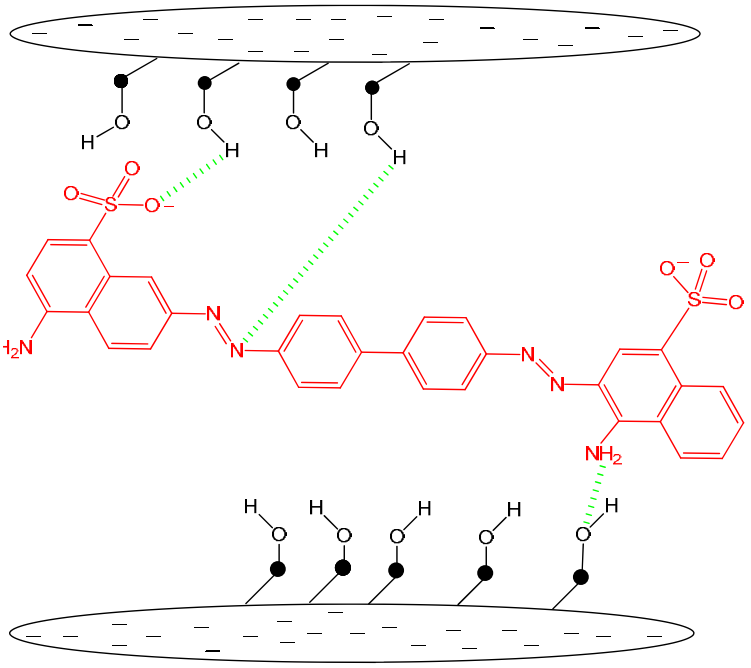

Normal % Probability
99
95
90
80
70
50
30
20
10
5
1
-3.00
-2.00
-1.00
0.00
1.00
2.00
Internally Studentized Residuals

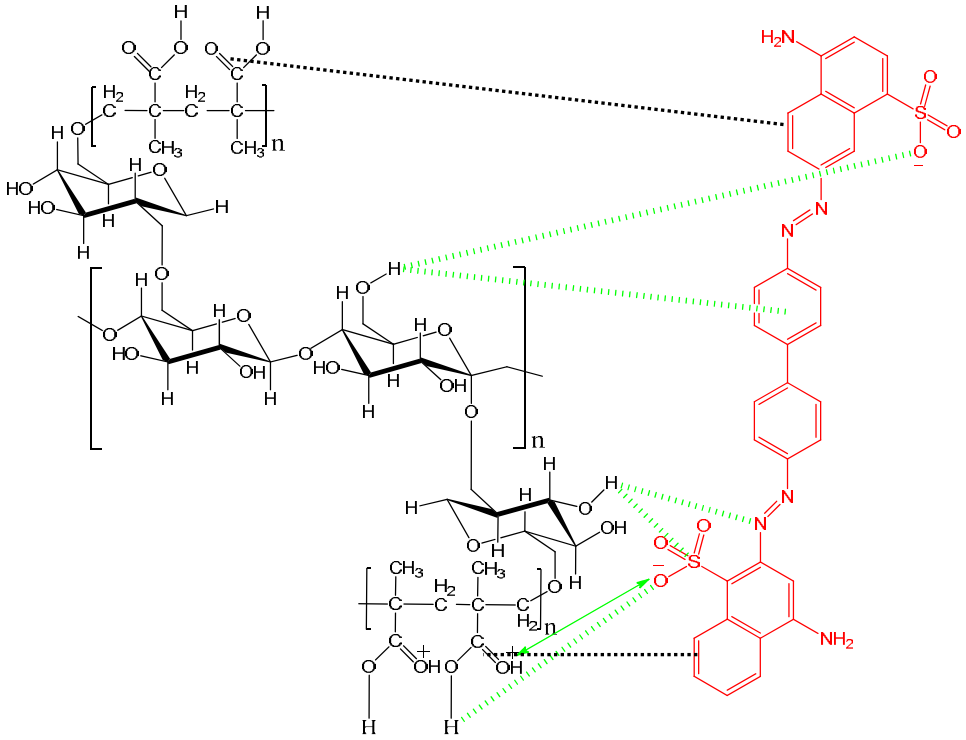
Figure S5



(a)



(b)



(c)

..... = π-π stacking

● = Si, Al, Mg, Fe

⋯⋯ = H-bondong between TG-g-P(MMA) or B and CR

— = Covalent bond between TG-g-P(MMA) and CR

↔ = Ionic interaction between TG-g-P(MMA) and CR