

Supporting information file
Adsorption studies of Malachite Green on 5-Sulphosalicylic acid Doped
Tetraethoxysilane (SATEOS) Composite Material

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Table S1 Effect of SATEOS concentration on MG adsorption Conditions: (concentration of MG solution=5ppm, pH=7)

Adsorbent dose (g)	% colour removed
0.2	90.4
0.4	96.8
0.6	98.0
0.8	99.0
1	99.2

Table S2 Effect of SATEOS concentration on MG adsorption Conditions: (concentration of MG solution=5ppm, 10ppm,15ppm, 20ppm , pH=7)

Adsorbent dose(g)	% color removed			
	5ppm	10ppm	15ppm	20ppm
0.2	90.4	90.2	90.1	90
0.4	96.8	95.4	95.1	95
0.6	98	97.5	97	96.8
0.8	99	98.6	98.2	98.1
1	99.2	98.8	98.5	98.2

Table S3 Effect of contact time on MG adsorption conditions: (Wt. of adsorbent=0.2g, volume of dye solution taken =30ml, agitation speed=120rpm)

Time(min)	(5ppm) q_e (mg/g)	(10ppm) q_e (mg/g)	(15ppm) q_e (mg/g)
30	4.57	9.49	14.31
45	4.60	9.52	14.34
60	4.62	9.55	14.37
90	4.67	9.58	14.39
120	4.69	9.6	14.41
150	4.72	9.63	14.43
180	4.78	9.68	14.44
210	4.78	9.68	14.44
240	4.78	9.68	14.44

Table S4 Langmuir adsorption isotherm

1/C	30°C 1/x/m	40°C 1/x/m	50°C 1/x/m
0.05	0.062	0.055	0.05
0.06	0.08	0.072	0.066
0.1	0.14	0.121	0.1
0.2	0.447	0.25	0.204

Table S5 Freundlich adsorption isotherm

log C	30°C log x/m	40°C log x/m	50°C log x/m
0.698	0.349	0.6	0.689
1	0.852	0.915	0.999
1.176	1.095	1.128	1.175
1.301	1.204	1.255	1.3

Table S6 Lagergren first order kinetics

Time(min)	log(qe-q)5ppm	log (qe-q)10ppm	log (qe-q)15ppm
30	-0.677	-0.721	-0.886
45	-0.744	-0.795	-1
60	-0.795	-0.886	-1.154
90	-0.958	-1	-1.301
120	-1.045	-1.096	-1.522
150	-1.221	-1.301	-2

Table S7 Pseudo second order kinetics

Time (min)	5ppm t/q_t	10ppm t/q_t	15ppm t/q_t
30	6.56	3.16	2.09
45	9.78	4.72	3.13
60	12.98	6.28	4.17
90	19.27	9.39	6.25
120	25.58	12.5	8.32
150	31.77	15.57	10.39
180	37.65	18.59	12.46

Table S8 Values of $\log(1-F)$ for MG adsorption at different concentrations

Time(min)	5ppm $\log(1-F)$	10ppm $\log(1-F)$	15ppm $\log(1-F)$
30	-1.356	-1.698	-2
45	-1.42	-1.769	-2.154
60	-1.468	-1.893	-2.301
90	-1.619	-1.958	-2.397
120	-1.721	-2.045	-2.522
150	-1.886	-2.221	-3