

7-hydroxycoumarin standard curve		Excitation wavelength @ 332 nm						
Concentration (µM)	Volume of 7HC stock (10µM) (ml)	Volume of water (ml)	Intensity1 @ 456nm	Intensity2 @ 456nm	Intensity3 @ 456nm	Mean intensity	St. dev of intensity	%RSD
0	0	3	0.07	0.07	0.05	0	0	0
0.05	0.015	2.985	2.22	2.37	2.12	2.237	0.126	0.056
0.1	0.03	2.97	5.24	5.39	5.19	5.273	0.104	0.020
0.2	0.06	2.94	11.79	10.56	10.29	10.880	0.800	0.073
0.4	0.12	2.88	18.21	19.38	19.14	18.910	0.618	0.033
0.6	0.18	2.82	28.82	29.15	29.51	29.160	0.345	0.012
0.8	0.24	2.76	38.52	36.31	37.78	37.537	1.125	0.030
1	0.3	2.7	44.25	44.51	44.83	44.530	0.291	0.007
1.5	0.45	2.55	66.85	66.06	65.06	65.990	0.897	0.014
2	0.6	2.4	82.56	83.03	85.39	83.660	1.517	0.018
2.5	0.75	2.25	104.93	106.45	107.87	106.417	1.470	0.014
3	0.9	2.1	124.24	124.52	124.64	124.467	0.205	0.002
4	1.2	1.8	164.44	164.25	164.23	164.307	0.116	0.001
6	1.8	1.2	234.58	234.41	231.45	233.480	1.760	0.008
8	2.4	0.6	287.19	288.11	288.2	287.833	0.559	0.002
10	3	0	343.18	345.08	345.04	344.433	1.086	0.003

Coumarin standard curve		Excitation wavelength @ 332 nm						
Concentration (µM)	Volume of Coumarin stock (100 µM) (ml)	Volume of water (ml)	Absorbance at 277 nm_1	Absorbance at 277 nm_2	Absorbance at 277 nm_3	Mean absorbance	Std deviation	RSD%
0	0	3	0	0	0	0	0	0
10	0.3	2.7	0.133	0.132	0.132	0.132	0.000	0.002
20	0.6	2.4	0.240	0.239	0.239	0.239	0.000	0.001
30	0.9	2.1	0.348	0.348	0.347	0.348	0.000	0.001
40	1.2	1.8	0.457	0.457	0.458	0.457	0.000	0.001
50	1.5	1.5	0.565	0.565	0.565	0.565	0.000	0.001
60	1.8	1.2	0.672	0.673	0.673	0.673	0.000	0.001
70	2.1	0.9	0.785	0.786	0.786	0.786	0.000	0.000
80	2.4	0.6	0.889	0.888	0.888	0.888	0.000	0.000
90	2.7	0.3	0.998	0.998	0.998	0.998	0.000	0.000
100	3	0	1.105	1.106	1.104	1.105	0.001	0.000

UV light control												
Time (min)	Fluorescence Intensity @ 456nm	Conc of 7Hydroxycoumarin (µM)	Mean 7HC Conc (µM)	STD DEV (7HC)	%RSD	OH radical conc (µM)	Total OH radical conc (µM)	OD @ 277nm	Conc of COU (µM)	Mean COU conc (µM)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.101	99.526	99.925	0.364	0.004
	0	0						1.106	100.012			
	0	0						1.109	100.237			
15	0	0	0	0	0	0	0	1.084	97.998	98.290	0.279	0.003
	0	0						1.088	98.318			
	0	0						1.091	98.553			
30	0	0	0	0	0	0	0	1.067	96.387	96.435	0.076	0.001
	0	0						1.067	96.396			
	0	0						1.068	96.523			
45	0	0	0	0	0	0	0	1.044	94.277	94.463	0.161	0.002
	0	0						1.047	94.561			
	0	0						1.047	94.552			
60	0	0	0	0	0	0	0	1.022	92.303	92.673	0.335	0.004
	0	0						1.030	92.956			
	0	0						1.027	92.761			
75	0	0	0	0	0	0	0	1.004	90.587	90.903	0.276	0.003
	0	0						1.009	91.029			
	0	0						1.009	91.092			
90	0	0	0	0	0	0	0	0.985	88.867	89.103	0.210	0.002
	0	0						0.988	89.175			
	0	0						0.989	89.267			
105	0	0	0	0	0	0	0	0.970	87.463	87.580	0.152	0.002
	0	0						0.970	87.526			
	0	0						0.973	87.751			
120	0	0	0	0	0	0	0	0.951	85.732	86.033	0.261	0.003
	0	0						0.956	86.180			
	0	0						0.956	86.187			

visible light control												
Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (µM)	Mean 7HC Conc (µM)	STD DEV (7HC)	%RSD	OH radical conc (µM)	Total OH radical conc (µM)	OD @ 277nm	Conc of COU (µM)	Mean COU conc (µM)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.118221	101.026	101.104	0.127	0.001
	0	0						1.117586	101.035			
	0	0						1.119932	101.251			
15	0	0	0	0	0	0	0	1.119315	101.194	101.234	0.151	0.001
	0	0						1.118369	101.107			
	0	0						1.121579	101.402			

30	0	0	0	0	0	0	0	1.117391	101.018	101.126	0.197	0.002
	0	0						1.117288	101.008			
	0	0						1.12105	101.353			
45	0	0	0	0	0	0	0	1.118202	101.092	101.220	0.218	0.002
	0	0						1.118239	101.095			
	0	0						1.122338	101.471			
60	0	0	0	0	0	0	0	1.119682	101.228	101.238	0.181	0.002
	0	0						1.11789	101.063			
	0	0						1.121823	101.424			
75	0	0	0	0	0	0	0	1.117416	101.020	101.182	0.258	0.003
	0	0						1.117705	101.046			
	0	0						1.122417	101.479			
90	0	0	0	0	0	0	0	1.118956	101.161	101.288	0.200	0.002
	0	0						1.119209	101.184			
	0	0						1.12286	101.519			
105	0	0	0	0	0	0	0	1.119006	101.166	101.327	0.270	0.003
	0	0						1.119113	101.176			
	0	0						1.124159	101.638			
120	0	0	0	0	0	0	0	1.117478	101.026	101.267	0.414	0.004
	0	0						1.117529	101.030			
	0	0						1.125313	101.744			

P25 dark experiments												
Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	0.991915941	89.506	89.428	0.100	0.001
	0	0						0.989834726	89.315			
	0	0						0.991451323	89.463			
15	0	0	0	0	0	0	0	0.991543293	89.472	89.599	0.110	0.001
	0	0						0.993634462	89.664			
	0	0						0.993614495	89.662			
30	0	0	0	0	0	0	0	0.993865609	89.685	89.524	0.191	0.002
	0	0						0.989816785	89.313			
	0	0						0.992649198	89.573			
45	0	0	0	0	0	0	0	0.993524432	89.654	89.552	0.154	0.002
	0	0						0.990479589	89.374			
	0	0						0.993234754	89.627			
60	0	0	0	0	0	0	0	0.993355155	89.638	89.597	0.086	0.001
	0	0						0.991828501	89.498			
	0	0						0.993527055	89.654			
75	0	0	0	0	0	0	0	0.993738949	89.673	89.618	0.154	0.002
	0	0						0.991241336	89.444			
	0	0						0.994426727	89.736			
90	0	0	0	0	0	0	0	0.992941976	89.600	89.544	0.049	0.001
	0	0						0.992097676	89.523			
	0	0						0.991937995	89.508			
105	0	0	0	0	0	0	0	0.994008601	89.698	89.530	0.165	0.002
	0	0						0.990403116	89.367			
	0	0						0.99212116	89.525			
120	0	0	0	0	0	0	0	0.994383872	89.732	89.654	0.129	0.001
	0	0						0.994285107	89.723			
	0	0						0.991903186	89.505			

P25 photocatalysis												
Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.997142	89.986	90.064	0.078	0.001
	0	0.00						0.998027	90.067			
	0	0.00						0.998834	90.141			
15	28.52	0.56	0.54	0.02	0.03	0.54	8.91	0.831701	74.807	73.800	1.460	0.020
	28.35	0.55						0.802475	72.126			
	27.49	0.53						0.827985	74.467			
30	41.99	0.94	0.92	0.02	0.02	0.92	15.10	0.64109	57.320	56.646	1.506	0.027
	40.69	0.90						0.61493	54.920			
	41.59	0.93						0.645189	57.696			
45	46.27	1.06	1.04	0.02	0.02	1.04	17.13	0.492122	43.653	43.387	1.415	0.033
	44.79	1.02						0.472544	41.857			
	46.32	1.06						0.502988	44.650			
60	44.57	1.01	1.02	0.05	0.05	1.02	16.73	0.357518	31.304	31.726	1.343	0.042
	43.48	0.98						0.350329	30.645			
	46.73	1.07						0.378502	33.230			
75	39.13	0.86	0.85	0.04	0.04	0.85	13.94	0.259084	22.274	19.989	5.125	0.256
	37.53	0.81						0.170201	14.119			
	40.16	0.89						0.273264	23.575			
90	29.76	0.59	0.58	0.04	0.07	0.58	9.48	0.176643	14.710	12.060	4.946	0.410
	27.79	0.53						0.08556	6.354			
	30.44	0.61						0.18107	15.117			
105	18.23	0.26	0.26	0.06	0.22	0.26	4.20	0.105852	8.216	5.864	4.652	0.793
	15.89	0.20						0.021806	0.505			
	19.82	0.31						0.112982	8.870			
120	7.42	0.15	0.14	0.04	0.31	0.14	2.32	0.056481	3.686	2.578	2.240	0.869
	5.1	0.10						-0.02818	0.000			

8.99

0.18

0.060421

4.048

30 minutes dark time

age Initial OD for COUMARIN before equilibrium

1.110485

Which is =
% adsorbed =

100.38
10.28%

μM

WO3 dark Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.105045	99.885	99.686	0.319	0.003
	0	0						1.104723	99.855			
	0	0						1.098868	99.318			
15	0	0	0	0	0	0	0	1.118228	101.094	100.714	0.619	0.006
	0	0						1.117723	101.048			
	0	0						1.106304	100.000			
30	0	0	0	0	0	0	0	1.11854	101.123	100.810	0.284	0.003
	0	0						1.114369	100.740			
	0	0						1.112488	100.568			
45	0	0	0	0	0	0	0	1.112828	100.599	100.696	0.194	0.002
	0	0						1.112506	100.569			
	0	0						1.116312	100.919			
60	0	0	0	0	0	0	0	1.11186	100.510	100.813	0.344	0.003
	0	0						1.11439	100.742			
	0	0						1.119232	101.186			
75	0	0	0	0	0	0	0	1.119783	101.237	101.160	0.070	0.001
	0	0						1.118758	101.143			
	0	0						1.118283	101.099			
90	0	0	0	0	0	0	0	1.11482	100.782	100.820	0.208	0.002
	0	0						1.113205	100.633			
	0	0						1.117679	101.044			
105	0	0	0	0	0	0	0	1.120978	101.347	101.273	0.083	0.001
	0	0						1.120348	101.289			
	0	0						1.119187	101.182			
120	0	0	0	0	0	0	0	1.119576	101.218	101.125	0.081	0.001
	0	0						1.118191	101.091			
	0	0						1.11792	101.066			

WO3 photocatalysis Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.072552	96.904	97.086	0.252	0.003
	0	0						1.07338	96.980			
	0	0						1.077667	97.373			
15	0	0	0	0	0	0	0	1.071749	96.830	96.707	0.269	0.003
	0	0						1.072418	96.892			
	0	0						1.06704	96.398			
30	0	0	0	0	0	0	0	1.073478	96.989	96.338	0.564	0.006
	0	0						1.063086	96.035			
	0	0						1.062579	95.989			
45	0	0.000	0.002	0.002	1.083	0.002	0.028	1.077658	97.372	97.669	0.306	0.003
	0.93	0.004						1.080684	97.650			
	0.83	0.001						1.084325	97.984			
60	0.99	0.005	0.006	0.004	0.690	0.006	0.103	1.08099	97.678	98.131	0.855	0.009
	1.27	0.011						1.080112	97.597			
	0.89	0.003						1.096666	99.116			
75	1.39	0.014	0.014	0.004	0.317	0.014	0.229	1.094184	98.888	98.483	0.894	0.009
	1.6	0.018						1.078591	97.458			
	1.2	0.010						1.096522	99.103			
90	1.69	0.020	0.022	0.010	0.465	0.022	0.352	1.096213	99.075	98.834	0.371	0.004
	2.21	0.032						1.095628	99.021			
	1.31	0.012						1.088926	98.406			
105	2.28	0.034	0.028	0.010	0.373	0.028	0.455	1.095867	99.043	99.078	0.031	0.000
	2.3	0.034						1.096363	99.088			
	1.48	0.016						1.09651	99.102			
120	2.2	0.032	0.034	0.009	0.276	0.034	0.560	1.097811	99.221	99.096	0.169	0.002
	2.78	0.045						1.097164	99.162			
	1.95	0.026						1.094354	98.904			

30 minutes dark time

Average Initial OD for COUMARIN before equilibrium

1.110485
100.38
3.29%

Which is =
% adsorbed =

μM

Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.0739	98.777	98.780	0.031	0.0003
	0	0						1.0736	98.750			
	0	0						1.0743	98.813			
15	0	0	0	0	0	0	0	1.0753	98.902	98.917	0.019	0.0002
	0	0						1.0754	98.911			
	0	0						1.0757	98.938			
30	0	0	0	0	0	0	0	1.0752	98.893	98.896	0.005	0.0001
	0	0						1.0752	98.893			
	0	0						1.0753	98.902			
45	0	0	0	0	0	0	0	1.0721	98.616	98.702	0.134	0.0014
	0	0						1.0748	98.857			
	0	0						1.0723	98.634			
60	0	0	0	0	0	0	0	1.0713	98.545	98.551	0.019	0.0002
	0	0						1.0716	98.571			
	0	0						1.0712	98.536			
75	0	0	0	0	0	0	0	1.0717	98.580	98.580	0.018	0.0002
	0	0						1.0719	98.598			
	0	0						1.0715	98.563			
90	0	0	0	0	0	0	0	1.0728	98.679	98.708	0.026	0.0003
	0	0						1.0733	98.723			
	0	0						1.0733	98.723			
105	0	0	0	0	0	0	0	1.0726	98.661	98.747	0.157	0.0016
	0	0						1.0756	98.929			
	0	0						1.0725	98.652			
120	0	0	0	0	0	0	0	1.0726	98.661	98.744	0.168	0.0017
	0	0						1.0757	98.938			
	0	0						1.0723	98.634			

Pt-C3N4 photocatalysis												
Time (min)	Fluorescence Intensity @ 456nm	Conc of 7HC (μM)	Mean 7HC Conc (μM)	STD DEV (7HC)	%RSD	OH radical conc (μM)	Total OH radical conc (μM)	OD @ 277nm	Conc of COU (μM)	Mean COU conc (μm)	STD DEV (COU)	%RSD
0	0	0	0	0	0	0	0	1.0958	100.732	101.217	0.549	0.005
	0	0						1.1	101.107			
	0	0						1.1079	101.813			
15	0.3	0.010	0.014	0.004	0.307	0.014	0.222	1.0929	100.473	100.955	0.478	0.005
	0.61	0.018						1.0984	100.964			
	0.43	0.013						1.1036	101.429			
30	0.53	0.016	0.015	0.000	0.017	0.015	0.254	1.0914	100.339	100.759	0.500	0.005
	0.52	0.015						1.0946	100.625			
	0.51	0.015						1.1023	101.313			
45	0.33	0.010	0.013	0.002	0.161	0.013	0.206	1.0888	100.107	100.551	0.471	0.005
	0.42	0.013						1.0932	100.500			
	0.48	0.014						1.0993	101.045			
60	0.29	0.009	0.011	0.003	0.260	0.011	0.185	1.0875	99.991	100.458	0.469	0.005
	0.49	0.015						1.0927	100.455			
	0.31	0.010						1.098	100.929			
75	0.17	0.006	0.009	0.003	0.294	0.009	0.141	1.0874	99.982	100.390	0.475	0.005
	0.26	0.009						1.0907	100.277			
	0.36	0.011						1.0978	100.911			
90	0.17	0.006	0.010	0.004	0.397	0.010	0.160	1.087	99.946	100.324	0.468	0.005
	0.46	0.014						1.0896	100.179			
	0.29	0.009						1.0971	100.848			
105	0.39	0.012	0.013	0.002	0.133	0.013	0.206	1.0869	99.938	100.318	0.467	0.005
	0.36	0.011						1.0896	100.179			
	0.48	0.014						1.097	100.839			
120	0.2	0.007	0.011	0.005	0.420	0.011	0.188	1.0861	99.866	100.292	0.492	0.005
	0.56	0.017						1.0896	100.179			
	0.35	0.011						1.0969	100.830			

age Initial OD for COUMARIN before equilibrium

30 minutes dark time

1.10166667

Which is = 101.26 μM

% adsorbed = 0.04%

d any OH radicals, which means the fluorescence intensity is 0 at all times.