

## **Supporting Information**

# **Evaluation of the Physicochemical Characteristics and Adsorption Efficiency of Activated Carbons Derived from Banana Peels and Coconut Shell: A Comparative Study**

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## **Table Captions**

**Table. S1. Effect of Varying Initial Concentration of Safranin-O on Adsorption onto CSAC.**

**Table. S2. Effect of Varying Initial Concentrations of Safranin-O on Adsorption onto BPAC.**

**Table. S3. Effect of varying pH on the Adsorption of Safranin-O onto CSAC.**

**Table. S4. Effect of varying pH on the Adsorption of Safranin-O onto BPAC.**

**Table. S5. Effect of Varying Adsorbent Dosage on the Adsorption of Safranin-O onto CSAC.**

**Table 6. Effect of Varying Adsorbent Dosage on the Adsorption of Safranin-O onto BPAC.**

**Table 7. Effect of Varying Contact Time on the Adsorption of Safranin-O onto CSAC.**

**Table 8. Effect of Varying Contact Time on the Adsorption of Safranin-O onto BPAC.**

**Tables 1-2** show the effect of varying pH on the adsorption of Safranin-O onto coconut shell activated carbon (CSAC) and banana peels activated carbon (BPAC).

**Table 1:** Effect of Varying Initial Concentration of Safranin-O on Adsorption onto CSAC.

Conc.(mg/L)	CO-Ce(mg/L)	Ce(mg/L)	Qe(mg/g)	% RE	SD
10	9.64	0.36	1.45	96.40	0.012
20	14.54	5.46	2.18	72.70	0.140
30	20.64	9.36	3.10	68.80	0.111
40	25.73	25.73	3.86	64.33	0.046
50	30.14	19.86	4.521	60.28	0.003

Data are presented as means of duplicate determinations and standard deviation (SD)

**Table 2:** Effect of Varying Initial Concentrations of Safranin-O on Adsorption onto BPAC.

Conc.(mg/L)	C <sub>0</sub> -C <sub>e</sub> (mg/L)	C <sub>e</sub> (mg/L)	Q <sub>e</sub> (mg/g)	% RE	SD
10	8.24	1.76	1.24	82.40	0.160
20	13.76	6.24	2.06	68.80	0.005
30	18.85	11.15	2.83	62.83	0.008
40	22.88	17.12	3.43	57.20	0.013
50	23.13	26.87	3.47	46.26	0.002

Data are presented as means of duplicate determinations and standard deviation (SD)

**Tables 3-4** show the effect of varying pH on the adsorption of Safranin-O onto coconut shell activated carbon (CSAC) and banana peels activated carbon (BPAC).

**Table 3:** Effect of varying pH on the Adsorption of Safranin-O onto CSAC.

<b>pH</b>	<b>C<sub>0</sub>-C<sub>e</sub>(mg/L)</b>	<b>C<sub>e</sub>(mg/L)</b>	<b>Q<sub>e</sub>(mg/g)</b>	<b>% RE</b>	<b>SD</b>
2	13.47	6.53	2.02	67.35	0.013
4	15.11	4.89	2.27	75.55	0.182
6	15.38	4.62	2.31	76.90	0.001
8	17.60	2.40	2.64	88.00	0.012
10	18.51	1.49	2.78	92.55	0.015

Data are presented as means of duplicate determinations and standard deviation (SD)

**Table 4:** Effect of varying pH on the Adsorption of Safranin-O onto BPAC.

<b>pH</b>	<b>C<sub>0</sub>-C<sub>e</sub>(mg/L)</b>	<b>C<sub>e</sub>(mg/L)</b>	<b>Q<sub>e</sub>(mg/g)</b>	<b>% RE</b>	<b>SD</b>
2	16.73	3.27	2.51	83.65	0.170
4	15.17	4.83	2.28	75.85	0.015
6	14.14	5.86	2.12	70.70	0.012
8	11.72	8.28	1.76	58.60	0.001
10	10.49	9.51	1.57	52.40	0.100

Data are presented as means of duplicate determinations and standard deviation (SD)

**Tables 5-6** show the effect of varying adsorbent dosage on the adsorption of Safranin-O onto coconut shell and banana activated carbons (ACs).

**Table 5:** Effect of Varying Adsorbent Dosage on the Adsorption of Safranin-O onto CSAC.

Dosage	$C_0-C_e$ (mg/L)	$C_e$ (mg/L)	$Q_e$ (mg/g)	% RE	SD
0.2	14.53	5.47	2.18	67.35	0.110
0.4	17.17	2.83	1.29	85.85	0.120
0.6	18.64	1.36	0.93	93.20	0.118
0.8	19.01	0.99	0.71	95.05	0.006
1.0	19.01	0.99	0.71	95.05	0.019

Data are presented as means of duplicate determinations and standard deviation (SD)

**Table 6:** Effect of Varying Adsorbent Dosage on the Adsorption of Safranin-O onto BPAC.

Dosage	$C_0-C_e$ (mg/L)	$C_e$ (mg/L)	$Q_e$ (mg/g)	% RE	SD
0.2	13.76	6.24	2.06	68.80	0.029
0.4	15.90	4.05	1.20	79.75	0.106
0.6	17.82	2.18	0.89	89.10	0.018
0.8	17.82	2.18	0.89	89.10	0.120
1.0	17.82	2.18	0.89	89.10	0.034

Data are presented as means of duplicate determinations and standard deviation (SD)

**Tables 7-8** show the effect of varying contact time on the adsorption of Safranin-O onto coconut shell activated carbon (CSAC) and banana peels activated carbon (BPAC)

**Table 7:** Effect of Varying Contact Time on the Adsorption of Safranin-O onto CSAC

Time (mins)	$C_0 - C_t$ (mg/L)	$C_t$ (mg/L)	$Q_t$ (mg/g)	% RE	SD
20	11.99	8.01	1.80	59.95	0.014
40	13.75	6.25	2.06	68.75	0.012
60	17.83	2.17	2.67	89.15	0.013
80	18.14	1.86	2.72	90.70	0.124
100	18.14	1.86	2.72	90.70	0.011

Data are presented as means of duplicate determinations and standard deviation (SD)

**Table 8:** Effect of Varying Contact Time on the Adsorption of Safranin-O onto BPAC

Time (mins)	$C_0 - C_t$ (mg/L)	$C_t$ (mg/L)	$Q_t$ (mg/g)	% RE	SD
20	10.13	9.87	1.52	50.65	0.171
40	12.74	7.26	1.91	63.37	0.111
60	15.52	4.48	2.33	77.60	0.001
80	15.75	4.25	2.36	78.75	0.012
100	15.76	4.24	2.36	78.88	0.010

Data are presented as means of duplicate determinations and standard deviation (SD)